

SUMMARY ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Project Name: Drinking Water Supply and Sanitation Project for Rural Areas and Secondary Centres of Tadjoura, Arta and Ali Sabieh Regions.

Project Number : P-DJ-E00-003 **Country :** Djibouti
Department : OWAS **Division :** OWAS 2

a) Brief Project Description and Main Environmental and Social Components

1. This project, which is fully consistent with the Social Development Initiative (INDS) 2008 - 2012 put in place by the Government of Djibouti, will sustainably help to improve the living conditions of the populations in rural areas and secondary centres of Tadjoura, Arta and Ali Sabieh regions by broadening access to drinking water and sanitation services. The project comprises three components namely *A: Development of Drinking Water and Sanitation Infrastructure* for: (i) the establishment of DWSS systems in rural areas and secondary centres; (ii) construction of household latrines and public latrines in health centres and schools with separate male/female compartments; (iii) services for the conduct of engineering studies and control of works; and (iv) conduct of IEC campaigns and promotion of hygiene for the beneficiary communities; *B: Institutional Support* for: (i) monitoring water resources; (ii) training of Water Department staff in participatory community development and integrated water management; and (iii) establishment of village committees to manage DWS systems; and *C: Project Management* for: (i) the supply of office equipment, procurement of rolling stock and IT equipment; (ii) operating costs; and (iii) coordination, monitoring-evaluation and auditing of project accounts.

2. The climate of the project area is of the arid African sub-tropical type with annual rainfall below 200 mm virtually everywhere as well as high temperatures, particularly between May and September when the average is above 40°C. The area has a generally steep landscape with a succession of highlands, plateaux and plains that have given rise to a drainage system whose waters flow towards the drainage basin exposed to the Red Sea or Gulf of Aden (45%) and towards the drainage basin of the country's plains (55%). The rivers are not perennial given the low rainfall patterns, but contribute to recharging the water table. There are two continuous (regional) aquifers in Djibouti, one in the western part of the country with Lake Assal as its lowest level (150 m below sea level), and the other in the south of the country between Djibouti city and Loyada. Furthermore, there are discontinuous (local) water tables and alluvial sheets. It is estimated that the volume of Djibouti's water table that can be harnessed ranges between 10 and 20 million m³/year.

3. Tadjoura area has a few animal species (e.g. gazelles) that are resistant to harsh climatic conditions. For example, Day Forest, located on a mountainous terrain (1783 m), has more than 60% of the biological diversity and a species that is endemic to the country, the Djibouti francolin (*Francolinus ochropectus*). The effects of climate change will gradually lead to a recharge deficit resulting in a reduced piezometric surface that will ultimately affect the project outputs. The project will help to mitigate the effects of climate change by using only solar energy technology in water pumping systems.

4. The country's economy is essentially based on the services sector which accounts for over 80% of GDP and provides jobs to about 60% of the working population. The high level of migration is due to refugees, estimated at 120,000 persons, fleeing the persistent political instability in the sub-region. As regards education, the net enrolment rate has risen to 66.2%. Although this constitutes progress in relation to the 2001-2002 gross enrolment rate (GER) of 42.7%, it falls short of the PRSP target (73%). However, with the current ratio of 0.98, the country has now virtually attained gender parity. In addition, the enrolment rate for women aged between 15 and 24 years stands at 47.5%.

5. The health sector has made significant strides. In 2010, infant mortality rate and the child and infant mortality rate were 67‰ and 94‰ respectively. The immunization rate of children below 12

months varies from 46.2% (Polio 3) to 87.5% (BCG), depending on the disease. Furthermore, as regards reproductive health, 92.3% of women who delivered in the last two years prior to the survey received ante-natal care from qualified health personnel and 87.4% of these women delivered in a health centre.

6. Concerning access to urban drinking water, in 2006, pipe-borne water was used by 94.1% of households (41.4% in households, 39.8% in courtyards and 12.9% from a public standpipe). In rural areas, pipe-borne water is used by only 27.4% of households (3.6% in households, 4.4% in courtyards and 19.4% from a public standpipe). With regard to urban sanitation, in 2006 the access rate was estimated at 69.1%. In rural areas, access to sanitation was about 17.3%.

7. In Djibouti, while the female population represents 52.6% of the total population, it constitutes only 34% of the working population. Furthermore, 19.7% of Djibouti households are headed by women, and unemployment affects women more than men (70% of women aged over 15 years are unemployed compared to 56% for men). Rural women are the most exposed to unemployment (83.8%).

b) Major Environmental and Social Impacts

The major environmental and social impacts were assessed in accordance with Environmental and Social Assessment Procedures (ESAP) and ADB's cross-cutting policies applicable to DWSS projects such as the Gender Policy and the Integrated Water Resources Management Policy, as well as Law No. 51/AN/09 6eme L of 1 July 2009 instituting the Environment Code, Law No. 93/AN/95/3ème L of 4 April 1996 instituting the Water Code, Law No. 016/01 of the Republic of Djibouti, and Law No. 173/AN/02/4ème of 7 July 2002 defining the country's policy on the integration of women in development. The ESMP also takes into account other texts and principles on environmental protection, particularly: (i) Decree No. 2011-029/PR/MHUEAT of 24/02/2011 revising the environmental impact assessment procedure in the Republic of Djibouti; and (ii) Decree No. 2004-0065/PR/MHUEAT of 22 April 2004 on biodiversity protection.

Positive Impacts

Drinking Water Supply

- personal and food hygiene and decline in cases of water-borne diseases;
- improved living conditions through elimination of water fetching chores for women and children who can then focus on income-generating activities and education respectively, in view of the time saved as a result of the water supply sources being closer and more reliable;
- opportunity to develop agricultural and pastoral potential through small domestic vegetable gardens (salad, tomato, etc.) and improvement of animal health;
- economically disadvantaged communities make tremendous physical and financial efforts to obtain a minimum amount of drinking water. They often resort to wells and other non-recommended sources to obtain this valuable commodity;
- providing the poor with adequate drinking water in terms of quality and quantity will prevent them from resorting to the often polluted sources;
- contribution to reducing the mortality rate, particularly among children, and helping to increase life expectancy;

- creation of local employment, with about 205 permanent jobs;
- higher incomes for women and vulnerable groups through paid jobs and indirect development of income-generating activities (IGAs), particularly small catering activities and petty trading on work sites.
- In short, this initiative will put the communities in good health and economic conditions. In other words, the adequate drinking water supply constitutes a health guarantee for persons for whom water is the main vector of major diseases that are sometimes fatal because, according the World Health Organization (WHO), 80% of diseases in the world are water-borne.
- The development of water conservation and management skills by establishing organizations and training Water Management Committees (WMCs), as well as expanding the network of civil society organizations working towards environmental protection, will help increase the level of community participation (men and women) in the development and operation of the project.

Construction of household and public latrines

- enhancement of environmental sanitation, thereby preventing the development and spread of water-borne and other insect-vector diseases, the deterioration of community living conditions, etc.
- construction of household latrines and public latrines in schools and health centres will come as a relief to the communities concerned in terms of better access to improved sanitation and hence decline in the spread of water-borne diseases and diseases due to lack of hygiene;
- permanent employment opportunity for 205 youths, and therefore higher purchasing power for local customers as a result of increased incomes;
- higher incomes for women and vulnerable groups through paid jobs and indirect development of income generating activities (IGA), particularly small catering activities and petty trading on work sites.

Negative Impacts

The impact identification approach was based on a range of possible impacts of activities on the biophysical and human environment components. The potential negative impacts that require mitigation or compensatory measures are presented according to the two investment components of the project namely, Drinking Water Supply (DWS), and Sanitation as indicated in Tables 1 and 2 respectively.

Climatic risks: The adverse effects of high temperatures and reduced rainfall, as well as the growing deficits in evapotranspiration may therefore affect the project outputs in the long term. However, the regeneration of the plant cover through the mobilization of water will curb the development of this phenomenon and contribute to fixing CO₂ emissions due to the increase in livestock population, and thereby help to reduce greenhouse gas effects.

The project will produce positive impacts in climate change by adapting initiatives to climate change variability and using only solar energy technology in water pumping systems.

Cumulative impacts. The effects of climate change will gradually result in a growing deficit in groundwater recharge capacity which will in turn reduce the piezometric surface and ultimately affect the availability of water. The potential impacts of the project related to the qualitative and quantitative harvesting of groundwater that will compound the natural impacts on the resource will receive special attention during implementation of environmental and piezometric monitoring programmes.

c) Enhancement and Mitigation Programme

To enable the DWSS project to fit into its environmental and social context, measures have been proposed to mitigate the various negative environmental and social impacts identified. The measures are responses aimed at reducing or preventing the expected adverse effects on the natural or human environment or at improving the proposed interventions. The measures include prevention, general worksite management and measures specific to the rehabilitation of each of the DWS project components or latrines.

Some of the measures described below have a contractual value, and will be included in the environmental clauses of the bidding documents prepared for works execution. They will later be supplemented by specific enhancement or mitigation measures to be identified during implementation studies and public consultations required for the proposed DWSS project activities. Consequently, the engineering studies should feature an environmental impact assessment specific to the structure to be constructed or rehabilitated that could supplement the measures proposed in the ESMP. The other mitigation measures that will not be included in the bidding documents will be implemented by the Project Coordination Unit at the DE and/or through specialized service providers.

d) Monitoring Programme and Complementary Initiatives

The monitoring programme aims to ensure that the above-mentioned mitigation and enhancement measures are implemented and produce the expected results. Where necessary, adjustments could be made during project implementation. The monitoring programme comprises two components, namely environmental surveillance and environmental monitoring.

The purpose of environmental surveillance is to ensure contractor and project owner compliance with the commitments defined in the environmental clauses on the communities and other institutional actors concerned with implementation of the proposed measures. The Water Department, contractors and the control firms will perform this function.

Environmental monitoring consists of short, medium and long-term measures aimed at determining the most significant impacts of the project compared to the impacts identified during the brief impact assessments so as to make any appropriate corrective changes to the recommended mitigation measures. More specifically, it will consist in assessing the development of the most sensitive components of the biophysical or human environment. Tables 3 and 5 below present the indicators to be monitored for the various environmental components and the parties in charge of the process.

The supplementary activities identified to strengthen the project's environmental and social performance concern the following aspects: (i) empowerment of communities through the establishment and training of water management and infrastructure maintenance committees; (ii) provision of minor equipment to village water management committees; (iii) project financing of infrastructure maintenance for two years; (iv) capacity building for members of village water management committees, school and health centre officials, as well as the beneficiary population of individual latrines, in the management and maintenance of water points and public latrines.

e) Institutional Arrangements and Capacity Building Requirements

The effective implementation of measures to mitigate the negative environmental and social impacts of the DWSS project activities will be successful only if an institutional framework is put in place with qualified and experienced staff. It is also necessary to establish an institutional mechanism before the project start-up.

The following levels of intervention have been identified at national level:

- the Water Department for full coordination and monitoring of activities related to the rural DWS infrastructure and latrines;
- ONEAD General Directorate for monitoring and control of measures related to DWS activities in the secondary centres;
- the Land Use Planning and Environment Department for the overall supervision and monitoring;
- Water management committees for the implementation of hygiene and sanitation measures;
- the works inspection firms (CFs) for monitoring of the implementation of measures by the contractors;
- the successful bidding works contractors for the implementation of relevant measures in accordance with the environmental clauses.

The mainstreaming of environmental and social concerns under the DWSS project is geared towards building the capacity of all stakeholders so as to ensure better environmental protection and involvement of all the actors in the project. The main objectives are to develop the skills of local environmental services for implementation of the DWSS project activities, ensure sustainability of structures put in place by the project as well as sustainable management of natural resources (soil, water and vegetation), prevent and manage conflicts, and improve the sanitation and health of the people. This activity will concern the above-mentioned actors.

f) Public Consultations and Information Disclosure Requirements

The proposed consultation process place will essentially relate to: public information and awareness raising, participatory diagnostic study, definition of priorities for the needs identified at grassroots level, validation meetings and preparation of action plans. Measures that require public consultation concern the negative social impacts of the project. Thus, the following measures (inter alia) must be discussed with the public directly concerned:

- hiring of local labour (men and women) and purchase of local products (food, basic equipment);
- adjustment of water volumes pumped annually for annual recharge of the aquifer;
- the choice of location sites of the water points taking into account the water needs expressed;
- the representation of women as members of village water management and sanitation infrastructure committees;
- putting in place a concerted management mechanism for water points taking into account migration fostered by the opportunity offered by the water point in terms of availability of the resource;

Public consultation which can take 2 to 4 days depending on the size of the municipality or village and which can be structured into several sessions or modules.

The ESMP summary will be posted on Bank's website thirty (30) days prior to the Board of Directors meeting to approve the project financing, and will be accessible to the public. The Government of Djibouti will also post the ESMP summary on the website of MAEPER/H, the project owner and promoter, the MHUE/AT and in the three regions covered by the project. To ensure ownership of the ESMP and facilitate its implementation and monitoring, a workshop bringing together the services involved in the ESMP implementation will be organized during the project launch. The outcomes of the summary environmental and social impact assessments will be made available to the affected communities prior to implementation of each activity.

Table 1
Environmental and Social Supervision and Monitoring Programme of the DWS

Potential Negative Impacts	Mitigation Measures	Implementation	Monitoring and Supervision	Monitoring Elements	Indicators	Period	Frequency	Cost
Generation of significant amounts of excavated material during the digging of trenches, thereby affecting the land	At the end of the construction works, levelling of excavated lands to foster plant regeneration	Contractors	CF DE DAT/E	Soil	Existence of excavated material	End of works	Regular for CF 2X/year for DAT/E and DE	Works cost Environmental clause
Landslides and other kinds of earth movement in the mountainous works areas	Construction works during dry season to avoid landslides	Contractors /DE/ONEAD	CF DE DAT/E	Soil	Landslide	During works	Regular for CF 2X/year for DAT/E and DE	Environmental clause
Limited destruction of plant cover within infrastructures and their access roads	Minimizing tree felling and limitation to works /tree planting areas	Contractors	CF DE DAT/E	Vegetation	Number of trees felled	During works	Regular for CF BC 2X/year for DAT/E and DE	Environmental clause / Included in works cost
Disruption of wildlife habitats and migrations due to noises on work sites and dwelling places	Taking into account wildlife reproduction areas and migratory corridors in choosing pipe network layouts	Consulting Firms	CF DE DAT/E	Ecosystem	Surface areas of sensitive zones	At design stage and during works	Regular for CF BC 2X/year for DAT/E and DE	Environmental clause
Disruption of quality of life due to nuisances such as noise, dust, and traffic at public places (health centre and schools) associated with the construction works	Putting in place formal mechanisms for consultation with the local authorities to discuss aspects that affect the communities adversely, and finding satisfactory solutions for all stakeholders	CF/DE/ONEAD	CF DE DAT/E	Consultation	Number of consultations; Level of public satisfaction	At design stage and during works	Regular CF BC 2X/year DAT/E and DE	Environmental clause
Modification, encroachment, destruction or degradation of sites of cultural, archaeological or historical significance	Making an inventory of archaeological sites in the project area and protecting them from any damage, in view of their historical or archaeological importance	CF/DE/ONEAD Contractors	CF DE DAT/E	Cultural asset	Number of sites affected	At design stage and during works	Regular for CF BC 2X/year for DAT/E and DE	Environmental clause
Risk of destruction of underground pipes	Consulting concessionaries of underground networks to identify the pipes buried prior to works	CF/DE/ONEAD Contractors	DE DAT/E	Infrastructure	Number of disruptions	At design stage and during works	Regular for CF BC 2X/year for DAT/E and DE	Environmental clause
Risk of frustration in the event of non-recruitment of local labour	To the extent possible, giving preference to local labour (men and women) and purchasing local products (food and basic equipment)	Contractor	DE DAT/E	Recruitment	% of local labour	During works	Regular for CF BC 2X/year for DAT/E and DE	Environmental clause
Erosion by run-off causing problems of sedimentation	Stabilizing the soils to reduce risks of erosion	Village Water Management Committees	DE DAT/E	Soil	Signs of erosion	Operation of DWS	Regular for CF BC 2X/year for DAT/E and DE	Environmental clause
Contamination of the soil and surface and underground water by wastewater and hazardous products including chemical products (chlorine) used to treat raw water	Implementation of good land farming practices (to protect human and animal health)	Village water management committees	DE DAT/E	Soil	Number of good practices instituted and used	Operation of DWS	Regular for the CF 2X/year for DAT/E and DE	Environmental clause

Potential Negative Impacts	Mitigation Measures	Implementation	Monitoring and Supervision	Monitoring Elements	Indicators	Period	Frequency	Cost
and clean filters								
Disruption of local hydro-geological system resulting from the sinking and operation of boreholes	Adjusting the volumes of water pumped annually in accordance with the annual recharge of the aquifer	DE/ONEAD	DE DAT/E	Water	Static level of water table	Operation of DWS facilities	Regular for the CF 2X/year for DAT/E and DE	Environmental clause
Reduced vegetation growth and disruption of wildlife habitat which can accelerate desertification in case of significant and permanent reduction of static level of fossil groundwater.	Replant village gardens with indigenous species and around public toilets and standpipes operated by women with the support of NGOs	DE/ONEAD/ Contractor	DE DAT/E	Vegetation	Number of dead trees; Number of trees planted	During works	Regular for the CF 2X/year for DAT/E and DE	Environmental clause
Inadequate water storage facilities causing water contamination	Storing and safely managing water reserves and ensuring continuous supply of water	DE/ONEAD	DE DAT/E	Water	Results of water analysis	Operation of DWS	Regular for the CF 2X/year for DAT/E and DE	Environmental clause
Population pressure due to the arrival of male and female immigrants attracted by economic opportunities	Creation of water points to meet water needs	DE/ONEAD	DE DAT/E	Population	Population growth rate	Operation	2X/year for DAT/E and DE	Environmental clause
Degradation of hygienic conditions due to increased amounts of wastewater (odours, spill over, etc.).	Planning wastewater management as an integral part of the project	DE/ONEAD/ Village Water Management Committees	DE DAT/E	Water-borne diseases	Disease prevalence rates	Operation	2X/year for DAT/E and DE	Environmental clause
Loss of control of water supply when women are not involved in decision making processes	Ensuring that women are well represented on village water management and sanitation infrastructure committees	DE/ Village Water Management Committees	DE DAT/E	Women's participation	Number of women in the WMCS	Pre-operation	2X/year for DAT/E and DE	Environmental clause
The water supply options do not correspond to the priority needs of women.	Offering women the opportunity to have their requests known to project decision makers.	DE/ Village Water Management Committees	DE DAT/E	Women's participation	Women's level of satisfaction	Pre-operation	2X/year for DAT/E and DE	Environmental clause
Limited participation or even exclusion of women from specific consultative groups and project benefits due to cultural barriers	Recognizing the needs and specific capacity of women in managing water and sanitation infrastructure	DE/ONEAD	DE DAT/E	Women's participation	Number of women on WMCS	Pre-operation	2X/year for DAT/E and DE	Environmental clause

Potential Negative Impacts	Mitigation Measures	Implementation	Monitoring and Supervision	Monitoring Elements	Indicators	Period	Frequency	Cost
Social conflicts caused by the presence of non-resident workers, immigrants and clandestine male and female immigrants resulting from improved access to drinking water for the local population	Putting in place a concerted management mechanism to address the issue of taking into account opportunistic migration	DE/ONEAD	DE DAT/E	Resource management	Number of conflicts between users of water points	Pre-operation	2X/year for DAT/E and DE	Environmental clause
Contribution to the maintenance costs of facilities determined without consultation	Consulting men and women affected in all the project phases to determine the contribution rate	DE/ Village Water Management Committees	DE DAT/E	Public consultation	Stakeholders' level of satisfaction	Pre-operation	2X/year for DAT/E and DE	Environmental clause
Lack of collaboration between new and existing civil society organizations on environmental challenges	Facilitating the participation of civil society organizations in the project with due regard for their intervention priorities and respective strengths	DE/ONEAD	DE DAT/E	Strengthening of civil society	Number of NGOs and associations in the project activities	Pre-operation	2X/year for DAT/E and DE	Environmental clause

Table 2
Summary of Mitigation Measures for Negative Environmental and Social Impacts of the Latrine Component

Potential Negative Impacts	Mitigation Measures	Implementation	Monitoring and Supervision	Monitoring Elements	Indicators	Period	Frequency	Cost
Limited destruction of plant cover within infrastructures and their access roads	Minimizing tree felling and limitation to project works area	Contractors	CF DE DAT/E	Vegetation	Number of trees felled	During works	Regular for the CF 2X/year for DAT/E and DE	Cost of works Environmental clause
Generation of significant amounts of excavated material during digging of trenches, thereby disrupting the soil	At the end of the construction works, levelling of excavated material to foster plant regeneration	Contractors	CF DE DAT/E	Soil	Soil aspects	Prior to end of works	Regular for the CF 2X/year for DAT/E and DE	Environmental clause
Disruption of quality of life due to nuisances such as noise, dust, and traffic at public places (health centre and schools) stemming from the construction works	Putting in place a formal mechanism for consultation with the local authorities to discuss aspects that adversely affect the public, and finding satisfactory solutions for all stakeholders	DE/ONEAD/ Village Water Management Committees	BC DE DAT/E	Public consultation	Level of satisfaction	Prior to works	Regular for the CF 2X/year for DAT/E and DE	Environmental clause
Risk of frustration in the event of non-recruitment of local labour	To the extent possible, giving preference to local labour (men and women) and purchase of local products (food and basic equipment)	Contractors	CF DE DAT/E	Labour recruitment	% of local labour	During works	Regular for the CF 2X/year for DAT/E and DE	Environmental clause
Risks of pollution through infiltration of contaminated surface water Risk of pollution of soils and air due to poor sludge management practices	Implementing good land farming practices (to protect human and animal health)	DE/ONEAD	DE DAT/E	Soil	Quality of soil; Number of good practices	Pre-operation	2X/year for DAT/E and DE	Environmental clause
Unhygienic nature of places due to poor maintenance Development of disease vectors	Putting in place a joint management system by municipalities and communities	DE/ONEAD/ Village Water Management Committees /Municipalities	DE DAT/E		Mortality rates	Pre-operation	Regular for the CF 2X/year for DAT/E and DE	Environmental clause

Measures	Intervention Areas	Year 1	Year 2	Year 3	Year 4	Year 5
Training	Training in the conduct of summary environmental impact assessments and environmental monitoring of the DWSS Project activities for the consulting firms	—				
	Training in the implementation of the environmental measures of the DWSS Project works for the services contractors	—				
	Training in Djibouti regulations on environmental and social impact assessment as well as monitoring and evaluation of implementation of the project ESMP for the staff of the DE, DAT/E, Health and Social Development	—				
Project monitoring and evaluation	Environmental monitoring/evaluation and supervision of the DWS Project	—				
	Mid-term environmental review			—		
	Environmental and social assessment					—

Conclusion

The ESMP of the DWSS Project, which is being implemented within a context of poverty and challenges in meeting drinking water and sanitation needs, shows that, overall, the positive environmental and social impacts largely outweigh the negative impacts. The latter can be controlled with the implementation of institutional, technical, capacity building, and supervisory measures. Thus, the project will contribute significantly to local development in the three predominantly rural regions by enabling their access to drinking water and sanitation, thereby contributing to improving their living environment. Furthermore, the planning of environmental safeguards in line with that of the project will facilitate the mainstreaming of environmental and social concerns in the project, and thereby strengthen the foundations of sustainable development by fostering economic and social development while protecting the natural resources and human environment.