



**AFRICAN DEVELOPMENT
BANK GROUP**

**PROGRAMME : RURAL DRINKING WATER SUPPLY
PROGRAMME**

COUNTRY : TUNISIA

SUMMARY OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

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Summary of the Environmental and Social Management Plan

Programme Name	: Rural Drinking Water Supply Programme		
Project No.	: P-TN-E00-005	Country	: Republic of Tunisia
Department	: OWAS	Division	: OWAS.2

1. Brief Description the Programme and Key Environmental and Social Components

1.1 The Rural Drinking Water Supply (DWS) Programme, whose implementation is scheduled for 2012-2016, has two main components: A. Development of DWS infrastructure, including: (i) provision of 156 new DWS systems for a population of about 99,548; (ii) rehabilitation of 143 systems in operation (128 conventional DWS systems and 15 complex DWS systems) that will benefit 224,190 persons; (iii) improving conditions of coverage of by the National Water Supply Authority (SONEDE) transfer lines affecting 24,453 people; B. Institutional support: (i) the detailed preliminary design and implementation studies; (ii) technical assistance to the CRDAs; (iii) procurement of equipment; and (iv) training. These operations will be implemented at an estimated cost of TND 200.96 million or UA 90.81 million. This amount is financed to the tune of 93.83% by the Bank and 13.93% by the Tunisian Government. The implementation of programme works and activities will allow for meeting the drinking water infrastructure needs of about 348,191 people in 20 Governorates.

1.2 The project is of a social and economic nature, listed under the Bank's environmental and social Category 2, essentially aimed at DWS works. It will be a positive contribution to the achievement of the goals of the Twelfth Rural Drinking Water Supply Plan 2010-2014, representing an overall supply rate of 98% by end-2014, compared with the 95% estimated for end-2011. The project in itself will address the concerns of rural communities that have been most disadvantaged in the past in terms of: access to good quality and adequate quantity of drinking water; improvement of living and health conditions; and substantial lessening of the hardship of fetching water, especially for women and children. The project will also ensure the effective integration of these communities in the national economic and social development process.

2. Key Environmental and Social Impact

2.1 Positive Impacts

The project will have highly significant and positive socio-economic impacts, with resulting spin-offs for the physical and natural environment. These impacts are essentially at three distinct levels:

2.1.1 At the sector development level through the sustainability of the rural DWS management structures (such as the Agricultural Development Group – GDA) by providing institutional support and strengthening capacity and resources of Regional Agricultural Development Commissions (CRDAs) with respect to study, training and monitoring, and by providing the authorities and other partners with tangible elements for preparing strategic actions towards 2020.

2.1.2 At the social level, the programme actions will have immediate positive spillovers on beneficiary communities. These spillovers range from meeting basic needs, such as access to drinking water, to improvement of environmental hygiene and sanitation, and reduction of the prevalence of waterborne diseases, achievement of a noticeable level of comfort and satisfaction as a result of programme implementation; elimination of chores related to water-fetching (improvement of the status of women) and reduction of the daily supply-related workload for girls and children from 6 to 14 years; improvement of enrolment; contribution to population settlement and reduction of rural-urban migration.

2.1.3 In economic terms, the programme will help to: improve household income through budget relief due to savings on water purchase price that may drop from DT 5 to DT 1 at most; promote agricultural

development; boost local activities and encourage the flourishing of other income-generating ventures; create temporary and permanent jobs during and after programme implementation; reduce the poverty index and decrease vulnerability levels.

2.2 Negative Impacts

2.2.1 These impact will mainly concern the implementation of the various works and the laying of pipelines. Such works are insignificant and, by their very nature, will produce only limited negative effects on the environmental and social components, including: localized soil degradation; occupation of small portions of agricultural land by the works; erosion risks due to the clearing of sites for the water supply works and storage, especially in steep slope areas; localized damage to crops; localized and very limited disruption of wildlife and vegetation; nuisance from worksites (increased traffic on roadways, risk of bodily injuries, air pollution by dust and exhaust fumes, noise and vibration, risk of pollution of water resources due to poor waste and effluent management on site); possible passage of pipelines through cultivated land - a potential source of social conflicts; landscape and visual impacts during and after the works, generated by the facilities due to the emergence of surface or air structures (reservoirs) in a natural landscape, etc. No programme-related displacement or temporary relocation is expected.

2.2.2 During the operation phase, nature-related risks are essentially contingent on the maintenance quality, which, if poor, could trigger or exacerbate the erosion of gravity-driven pipelines. Furthermore, increased water consumption may lead to overexploitation of groundwater and therefore to increased salinity. In human terms, the negative impact may possibly stem from the risk of water supply contamination due to inadequate chlorination treatment or excessive use of chemical fertilizers upstream of the catchment areas.

3. Enhancement and Mitigation Programme

The major negative impacts identified above will be mitigated by implementing a four-part programme in relation to each phase:

3.1 Concerning implementation works, provision should be made for the following:

- (i) Information of the communities well ahead of the works schedule preparation, especially for the linear works (laying of pipes) which could disrupt their activities. Such information could take the form of pre-implementation meetings held in the same participatory spirit that prevailed during the sensitization study.
- (ii) Implementation of measures relating to compliance with good practice and professional standards in carrying out civil works in connection with: the physical demarcation of the works perimeter and areas of action; soil stabilization and fixation; stabilization of pipes by laying concrete footings in erosion-prone areas; removal of all temporary structures and site restoration following completion of works.
- (iii) The management and prevention of works-generated pollution (dust, noise and vibration, exhaust fumes, effluents and wastes, etc.) requiring specific mitigation measures such as watering of roadways or work areas; the use of less noisy equipment and the embedding of generators; the use of construction equipment whose condition meets the manufacturer's standards and stipulated specifications; and the adoption of ad hoc measures to avoid any risk of pollution that may be generated by effluents or solid waste.
- (iv) Risk and hygiene management at the worksite requiring: compliance with the sections of the Labour Code relating to site personnel; that transportation of materials and major works scheduled for working hours be so organized as to minimize traffic congestion and the risk

of accidents; that work areas be demarcated; that worksites along rural routes be marked and that the movement of children be prohibited in certain risky areas.

These measures will be included in the specifications of the selected contractors and their costs will be included in work costs.

3.2 As part of the operation of DWS systems, the following actions should relate to:

- (i) Securing catchment facilities from contamination or other causes of deterioration by means of security perimeters and containment buildings, and strengthening the stability of the distribution network (reservoirs, pipelines, etc.) against land erosion and instability by adopting conservation measures designed to minimize water cut-off frequency.
- (ii) The quality of maintenance works to be carried out according to professional norms and under conditions that comply with good practice and cause minimum disruption to activities of the rural environment.
- (iii) Integration of the facilities into the landscape and general environment by means of revegetation activities and the choice of materials and external paint colours in harmony with the architectural features of the area served.
- (iv) Conduct of sensitization and information campaigns concerning the major principles of public sanitation and their impacts on environmental and individual health, in the absence of sanitation measures tailored to the context of each area served.

4. Monitoring Programme and Complementary Initiatives

Regional Agricultural Development Commissions (CRDAs) mandated to manage the rural DWS system will be responsible for planning all actions undertaken within the programme framework. They will be bound to comply with the laws, regulations, codes and other provisions in force concerning the prevention, control and protection of the physical, natural and human environment. Successful contractors will be responsible for implementing the mitigation and enhancement measures contained in the Environmental and Social Management Plan (ESMP). Works performance contracts will include the description of penalties applicable to contractors in the event of non-compliance with specific technical requirements of an environmental and social nature. Contractors and CRDAs will refer to the specifications signed with the National Environmental Protection Agency (ANPE) for the proper fulfilment of their obligations in respect of the natural and human environment.

Coordination and monitoring of these measures will be provided by the works supervision and control bureau and monitoring/evaluation expert engineers contracted or hired by the various CRDAs in the programme impact areas. As part of its "institutional support" component, the programme includes the provision of necessary logistics to monitor these measures. Monitoring forms will be kept by the successful contractors, monitored by control agencies and validated by the monitoring/evaluation engineer. Progress reports will include the potential environmental issues and corrective measures implemented as part of the ESMP.

In case of disaster during the works (accidents, fires, water or soil contamination, accidental spills of hazardous substances, etc.), emergency procedures will be applied. The staff responsible for works will be informed of such incidents and will participate regularly in simulation exercises.

With regard to the operation phase, water quality, in terms of the bacteriological and chemical aspect, must be regularly monitored by CRDAs and the Ministry of Public Health (MSP). Rehabilitation plans should be scheduled in advance whenever the quality does not meet the threshold tolerated by the standard NT 14.09 (high salinity, considerable hardness, high nitrate or phosphate content, high iron content, etc.). In this context, the National Institute of Statistics (INS), with the support of the decentralized services of all the

stakeholders of the programme (MAE, MSP, MIDL), will also carry out annual monitoring, using indicators related to the programme's social and health impacts.

5. Institutional Arrangements and Capacity Building Needs

The programme was classified under Category 2, in accordance with ADB directives concerning the environment, and taking into consideration the nature of the works: absence of displacement of people or destruction of habitats, absence of noticeable impacts on biodiversity, absence of protected ecological areas on the programme sites and significant socioeconomic spin-offs, especially for marginalized and poor communities. As far as Tunisian legislation in this area is concerned, Decree No. 2005-1991 of 11 July 2005 (on environmental impact assessments and fixing the categories of units subjected to impact assessment and the categories of units subjected to the specifications) grants drinking water supply projects a waiver from the obligation to conduct Environmental Impact Assessment (EIA). It further requires the keeping of a record of specifications duly signed by the client (CRDA) under the supervisory authority of the Ministry of Agriculture and Environment (MAE), represented by its various institutional mechanisms. Therefore, contractors in charge of works and the CRDAs will refer to these specifications signed with the National Environmental Protection Agency (ANPE) to ensure proper fulfilment of each party's obligations regarding compliance with guidelines on the environmental, natural and human aspects.

It is necessary for CRDAs to be closely involved from the design to the implementation and monitoring stages. Once the water supply systems are in place, they will be closely managed by agricultural development groups (GDAs) which, pursuant to a management contract binding them to CRDAs, constitute a key element in the Tunisian institutional mechanism as far as rural DWS and the operation of water supply systems are concerned.

Ensuring satisfactory implementation of environmental components of projects in relation to current CRDA resources and enabling stakeholders to better perform their functions call for capacity building in supervisory functions needed for managing, monitoring and controlling rural DWS systems, as well as in training and logistics.

Regarding the rural sanitation component and in view of supporting rural DWS projects with a sanitation service within the framework of integrated and consistent projects, it is necessary to fill the institutional void that currently exists and which releases ONAS, officially the sole entity in charge of sanitation activities in the country, from any obligation to intervene in communities of less than 4,000 inhabitants. It would only be reasonable to consider substantial physical investments in this subsector if the institutional void is filled.

6. Public Consultations and Need for Information Dissemination

Since the 1980's, Tunisia has acquired the tradition of community management of water infrastructure. The programme constitutes in itself a positive response to the concerns of the affected communities and a favourable reaction to their official requests. Their participation in this approach will be effective at all stages without discrimination and bearing in mind the gender aspect.

The CRDAs responsible for managing the rural DWS sector will be in charge of planning all activities undertaken as part of a participatory approach involving various operators from the study and design phase. This approach requires the organization of surveys, public information campaign and consultations as well as the dissemination of information on components of the programme as part of sensitization studies. During the operation phase, the administrative and financial management, as well as the maintenance and operation of the various water supply systems will devolve on structures formed by the beneficiary communities, and which will be considered as key stakeholders of local development. Before the start of works, the CRDAs will organize presentations on the programme and environmental measures, and particularly the constraints related to such measures.

7. Cost Estimates

A large part of the recommended environmental mitigation measures are measures that already form an integral part of services relating to civil works. Hence, in this regard, they do not entail any specific additional costs. Their cost is actually embedded in the cost of the programme's technical components indicated in the specifications of successful contractors.

No.	Item	Unit	Operator or Implementation Framework	Quantity	Unit Price (EUR)	Amount (EUR)
1	Campaign to raise awareness about the key public hygiene principles and the need to improve community behaviour	N/A	MSP/CRDA	622	500	311,000
2	Leaflets or posters to raise awareness on environmental and sanitation monitoring	N/A	MSP/CRDA	6,220	13	77,750
3	Environmental assessment training for CRDA engineers responsible for monitoring: 5 days.	Participants	GDA technical assistance project	20	2,250	45,000
4	Preparation of a small monitoring manual	N/A	GDA technical assistance project	20	25	500
<i>Total</i>						<i>434,250</i>

The costs of training, awareness and Education, estimated at EUR 434,250 will be supported by the project. These costs will be borne by the corresponding operators.

Given the extensive experience of the Ministry of Public Health and CRDAs on the subject, the activities proposed under items 1 and 2 fall within their sphere of competence. As such, they should be able to carry them out with their own resources.

8. Implementation Schedule and Production of Reports

The environmental and social measures set forth in the ESMP will largely be implemented concurrently with works implementation. The regional services for study and works control, which fall under the CRDAs, will report on the status of the programme's environmental and social component in each progress report. An environmental audit will be conducted at the completion of each sub-programme and the compliance of the environmental component will be part of the works acceptance.

Five types of reports are envisaged:

- i. An ESMP adapted to the socio-environmental context of the site, drafted at the end of the implementation study.
- ii. A report briefly relating the procedures and results of the community information campaign and consultations that preceded the commencement of works at each site.
- iii. A summary note enabling the assessment of the ESMP implementation on completion of the works for each site, in preparation for works acceptance.
- iv. A report describing the activities undertaken in respect of sensitization on the broad principles of public hygiene and the improvement of community behaviour.

- v. An annual monitoring fact sheet at each site for record purposes.

Once finalized, these reports will be integrated into the quarterly monitoring report submitted to the Bank.

Table 1
Positive Impact Assessment

Nature of Positive Impacts	Proposed Enhancement Measures	Impact Assessment
Socioeconomic impacts		
Satisfaction of a vital need through access to safe drinking water	Ensure adequate and regular water supply in quantity and quality through the maintenance of the DWSS and in compliance with Standard NT 09.14	Important, permanent and significant;
Improvement in hygiene conditions and the prevalence of waterborne diseases	Ensure necessary improvement in chlorination and the overall treatment at the onset of abnormalities Accompany the service with incentives to take appropriate sanitation measures	Important, permanent and significant;
Streamlined management of water resources	Complete the identification and assessment of reserves; Identification of necessary volumes;	Important; long term
Reduction in provision-related daily workload and elimination of chores associated with water-fetching	Provide as many individual connections as possible	Important; long term
Increased school enrolment	Improvement of women's status Reduction of the poverty index and decline in vulnerability levels Regional bid invitations, subcontracting; Supervision and monitoring of pollution risks Training and technical assistance	Important; long term
Job creation during construction works	Use of local labour;	Average; temporary
Agricultural development and diversification of local activities	Rational use of water to promote local agriculture (watering, livestock, market gardening, arboriculture)	Important; long term
Improvement in income	Creation of micro-projects and development of new economic activities, including SMEs	Important; long term
Contribution to population settlement and reduction of rural migration	Regional development Reduction in the poverty index and decline in vulnerability levels	Important; long term
Engineering services	Regional bid invitations; subcontracting; Supervision and monitoring of pollution risks	Important; temporary

	Training and technical assistance	
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Table 2
Negative Impact Assessment and Description of Proposed Mitigation Measures

Nature of Negative Impacts	Impact Assessment	Recommended Mitigation Measures	Responsible Party	Timing
PREPARATORY PHASE				
Impacts on the natural environment				
Installation of worksites and access management: cutting, clearing, destruction of vegetation cover and temporary occupation of sites	Moderate and temporary	Restoration of sites at the end of the works and removal of all temporary structures	Contractor	End of works
		Sensitization of workers on worksite good practice relating to respect for the natural and human environment		Start of works
Impacts on the physical environment				
Soil compaction	Insignificant and reversible; small areas affected	Levelling; restoration of the original compaction by tilling to a depth of 50 cm	Contractor	During the works
WORKS IMPLEMENTATION PHASE				
Impacts on the natural environment				
Disuse of small portions of farmland	Low; permanent and insignificant	Residual impact	Contractor/Local community	Start of works
Destruction of the vegetation cover, degradation of native plant communities	Low; of short duration; perfectly manageable	Restoration of soil and vegetation cover depending on the features of the place	Contractor	At the start of works
Disturbance of wildlife	Insignificant; permanent, highly localized in view of the nature and extent of work areas	Protect potential fragile ecosystems by circumventing them; reforest and revegetate	Contractor	During the works
Landscape deformation and visual nuisance: temporary damage during works due to soil stripping and loss of vegetation cover, trenches, rubble, construction waste.	Insignificant; temporary and manageable	Soil restoration; revegetation, regular removal of waste;	Contractor	During the works
Impacts on the human environment				
Risk of destruction of grain crops, tree crops, forest plantations;	Nil to insignificant following the route of the track;	Choice of works intervention period outside the cropping seasons;	Contractor	During the works
Restoration of sites after closure of works; restoration of the topsoil, replanting, unpacking, revegetation, avoid	Temporary to permanent, depending on the nature of the equipment	Restoration of locations after closure of worksites; restoration of topsoil, replanting of trees, decompaction, revegetation; avoid crossing irrigated land		End of works

crossing through irrigated land;				
Disruption of water use and deterioration of the quality of streams (laying pipe in wadis)	Moderate and temporary	Whenever possible, use existing infrastructure to cross by choosing crossing points; protect banks, remove all waste, etc.	Contractor	During the works
Conflict of interest between communities stemming from the nuisance suffered by non-beneficiaries without direct profit or compensation.	Insignificant; temporary and manageable	Sensitize the population on collective interest, public utilities and the temporary nature of their negative impacts	Consulting Firm/Sensitivity study	Before the works
		Ensure that the works are carried out professionally in order to minimize the nuisance caused to non-beneficiaries	Contractor	During the works
Increased traffic and increased risk of personal injury due to the circulation of vehicles and work-related accidents	Important; temporary and manageable	Inform and sensitize the population about these risks; demarcate the intervention perimeter and put up visible and appropriate work zone signs	Contractor	Before start-up works
		Sensitize workers on good practice, comply with the labour code provisions on site personnel, site supervision; use of machinery in compliance with safety specifications; provision of a first-aid kit and availability of a car on site for emergencies.		During the works
Noise and vibration nuisance	Insignificant since the environment is cleared; temporary, highly localized given the nature and extent of work areas	Compliance of construction machinery with required technical specifications; use of less noisy equipment and embedding of generators, scheduling of work only for non-working hours	Contractor	During the works
Degradation of air quality due to the release of dust and exhaust fumes	Insignificant and temporary.	Watering of roadways and areas of intervention whenever necessary (dry season, during absence of rainfall, etc.)	Contractor	During the works
		Ensure compliance of construction machinery with fuel burning conditions		
Risk of pollution of water resources due to poor management of waste and effluents generated on site	Significant, irreversible	Organization of ad hoc measures to avoid any risk of pollution by effluents or solid waste (worksites hygiene, proper management of residual and hazardous waste, and regular evacuation, etc.)	Contractor	During the works

Impacts on the physical environment
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Excavation, earth moving works	Low to important, manageable	Stripping of topsoil and restoration after the works; management of borrow pits, levelling, revegetation.	Contractor	During and at the end of the works
Soil compacting (traffic)		Tilling at the end of works		
OPERATION PHASE				
Impacts on the physical environment				
Risk of erosion of the soil and the gravity-driven pipelines, especially on steeply sloped land	Average risk; short term; manageable	Carry out soil conservation works: revegetation; rain water drainage, etc.	CRDA/GDA	Permanent
Soil compacting during maintenance and reparation works		Demarcate spaces for vehicle traffic; carry out reparation works professionally		
Landscape degradation due to the presence of equipment and visual nuisances	Important and permanent	Integration of facilities in the general environment: revegetation, choice of materials and paint colours in harmony with the external architectural features of the area served.	CRDA	Before the works/during the preparation of specifications
Impacts on the human environment				
Inconvenience in the event of very frequent cut-offs	Important; short term; manageable	Choose correct material suitable for intake pipes and comply with the technical specifications	CRDA/Contractor	During the preparation of bid documents
		Stabilization of the pipelines by laying concrete footings in erosion-prone areas	Contractor	During the works
Contamination of users and risk of outbreak of other waterborne diseases	Important; short term; controllable	Securing of catchment facilities by means of security perimeters and containment buildings	CRDA	During the works
		Ensure proper and continuous chlorination, and regular maintenance of the metering pump	CRDA/management structures of DWS systems	Permanent
		Conduct regular analyses of the chemical and bacteriological quality	MSP/CRDA	Quarterly
Odour and health nuisance due to the absence of safe sanitation	Important, permanent as long as proper sanitation measures are not taken	Encourage individual sanitation measures and make that a condition for eligibility for private connection	CRDA/management structures of DWS systems	Permanent
		Conduct an awareness campaign concerning key public hygiene principles, their impact on health and the risks due to wastewater handling		

Table 3
Supervision and Monitoring Programme

Supervision Programme	Responsibility	Monitoring Parameters	Responsible Party	Costs
PREPARATORY PHASE				
Participatory approach and involvement of stakeholders	CRDA/GDA	Ensure the dissemination of information among the target communities before start-up Ensure that a road sign is placed at no less than 50 metres from the worksite	CRDA/Contractor	N/A
Choice of appropriate locations for installation of worksites	Contractor	Compliance with the goals pursued and streamlining of the scope of operations /	Works Control Agency	Included in the cost of works
Provision of access	Contractor	As much as possible, run parallel to existing rural tracks and avoid passing through cultivated land	Environmentalist	N/A

Supervision Programme	Responsible Party	Monitoring Parameters	Responsible Party	Costs
WORKS SITE PHASE				
Public Security	Contractor	Safe management of fuels and inflammable materials on site and in the work areas ----- Safe storage of equipment on site ----- Proper demarcation of the project area and prohibition of access	Works Control Agency	N/A
Personal safety at the worksite	Contractor	Wearing of works-related personal protection equipment ----- Existence of a first-aid kit on site ----- Permanent presence of a free vehicle on site for relief and emergencies	CRDA	
Worksite hygiene	Contractor	Existence of toilets and lavatories at the workplace ----- Presence of garbage cans for general waste		
Air and noise pollution	Contractor	Humidification and watering of tracks and rights of way wherever necessary ----- Checking the condition of machinery and equipment used on site and ensuring their compliance with specifications		
Pollution of water resources and soil	Contractor	Existence on the site platform of oil or fuel leaks, or spill of any type of pollutant ----- Proper management of effluents and solid waste on site (existence of a temporary storage area and appropriate containers, regular evacuation, safe management of fuels and inflammable materials on site and in the work areas)		

Programme Supervision	Responsible Party	Monitoring Parameters	Responsible Party	Costs
OPERATION PHASE				
Maintenance of equipment in accordance with the	GDA	Compliance with good practice in the performance of civil engineering works and with the manufacturers' standards for the	CRDA/ management structures of	Operating budget

manufacturer's standards		repair and maintenance of equipment	DWS systems	
Supervision of the bacteriological and chemical quality of water	GDA	Ensure compliance with Standard NT 09.14	CRDA/MSP	
Improvement in living standards	INS, MSP, MAE	Income level per household, poverty index, rate and type of diseases recorded, enrolment rate, status of women, behavioural change, etc.	CRDA/MSP	