

**Document of
The World Bank**

Report No: 17005 MOR

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED SINGLE CURRENCY LOAN

**WITH AN US DOLLAR TRANCHE IN AN AMOUNT EQUAL TO
US\$ 5 MILLION**

**AND A FRENCH FRANC TRANCHE IN AN AMOUNT EQUAL TO
FF 29.5 MILLION**

TO

KINGDOM OF MOROCCO

FOR A

RURAL WATER SUPPLY AND SANITATION PROJECT

October 31, 1997

**Rural Development, Water and Environment Department
Middle East and North Africa Region**

CURRENCY EQUIVALENTS
(Exchange Rate Effective March 1997)

Currency Unit = Moroccan Dirham
US\$1.00 =DH9.5

FISCAL YEAR
July 1 to June 30

ABBREVIATIONS AND ACRONYMS

CAS	-	Country Assistance Strategy
CFD	-	Caisse Française de Développement
CR	-	Rural Commune
CRS	-	Catholic Relief Service
DGCL	-	General Directorate of Local Communities
DGH	-	Direction Générale de l'Hydraulique
DPTP	-	Provincial Department of Public Works
DRH	-	Direction Régionale de l'Hydraulique (Regional Hydraulic Directorate)
ERR	-	Economic Rate of Return
EU	-	European Union
FAO	-	Food and Agricultural Organization
FAO/CP-	-	World Bank-FAO Cooperative Program
GNP	-	Gross National Product
ICB	-	International Competitive Bidding
JICA	-	Japan International Cooperation Agency
KFW	-	German Bank for Reconstruction and Development
LCD	-	Liter per Capita per Day
MOF	-	Ministry of Finance
MOH	-	Ministry of Public Health
MPT	-	Mobile Participation Teams
MTR	-	Mid-Term Review
NCB	-	National Competitive Bidding
NGO	-	Non-Government Organization
NPV	-	Net Present Value
OECD	-	Overseas Economic Cooperation Fund
ONEP	-	Office Nationale de l'Eau Potable
O&M	-	Operation and Maintenance
PAGER -	-	Water Supply Program for Rural Populations
PF	-	Public Fountains
PRA	-	Participatory Rural Appraisal
SOE	-	Statements of Expenditures
TA	-	Technical Assistance
UNICEF	-	United Nations Children Fund
WID	-	Women in Development
WSS	-	Water Supply and Sanitation
WTP	-	Willingness to Pay
WUA	-	Water Users Associations
WW	-	Wastewater

Vice President	K. Derviş
Country Director	C. Delvoie
Sector Leaders	S. Da'ghouth, M. Wilson
Task Team	T. Sinha, P. Koenig

Morocco
Rural Water Supply and Sanitation
Table of Contents

Project Financing Data	1
Block 1: Project Description	2
1 Project Development Objectives	2
2. Project Components	2
3. Benefits and Target Population	2
4. Institutional and Implementation Arrangements	2
Block 2: Project Rationale	3
5. CAS Objectives Supported by the Project	3
6. Main Sector Issues and Government Strategy	3
Government Policy	3
7. Sector Issues to be Addressed by the Project and Strategic Choices	5
8. Project Alternatives Considered and Reasons for Rejection	5
9. Major Related Projects Financed by the Bank and/or Other Development Agencies	5
10. Lessons Learned and Incorporated in the Project Design	6
11. Indications of Borrower Commitment and Ownership	6
12. Value Added of Bank Support	6
13. Economic Assessment	7
Block 3: Summary Project Assessments	7
14. Financial Assessment	7
15. Technical Assessment	8
16. Institutional Assessment	9
17. Social Assessment	10
18. Environmental Assessment	10
19. Participatory Approach	10
20. Sustainability.....	11
21. Critical Risks	11
22. Possible Controversial Aspects	11
Block 4: Main Loan Conditions	12
23. Conditions	12
24. Agreements and Assurances	12
Block 5: Compliance with Bank Policies	12
 <i>List of Annexes</i>	
Annex 1: Project Design Summary	13
Annex 2: Detailed Project Description	14
Annex 3: Estimated Project Costs	22
Annex 4: Cost Benefit Analysis Summary	23
Annex 5: Financial Summary	31
Annex 6: Procurement and Disbursement Arrangements	32
Annex 7: Project Processing Budget and Schedule	36
Annex 8: Documents in the Project File	37
Annex 9: Statement of Loans and Credits	38
Annex 10: Country at a Glance	40
Morocco MAP - Project Provinces	

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION
Middle East and North Africa Regional Office
Project Appraisal Document

Morocco

Rural Water Supply and Sanitation

Date: October 31, 1997	<input type="checkbox"/> Draft	<input checked="" type="checkbox"/> Final
Task Team: Messrs. T. Sinha and P. Koenig	Country Manager: Mr. Christian Delvoie	
Project ID: 40566	Sector: Water Supply & Sanitation (WSS)	
Lending Instrument: Sector Investment and Maintenance Loan	PTI: <input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Project Financing Data ☒ **Loan** ☐ **Credit** ☐ **Guarantee** ☐ **Other [Specify]**

For Loans/Credits/Others:

Amount: US\$ 10.0 million - Retroactive Financing: US\$ 0.5 million

Proposed Terms: ☐ Multicurrency ☒ Single currency
 Grace period (years): 5 ☐ Standard Variable ☐ Fixed ☒ LIBOR/PIBOR-based
 Years to maturity: 20
 Commitment fee: 0.75%
 Service charge: N/A.

Financing plan (32 % foreign exchange) *
(Costs in US\$ million)

Source:	Project			Program (as appraised by Bank)	
	Phase I (years 1 to 3 yrs)		Phase II (years 4 to 6)		
	Local	Foreign	Total	Total	Total
Local Govt. and Beneficiaries	12.0	-	12.0	14.0	26.0
IBRD	6.0	4.0	10.0	20.0	30.0
Other Proposed Financiers:					
KfW (German)	6.0	4.0	10.0	6.0	16.0
CFD (France)	9.0	6.0	15.0	3.0	18.0
OECD (Japan)	6.0	4.0	10.0	20.0	30.0
Total	39.0	18.0	57.0	63.0	120.0

* This financing plan, especially for Phase II, is only indicative.
Actual amounts will depend on Government's negotiations with the different financiers.

Note: Phase II financing by the World Bank to be committed after satisfactory evaluation of Phase I

Borrower: Kingdom of Morocco

Guarantor: N/A

Responsible agency(ies): Direction Générale de Hydraulique (DGH) - Ministère des Travaux Publics, ONEP

Estimated disbursements of World Bank funds (Bank FY/US\$m):

	1998	1999	2000	2001
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Annual	2.0	4.0	3.0	1.0
Cumulative	2.0	6.0	9.0	10.0

For Guarantees: N/A ☐ Partial Credit ☐ Partial risk

Final maturity
Amortization profile

Financing available without guarantee?: N/A ☐ Yes ☐ No
 Expected effectiveness date: March 1998 Closing date: December 31, 2001

Block 1: Project Description

1. Project development objectives (see Annex 1 for key performance indicators)

The project seeks to improve the access of rural populations to safe potable water and to support the implementation of Government of Morocco's master plan program for the supply of water to rural populations (PAGER). About 75% of the poor in Morocco live in rural areas and it is estimated that only 20% to 30 % of the rural population currently have good access to safe water. By improving rural water supply, the project aims to improve the health and productivity of rural populations, and to reduce the burden of rural girls who are traditionally involved in fetching water over long distances which lowers their attendance in primary schools. The proposed project will complement investments in primary education being made through Morocco Basic Education Project (Loan 4024). and for this purpose it will include most of the provinces that are also included in the Basic Education Project.

The strategies for achieving these objectives are:

(a) Participation: The project will use a participative rural appraisal process involving beneficiaries, including women, to assure that the project is demand oriented and is properly dimensioned and located. Training for this purpose has already been provided using a grant from FAO.

(b) Cost-effectiveness: To assure that the largest possible number of population are reached, the project will give preference to reconstruction, expansion and rehabilitation of existing sources of water where feasible. Also, to give incentives for cost-effectiveness the project will place an initial grant ceiling of DH 1,200 per beneficiary.

(c) Local Institutions: To assure sustainability full operation and maintenance cost will be recovered through water charges, which will be collected by water users associations, or other acceptable management mechanisms, and local individuals selected by them. This has already been tried in pilot projects and found to be successful. The project will provide training for strengthening the capacity of local institutions.

2. Project components * (see Annex 2 for a detailed description and Annex 3 for a detailed cost breakdown):

Component	Project		Program	% of Total
	Phase I	Phase II	Cost Incl. Contingencies	
	(US\$ m)		(US\$m)	
Rural Water Supply	46.7	51.7	98.4	82
Rural Sanitation	5.1	5.9	11.0	9
Local Institutional Strengthening	4.6	4.8	9.4	8
Central and Provincial Support (DGH/ DPTP)	0.6	0.6	1.2	1
Total	57.0	63.0	120.0	100

* The allocation of funds, especially for Phase II, is only indicative. Final amounts depend on actual negotiations between the Government and the different financing agencies.

3. Benefits and target population:

Target population: The project will focus on the country's poorest provinces with the highest concentration of rural population. Within the provinces covered by the proposed project, the project assistance will be targeted to rural areas with greatest need. The original Government proposed project, based on an FAO/CP Preparation Report was for about US\$ 248 million. Due to limited implementation capacity, it was reduced to and appraised by the Bank and CFD, KfW, OECF as a US\$ 120 million Program. It will target 27 Priority Provinces of a total of 58 rural provinces country wide. (Annex 2 (a) - List of Priority Provinces). The Program will be part of PAGER.

During negotiations, the Moroccan delegation expressed the Government's commitment to the proposed Program for rural water supply and sanitation, but requested that it be divided into two Phases. Phase I - the proposed Project - could be completed in two to three years, at the end of which a second Phase (about 3 years implementation) can be started, incorporating the lessons learned from Phase I. As a consequence, the proposed Loan is reduced from US\$ 30 million to US\$ 10 million.

Benefits : The project is expected to benefit about 1.3 million rural inhabitants (Phase I - 600,000 people), who generally have poor quality water often far from their homes. A recent Bank study (Morocco - Enhancing the Participation of Women in Development, Report No. 14153, 1995) found based on Participatory Rural Appraisal (PRA) that the lack of adequate potable water figured as women's highest ranking problem in many of the villages covered in the study. Fetching water is a women's task and young girls often as young as five years old are expected to help out. This keeps them out of schools. While investments in basic education is being made under Loan 4024 MOR, it needs to be complimented with supportive investment in rural water to free girls to attend school. The proposed project would ensure that safe potable water is provided from public taps which would be less than one kilometer from the homes of the beneficiary population, thereby considerably reducing the work load for children, who can then attend school. The quality of water will also be improved and beneficiaries, especially small children, will receive significant health benefits particularly in terms of reduced diarrhea incidence and morbidity. Based on experience elsewhere in the world, diarrheal diseases in children up to 5 years of age can be reduced by about 50% in the villages covered by the project, one year after project completion. These results will gradually improve over time, as health education messages and changes in behavior take hold.

4. Institutional and implementation arrangements:

- Implementation period: Project (Phase I): 3 years; Phase II: 3 years
- Executing agencies: (i) Directorate General of Hydraulics (DGH) in the Ministry of Public Works (MPW); and
(ii) Office Nationale de l'Eau Potable (ONEP)
- Project coordination:
 - National level: Ministries of Public Works and of Interior
 - Provincial level: Provincial Commissions, presided by Governor or Wali and comprising representatives from MPW, Ministry of Agriculture, Ministry of Public Health
 - Financial Intermediary: Ministry of Finance
- Accounting, financial reporting and auditing arrangements: DGH and ONEP will maintain project accounts and will submit to the Bank annually, within six months of the end of Government's financial year, audit reports prepared by independent financial auditors on project accounts, statements of expenditures and special accounts.
- Monitoring and evaluation arrangements: DGH and ONEP monitoring and evaluation units will submit quarterly reports on physical and financial progress of the project. These units will submit a mid-term evaluation report by December 31, 1999, and a final evaluation report prior to loan closing.

Block 2: Project Rationale

5. CAS objective(s) supported by the project

The project objective is consistent with the Country Assistance Strategy (Report # 16219-MOR, January 8, 1997) which was discussed by the Board on January 13, 1997. The project supports one of the three key objectives of CAS, which is to strengthen rural and social development including poverty alleviation focusing on basic education, health care, water supply and rural infrastructure. Because of its importance for the country's development strategy, satisfactory performance on rural water supply is included as a key CAS objective and is one of the triggers for high case lending assistance to Morocco.

6. Main sector issues and Government strategy:

Issues:

i) **Urban vs. Rural - Access to Safe Water Supply:** While Morocco has been remarkably successful in providing virtually all urban inhabitants with potable water, only about 20% to 30 % of the rural population were estimated in 1996 to have access to potable water. However, estimates vary from one region to another and could be as low as 10 % in some southern provinces. This urban bias is due to several reasons. First, urban areas are economically more advanced (75% of the poor live in rural areas) and therefore cost recovery has been easier. Accordingly organizations such as ONEP, which have to maintain financial viability, have given a preference to investments in urban areas. Second, urban areas have been politically better organized, and therefore their needs have been recognized earlier. Third, with local budgetary constraints of 1980s and early 1990s, the Government tended to postpone investments in rural potable water, which was not seen as a productive investment. This situation is changing and a master plan program for improving access to safe drinking water in rural areas (PAGER) has been prepared by the Government.

ii) **Sanitation:** Statistics on rural access to sanitary disposal of excreta and wastewater vary, and adequate rural sanitation coverage nation wide is estimated at about 35 %. This figure masks, however, a much grimmer reality in the poorer southern and mid-Atlas provinces, where less than 10 % of the rural people have latrines or any other form of safe human waste disposal. This contributes to health problems, specially in denser rural communities. Provision of sanitation is therefore necessary, but both DGH and ONEP do not have much experience in rural sanitation and therefore have not been keen to invest in sanitation. However, a start needs to be made to get full benefit of safe drinking water supply and build local capacity. Therefore, a pilot component would be included in the project.

iii) **Health Aspects:** The dismal rural water and sanitation situation is the primary cause for the poor health of the rural population. In 1995, the Ministry of Public Health (MPH) registered nationwide 1,064,000 cases of diarrhea in children of less than 5 years of age. Unofficial estimates are much higher, perhaps double. These water and hygiene-related diseases are more prevalent in poor provinces which are also suffering from water shortages. Consequently, registered diarrheal diseases in 1995 affected 37,300 children in Ouarzazate (plus about 40% who received private care or no care), 10,000 children in Tata (plus about 15 % to 20 %), 30,000 children in Errachidia (plus about 20 %), and 37,500 children (plus about 20 %) in Taroudant. In 1989, the MPH reported about 18,000 deaths linked to diarrheal diseases among children, representing close to 30 % of all deaths in this age group. In reality and due to large number of unreported cases, this figure is much higher. According to MPH, about 40 % of all diseases are water / hygiene related. Although no precise data exists for more recent years, the MPH estimated that the overall situation has improved during the past two years, largely as a result of the special program "Lutte contre les maladies Diarrhéiques" (Fight Against Diarrheal Diseases), the nationwide draught recovery efforts and other programs that have started to focus on improving quality of life in rural Morocco (Annex 4 - Attachment). In addition, the MPH registered in 1994 nationwide 4,138 cases of Typhoid and 362 cases of cholera. It is recognized that the only long-term sustainable impact on water-related diarrheal diseases can be achieved through preventive measures, such as safe drinking water and sanitary facilities and health education.

iv) **Gender Issues:** Rural water supply is essentially a women's issue. The Bank's Enhancing the Participation of Women in Development (WID) Sector Study (Report No. 14153 of 1995) has shown that because of a lack of availability, drinking water has to be hauled over long distances (often up to 5 km) in rural areas and that it is mainly the role of women and girls. This adversely affects women's education. Because it is mainly men that consult and are consulted in the provision of rural infrastructure, often rural roads and electricity are given higher priority than rural water. A reflection of this bias is that while the Bank has a free standing rural electricity and a secondary (rural) roads project, rural water has been neglected. Following the recommendations of the WID Study, which showed that in most rural areas, the highest priority infrastructure investment need was to improve access to drinking water, it has been agreed that a rural potable water supply project deserves a very high priority in Bank's assistance strategy.

GOVERNMENT POLICY:

i) **Rural Water Supply Master Plan:** The government has increasingly become aware of the growing rural - urban gap and the consequential rural exodus. This has been specially emphasized during the droughts of early 1990s, when the lack of reliable drinking water supply in rural areas has been one of the factors leading to an exodus of rural populations to urban areas. In 1994 the Government submitted to the National High Council for Water and Climate a Master Plan for the Development of Rural Water Supply. The Council approved the plan, which provides for near universal coverage (80 %) of rural populations in ten years. To implement the Master Plan, the Government designed in October 1995 a country-wide rural water supply program (PAGER).

ii) **Implementation and Management Responsibilities:** According to a government decree ("La Charte Communale") of 1976, the local communities and communes (urban and rural centers) are responsible for building and managing rural water supply under the auspices of the Ministry of Interior and the assistance of the technical departments of the Ministry of Public Works. ONEP assists in this function in larger villages through a management agreement with the communes, and where there is an existing regional water conveyance pipeline (meant primarily for urban areas but traversing rural areas and managed by ONEP) from which branches for rural population can be constructed.

iii) **Financing and Cost Recovery:** The Government's policy for water supply from public stand pipes has been to recover full cost of operation and maintenance from beneficiary, but to cover investment costs from the budget. Because of budget difficulties, and the need to provide benefits to a larger number of beneficiaries, the Government is now expecting local Governments and beneficiaries to participate in the financing of up to 20% of investment costs.

(Reference documents: World Bank: Kingdom of Morocco Water Sector Review, June 1995 (Report No. 14750 - MOR); Morocco Enhancing the Participation of Women in Development Study, June 1995 (Report No. 14153 MOR); Morocco Country Assistance Strategy, January 8, 1997 (Report No. 16219 MOR); The Contribution of People's Participation - Evidence from 121 Rural Water Supply Projects (ESD Occasional Paper Series No. 1).

7. Sector issues to be addressed by the project and strategic choices:

The project will address both rural water supply and sanitation issues in line with local implementation capacities. The participation of local populations in the project is essential. The project provides assistance to build local capacity for this. Sanitation and health education aspects are crucial to get full benefits of the new investments. The project will emphasize these aspects. Gender sensitivity is another important factor, given the role of women in transportation and use of rural drinking water. Therefore, the project will assure that the Mobile Participation Teams - MPT (discussed in Section 15 below, and in Annex 2 (b)), have, to the extent possible, at least one female agent for consulting women and for providing training in sanitation aspects

8. Project alternatives considered and reasons for rejection:

Technical aspects:

i) Rehabilitation versus new systems: Rehabilitation of existing system allows lower cost expansion of quality service. Therefore, rehabilitation will be given preference. Only in areas, where rehabilitation possibilities are limited, will the project consider construction of new system.

ii) Water supply pumped with renewable power (solar or wind energy) vs. thermal: Cost benefits of solar, wind, and thermal powered water pumps were examined. Generally thermal powered pumps had the highest Net Present Value - NPV - (about 60 % of investment costs) and these would be favored in most cases. However, there are a few cases where winds are specially favorable and in these locations wind powered pumps would be provided, if considered the preferred option by local communities. Solar energy would be used in locations where supply of fuel is particularly difficult. In both cases, the communities would have the option to use the power source also for simple electrification, if this proves to be cost-effective.

iii) Hand pumps: Another option under consideration was to concentrate the project on building mostly water supply installations based on manual pumping methods. Surveys and past experience in Morocco indicate that the people in general prefer motorized pumping, because motor pumps produce more water. However the project is demand-driven and, therefore, will be open to all technically and financially viable options, including hand pumps. There may be some small villages, where local populations may prefer such options because of lower operating costs. In those cases this option will be offered.

Financial aspects:

iv) Beneficiary contribution: In view of budgetary constraints, and also to establish a firmer basis to assess demand, contributions by beneficiaries is essential. However, considering that about 75 % of Morocco's poor reside in rural areas, their ability to pay full cost is a problem. Therefore, cost sharing between the Government and the rural poor is needed. Experience shows that Government budget cannot be relied upon to cover O&M costs, therefore full coverage of O&M costs by beneficiaries would be expected. This amounts on average to 60% of initial investment costs in discounted present value terms. The investment costs would be financed mainly by Government and donors. Several levels of beneficiary participation in initial investment costs was examined. Full financing of investment costs by the Government was rejected because it does not allow a firm determination of demand and reduces felt ownership of the project by the beneficiaries. Local contributions from beneficiaries and communes combined would be expected at a rate of 20% of project costs, with beneficiaries contributing at least 5%.

9. Major related projects financed by the Bank and/or other development agencies (completed, ongoing and planned).

Bank: Emergency Drought Recovery Project (Loan 3935-MOR)
Fifth Water Supply Project (Loan 3664/3665-MOR)
Social Priorities Program - BAJ - Basic Health Project (Loan 4025-MOR)
Secondary Roads Project (Loan 3901-MOR)
Second Rural Electrification Project (Loan 3262-MOR)
Rural Infrastructure Project (under preparation)
A number of other projects in the water sector address mainly urban water supply and sewerage management.

EU: Grants to ONEP during the last 4 years for water supply and sanitation in small urban centers of about ECU 50 million; A new grant of ECU 40 million will have a rural water component of about ECU 24 million.

KfW: Several grants and soft loans to ONEP in support of water supply and sanitation in small urban centers of about DM 400 million over last 20 years;

CFD: Several soft loans to ONEP and DGH in support of water supply in small urban centers and rural communities of about 200 million FF.

IICA/OECE: Grants and credits to ONEP and DGH for TA and the supply of equipment (e.g. water pumps, trucks) equivalent of about US\$ 50 million.

UNDP: Grants to DGH for TA and equipment for about US\$ 1 million.

10. Lessons learned and incorporated in the project design.

The Lessons Learned through the above operations are four-fold:

(i) Past sector support has predominantly focused on improving urban systems. The results have been positive, to the point where Moroccan cities have almost universal public water supply coverage, and about 70 % of urban dwellers are connected to wastewater collection systems, most of which are, however, not linked to wastewater treatment. At the same time, rural areas have not received the necessary investments to keep up with a basic infrastructure which is the prerequisite for economic development. In the past years, the priorities have clearly shifted from urban to rural areas. the proposed project would help cement that shift in development emphasis.

(ii) Due to the absence of community participation, rural water and sanitation projects, or components of projects, were supply-driven. Per capita investments have been too high and in some cases investments were too sophisticated (and expensive) for the rural communities to maintain and operate. Likewise, a recent Bank publication - "Contribution of People's Participation" (July '95) - reviews 121 water projects with rural water components. It concludes that especially in rural areas, the failure rate in terms of sustainability is large. The main reason is attributed to a lack of popular participation in choosing the supply system that matches peoples' demand and willingness to pay. The proposed project uses state-of-the-art participatory approaches (Section 15 and Annex 2, Attachment (b), below).

(iii) The first Bank project for rural water supply in Morocco, executed through ONEP in the Ziz-Tafilalet region demonstrated that community participation (social surveys, including a willingness-to-pay [WTP] assessments) are necessary to come up with the project design that responds to demand. The project designed water supply systems from public fountains (PF) to provide 30 liters per capita per day (lcd). Actual consumption was between 10 lcd and 14 lcd, depending on the season, which is the result of supply-driven project implementation. In addition, the project did not foresee any measures for the disposal of (increased) wastewater. This is a particular problem in the walled-in villages. The proposed project would determine demand through participative design, and where needed will provide for disposal of waste water.

iv) In recent years, several international agencies, notably UNICEF and NGOs, have carried out small-scale, pilot-type, rural water and sanitation projects with full use of participatory methods. The NGO CRS has worked particularly in southern provinces, including in Tata which is a priority project of the proposed project. CRS has shared their experience with the Bank and, as they are planning to expand their activities, they may enter into an agreement with the government to closely cooperate with the partners of the proposed project.

11. Indications of borrower commitment and ownership:

Government commitment is currently mixed. A Government budget allocation of at least DH 100 million (US\$10.5 million) for disbursements during the 1997/98 FY, plus another DH 100 million in commitments, also to be made in FY 1997/98, has been approved by the Government. The following indicators are favorable:

- (i) H.M. The King's declaration of priority for developing rural areas, notably sectors that contribute to social and economic well-being, i.e. rural infrastructure (water, sanitation, health, education, roads);
- (ii) Government's agreement with the new CAS which gives explicit priority to rural water supply; and
- (iii) Government's adoption of the master plan for rural water supply.

- (i) Introduction of participatory approach and PRA methodology, which are needed to assure that investments are cost-effective and are well maintained;
- (ii) Introducing concepts of cost-effectiveness to reduce program costs
- (iii) Acting as a catalyst for mobilizing external financing; and
- (iv) Partnership Agreement between the Ministries of Interior and TP (Joint Memorandum of the two Ministers signed Nov. 7, 1995).

Cost-Benefit Analysis : Project (Phase I): NPV=US\$ 15.5 million
Phase II: NPV=US\$ 12.5 million
Total Program: NPV=US\$ 28.0 million

Sensitivity Analysis: If the project were to be expanded to address an additional 15% of the populations, the ERR would decline to 10%, without including health benefits.

Block 3: Summary Project Assessments (Detailed assessments are in the project file. See Annex 8)

(i) **Budget:** Given the severe budget constraints and the limited absorptive capacity of the sector, the appraisal mission found that the originally proposed project size of DH 2.2 billion (about US\$ 245 million) was over-ambitious. Accordingly, the Government agreed to reduce the original proposal to about DH 1.1 billion (about US\$ 120 million), the Program which was jointly appraised by the Bank, CFD, KfW and OECF. During negotiations, the Government requested that the Program be broken up into two Phases. Phase I (the proposed Project) would cover the first three years of the Program. If the evaluation of the first Phase was satisfactory, a second three-year Phase would be launched, incorporating the lessons from the first Phase. The Government assured the Bank that it would implement the Program as fast as possible, so as to increase access to potable water by the rural population from a currently estimated country-wide average of 30 % to 80 % in the next ten years.

(ii) **Cost Effectiveness:** Analysis of sub-projects during appraisal showed that some past investments had high per capita investment costs, of up to US\$ 800. Under the project, typical costs per beneficiary will be reduced drastically. Accordingly, it is proposed that for the first phase, per capita investments would have a ceiling of DH 1,200 (about US\$ 126) for new systems, including the building of a well or borehole, and DH 900 (US\$ 95) for systems, where water in acceptable quantity and quality is already available. Investments with higher unit costs may be allowed in some cases, if justified by higher benefits. But these would be approved only if the beneficiaries agreed to finance 100 % of the excess cost.

(iii) **Beneficiary Assessment:** Discussions in the field with beneficiaries, volunteer groups and local officials, revealed that the convenience factor of investments in potable water and sanitation was more prized than the health benefits. The willingness to pay (WTP) for water for house connections is almost twice that from public fountains. The project would give emphasis to actual demand through beneficiary assessments. Incremental costs would be met by beneficiaries.

(iv) Cost for Water Supply: The least cost water supply system built by DGH is the hand pump (about US\$ 28/capita); the most

expensive ones are systems based on solar or wind energy (US\$ 150 and higher, depending on water head, length and elevation of the pipeline, the size of the reservoir and the number of people to be served). However, solar pumps require expensive replacement parts, i.e. the pump after 5 - 7 years and the panels after about 12-15 years. In some cases, existing wells can be equipped or upgraded to minimize new investments. The project would limit per capita investment costs (see Section 14 (ii), above). For more details on unit costs, see Annex 4, Section G.

(v) **Cost for Sanitation:** In the original project proposal (FAO/CP Project Preparation Report, June 11, 1996), the sanitation component was limited to health education. However, the sanitation component needs to be strengthened by physical work, so as to maximize health benefits, one of the project's key objectives. The cost of a simple ventilated latrine is estimated at DH 1,000 (US\$ 105), or about US\$ 13 per capita. This low cost option is included to keep the financial burden low. It will cover 75% of the cost of the sanitation component (Annex 2 - Project Description and Annex 4, Section G - Cost Effectiveness).

The cost for household latrines would be borne by individual families. The existence of a latrine or other sanitary wastewater disposal system will be a pre-condition for the installation of water supply house connections, regardless of who pays for the house connection. The cost for public sanitation installations, such as latrine blocks for schools, small sewer collection systems, communal septic tanks and perhaps simple wastewater treatment stations, would be borne by the Government.

(vi) **Willingness to Pay (WTP):**

- **Water:** Socio-economic studies and surveys carried out by ONEP and DGH define the main parameters to be considered for the development of water supply services. Limited incomes in rural households are the major limiting factor to effective cost recovery. Nevertheless, studies show that in the case of water supplied through ONEP, a majority of rural dwellers is willing to pay between DH 10 and DH 15/m³ (US\$ 1.05 - US\$ 1.58) for water in small quantities from a public fountain (PF). Based on experience and actual cases (purchases from tank trucks, water vendors), the mission estimates that the 25 % "worst-case" populations (distance to water point more than 1 km, poor water quality and water security) are willing to pay on average DH 40 to DH 50/m³; for the 50 % "worst-case" populations, WTP is estimated at DH 30 to DH 40/m³. Of course, quantities consumed from PFs, tank trucks and far-away sources are small, in most cases not exceeding 15 l/c/d. Such water is generally used only for cooking and drinking purposes. Even in rural areas, people generally prefer house connection to PFs, and they are willing to pay up to double the price of water from a PF. The figures for house connections indicates that where the convenience factor is a given (i.e. house connections were preceded by PFs), WTP declines, as compared to the worst-cases. According to the ONEP studies, average rural incomes are about DH 25,000 per household per year (US\$ 2,600). However, this indicator masks rural disparities and may not be applicable for the target populations of this project. If the worst-case population (project's target group) has a family income of about DH 13,000 per year (US\$ 1,370), the annual water bill for this family may be as high as 12 % of the family income.

- **Sanitation:** WTP for sanitation services is less evident. This is mostly due to (a) the lack of hygiene awareness (especially among men) and knowledge of the relation between hygiene, health and water; and (b) the traditional household budget control by men, who perceive less of a need to have a private latrine than do women and children. But WTP for sanitation has not yet been systematically tested. It is likely that with intensive health education, the need for individual hygiene and excreta disposal facilities will increase, --and with it, the willingness to financially contribute to the cost.

(vii) **Accounting and Audits:** DGH and ONEP will maintain separate project accounts, which will be audited annually, along with the special account and statements of expenditures (SOEs).

- A special account equivalent to four months of disbursements (up to \$ 1.2 million) will be maintained

15. Technical Assessment :

The Government has agreed to implement PAGER through participatory methodologies, with least cost technologies, adapted to the demands and WTP of the communities. This requires extensive, decentralized preparation, in terms of training, selecting and sensitizing the communities, and mobilizing the physical and financial resources to implement the project. Under this project, DGH will work in 20 southern, mid-Atlas and northern provinces. They were preliminarily allocated to the co-financiers as follows: El Jadida, Ouarzazate, Safi, Sidi Kacem, Tata (World Bank); Taroudant (KfW); Al Hoceima, Jerada, Oujda-Angad, Taourirt, Berkane, Boulemane, Ifrane, Sefrou, El Hajeb, Khémiset (CFD); Azilal, Khénifra, Beni Mellal, Khourigba (OECF). Twelve of these provinces are also included in the BAJ or the Social Priorities Projects (Lns. 4024/25/26). ONEP will work in 15 provinces, eight of which are overlapping with those of DGH (Annex 2 - Attachment (a) - List of Priority Provinces).

Participation

The participatory process includes a demand assessment, mobilization and commitment of communities. In the case of DGH, these tasks will be the responsibility of Mobile Participation Teams (MPT), under the direct supervision of the Provincial Departments of Public Works (DPTP). Each province would initially have one MPT which would consist of 3 members. It is foreseen to introduce a second team per province, starting with the third project year. At least one member per MPT should be a water and sanitation technician. The other members would be a health technician and a public communicator ('animateur' or 'animatrice'). Of the latter two positions, to the extent possible, at least one member should be a woman, for whom the role of 'animatrice' would be ideal, as this expert will have to communicate especially with women. Appropriate assurances to that effect were obtained at negotiations. Women are in charge of water as part of their household chores. Ideally, the MPTs should be chosen from the respective province. Utilizing local expertise, languages and being familiar with particular cultural backgrounds is essential for the success of the project.

The first group of 14 MPT members, constituting five MPTs, was selected from the staff of the Ministry of TP and has been trained in September / October 1996. However, no woman was among the first group of trainees. A second group, constituting 10 MPTs, was trained from mid-April to end May 1997. However, only 5 women participated. A third group of another 7 teams will be trained in September 1997. A significant portion of the training consists of field work, 'applied learning' in a rural environment. Trainees will also be taught basic knowledge in financial matters and health education. The first year work program is being prepared in close consultation with the beneficiaries. As a Condition for Negotiations, a work program for the first six months was presented to the Bank. Assurance were also obtained that a tentative annual operational plan will be presented to the Bank by March 31 of each year which will be finalized by September 30 of the same year. In collaboration with the beneficiaries, this program will be up-dated every 6 months. It will be reviewed by the Bank in the course of field visits (supervision missions) to assure technical, social, financial and economic soundness (Annex 2 (b) - Participation Approach).

ONEP has recently started - in the context of KfW-funded projects - implementing rural water projects with participatory methods. Similarly, as envisaged under the DGH component, the first phase of this approach consists of a sensibilization campaign. It is initiated by specialized teams of ONEP's regional offices (including a woman sociologist) and addresses local authorities, politicians and potential beneficiaries. Once the latter have declared water as a priority, chosen the location for their water point and are willing to participate in the investment cost with a financial contribution of at least 5 percent, construction of the PF will begin. Before the PF becomes, however, operational, the village has to select and nominate a local manager of the water point ("gardien gérant"), who, if accepted by ONEP, will be responsible vis-à-vis ONEP for the payment of the water bill and for the sanitary maintenance of the PF and its immediate vicinity.

Technologies:

Principal Water Supply Systems: Supply modes will largely depend on water availability, beneficiary demand and WTP, investment and maintenance costs. DGH has preliminarily classified the possible supply systems according to the number of people to be served:

- less than 300 pop. - simple well or rainwater collection systems equipped with hand pumps;
- 300 to 900 pop. - well or borehole with electric / diesel / solar pump, storage tank and pipeline to one or more PFs;
- 900 to 3,500 pop. - same as above, but including small distribution system, allowing for several PFs.

Water supply systems implemented by ONEP will include:

- 'piquages' (connections from public long-distance main carriers) for nearby villages, with one or more PFs per village;
- local water supply systems (boreholes supplying public water stand-pipes), notably for groups of villages with an aggregate population of more than 2,000.

Operation and Maintenance: Sustainability and year-round service delivery are key objectives of the Project. This will be assured by beneficiaries organized in water users associations (WUA), or similar viable management structures (MS) at the village level. The availability of technical know-how, especially for pumps, as well as spare parts is, therefore, essential. Appropriate training will be provided by DGH and ONEP. Assurances were obtained that a WUA or MS is in place in a village prior to the start of works, and that agreement on O&M has been reached with the WUA/ MS. The implementing agency will involve the WUA/MS during construction phase and will provide appropriate training to designated WUA/MS representatives prior to hand-over of the investment.

Sanitation: The following types of sanitary installations will be included in the Project:

- 250 to 500 pop. - simple ventilated pit latrines for individual households;
- block latrines for schools (with water supply facilities for hygienic purposes);
- larger villages with more concentrated populations may qualify for a small-diameter wastewater collection systems with a communal septic tank;

NGOs are already successfully working in several provinces, and it would be useful to involve them in implementation of the proposed Project. In case of an NGO participation in the project implementation, DGH and ONEP will inform the Bank of the contracts signed with the respective NGO(s).

16. Institutional Assessment

a. Executing agencies:

DGH and ONEP are the main Project implementing agencies. DGH and ONEP will utilize their decentralized regional offices in close co-operation with the Ministry of Interior to facilitate closer consultations with the affected populations. While ONEP staff is adequate to implement the project, DPTP technical staff will need training in beneficiary assessment and participation. The training has already begun and the initial results are good. This will be continued under the project (see Section 15, above).

b. Project management:

Overall project coordination is the responsibility of DGH. Specific management designations are as follows:

i) **DPTP and rural commune:** For a village or small community to be considered in PAGER, the establishment of a community-based WUA/MS is a prerequisite. The WUA/MS would be in charge of managing the water system on a day-to-day basis, including cost recovery, operation, maintenance and repair. The WUA/MS would also be responsible for coordinating health education activities with the Ministry of Health or the designated local health center. Once implementation is completed, fully in line with participatory methodologies (Section 15 - Technical Assessment and Annex 2, Attachment (b)), the new or rehabilitated water systems will be turned over to the WUA/MS. DGH already has good experience with WUAs and some have been operating successfully for more than five years near Ouarzazate.

ii) **ONEP:** (a) *Water Supply:* For house connection services, ONEP would retain management responsibility; for PFs, ONEP will contract a 'gardien gérant' (a local manager), who will be billed by ONEP for the water used at the metered fountain (about DH 5.6/m³) and, in turn, he will charge his clients about DH 10/m³. The difference would be his remuneration for operating and maintaining the water point. This is the traditional approach followed by ONEP for all their public fountain programs; (b) *Sanitation:* while latrine construction would be the responsibility of individual households, ONEP would manage the construction of block latrines and small-bore sewer systems, if justified by the quantity of water used.

17. Social Assessment:

The project will focus on poor rural areas, notably those identified according to poverty criteria established for BAJ Provinces (i.e. covered by the Social Priority Projects, Ln. 4024/25/26- MOR), where living conditions are severely constrained due to a lack of social and physical infrastructure. The absence of a safe water supply and sanitary environment is a key factor for poor public health. It affects schooling, labor productivity and overall economic output of Morocco's rural areas. The field work done in the context of Morocco - WID Study (Report #14153) highlighted the high priority attached by women to the provision of potable water close to their houses, and its significant impact on attendance of girls in elementary schools.

The project would expand PRA methodologies already introduced in the course of WID Study and during project preparation in 1996. This would help ensure sustainability. Accordingly, project design and implementation would assure flexibility, to adjust to demand expressed by beneficiaries.

18. Environmental Assessment:

Environmental ☐ A ☒ B ☐ C
Category

The project's major environmental impact would be to improve rural hygiene through an organized supply of safe drinking water and the construction of basic sanitary facilities. The supply of water in most cases will replace existing sources of polluted water and therefore would not increase overall waste water generation. In most cases the daily consumption is small (less than 20 liters per capita per day) and human settlements are small (less than 1000 person per village) and therefore waste water disposal is not a major issue. Still, in some cases villagers may choose to pay full incremental costs for house connections, which could increase water consumption and pose a wastewater disposal problem. To avoid this problem a sanitation component is included in the project and construction of latrines would be a pre-condition for house connection. To avoid contamination, wells for water supply will be constructed sufficiently away from latrines to avoid contamination. Where water is provided through pipes, the project would not allow the use of asbestos-cement pipes.

19. Participatory Approach:		Identification/Preparation	Implementation	Operation
Beneficiaries/community groups		Consultation by DGH and NGOs	Participation	lead role
Intermediary NGOs		consultation	Participation where agreed in consultation with local communities and DGH	provide training when requested by community groups.
Academic institutions		N/A	N/A	N/A
Local government		consultation	Consultation and participation.	through WUA
<u>Other donors</u>				
KfW (Germany)		consultation	financing	N/A
CFD (France)		consultation	financing	N/A
OECD (Japan)		consultation	financing	N/A
EU		consultation	financing -parallel project	N/A

See Section 15, Technical Assessment, and Annex 2, Attachment (b) - Participation Approach, for detailed description on participation.

20. Sustainability:
The traditional, supply-driven approach to rural water supply and sanitation has not been very successful in terms of both, sustainability of the systems and their utilization by beneficiaries. As a result of many post-implementation evaluations and social assessments, the need for a more demand-based approach has become apparent. Beneficiaries' involvement in the decision-making process for design, construction and operation and maintenance, including their WTP, has become a major element of rural projects' design in the 1990's. The process as well as methodologies of participation have evolved over the last five to seven years, but there is no 'blue print'. Each situation has to be examined on its own merits. However, as far as performance and sustainability assessments are possible after this relatively short period of time, the improvements in duration and viability of the systems built with participation from the beneficiaries, have been remarkable. This project uses state-of-the-art participatory, demand-driven methods which are expected to enhance the likelihood of sustainable investments (Section 15, Technical Assessment, as well as Annex 2, Attachment (b), provide details on participatory methods).

21. Critical Risks (see fourth column of Annex 1):

Risk	Risk Rating	Risk Minimization Measure
Government budget allocations are not forthcoming	medium	Budget allocation for the project is DH 100 million plus an additional 100 million of commitment authority in the first year of the project. In addition, HM The King, in his letter to President Wolfensohn, has highlighted that implementation of PAGER is a high priority action for the Government. Budget for subsequent years will be reviewed during supervision along with the annual program which will be submitted by March 31 preceding each fiscal year (para 24). The project size was reduced in line with this.
Interest of communities to participate in the project and willingness to pay (WTP).	medium	Initial evaluation done during Morocco WID Study and the project preparation have confirmed interest. In addition, the expanded participatory process will reconfirm interest and WTP. Sensitivity analysis shows its importance in ensuring acceptable ERR.
Adequate implementation of the participatory approach by the Government, including consultation of women so that new water points are located in line with the wishes and convenience of the populations	medium	Initial TA in participatory process, including gender sensitivity training, was provided during the preparation phase; a grant for continuation of the training has been arranged through FAO and it is already under implementation. In addition, assurances were given by the Government that, to the extent possible, at least one women will be included in each MPT. Adequate consultation and village level organizations (see below) are essential for ensuring adequate O&M, and sensitivity analysis confirms its importance for ensuring adequate ERR.
The village level organizations are able to collect sufficient funds to assure operation and maintenance and continued water supply	medium	A WUA or MS will be set up in each village prior to the start of works in the village and agreement reached with the WUA/MS on O&M responsibility; and training for O&M will be provided to a representative of each WUA/MS prior to hand-over of the investment to the WUA/MS.

Sanitation: insufficient participation from the population	high	Interest of beneficiaries has been confirmed during appraisal and performance will be evaluated during a mid term review (MTR) to be completed by December 31, 1999. The component is relatively small (10% of project cost) and TA and sensibilization campaigns will further raise the need for sanitation.
Insufficient availability of water	medium	Water availability is assured before beginning of works. Proposed annual work programs are based on confirmed water availability.
Overall risk rating:	moderate	
The overall risks that the project would fail to achieve its objectives and/or development targets are moderate, since there is a significant popular demand for water supply (and sanitation), especially by women in rural areas, where coverage of safe water availability is currently as low as 30%. The priority for this service has been confirmed through the Morocco - WID Study and participatory planning. Project size has already been reduced in line with budget constraints.		
22. Possible Controversial Aspects:		
None		

Block 4: Main Loan Conditions

23. The following **Conditions** were met prior to Negotiations:

The Government will allow signing of about DH 200 million in contracts during the first year of the Project, with disbursements of about DH 100 million, b) The Government has prepared a tentative operational plan for the first year of project implementation and presented the Bank with a detailed program for the first six months, c) A project co-ordination committee was appointed with the participation of Ministries of Public Works, Interior, Health, Agriculture, and ONEP.

24. **Loan Effectiveness:** Assurances were received that a Project Implementation Manual with a participatory focus, satisfactory to the Bank is prepared, prior to Loan Effectiveness.

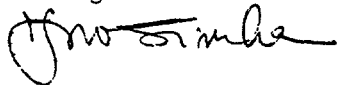
25. The following **Assurances** were received during loan negotiations:

(i) Project Monitoring and Evaluation Cells (with the participation of Direction Générale de Communautés Locales (DGCL) will be set up in DGH and ONEP. The cells will submit to the Bank a mid-term evaluation report by June 30, 1999, and a final evaluation report before loan closing (which is six months after Project completion); (ii) a tentative annual program will be prepared in consultation with beneficiaries and presented to the Bank by March 31 of each year, to be finalized by September 30 of each year.; (iii) a satisfactory plan for allocation of budgetary and non-budgetary local resources by March 31 of each year; (iv) a WUA or MS will be set up in each village prior to the start of works in the village and agreement will be reached with the WUA/MS on O&M responsibility; (v) appropriate training for O&M will be provided to a representative of each WUA/MS prior to hand-over of the investment to the WUA/MS; (vi) a mobile participation team (MPT) with adequate qualifications will be set up in each project province according to schedule agreed at appraisal, and, to the extent possible, at least one member of the team will be a woman.

Block 5: Compliance with Bank Policies

[x] This project complies with all applicable Bank policies.

Task Manager: T. P. N Sinha Country Manager: Christian Delvoie




By: Marisa Fernandez-Palacios

Annex 1

Project Design Summary

Narrative Summary	Key Performance Indicators	Monitoring and Supervision	Critical Assumptions and Risks
The CAS Objective is to (a) renew support for economic reform; and (b) strengthen social and rural development. Accordingly, at least one-third of investment program will be for social and rural development including poverty alleviation focusing on basic education, health care, water and rural infrastructure.	Implementation of key rural and social development programs such as the national rural water program (PAGER) will be accelerated. At least 250,000 additional rural population will be served with safe water in 1997/98; 500,000 in 1998/99; and 750,000 thereafter.	Performance on this key CAS objective will be monitored during annual country assistance review and discussion and satisfactory progress towards this is a trigger for high case lending to Morocco.	Continued economic and political stability, and increased priority for social and rural development in Government's investment program.
Project Development Objectives: i) Improve the health and productivity of rural population, particularly children, who currently have poor access to safe water, and ii) Reduce the burden of girls who currently carry water over long distances in rural areas and which prevents them from attending primary schools.	i) Reduce by 50% the diarrheal disease rates in young children (less than 5 yrs. old) within one year of project completion, and ii) Provide complimentary assistance to Morocco Basic Education Project (Loan 4024 MOR) to achieve enrollment target of 46%, and retention rate of 65% by FY2001 in 10 rural provinces (a follow-up project will cover the remaining three provinces).	Impact will be evaluated during mid-term and implementation completion reviews through independent sample surveys. Project monitoring and evaluation unit will make annual estimates of progress towards meeting this goal.	Complementary investments in social and rural development through Bank-assisted projects for basic education (Loan 4024), health (Loan 4025), and rural roads (Loan 3901, and 3951) are implemented as planned. The provision of Bank financing which is already approved and close supervision will help assure that these investments are made.
Program/Project Outputs: The Program/Project will provide rural populations with safe water and sanitation through : (a) construction and rehabilitation of about 2,000 (650) public water points with a capacity to deliver about 20,000 (7,000) cu. m. of safe potable water per day, (b) construction of about 85,000 (40,000) household latrines and 20 (20) block latrines for schools, and © the development of village level institutions for efficient operation and maintenance of rural water points.	Project Targets are achieved: i) <i>after 3 years</i> - 600,000 additional people will have access to safe water and adequate sanitation; and ii) <i>after six years:</i> - 1.3 million additional people will have access to safe water and adequate sanitation;	Project monitoring and evaluation unit will monitor improved access on a quarterly basis through field reports and visits. This will be reviewed by Bank supervision missions.	a) New water points are located in line with the wishes and convenience of the populations; b) The village level organizations are able to collect sufficient funds to assure operation and maintenance and continued water supply; and c) Interest of the population in improving sanitation.
Project Components: [See Annex 2 for a detailed description.] Project input : Financial support, TA, and training	Budget allocation for the project is DH 100 million plus an additional 100 million of commitment authority in the first year of the project. Budget support is maintained in the DH 150 to 200 million range until project completion.	Assurances regarding the first year allocations were obtained prior to negotiations, and subsequent year programs will be submitted by the Government by March 31 preceding each fiscal year, and reviewed by supervision missions.	a) Interest of communities to participate in the project and willingness to pay, b) Adequate implementation of the participatory approach by the Government, and c) Adequate budgetary support.

Annex 2

Detailed Program / Project Description

Total estimated Program Cost: US\$ 120 million *

Project Cost (Phase I): US\$ 57 million

Project Cost Summary

	Project		Program
	Phase I - prop.Project	Phase II	
Rural Water Supply Investments (ONEP, DGH)	US\$ 46.7	US\$ 51.7	US\$ 98.4
Sanitation Investments (DGH, ONEP, Beneficiaries)	US\$ 5.1	US\$ 5.9	US\$ 11.0
Technical Assistance:			
- Local Institutional Strengthening (MPTs)	US\$ 4.6	US\$ 4.8	US\$ 9.4
- Institutional Support at National and Provincial Levels	US\$ 0.6	US\$ 0.6	US\$ 1.2
Total	US\$ 57.0	US\$ 63.0	US\$120.0

* Final allocation of funds, especially in Phase II, may vary, depending on actual negotiations between the Government and the different financing agencies.

Component 1 - Rural Water Supply - US\$ 98.4 million (total Program cost of component)
US\$56.7 million (Phase I)

Investments:

- DGH	US\$ 21.8	US\$ 24.2	US\$ 46.0
- ONEP	US\$ 24.9	US\$ 27.5	US\$ 52.4
- Total	US\$ 46.7	US\$ 51.7	US\$ 98.4

DGH, through its DHR-DPTs, will implement the Project (new and rehabilitated and improved water supply facilities) in communities, villages and groups of villages with populations from about 250 to 3,500. ONEP will focus on larger rural centers (above 2,000 pop.) and villages that are close to existing ONEP regional and inter-city water conduits. DGH would have the overall responsibility for project coordination. The Project will be implemented with a participatory approach, based on community demand and WTP. Through full participation by the beneficiaries - from design through implementation and operation and maintenance - the approach will integrate the provision of safe drinking water, sanitation services and health and hygiene education.

Rural water investments are expected to benefit about 1.3 million rural inhabitants, at an average per capita investment cost of \$ 95, ranging from US\$ 28 (handpumps) to US\$ 125 (ONEP independent systems (Annex 4, Section G - Cost Effectiveness)).

Local contributions from beneficiaries and rural communities combined will amount to 20 % of investment costs, with a minimum cash contribution of 5 % by the beneficiaries. Beneficiaries will pay the full cost of O&M.

Component 2 - Sanitation - US\$ 11.0 million (total Program cost of component)
US\$ 5.1 million (Phase I)

	Project		Program
	Phase I	Phase II	
<u>Investments:</u>			
- household latrines (about 85,000/40,000)	US\$ 4.0	US\$ 4.3	US\$ 8.3
- block latrines for schools (20/20)	US\$ 0.2	-	US\$ 0.2
- small-bore sewerage collection and communal septic tanks (2/1)	US\$ 0.8	US\$ 0.7	US\$ 1.5
- lagoon-type treatment stations (1/-)	-	US\$ 0.5	US\$ 0.5
- siphon trucks for emptying septic tanks (5/-)	-	US\$ 0.3	US\$ 0.3
- contingency (block latrines)	US\$ 0.1	US\$ 0.1	US\$ 0.2
Total investments	US\$ 5.1	US\$ 5.9	US\$ 11.0

To maximize public health benefits, the supply of drinking water has to be accompanied by sanitation measures, such as physical construction of safe wastewater and excreta disposal systems, with technologies commensurate with family demand and size of the population. This physical work would be carried out with full beneficiary participation and alongside an intense sensitization and

hygiene education program. The availability of a household-based excreta and wastewater disposal system is a condition for a private water supply connection.

While household latrines will be funded by the beneficiaries, public installations, such as block latrines for schools, small sewer collectors and community septic tanks, as well as lagoon-type wastewater treatment, will be funded by the Government. Siphon trucks may be funded by the Government, but run by a private enterprise. Public installations will be built as a pilot program.

**Component 3 - Local Institutional Strengthening - US\$ 9.4 million (total Program cost of component)
US\$ 4.6 million (Phase I)**

Summary of Cost Breakdown:

	<u>US\$ (million)</u>		
- 1 DRG/DPTP Technical Coordinator (local) per province (DH 103,000 / yr. / province for 5 yrs. and 20 provinces *)	0.7	0.5	1.2
- 16 MPTs for 5 years **/	-	3.8	3.8
- 30 MPTs for 3 years **/	<u>3.9</u>	<u>0.5</u>	<u>4.4</u>
Total	<u>4.6</u>	<u>4.8</u>	<u>9.4</u>

*/ DGH Provinces only

**/ work under DGH/DRG/DPTP is expected to begin in 20 priority provinces. By October 1997, at least 20 MPTs are expected to be trained.

The cost of the participatory approach, including community mobilization and health education and carried out mostly by local personnel, is tentatively estimated at 8 % of total Program / Project cost. It involves the creation, training and running of Mobile Participation Teams (MPT), initially one MPT per province, for 20 priority provinces covered by DGH. As the number of villages with new systems increases, monitoring and follow-up work in these villages will divert time for new village preparations from the MPTs. Therefore, beginning with the third year, a second MPT per province will be introduced, so that the pace of implementation can be maintained. The MPTs will consist of three members, a water and sanitation engineer, a health specialist and a communications expert. As women play a key role in household water management, to the extent possible, one member of the team would be a woman, ideally the health or communication expert. The participatory approach involves several visits (up to 10) per village between project inception at the village level until actual implementation.

Project Component 4 - Technical Assistance: Institutional Support at Central and Provincial Levels - US\$ 1.2 million (total Program cost of component) - US\$ 0.6 million (Phase I)

The cost of this component is estimated at only 1 % of total project cost as project implementation is highly decentralized. This component will help provide technical back-stopping, monitoring and evaluation for the decentralized project implementation. It will include:

	<u>US\$ million</u>		
- 1 L/T Technical Advisor (international) for DGH (2 yrs)	-	0.3	0.3
- short-term consultants for specific tasks, both for DGH and DRH/DPTP	0.6	-	0.6
- 10 mm international experts	-	0.1	0.1
- 550 mm local consultants *	-	<u>0.2</u>	<u>0.2</u>
Total	<u>0.6</u>	<u>0.6</u>	<u>1.2</u>

*/ a large portion of these funds will be used to prepare feasibility studies for village water supplies.

Annex 2

Attachment (a)

MOROCCO - PAGER
List of Priority Provinces

<u>Provinces</u>	<u>Preliminary Allocation to Donors of DGH component.</u>	<u>Responsibility</u>	<u>BAJ Provinces ½ *</u>
El Jadida	WB	DGH	2
Ouarzazate	WB	DGH/ONEP	1
Safi	WB	DGH	1
Sidi Kacem	WB	DGH/ONEP	1
Tata	WB	DGH	1
Taroudant	KfW	DGH/ONEP	1
Al Hoceima	CFD	DGH	1
Jerada	CFD	DGH	
Oujda-Angad	CFD	DGH	
Ifrane	CFD	DGH	
El Hajeb	CFD	DGH	
Khémiset	CFD	DGH	
Azilal	OECE	DGH/ONEP	1
Khénifra	OECE	DGH	2
Beni Mellal	OECE	DGH/ONEP	
Khouribga	OECE	DGH/ONEP	
Essaouira		ONEP	1
Marrakech		ONEP	
S.Y, Ben Ali		ONEP	
Boulemane	CFD	DGH/ONEP	
Fes-Jdid		ONEP	
Sefrou	CFD	DGH/ONEP	
Nador		ONEP	1
Errachidia		ONEP	1
Meknes		ONEP	

Other Provinces in Parallel projects

Berkane**	CFD	DGH
Taurirt **	CFD	DGH

*/ 1 = 1st priority BAJ Province

2 = 2nd priority BAJ Province

**/ These provinces proposed for CFD funding are currently also included in the Bank's proposed Rural Infrastructure Project, currently under preparation. However, none of the PAGER provinces, proposed for Bank financing, are overlapping with the Rural Infrastructure Project.

Annex 2
Attachment (b)

PARTICIPATION PROCESS

1. An essential aspect of the PAGER Project is that it will involve the rural population in the selection, partial financing, and operation and maintenance of their water supply systems. This will lead to cost effectiveness, especially in terms of continued operation, and thus to a sustainable potable water supply.
2. The tool to involve the rural population is the Mobile Participation Team (MPT) of each province, composed of two water and health technicians and an animatrice/animateur to ensure contact with all water users, especially the women. The MPT will be a part of the DPTP structure and work in the priority provinces to be covered by DGH under the proposed project. Under an ongoing KfW-funded project, ONEP has already established similar MPTs. To the extent possible, at least one team member should be a woman who speaks the local dialect, preferably the animatrice or health technician. The MPT will work in approximately 12-16 villages in each of the priority provinces in the first year. In addition, the project may also address poverty pockets in other provinces, as may be decided from case to case. The MPTs work will involve the following steps which are also presented in tabular form in Attachment (d).

PREPARATION PHASE

Formation and Training of the Mobile Participation Teams (MPTs)

3. Candidates are nominated by DGH/DPTP (or other participating agencies) for training, after which they are screened by the trainer and grouped in several multi-disciplinary teams. The candidates receive a theoretical and practical field training of 4-6 weeks.
4. The first cycle in fall 1996 included lessons on how to consult with rather than direct local people, using special methods designed to encourage groups of people to interact while providing useful data on different aspects of village life. These include current population, village layout, water resources, and felt water needs. The approach was applied with teams of 2-3 candidates, spending 2-3 days in a village, then meeting to discuss their experience; afterward the same team applied the approach to a second village and produced a village profile as a basis for PAGER work. A serious problem was the absence of female trainees, so women's interests were not adequately considered.
5. Observation and interviews indicated that the trainees learned to appreciate and use the new method well, but need **additional training components** in the next training session. These include training in technical aspects of designing appropriate water systems, model plans, cost estimates, especially for operation and maintenance, procedures on how to form a water users' association (WUA), and on accounting, tariff design and collection, and health and sanitation. Once project construction has begun, the MPT will need to learn training locals in operation and maintenance.
6. **Material needs:** Educational materials for use with villagers were prepared, tested and refined before, during and after the April-May 1997 training. Each MPT will need to be provided with a set of these educational materials, plus means of transport (four wheel drive) and motivation in terms of a per diem, or a similar compensation, to be able to carry out their field work.

Pre-selection of Villages

7. There will be one MPT for each of the priority provinces. Other MPTs may be trained to work in poverty pockets of other provinces. The **first activity** of the MPT will be to **sensitize the authorities** with visits to provincial and local officials, including the rural communes, to explain their participatory work.
8. Using the existing prioritized list of villages defined by the provincial PAGER committee, each MPT will **visit about 30 of the initially selected long list of villages** (1-2 per day) out of which a shorter list of about 12-16 villages will be selected whose inhabitants express the priority need to improve or build a new water supply system. The village must also meet a first round of selection criteria including population size (from 250 to 3,500) and water resource availability. Using MPT information from the field, Regional Hydraulic Directorate (DRH) and Provincial Department of Public Works (DPTP) staff will suggest up to four **technical options with rough cost estimates for each site**.

Confirmation of Water Resources

9. DRH/DPTP integrate the pre-identified villages into their next reconnaissance drilling campaign, in order to confirm adequate availability and quality of water.

Animation Phase

10. This will take place in **three main steps**, to allow villagers to consider choices between visits of the MPT and to allow the MPTs to complete office work, obtain technical assistance from the DRH and regional Public Works Department (DPTP) and possibly from consultants. In the intervals, the MPTs would also work in other villages, according to a priority plan that optimizes proximity of villages to minimize travel time.

a) The important first visit will be a **participatory appraisal**, to establish contact and collect information on various aspects of village life and on their water needs. The MPT will also check villagers' views on different possible water supply systems, including their willingness to pay. Based on the information prepared during village pre-selection, discussions will focus on investment choices and costs, operation and maintenance costs, management and the villagers' approximate contribution and financing plans. The need for and creation of a water users' association (WUA), or similar management structure (MS) will also be discussed, as well as the availability of land to secure the access to water.

This will take about 2 days per village, with an overnight stay for better integration with the population.

b) A **second one day visit** will include villagers' **selection and acceptance** of a water supply system, as well as of the financing plan. Willingness to participate with 20 % of the investment costs (between the commune and the beneficiaries, with a minimum contribution of 5 % from the beneficiaries) is a condition for selection. Villages choosing household connections will agree to pay the full incremental cost and fulfill the precondition to a house connection, have a technically adequate wastewater and excreta disposal system. Any land acquisition required to secure the access to water will also be firmed up during this visit.

After this field work, about a day of office work will be needed for the MPT, to allow it to discuss and initiate the prefeasibility study which will then be carried out by a consultant hired through DRH/DPTP.

c) A **third one day visit** will be necessary to **check progress and provide support** for the creation of a water users' association, and to **collect socio-economic and health indicators** to use in evaluating project impact.

11. For reasons of flexibility, the **timing** allows 5 days per village for the MPT visits during the animation phase. Another two days will be added for office work, totaling about 7 days per village. This makes 7 x 16 villages (the estimated number of retained villages, considering that of the originally visited 30 villages, about half will drop out, due to unmet selection criteria). This represents about 112 working days or about 6 months, based on 200 working days per year. During the animation phase, additional selection criteria will be collected, such as maximum investment cost per person, the commitment to participate with 20 % of these investment costs, the existence of a legalized WUA and the commitment of the village population to operate and maintain the system after construction.

Preparation of Construction Works

12. The MPT will facilitate the **signature of a convention between partners**: the state, the WUA and the rural commune. The association will **collect at least 50% of the villagers' financial contribution** and deposit it in their own bank account. The DPTP will launch the bidding process for construction works. This will preferably be done in lots that will allow the grouping of equipment for several villages within a province.

CONSTRUCTION PHASE

13. Construction will begin, when 100 % of the local contribution is collected. Once physical construction is under way, the MPTs will continue to visit the villages, supervise the work with the support of DPTP experts, help with determining the cost of the water and train the villagers to manage their water system, to maintain the equipment, control water quality and to continue providing them with basic hygiene education.

After-Construction - Management - Phase

14. The MPT will also provisionally (pending a one-year contractor's warranty) hand over the management of the water system to the WUA, and ownership to the rural commune that holds jurisdiction over the village. After about 12 or 18 months the MPT will collect impact data (see below) to measure and monitor project progress, and it will continue providing technical support as needed, for at least another two or three years.
15. The WUA/MS will designate the responsibility of specific tasks (financial management, tariff collection, O&M) to selected members. The WUA/MS will also closely follow the contractors one-year warranty, after which the system will be handed over definitely to the WUA and rural commune for management and formal ownership.
16. **Technical indicators** will continue to be collected and recorded by the MPT, beginning two months after the first use of the system for the first six months and then twice a year.
17. **Socio-economic and health impact indicators** will be also be collected by the MPT once or twice a year starting 12-18 months after the system becomes functional.
18. Similar technical and socio-economic data will also be collected from 'traditional' villages (those that have received water supply system without the MPT-driven participatory approach), in order to allow impact comparisons between the different approaches.
19. The MPT will carry out periodic **refresher courses** on health and hygiene in the villages they visit.

NOTES ON IMPORTANT ASPECTS OF PAGER

20. The use of community participation to implement a water supply project through **PAGER** is new for the Hydraulic Office of the Ministry of Public Works (DGH), just as popular participation is new in Morocco in general. Given the proper support, the Hydraulic Office's **PAGER project can become a model** for the rest of the country. **Participation has great potential benefits for the Government and for the population.** Government funds will go further when local people contribute to project costs, and their involvement will mean a more sustainable water supply system and relieve Government of ongoing responsibilities and costs. The population can use their newly-learned organizational skills to bring other benefits to their community, for example working together on improving a road or the local school. This is not theoretical: the mission visited several functioning water users' associations and saw cases of this happening.
21. **The key to the success of PAGER is the work of the Mobile Participatory Teams** or MPTs, who will implement it at the community level. During the appraisal mission in February / March 1997, some members of the five teams trained in the fall of 1996 were visited by the mission and the **results are encouraging.** These DGH/DPTP employees, mainly water technicians, had learned and used the interpersonal skills necessary to work closely with communities. Local people they contacted liked and respected them, and male community members and local and provincial officials understood what the teams were doing.
22. However, observation of and discussion with the MPTs revealed certain **pressing needs** which must be met for them to carry out their work effectively.
 - a) **MPTs need female members.** Women are the main suppliers and managers of potable water in Morocco, so it is essential their needs be taken into consideration. Yet often they do not meet with men from outside the village or family. While it is assumed that village men can speak for them about water needs, this is not true. Determining the priority of water is central to PAGER; in some field visits women gave it first priority while men did not. Similar disagreements have been found in other Bank research on water in Morocco (Davis et al 1993). Thus, the appraisal mission stressed that each MPT should have at least one woman. To date, only few women from DGH/DPTP staff were available for training. The appraisal mission explored the possibility of hiring women from provincial offices and rural communes, but they were not available either. Most women working in these administrative offices are married and can not freely travel and absent themselves from their families for field work. In other cases, a per diem added to salary might make them more accessible. If female staff can not be seconded from other Ministries like Health or Social Affairs or Youth and Sports, or provided by NGOs or international

agencies, like CRS or UNICEF, they should be hired as consultants, for example on one-year renewable contracts. Female staff should be recruited from the province in which they will work, to ensure knowledge of the local dialect and culture.

b) **MPTs need additional topics of training:** technical aspects of different water supply systems with typical models including costs, accounting, (economic) pricing of water, operation and maintenance, forming water users' associations, and health and hygiene.

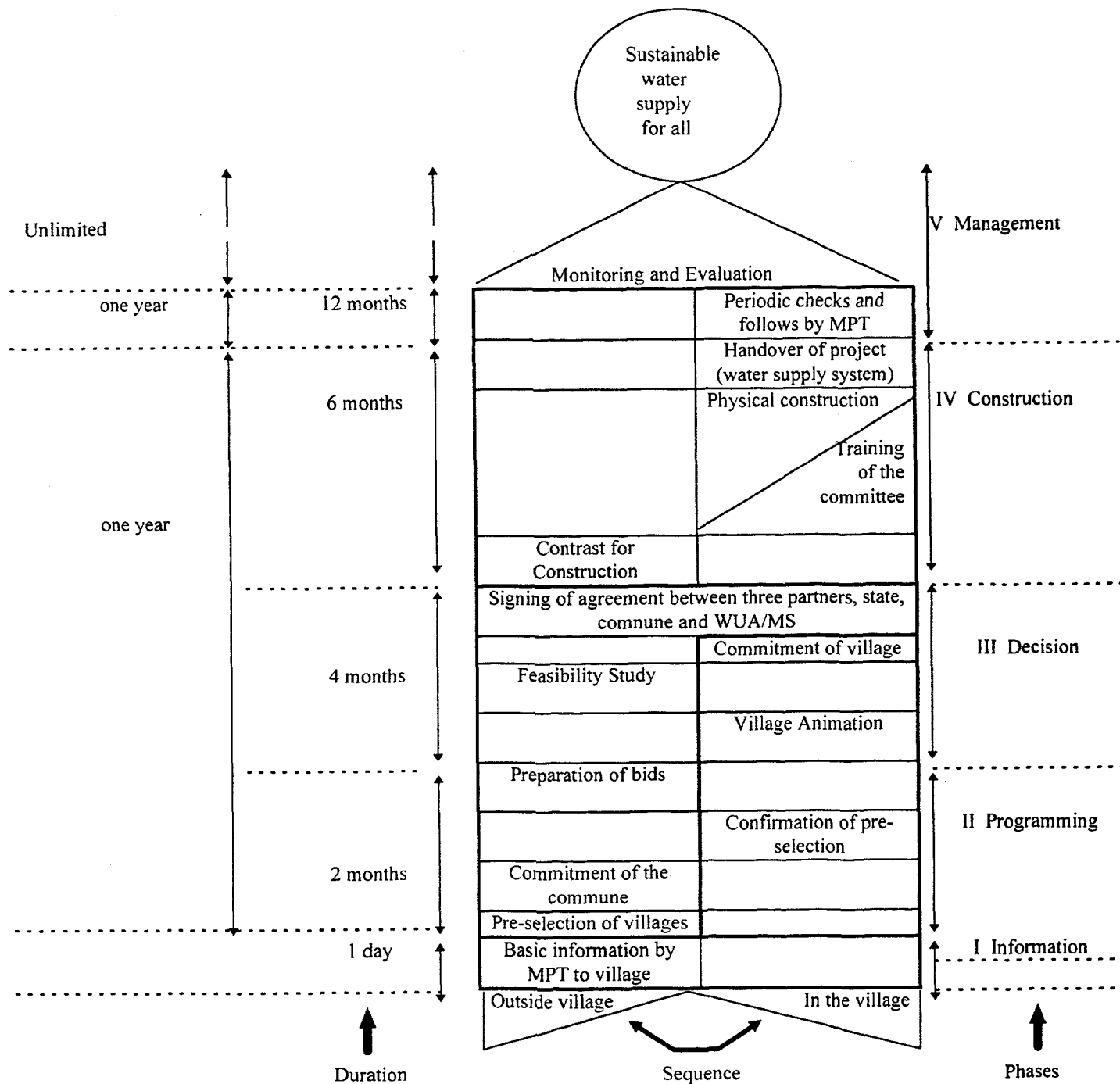
c) **MPTs need material support** in the form of office equipment, vehicles, and a food allowance. The office equipment is necessary to keep records to evaluate the progress and impact of PAGER, and four wheel drive vehicles (with a maintenance allowance) are necessary to reach villages in the Project Provinces which often have limited access and transportation infrastructure. Finally, the MPTs will spend much time in villages and while Moroccan hospitality will ensure they are provided for, MPT members do not want to stress the resources of an already poor population. Thus, each member should be provided with a per diem of about 1,000 DH a month to purchase food. Beyond the benefit of not imposing on needy villagers, this monetary support will provide a psychological motivation to the MPTs, a concrete demonstration of the value of their participatory work in the summer sun and the winter rain. People who feel valued and supported will do excellent work, while those who feel disadvantaged or exploited will not, and the impact of PAGER depends on the quality of MPT work.

d) **MPTs need more personnel.** One MPT team per province cannot carry out all the work required to reach the project's objectives. Since support and monitoring visits to the villages after the construction phase will divert MPT time from mobilizing new villages, a second MPT per province will be needed, at least after the second project year.

23. None of the five MPTs trained in the fall of 1996 had begun work before the February / March 1997 appraisal mission arrived; one began after a request to observe their work. The DRH/DPTP said this was because they did not want to raise village expectations for a water supply system, unless funding was secured and available. The delay may also have been exacerbated by the lack of female staff. **MPT work has now started.**

Annex 2
Attachment (c)

PAGER-MPT PROJECT CYCLE



CR: Rural Commune
DGH: General Hydraulic Directorate
DRH: Regional Hydraulic Directorate

DPTP: Provincial Department of Public Works
MPT: Mobile Participatory Team
WUA: Water User Association

Annex 3

Estimated Project Costs *
(Phase I)

<u>Project Components</u>	<u>Local (%)**</u>	<u>Foreign (%)**</u>	<u>Total</u>
	-----US \$ million-----		
1. <u>Rural Water</u>			
- <u>ONEP</u> : Expansion, rehabilitation and new systems	15.9 (64)	9.0 (36)	24.9
- <u>DGH</u> : Village well improvement, conveyance and new systems	<u>14.0 (64)</u>	<u>7.8 (36)</u>	<u>21.8</u>
Subtotal	29.9 (64)	16.8 (36)	46.7
2. <u>Sanitation</u> :			
- household latrines	3.6 (90)	0.4 (10)	4.0
- block latrines (schools, public markets)	0.3 (100)	-	0.3
- small sewer and communal septic tanks	<u>0.7 (85)</u>	<u>0.1 (15)</u>	<u>0.8</u>
Subtotal	4.6 (87)	0.5 (13)	5.1
3. <u>Local Institutional Strengthening</u> (MPTs)	3.7 (80)	0.9 (20)	4.6
4. <u>Central and Provincial Support</u> (DGH/DRH)	0.5 (83)	0.1 (17)	0.6
<u>Total Project Cost</u>	38.7 (68)	18.3 (32)	57.0

* Financial allocation of funds may vary, especially for Phase II, depending on actual negotiations between the Government and the different financing agencies.

** percentages may not reflect exact amounts, due to rounding.

Annex 4

Cost Benefit Analysis Summary

(Base Year 1996)

	Present Value of Flows		Fiscal Impact	
	Economic Analysis *	Financial Analysis ¹	Taxes	Subsidies
Project Costs Phase I: US\$ 57 million Phase II: US\$ 63 million	ERR: 15 % (based on project focus on 25% of "worst-off" rural pop); 10% ERR is reached w/project focus on 40% worst-off pop. NPV = Phase I:\$M 15.5 PhaseII:\$M 12.5 Total: \$M 28.0 (based on project focus on 25% of "worst-off" rural pop.)	N/A	\$6.7 million (Phases I and II)	none for O&M. About 90% of investment costs
* the opportunity cost of capital is estimated 10 %.	NPV = zero, based on 40% worst-off cases			

Economic Analysis - Methodology and Results

A. Summary

1. The exchange rate used throughout the report is US\$ 1 = DH 9.5.
2. The Economic Rate of Return (ERR) of 15 % is based on a target population of the 25 % worst-off cases. It was calculated by comparing the costs and benefits of household water supply and sanitation services over a thirty-year period (expected life of the major project components - civil works and pipes) with and without the project. The rate of 15 % is equivalent to an NPV of US\$ 15.5 million for the first Phase (the proposed Project) and US\$ 12.5 million for the second Phase of the Program (discounted at 10 % per year). The definition of these worst-off cases means that the sum of the quantified values of (i) time spent to fetch water (distance from water point), and (ii) investments required - or water price paid to private vendors, to assure water security (level of water quantity and quality), is the highest (Tables 6 and 7, below), as compared to other percentiles of the population. An ERR of 10 % and NPV zero is reached, if the Project focuses on 40 % of the worst-off population.

¹ If the difference between the present value of financial and economic flows is large and cannot be explained by taxes and subsidies, a brief explanation of the difference is warranted, e.g., "The difference between financial and economic costs arises from price controls on the inputs."

3. For the purpose of this Project, the population was apportioned into the 'worst-off' 25 %, 50 %, 75 % and one line refers to 100 % of the villages identified per province (Table 1). The 25 % worst-off families spend on average per month, in monetary and non-monetary terms combined, DH 188 (US\$ 19.80) for an estimated 4 cubic meters (m³) of water per household (about 8 people per household), or about 15 liters per capita per day (lcd). This amounts to a value of water of DH 47/m³ (US\$ 4.95) which, in the absence of scientific surveys, is used as proxy for the willingness to pay (WTP) value. The value of water has been discounted by 10 % to arrive at the economic value of water. The 25% "worst-off" population group would be the focus of the project. To stay at or above a 10 % ERR, project coverage may not be extended beyond 40% of worst-off population. At 10 % ERR, the NPV would be zero (Sensitivity Analysis, para 6, below).

4. The range of Net Present Values (NPV) was calculated by accumulating net benefits, discounted at 10 % over a 30 year period.

Table 1

DH/household	Minimum budget for water	Medium budget for water	Economic value of water	Population affected
DH/household/month				(millions)
For 100 % of cases	50	111	100	13,5
For 75 % of worst cases	80	129	116	10,2
For 50 % of worst cases	102	154	139	6,8
For 25 % of worst cases	146	188	169	3,4

5. However, beyond these quantifiable benefits, the project is expected to produce a considerable amount of non-quantifiable benefits. Most of them are health related. In Morocco, there are no statistics or numerical indicators about how much time family members, especially women, spend with a sick child; or how many children, in addition to receiving Oral Rehydration (ORH), also receive medical treatment; or, perhaps most importantly, how to value the cost of lost education, due to school absenteeism as a result of sick days; or, ultimately, of course, how to value the lost life of a child. The accumulated value of these factors, plus the sheer comfort value of having good quality water in sufficient quantities close by, add a substantial bonus to the quantifiable viability of the project.

6. Sensitivity analyses show that to keep the project at or above a 10% ERR, the project's target population may not exceed 40% of the 'worst-off' cases. The project will be designed so as to meet these criteria. If villages outside this target group would like to participate, the overall local contribution (beneficiaries and communes combined) will have to increase above 20 % to keep the quantifiable economic viability at or above a 10% rate of return.

7. Additional sensitivity was tested by varying the water use per capita and the WTP value:

(i) if water use per capita varies between 10 lcd and 17 lcd, the ERR would range from 5.9% to 17% and NPV from a negative US\$ 6.6 million to a positive US\$ 15.7 million. The break-even point (zero NPV) is at 12.1 lcd water use;

(ii) if the WTP value ranges from DH 30/m³ to DH 45/m³, the ERR would range from 0.2% to 13.7% and the NPV from a negative US\$ 14.7 million to a positive US\$ 6.3 million. The break-even point, NPV zero, is reached at WTP 41/m³ (Sensitivity Analyses);

(iii) if quantifiable health benefits fall to zero (base assumption is 50% child diarrheal incidence reduction), or double to 100%, the ERR and NPV would change only marginally; and

(iv) if a project delay of one year would occur, the ERR would drop to 14.8 % and the NPV (Phase I) to US\$ 10.1 million.

8. All costs and benefits used in the analysis are expressed in constant prices of March 1997. The conversion from financial to Economic prices was calculated at the Bank's standard rate of 0.9.

B. Project Implementation

9. Implementation approach. PAGER is a national rural water and sanitation program with a projected implementation period of 10 to 15 years. The proposed Project is expected to be parallel-funded by the World Bank, CFD (France), KfW (Germany), and OECF (Japan) over a three-year period. The project implementation approach used is state-of-the-art participation. The Project would finance an investment slice (Phase I - US\$ 57 million) of the US\$ 120 million appraised Program, including about 8 % of total costs for technical assistance (TA) to strengthen national institutions at central and provincial levels, as well as for promoting participation at the village level and for related health and hygiene education (Annex 2, Attachment (b) - The Participation Approach).

10. Target Population. The project would cover 27 priority provinces (out of a country-wide total of 58 rural provinces). Twelve of these provinces are part of the "BAJ Provinces" (20 provinces were identified as meeting strong poverty criteria, for the Bank-funded Social Priority Program in support of the Health and Education sectors, also called the 'BAJ Program'). DGH would work in 20 of the identified priority provinces, ONEP in 15. Eight of the provinces would receive inputs from both, DGH and ONEP (see Annex 2, Attachment (a) for List of Provinces). In addition, the project would also address selected poverty pockets of other provinces, to be decided on a case by case basis.

11. Technology choices. The choice of technology will be demand-driven, to the extent possible in view of water availability and in view of the beneficiaries willingness to pay (WTP). Consequently, the beneficiaries under the DGH component will be presented with a range of technology options, including handpumps, diesel, solar, wind and electricity driven pumps, as well as spring-supplied gravity systems. Beneficiaries under the ONEP component have fewer choices: they will either benefit from a "piquage" (a connection to a regional pipeline) with one or several public fountains (PF), provided the distance to the regional carrier is within economic range; or, from an ONEP built well or borehole, water storage facility and supply pipeline to one or several PFs. If individual households choose to have a private water connection, they will cover the entire cost of this additional investment, plus the regular ONEP tariff that applies for private house connections. Furthermore, households with private water connections have to be connected to an adequate wastewater (WW) disposal system, i.e. a technically acceptable ventilated pit latrine, or a piped WW collection and disposal system. Cost and benefits of these additional installations are not included in this economic analysis. - Though individual choices can not be predicted with the demand approach, the mission has made assumptions for systems choices, based on local experiences and water availability. These assumptions were the basis for calculating the costs and benefits of the project.

12. Unit Costs vary widely between various systems (Section G - Cost Effectiveness, presents detailed unit costs per system). Average unit costs for systems built by DGH are estimated at DH 1,000 per capita (US\$ 105), and DH 835 per capita (US\$ 88) for systems built by ONEP. Overall Program average unit cost is estimated at US\$ 95. The difference in cost between ONEP and DGH is largely due to the fact that ONEP built systems are in most cases based on existing infrastructure investments ("piquage" from regional carriers), hence, a sunk cost, while most of the DGH systems will require significant up-front civil works.

13. Beneficiaries: The total number of Program / Project beneficiaries is estimated at about 1.3 million (600,000). About 600,000 (220,000) people are expected to benefit from the DGH component and approximately 700,000 (380,000) from the ONEP component. Overall, about 40,000 people (included in the number of water beneficiaries) will gain from sanitary installations, implemented as a result of this project (see para. 14, below).

14. Sanitation services are largely absent in the rural areas covered by the project. They are practically non-existent in dispersed villages or population clusters. This means that people defecate in the surrounding nature which is particularly problematic for women and children (girls) in the Moslem culture. They traditionally can not leave the house during the day, resulting often in urinary infections, in addition to a severely reduced comfort level. The project would promote the construction of household latrines, through awareness, health and hygiene campaigns, and would make the availability of an excreta and wastewater (WW) disposal facility at the household level a prerequisite for a water supply house connection. In addition to household sanitation, the project would include a pilot component for the construction of block latrines in schools, small-bore sewers and communal septic tanks for dense populations and perhaps a simple lagoon-type WW treatment, if justified by the combined agglomeration of people from several villages and the quantity of WW discharged. For the purpose of this economic analysis, only direct health benefits have been quantified, i.e. the cost of medication saved (ORH units) for reduced incidences of diarrheal diseases, mostly for children up to age 5. The MPH estimates the cost per medication at DH 31 (US\$ 3.30) per case, not including treatment costs.

15. **Health aspects.** Health benefits of water and sanitation services, other than those described above, are difficult to quantify. Aside from improving household hygiene, increased institutional capacity and the overall living comfort, one of the major project objectives is the improvement of public health in rural areas. For the purpose of this economic analysis, the only quantifiable benefit included in the ERR and NPV ranges, are those linked with the reduction of medication required to treat diarrheal diseases in children up to age 5 (see para 14, above). Other major, but not quantified benefits include time saved in family care (mostly for women, who are usually looking after sick children) which translates into increased productivity; improved education through better school attendance, due to reduced absenteeism; and the general comfort of well-being (Annex 4, Attachment - Diarrheal Diseases in the Project Area).

C. Assessment of Project Values

16. The **justification for the project** is based on quantifiable and non-quantifiable values. The quantifiable values include (i) water accessibility (cost of water transport), (ii) water security (the cost of building storage space or the high cost of emergency supplies); (iii) water quality and health (expressed in terms of health impacts), and (iv) the beneficiaries' willingness to pay (WTP). Values of sanitation services and health impacts are to a large extent overlapping or can not be quantified. Double counting will be avoided and only those values that are directly linked to medication are quantified.

i) **Water accessibility:** The value of labor involved in providing water for households is based on three different distances of water points from households: (a) less than 250 meters (m); (b) 250 m to 1,000 m; and (c) more than 1,000 m. In several cases the mission found that water had to be hauled over distances of up to 7 km. The average time used for each one of the distances is based on best-practice estimates. The cost or value associated with the time was based on three factors, the medium annual household income in rural areas (DH 25,000 to DH 33,000), the legal minimum agricultural wage daily wage (DH 45) and on 2,340 hours of work performed per person and per year. These figures are based on a National Household Survey of 1991 (ENNVM). The weighted average of the value of time spent fetching water per family and per month is DH 66, or about US\$ 7.

Table 2

Distance	By medium monetary expenses DH/month	By minimum salary DH/month	Medium
0 to 250 meters (m)	51	53	52
250 to 1 000 (m)	61	63	62
more than 1 000 m	103	108	106
weighted average	65	67	66

ii) The value of **water security** (guaranteeing a regular supply) is based on the values of (i) the cost of irregular supply and supply interruptions due to local conditions and due to periodic drought conditions; and (ii) the cost of storing water. Assuming an average use of 4 m³ per family per month (about 15 l/c/d), the risk factor of local, irregular supplies is estimated at a cost of DH 6.70 / family / month; in case of a drought (drought condition means less than 70 % of average annual rainfall), the cost is estimated at DH 16.70 / family / month. Rainfall data over the past 60 years indicate that southern populations (Agadir region) have suffered between 2 and 5 years of drought conditions; northern provinces (Tangier, Fes areas) had 1 to 3 years of drought conditions, during that period. Cycles of severe drought are 15 years, but cycles of lesser droughts occur more often, once every 3 to 5 years (for details see Annex 9 of FAO/CP Preparation Report).

Table 3

Months of water security	2,5	6	10	25
Risk of shortfall DH/month	17	40	67	167
Risk of drought DH/month	42	100	167	417
Size of storage (m ³)	10	24	40	100
Cost of storage DH/month	42	62	83	166

iii) The value of water quality and of health is estimated by the reduction of water borne diseases, i.e. (i) the cost of medical care (including medication) to cure them, and (ii) the loss of labor due to sickness or in extreme cases, death. To estimate these values is difficult, because of (a) unreliable health statistics, including unreported cases (see also paras. 15 and 16, above); (b) actual cost of family care time for sick children, due to the diversion of time by family caretakers (mostly women) during the illness, and (c) an overlap of health benefits due to health education and installations for sanitary excreta and wastewater disposal. For the purposes of this report, only identifiable medication costs for diarrheal diseases of children (up to age 5) will be quantified. According to the MPH, the cost per Oral Rehydration (ORH) unit is DH 10; the cost per treatment averages DH 31 (US\$ 3.30) per case. Other health benefits are described qualitatively only. No monetary value will be attached to these quality variables.

17. The value of sanitation services. As with water quality, the quantifiable value of sanitation installations and health education is based on the reduced cost for health services, as a result to improved public health. For the purpose of this report, the quantifiable sanitation values are combined with those of water quality and health, i.e. they are reflected in the saved costs from the reduced quantities of medication needed, due to fewer cases. Statistics of diarrheal disease reduction in children as a result of improved water, sanitation and health/hygiene education services have not been carried out in Morocco. Monitoring and evaluation activities planned under this project, are expected to provide the MPH with solid statistics and trends on the relation between water supply and sanitation services and health. However, as indicated by worldwide experience, much of the success of the project will depend on the effectiveness of health and hygiene education, accompanying the implementation of water supply and sanitation services. In Morocco these education and awareness services have been weak, and in many rural areas virtually non-existent. Moroccan statistics also indicate that the simple provision of 'safe' water and sanitation services, has a minimal impact on health improvement. Therefore, the mission's qualified assumptions, and based on experience elsewhere in the world (notably a similar rural water and sanitation project in Bolivia), are that one year after project implementation, diarrheal diseases in children (below 5 yrs.) will be reduced by 50%. This rate is expected to increase in time, as health and hygiene behaviors change, when education and awareness take hold.

18. Institutional strengthening has a direct cost (TA component) but a non-quantifiable long-term benefit. At the central and provincial levels, TA would support DGH and DRH/DPTP in strengthening their capacity to assess, implement and monitor rural water supply and sanitation programs. It would help improve communications - notably closing the feedback-loop - between DGH and its regional and provincial branches, the offices of DRH. At the local level, TA would notably support the different DRH/DPTP involved in the project, by building and sustaining Mobil Participatory Teams (MPT) at the provincial levels. These teams would be in charge of mobilizing the villages through campaigns and awareness seminars to 'participate' in the project. This component would include assistance and advice in the selection of water and sanitation service levels / systems, training of maintenance workers, health / hygiene education and the formation of Water User Associations (WUA), or another acceptable Management Structure (MS). After project implementation, the MPTs would monitor the project results on behalf of DRH/DPTP, in view of modifying project designs and approaches in the future, if necessary. The long term impact of the MPTs is expected to be highly beneficial, in as much as they would contribute significantly to the sustainability of the individual systems, hence, of the project. Local level TA may, in some cases, also help improve project preparation and management capacities of the WUAs and rural communes, the ultimate owners of the village water supply systems (a rural commune has typically the administrative responsibility for a number of small villages).

D. Project Costs

19. Water Supply Investments. The proposed financing for the project is structured like a line of credit, whereby the annual investment program for the following year (July 1 to June 30) has to be agreed between the government and the Bank by March 31 of each project year. The project is demand-driven and the potential beneficiaries determine the water supply mode in accordance with their needs and WTP. The project foresees about ten different water supply systems, ranging from simple wells equipped with handpumps to deep boreholes with diesel pumps. The investment costs vary from one system to another. Therefore, costs for each type of system that may be used in the project can only be estimated. Sanitation Investments consist mostly of local inputs (civil works and local materials). Equipment, in general, will be imported, while civil works is a local cost. Pipes may also be supplied locally. Technical Assistance is a mixed (foreign / local) expenditure, with the bulk being a local item: the support for the MPTs (Annex 2 - Project Costs).

20. Operation and Maintenance costs vary in accordance with water supply systems. Estimates range from 3 percent of investment costs (handpumps) per year to 8 percent for diesel pumps. While at the outset, the handpump would appear to be the most attractive choice from a cost point of view, the mission found that in most places in Morocco it is not the preferred option. The reasons differ, but mainly because water yields are limited, and the water is usually at depths which are stretching the handpumps capacity and require considerable pumping efforts. At the other extreme is the solar pump which appears to be quite popular, especially with the southern populations. While investment costs are only slightly higher than those for diesel pumps, O&M tends to be sporadic and expensive, when high cost items, such as the electric-pump and the solar panels need to be replaced, about every 5 or 12 years respectively.

E. Economic Rate of Return and Net Present Value

21. The Economic Rate of Return was calculated by comparing the costs and benefits of household water supply and sanitation services over a thirty-year period (expected life of the major project components - civil works and pipes) with and without the project. Costs and benefits were discounted at the Bank's standard rate of 10 %. The ERR ranges between 10 % and 15 %. The higher rate is applicable if the project meets its objective of reaching only the 25 % of the worst-off population. If the target population extends, however, to the 40 % worst-case population, the ERR declines to about 10 %.

22. The Net Present Values (NPV) was calculated by accumulating net benefits, discounted at 10 % over a 30 year period. The NPV for the proposed Project (Phase I) ranges between US\$ 15.5 million (25 % of worst-off populations) and zero with 40 % of worst-off populations targeted.

23. Working papers provide details of the economic calculations.

F. Cost Recovery

24. At present, water supply in rural areas is for the most part not organized. The concept of cost recovery is largely unknown. There is no formal tariff system, except in those cases where either ONEP has taken over the supply through a "piquage" with public fountain(s) and a 'gardien gérant' (local manager), or where, at the initiative of DRH, an NGO or other organization, village or water user associations (WUA) have been formed around a public water supply system and where water services are actually 'managed'. These cases, according to mission estimates, cover about 20 % over all rural water supply services. They usually recover O&M, but no replacement costs.

25. ONEP charges the local manager a subsidized rate of DH 5.6/m³, while water is resold for DH 10 to DH 15 per m³. The difference is the manager's income. He is also responsible for minimal maintenance work and cleaning of the fountain. ONEP intervenes with more extensive repairs. ONEP's country-wide average production cost is about 50% higher than its preferred tariff for the PFs. The subsidy is covered by a nationwide solidarity tax (taxe de solidarité) of DH 0.2/m³ which is levied on all urban water supply. Hence, ONEP 'recovers' its full cost.

26. Existing Village WUAs, or similar organizations, charge on average between DH 3 and DH 5 per m³ which aim at covering O&M costs, but do not allow to create a fund for major repairs or renewal of the system. In cases of major repairs, the WUA organizes a special collection among the villagers to get the system fixed. This is a further indication that in case of need the WTP is relatively high. But the concept of 'planning' or 'prevention' by paying more when water is readily available to build up a reserve, does basically not exist under current traditions. Within the project, at an initial stage, the full cost for O&M would be recovered. At a later stage, it is expected that the awareness and education campaigns of the MPTs will bring about a behavioral change that will eventually lead to full - or close to full - cost recovery through user charges.

G. Cost-effectiveness

27. Per capita investment costs depend on the type of system built and on the number of people it will serve. Examining past investment, the appraisal mission found costs as high as US\$ 800 per capita for rural water supply systems. Per capita investment costs under the proposed project would be substantially lower. Following are typical average per capita unit costs:

- i) Water Supply:
- | | |
|--|-----------|
| - handpumps: | US\$ 28 |
| - rehab. of existing systems | US\$ 40 |
| - well or borehole equipped with electric / diesel pumps | US\$ 110 |
| - renewable energy sources (solar- wind driven) | US\$ 150* |
| - 'piquages' - ONEP owned public fountains | US\$ 120 |
| - independent ONEP system | US\$ 160* |

*/ Under the project, these costs will have to be reduced to a maximum of US\$ 125 per person..
O&M costs are estimated to range from 3 % (handpump) to 8 % (deep borehole with diesel pump) per year of initial investment costs, resulting in an average NPV of 60 % of initial investment costs (discounted at 10%).

- ii) Sanitation:
- | | |
|--|----------|
| - simple ventilated latrines | US\$ 13 |
| - small diameter WW collection system w/communal septic tank | US\$ 250 |
| - simple lagoon-type WW treatment system (not incl. WW collection) | US\$ 77 |
| - block latrine for schools w/ septic tank & water supply per unit US\$ 10,000 | US\$ 50 |

O&M costs are estimated at 3 % to 5 % per year of initial investment costs.

28. Overall average per capita investment costs for the water supply component are US\$ 95; and US\$ 92 for the sanitation component.

H. Fiscal Impact

29. The project's direct fiscal impact are the gains from duties and taxes. They are estimated at US\$ 6.7 million , calculated over the life of Phases I and II as the accumulated difference between the financial and the economic costs, discounted at the Bank's standard rate of 10 %. In the short run the impact may be minimal or even negative, as the cost of project expenditures may outweigh immediate government revenues (Attachment 6 - Fiscal Impact).

30. To minimize the impact on the government budget, all O&M costs will be borne by the beneficiaries. Appraisal has been carried out jointly by the World Bank, KfW, CFD and OECF. The government and the four financing partners agreed that 80 % of project costs would be funded by external grants and loans, and 20 % by local contributions, of which a minimum of 5 % from the beneficiaries.

31. In the long-run, improved health and productivity of rural populations would add to national income growth, which in turn would also have a positive fiscal impact.

Annex 4
Attachment

MOROCCO - PAGER
Sample List of Provinces
on

MPH Statistics on Diarrheal Diseases in Children
up to Age of 5 in 1995

Provinces	Responsibility DGH / ONEP	Diarrh. Cases 1/	ORH Units used	Total Cost 2/ DH ('000)
El Jadida	DGH	30,527	91,082	910,820
Ouarzazate	DGH/ONEP	37,277	83,824	838,240
Safi	DGH	31,069	96,477	964,770
Sidi Kacem	DGH/ONEP	30,133	95,891	958,910
Tata	DGH	9,091	31,206	312,060
Taroudant	DGH/ONEP	37,698	100,003	1,000,030
Al Hoceima	DGH	18,175	53,469	534,690
Jerada	DGH	-	-	-
Oujda-Angad	DGH	6,366	19,407	194,070
Azilal	DGH/ONEP	19,563	62,194	621,940
Khénifra	DGH	22,828	72,242	722,420
Beni Mellal	DGH/ONEP	32,627	101,523	1,015,230
Khouribga	DGH/ONEP	17,095	48,665	486,650
Essaouira	ONEP	26,636	81,553	815,530
Marrakech	ONEP	3,813	13,465	134,650
S.Y, Ben Ali	ONEP	15,614	55,278	552,780
Boulemane	ONEP	13,072	38,237	382,370
Fes-Jdid	ONEP	6,728	30,252	302,520
Sefrou	ONEP	14,511	47,474	474,740
Nador	ONEP	20,600	86,765	867,650
Errachidia	ONEP	29,787	99,474	994,740
Meknes	ONEP	36,426	148,788	1,487,880
Total		421,938	1,357,266	13,572,660

1/ reported cases; cases which have received private care are not reported, but estimated at 40 %; cases which have received no treatment at all are not reported either, but estimated at 25 % to 35 %.

2/ Unit cost per Oral Rehydration(ORH) unit is DH 10 (1995 price); the cost of one treatment is estimated at about DH 31, not including the cost for medical and family care.

-	Total cost for medication (ORH) for registered cases in 1995 in Project area:	DH 13,572,660
-	plus 40 % for est. private care (ORH only)	DH 5,429,064
	Total	DH 20,394,458
		(US\$ 2.1 million)

The proposed project aims at a 50 % reduction of diarrheal diseases to be reflected on the population covered by the project. This results in an average of DH 1.24/person/ year savings for all project beneficiaries.

Annex 5

Rural Water Supply and Sanitation

Financial Summary

Phase I

	Implementation Period	Operational Period
	Total	Total 1/
Project Costs (in million US\$)		
Investment Costs	57	-
Recurrent Costs	-	34
Total	57	34
Financing Sources (% of total project costs)		
IBRD/IDA	18	
Co-financiers	62	
Government		
Central	15	
Local	-	
User Fees/Beneficiaries	5	100
Total	100	100

1/ Recurrent costs are in present value terms, discounted at 10% to the first year of operation, equal to an average of about 60 % investment costs.

Annex 6

Morocco - Rural Water Supply and Sanitation Project Procurement and Disbursement Arrangements

Procurement

Procurement methods (Table A)

Procurement under the project will be in accordance with the Guidelines for Procurement under IBRD Loans and IDA Credits, January 1995, using standard bidding documents and contract forms agreed with the Bank. Contract thresholds, modalities, and Bank financing ratios are indicated in Tables A, B, and C of this Annex. Consultants will be selected in accordance with Bank's Guidelines on the Use of Consultants, January 1997, using standard contract forms agreed with the Bank. Most of project implementation is highly decentralized with small works contracts scattered in rural areas. These would not be of interest to foreign bidders and would be procured following NCB procedures that are satisfactory to the Bank.

Prior review thresholds (Table B)

Disbursement

Allocation of loan proceeds (Table C)

Use of statements of expenses (SOEs):

Disbursements against works contracts exceeding \$750,000 equivalent, goods contract exceeding \$400,000, and consultants' contracts exceeding \$100,000 for firms and \$50,000 for individual will be fully documented. For all other expenditures, disbursements could be made against statements of expenditures (SOEs). Supporting documents for SOEs will not be submitted to the Bank, but will be retained by project implementing agencies (DGH and ONEP) and made available to the Bank staff during supervision.

Retroactive Financing:

Retroactive financing in an aggregate amount up to US\$ 500,000 has been agreed, for expenditures incurred after July 1, 1997 and before the date of the Loan Agreement.

Special account:

To facilitate project implementation, a Special Account in Dirham will be established in the Borrower's General Treasury. The authorized allocation of \$ 1,200,000 will be limited to \$750,000 until the aggregate withdrawals from the loan account reach \$3,000,000. The SA will be replenished on a monthly basis or when at least one third of the balance has been withdrawn, whichever occurs first. Documentation requirement for replenishment applications will follow the procedures outlined in above paragraph. In addition, monthly bank statements of the SA reconciled will accompany all replenishment requests.

Annex 6

Table A: Project Costs by Procurement Arrangements
(Phase I)
(in US\$ million equivalent)

Expenditure Category	Procurement Method				Total Cost (including contingencies)
	ICB	NCB	Other	N.B.F	
1. Works					
Village drinking water works		10.5 (8.4)		35.2	45.7 (8.4)
Household latrines				4.0	4.0
Block latrines		0.3 (0.2)			0.3 (0.2)
Lagoon-type treatment plant, small-bore sewerage collection and communal septic tanks		0.5 (0.4)		0.3	0.8 (0.4)
2. Goods					
Vehicles and equipment	0.6 (0.5)			0.2	0.8 (0.5)
3. Services / TA					
Foreign consultancies			0.1 (0.1)	0.1	0.2 (0.1)
Local consultants			0.4 (0.4)	0.2	0.6 (0.4)
Training (MTPs)				4.6	4.6
4. Miscellaneous					
Total	0.6 (0.5)	11.3 (9.0)	0.5 (0.5)	44.6 0	57.0 (10.0)

Note: N.B.F. = Not Bank-financed.
Amounts may not add up due to rounding

Annex 6

Table B: Thresholds for Procurement Methods and Prior Review

Expenditure Category	Contract Value (Threshold)	Procurement Method	Contracts Subject to Prior Review
1. <u>Works</u>			
	up to 3,000,000	NCB	First two if less than \$400,000, all those above and including \$750,000.
	greater than 3,000,000	ICB	All
2. <u>Goods</u>			
	up to 50,000	LS	None
	50,001 to 400,000	NCB	None
	400,001 to 500,000	IS	None
	above 500,000	ICB	All
3. <u>Services</u>			
Individual consultants	up to 50,000	Local	None
Consultant firm	up to 200,000	Local	None
Individual consultants	greater than 50,000	International	All
Consultant firm	greater than 200,000	International	All
4. <u>Miscellaneous</u>			
<u>Total</u>			

Annex 6

Table C: Allocation of Loan Proceeds

Expenditure Category	Amount in US\$ million	Financing Percentage
Civil works	7.2	80% of eligible expenditures
Goods	1.5	100 % of foreign expenditures, 100 % local expenditures (ex-factory costs), and 80% of local expenditures for other items procured locally.
TA and Training	0.3	100 %
Unallocated	1.0	
Total		10.0

Annex 7

**Morocco - Rural Water Supply and Sanitation Project
Project Processing Budget and Schedule**

A. Project Budget (US\$ 1,000)	<u>Planned</u>	<u>Actual</u>
(excludes FAO assistance to GOM)	(At final PCD stage) 300	292.7
B. Project Schedule	<u>Planned</u>	<u>Actual</u>
	(At final PCD stage)	
Time taken to prepare the project (months) (from concept review - up to appraisal)	12	12
First Bank mission	2/96	2/96
Appraisal mission departure	2/17/1997	2/17/1997
Negotiations	6/1997	7/10/97
Planned Date of Effectiveness	10/1997	3/1998

Prepared by: DGH, ONEP, Sanitation Division, Ministry of Interior

Preparation assistance: World Bank - FAO / CP

Bank staff who worked on the project: Messrs. Sinha TM, Koenig, Bichara, Gress, Stier and Ms. Gad.

Peer reviewers: Ms. Jennifer Sara, Mr. Robert Roche

Useful inputs were received from: Messrs. Calegari, Ezzine, and Vaurs

C. Supervision Plan:

Since the initial stages of the project implementation are crucial for the success of the project, the Bank will follow the Project very closely, with three supervision missions in the first year, and at least two supervisions per year in the second, third and fourth year.

Resource requirements are as follows:	<u>Staff weeks</u>	<u>US\$ (1,000)</u>
Year 1	22	88
Year 2	18	72
Year 3	15	60
Year 4	12	48

Annex 8

Morocco - Rural Water Supply and Sanitation Project
Documents in the Project File

A. *Project Implementation Plan*

Programme d'Approvisionnement Groupé en Eau Potable des Populations Rurales, Rapport de Préparation.

Texte Principal

Document de travail 1.	Ressources en eau
Document de travail 2.	Demande en eau Potable
Document de travail 3.	Description Technique
Document de travail 4.	Aspects Sanitaire
Document de travail 5.	Approche participative
Document de travail 6.	Organisation
Document de travail 7.	Circuits Financiers
Document de travail 8.	Analyse financière et coûts
Document de travail 9.	Analyse économique
Document de travail 10.	Environnement
Document de travail 11.	Plan d'actions

B. *Bank Staff Assessments*

- Pre-appraisal BTO Report and Aide-Mémoire
- Appraisal BTO Report and Aide -mémoire
- Working paper on technical Aspects of Water
- Working Paper on technical Aspects of Sanitation
- Working Paper on Participation
- Working Paper on Economic aspects

Status of Bank Group Operations in Morocco
IBRD Loans and IDA Credits in the Operations Portfolio
As of 30-Sep-97

Project ID	Loan or Credit No.	Fiscal Year	Borrower	Purpose	Original Amount in US\$ Millions			
					IBRD	IDA	Cancellations	Undisbursed
Number of Closed Loans/credits: 123								
Active Loans								
MA-PE-5523	IBRD42310	1998	FEC	MUNICIPAL FINANCE II	35.00	0.00	0.00	35.00
MA-PE-5523	IBRD42311	1998	FEC	MUNICIPAL FINANCE II	35.00	0.00	0.00	34.74
MA-PE-38978	IBRD40910	1997	GOVERNMENT OF MOROCCO	PSD III-VOC TRG.	11.50	0.00	0.00	11.50
MA-PE-38978	IBRD40911	1997	GOVERNMENT OF MOROCCO	PSD III-VOC TRG.	11.50	0.00	0.00	10.22
MA-PE-43725	IBRD41280	1997	ONCF	RAILWAY RESTR & PRIV	42.50	0.00	0.00	42.50
MA-PE-43725	IBRD41281	1997	ONCF	RAILWAY RESTR & PRIV	42.50	0.00	0.00	36.68
MA-PE-41303	IBRD39351	1996	GOVERNMENT OF MOROCCO	EMERG. DROUGHT RECOV	50.00	0.00	0.00	6.65
MA-PE-42414	IBRD40260	1996	GOVT OF MOROCCO	COOR/MON SOCIAL PRO	28.00	0.00	0.00	27.50
MA-PE-42415	IBRD40250	1996	GOVT OF MOROCCO	SPI - HEALTH	68.00	0.00	0.00	65.50
MA-PE-5501	IBRD40240	1996	GOV. OF MOROCCO	SPI - EDUCATION	54.00	0.00	0.00	54.00
MA-PE-5503	IBRD40100	1996	KINGDOM OF MOROCCO	SEW. & WATER REUSE II	40.00	0.00	0.00	39.81
MA-PE-5489	IBRD39010	1995	KINGDOM OF MOROCCO	SECONDARY ROADS	57.60	0.00	0.00	57.60
MA-PE-5435	IBRD36640	1994	KINGDOM OF MOROCCO/ONEP	WATER SUPPLY V	128.00	0.00	0.00	110.07
MA-PE-5435	IBRD36650	1994	KINGDOM OF MOROCCO/ONEP	WATER SUPPLY V	32.00	0.00	0.00	27.56
MA-PE-5486	IBRD36620	1994	CNCA	NATIONAL RURAL FINAN	100.00	0.00	50.00	28.99
MA-PE-5493	IBRD37650	1994	GOV. OF MOROCCO	ASIL II	121.00	0.00	61.00	14.21
MA-PE-5499	IBRD36880	1994	GOV. OF MOROCCO	IRR. AREAS AGR. SERVICES	25.00	0.00	5.00	16.51
MA-PE-5504	IBRD36470	1994	KINGDOM OF MOROCCO	ENVIRONMENT MANAGEMENT	6.00	0.00	0.00	4.86
MA-PE-5438	IBRD35570	1993	KINGDOM OF MOROCCO	TELECOM.RESTRUCTURIN	100.00	0.00	11.00	31.70
MA-PE-5462	IBRD35870	1993	GOVERNMENT	SECOND LSI IMPROVEMENT	215.00	0.00	52.00	110.78
MA-PE-5514	IBRD36180	1993	GOV. OF MOROCCO	LAND DEVELOPMENT	66.00	0.00	0.00	51.81
MA-PE-5517	IBRD36170	1993	GOV. OF MOROCCO/FEC	MUNICIPAL FINANCE I	100.00	0.00	0.00	18.84
MA-PE-5433	IBRD32830	1991	GOVT. OF MOROCCO	PORT SECTOR	33.00	0.00	5.00	8.09
MA-PE-5433	IBRD32840	1991	GOVT. OF MOROCCO	PORT SECTOR	99.00	0.00	0.00	9.79
MA-PE-5460	IBRD32950	1991	GOVERNMENT OF MOROCCO	BASIC EDUCATION	145.00	0.00	60.00	40.18
MA-PE-5495	IBRD33660	1991	MOROCCAN BANKS	FINANCIAL SECTOR DEV	29.50	0.00	0.00	16.49
MA-PE-5495	IBRD33710	1991	MOROCCAN BANKS	FINANCIAL SECTOR DEV	9.50	0.00	2.62	.05
MA-PE-5495	IBRD33670	1991	MOROCCAN BANKS	FINANCIAL SECTOR DEV	19.50	0.00	0.00	1.18
MA-PE-5437	IBRD31560	1990	GOVERNMENT	FORESTRY II	49.00	0.00	0.00	10.59
MA-PE-5440	IBRD31710	1990	KINGDOM OF MOROCCO	HEALTH SECTOR INVEST	104.00	0.00	0.00	16.06
Total					1,857.10	0.00	246.62	939.46
Active Loans					Closed Loans			
Total Disbursed (IBRD and IDA):					659.42	5,428.14	6,087.56	
of which has been repaid:					25.88	2,669.89	2,695.77	
Total now held by IBRD and IDA:					1,584.59	2,803.00	4,387.59	
Amount sold					0.00	20.11	20.11	
Of which repaid					0.00	20.11	20.11	
Total Undisbursed					939.46	37.41	976.87	

Generated by the Operations Information System (OIS)

ANNEX 9

Morocco
STATEMENT OF IFC's
Committed and Disbursed Portfolio
As of 30-Sep-97
(In US Dollar Millions)

FY Approval	Company	Committed				Disbursed			
		IFC				IFC			
		Loan	Equity	Quasi	Partic	Loan	Equity	Quasi	Partic
1980	SOMIFER	0.00	2.35	0.00	0.00	0.00	2.35	0.00	0.00
1987/90	CIH	28.28	0.00	0.00	2.17	28.28	0.00	0.00	2.17
1987/93	SETAFIL	3.01	1.20	0.00	0.00	3.01	1.20	0.00	0.00
1990	ENNASR	.99	0.00	0.00	0.00	.99	0.00	0.00	0.00
1992/94	Ciments du Maroc	5.38	0.00	0.00	2.24	5.38	0.00	0.00	2.24
1993	INTERFINA	0.00	3.23	0.00	0.00	0.00	3.23	0.00	0.00
1994/96	Mediafinance	0.00	1.16	0.00	0.00	0.00	1.16	0.00	0.00
1995	Artijari	0.00	.49	0.00	0.00	0.00	.26	0.00	0.00
Total Portfolio:		37.66	8.43	0.00	4.41	37.66	8.20	0.00	4.41
Approvals Pending Commitment									
		<u>Loan</u>	<u>Equity</u>	<u>Quasi</u>	<u>Partic</u>				
Total Pending Commitment:		0.00	0.00	0.00	0.00				

ANNEX 10

8/22/97

Morocco at a glance

POVERTY AND SOCIAL

Population mid-1996 (millions)
GNP per capita 1996 (US\$)
GNP 1996 (billions US\$)

Average annual growth, 1990-96

Population (%)

Labor force (%)

Most recent estimate (latest year available since 1989)

Poverty: Headcount index (% of population)

Urban population (% of total population)

Life expectancy at birth (years)

Infant mortality (per 1,000 live births)

Child malnutrition (% of children under 5)

Access to safe water (% of population)

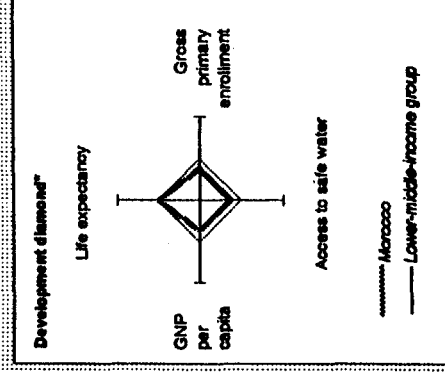
Illiteracy (% of population age 15+)

Gross primary enrollment (% of school-age population)

Male

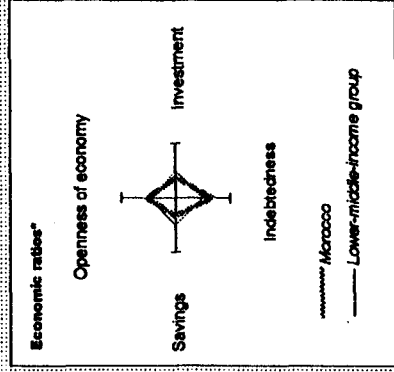
Female

	Morocco	W. Bank & North Africa	Lower- middle- income
Population mid-1996 (millions)	27.1	276	1,125
GNP per capita 1996 (US\$)	1,280	2,090	1,750
GNP 1996 (billions US\$)	34.6	582	1,967
Average annual growth, 1990-96			
Population (%)	2.0	2.6	1.4
Labor force (%)	2.6	3.3	1.8
Most recent estimate (latest year available since 1989)			
Poverty: Headcount index (% of population)	13		56
Urban population (% of total population)	46	57	67
Life expectancy at birth (years)	65	66	67
Infant mortality (per 1,000 live births)	56	54	41
Child malnutrition (% of children under 5)	9		78
Access to safe water (% of population)	56	39	104
Illiteracy (% of population age 15+)	80	97	105
Gross primary enrollment (% of school-age population)	92	104	105
Male	86	91	101
Female			



KEY ECONOMIC RATIOS AND LONG-TERM TRENDS

	1976	1986	1996	1997-96
GDP (billions US\$)	9.0	12.9	32.4	36.3
Gross domestic investment/GDP	25.2	27.1	20.9	20.7
Exports of goods and services/GDP	22.5	25.5	27.9	26.0
Gross domestic savings/GDP	14.3	18.4	33.5	16.4
Gross national savings/GDP	18.7	20.7	10.4	19.5
Current account balance/GDP	-6.1	-6.4	-4.6	-1.2
Interest payments/GDP	0.7	4.3	4.6	3.8
Total debt/GDP	26.2	122.4	69.3	57.2
Total debt service/exports	8.7	33.5	31.6	29.3
Present value of debt/GDP	-	-	6.5	-
Present value of debt/exports	-	-	176.1	-

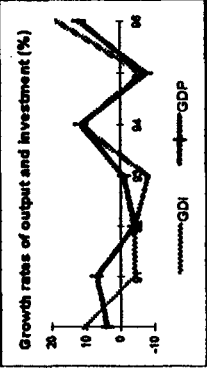


	1976-86	1986-96	1996	1997-96
(Average annual growth)				
GDP	4.4	2.6	7.6	4.1
GNP per capita	1.7	0.7	9.3	2.1
Exports of goods and services	4.4	5.5	6.5	4.2

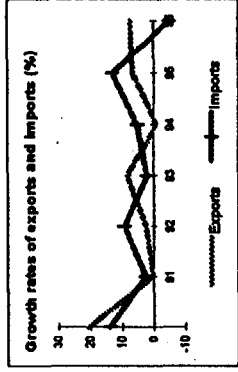
STRUCTURE OF THE ECONOMY

	1976	1986	1996	1996
(% of GDP)				
Agriculture	17.3	16.6	14.3	22.2
Industry	34.7	33.4	33.0	30.0
Manufacturing	16.6	18.6	18.6	17.0
Services	48.0	50.0	52.7	47.9

	1976	1986	1996	1996
Private consumption	69.4	65.8	71.2	68.1
General government consumption	16.3	15.8	15.5	15.5
Imports of goods and services	33.4	34.2	35.0	30.2



	1976-86	1986-96	1996	1996
(Average annual growth)				
Agriculture	2.1	-1.6	-43.9	76.1
Industry	3.0	2.8	3.1	3.6
Manufacturing	..	3.6	2.9	4.0
Services	6.1	3.8	0.9	3.5
Private consumption	3.2	3.9	-4.4	6.8
General government consumption	5.8	2.8	-5.1	-5.0
Gross domestic investment	0.8	1.5	-5.4	18.3
Imports of goods and services	-0.6	7.0	13.1	-5.1
Gross national product	4.0	2.8	-8.1	12.8



Note: 1996 data are preliminary estimates. Figures in *italics* are for years other than those specified.

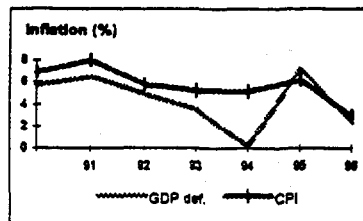
* The diamonds show four key indicators in the country (in *bold*) compared with its income-group average. If data are missing, the diamond will be incomplete.

ANNEX 10

Morocco

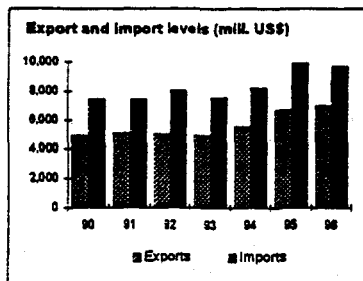
PRICES and GOVERNMENT FINANCE

	1976	1986	1986	1986
Domestic prices				
(% change)				
Consumer prices	7.9	7.7	6.1	3.0
Implicit GDP deflator	1.5	8.4	7.2	2.4
Government finance				
(% of GDP)				
Current revenue	..	20.7	23.9	22.0
Current budget balance	..	-2.4	1.4	1.9
Overall surplus/deficit	..	-9.6	-5.7	-3.2



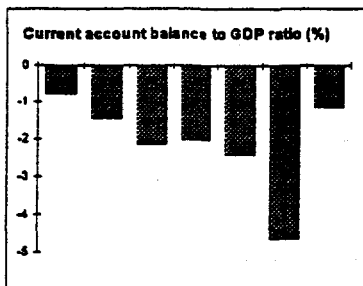
TRADE

	1976	1986	1986	1986
(millions US\$)				
Total exports (fob)	..	2,283	6,676	6,944
Other agriculture	..	603	1,457	1,468
X Phosphorus	..	479	291	313
Manufactures	..	478	1,600	1,690
Total imports (cif)	..	3,921	9,936	9,707
Food	..	507	1,332	916
Fuel and energy	..	1,074	1,184	1,203
Capital goods	..	649	1,854	1,904
Export price index (1987=100)	..	89	137	139
Import price index (1987=100)	..	104	131	131
Terms of trade (1987=100)	..	86	104	106



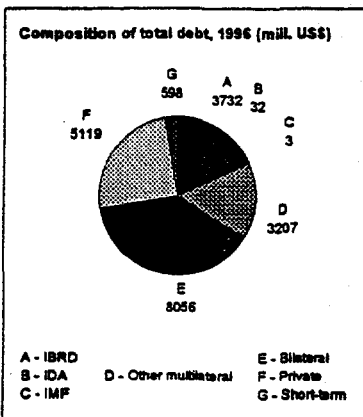
BALANCE of PAYMENTS

	1976	1986	1986	1986
(millions US\$)				
Exports of goods and services	1,997	3,278	8,892	9,433
Imports of goods and services	2,939	4,402	11,339	10,991
Resource balance	-942	-1,124	-2,447	-1,559
Net income	-88	-768	-1,318	-1,211
Net current transfers	482	1,064	2,260	2,352
Current account balance, before official capital transfers	-548	-826	-1,505	-418
Financing items (net)	519	845	2,468	485
Changes in net reserves	28	-19	-963	-48
Memo:				
Reserves including gold (mil. US\$)	438	345	3,872	4,050
Conversion rate (local/US\$)	4.1	10.1	8.5	8.7



EXTERNAL DEBT and RESOURCE FLOWS

	1976	1986	1986	1986
(millions US\$)				
Total debt outstanding and disbursed	2,353	15,753	22,445	20,747
IBRD	244	1,288	3,966	3,732
IDA	31	43	33	32
Total debt service	172	1,429	3,542	3,094
IBRD	33	167	630	599
IDA	0	1	2	2
Composition of net resource flows				
Official grants	26	416	100	..
Official creditors	253	412	-284	..
Private creditors	591	196	132	-625
Foreign direct investment	0	20	290	226
Portfolio equity	0	0	150	118
World Bank program				
Commitments	33	379	433	213
Disbursements	111	307	426	380
Principal repayments	18	87	350	342
Net flows	93	220	76	38
Interest payments	15	81	282	258
Net transfers	78	139	-206	-221



MOROCCO RURAL WATER AND SANITATION PROJECT (PAGER)

