OPID 48414

Morocco - Saïss Water Conservation Project

Environmental and Social Appraisal and Action Plan



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Acronyms:

	English
ABH	Water Basin Agency
DRA	Regional Agriculture Directorate
DIAD	Directorate for Irrigation and Agricultural Development
EBRD	European Bank for Reconstruction and Development
E&S	Environmental and Social
ESAP	Environmental and Social Action Plan
ESDD	Environmental and Social Due Diligence
LEF	Land Expropriation Framework
LEP	Land Expropriation Plan
MAMF	Ministry of Agriculture and Maritime Fisheries
ORMVA	Regional Office for Land Reclamation
PIU	Project Implementation Unit
PMV	Green Morocco Plan
PNEEI	National Irrigation Water Saving Programme
the Project	Saïss Water Conservation Project
PR	Performance Requirements (as defined in EBRD's environmental and social policy)

The present document was prepared for the Green Climate Fund (GCF) and is aimed at providing GCF and the public with relevant information regarding (i) the environmental and social assessment carried out by the European Bank for Reconstruction and Development (EBRD) and (ii) the resulting environmental and social action plan discussed with the Ministry in charge of Agriculture in the frame of the Saïss Plain Water Conservation Project in Morocco.

1 BACKGROUND

1.1 Project Description

The EBRD is considering a sovereign loan of up to EUR 120 million and a EUR 30 million grant from the GCF to the Kingdom of Morocco to finance a 135 km of a water transfer pipeline from the M'Dez dam to the Saïss plain in Northern Morocco (the "project") as part of a staged project.

1.2 Project Objectives

The project's objective is to replace water abstraction from the local aquifer and water resources of the Saïss plain, which is currently overexploited. The Project will allow the following developments in the Saïss Plain:

- Adoption of an efficient irrigation system;
- Increased value added by irrigation water through the development of high value crops;
- Agricultural production intensification;
- Improved revenues for farmers.

The project will be implemented by a project implementation unit ("PIU") that will be set up by the Ministry of Agriculture and Maritime Fisheries ("MAMF").

1.3 Transition Impact

The transition impact of the project is expected to focus on increasing resource efficiency, climate change adaptation, private sector participation, and regional economic inclusion.

1.3.1 Improved resource efficiency

The project will result in significant physical improvements in water and energy use. The water transfer scheme from M'Dez dam to the Saïss plain will ensure the sustainable delivery of fresh water without the ongoing depletion of scarce groundwater resources in the region by increasing the efficient use of valuable resources and contributing towards climate resilience. The EBRD will provide technical assistance to establish the tools and mechanisms to control the level of the Saïss water table: on the one hand the technical and IT systems to monitor the aquifer, on the other the regulatory and contractual instruments to manage and strictly control water extraction from the multiple stakeholders using groundwater.

1.3.2 Increased private sector participation

The Bank will contribute to the successful contracting and implementation of the PPP through a PPP Certification Programme to train MAMF's staff on managing PPPs.

1.3.3 Public Participation Programme focusing on economic inclusion and gender

The Public Participation Programme will encourage the adoption of more efficient and sustainable irrigation practices by water users and encourage improved tariff collection rates.

1.4 Client Information

The Kingdom of Morocco, represented by MAMF as the body responsible for developing and implementing the country's agriculture and rural development policy: MAMF takes the lead in organising the use of water resources for irrigation and has experience in implementing water transfer schemes.

2 ENVIRONMENTAL AND SOCIAL BASELINE

2.1 Sebou basin

2.1.1 Physical context: Sebou basin

Sebou basin spreads over an area of ca. 40,000 sqm representing 6% of the national territory area. It counts a population of 6.2 million spread over :

- o 17 Prefectures et Provinces
- o 82 Urban Municipalities
- o 287 Rural Municipalities

This basin encompasses 30% of surface water resources of Morocco and is drained by Sebou river that originates in the Middle Atlas, winds ca. 500 km and flows into Atlantic ocean near Kenitra.



Figure 1 – Sebou basin map

Located in the North West of Morocco, Sebou basin is characterized by a very diversified geographical context:

- The upper basin consists in Rif mountains range rising up to 2,450m and forming part of the North and Middle Atlas;
- Between these massifs, in Fes / Meknes region where the Saïss plain is located, the Sebou river receives right and left banks tributaries, notably Ouergha river and Beht river;

• In the lower part of the river, Sebou forms of a large alluvial plain called the Gharb plain which flows into Atlantic coast.

From a geographical perspective, Rif lands are mainly composed of impermeable clay and marl formations. The Ouergha peaks are sandstone formations.

Gharb and Saïss basins and Fez-Taza corridor mainly consists of permeable tertiary and quaternary filling. The last two units also contain limestone of Lias formations.

Beht is composed of Permo-Triassic formations and impermeable primary formations. The High Sebou part of the Atlas area is mainly composed of permeable Jurassic limestone.

2.1.2 Climate

The climate prevailing across the Sebou basin is Mediterranean with an oceanic influence and becomes continental inward. It reveals rainy winds and precipitations of the West decreasing away from the sea and protected valleys like Beht or High Sebou ones and rapidly increasing on Rif sides.

The combined effects of altitude, latitude and exposure form local micro-climates where cold, frost, snow and winter rains can contrast with summer heats and storms.

These micro-climates arise through:

- Storms: the most impacted area of basin region is the Saïss (17 to 18 days/year) with two favourable times: the late summer and late spring. In the mountains, storm frequencies are naturally higher, Middle Atlas being more impacted than Rif.
- Hail: in coastal regions, there is no hail in summer. Hills and inside the trays are mainly affected in early winter and spring. In the mountains, the maximum has been measured during spring seasons but high frequencies are extended to summer seasons.
- Snow: snowfalls affect basin located in altitudes over 800m. These events are usually recorded between November and March (Middle Atlas and High Rif).

2.1.2.1 Rainfalls

The average annual rainfalls across the Sebou basin calculated over 1973-2008 period are ca. 600 mm (640mm over 1939-20085 period). Minimal values comprised between 400 and 550mm have been measured in High Sebou and Middle Sebou basins (Fez region, Rdat river, R'dom river, Beth river).these values are slightly higher (500 to 600mm) in coastal areas and exceed these levels in relief areas (70 to 900mm in the Middle Atlas in Ifrane, 1,000 to 1,500mm in Rif reliefs – higher basin or Ouergha river).

2.1.2.2 Temperatures

In winter, cold and warm or even hot episodes alternate but minimal temperatures are always measured. These low temperatures undergo spatial variations translated into few frosts in Meknes (protected by its bowl position) and more likely frosts in Fez. Finally, Taza which is located in the continental air flow is the more affected area.

In summer, temperatures are characterized by a good weather with high to moderate maximal temperatures with a night cooling and a hot weather with high temperatures without appreciable night cooling.

Temperatures reach their maximum in July and August and minimum in January. Average annual temperatures vary with the altitude and distance from the sea between 10 and 20°C.

2.1.2.3 Evaporation

The average potential evaporation is quite strong in the basin. It varies between 1,600mm on the coast and 2,000mm inward. It reaches a maximum in July-august with ca. 300mm/month and a minimum in December-January with less than 50mm/month. On the coast and in the centre of the basin, high summer temperatures and the quasi absence of significant rainfalls during this period lead to a high evaporation in the watershed (1,500mm in the coast and 2,000mm inward) explaining important water unit needs for irrigation.

2.1.3 Natural environment

2.1.3.1 Natural lakes and wetlands

Among the various types of wetlands of the Sebou basin there are:

- Permanent natural lakes, mainly concentrated in the Middle Atlas and reaching, for the biggest one, an area of ca. 300ha and a depth of 40m (Aguelmam Sidi Ali).
- A large number of temporary wetlands are mainly located in semi-arid and sub-humid bio climates (Daya de la subéraie de Maamora, Dayas du Gharb). The impoundment period is between 4 and 11 months, starting usually in the second half of the autumn with first rains, sometimes even later.
- Streams whose mountain chains constitute water towers, the most important being the Middle Atlas, and resulting in three main streams of the country of which the Sebou river.
- Estuaries, the most important in the country being Sebou river.
- The Merja Zerga lagoon, the coastal lake of Sidi Bou Ghaba, lagoons and famous merjas of the Gharb region almost completely drained.
- $\circ~$ Many sources, known for their freshness and stable temperature. These sources are the most abundant in the Middle Atlas and in the Rif.
- $\circ~$ Dam lakes and small fish water bodies represent a good proportion of lakes water of Sebou.

2.1.3.2 Forest

Forest is an important natural resource. It covers a total area pf ca. 1,200,000ha and it is primarily composed oak, cedar, thuya and matorrals trees.

In addition to its role of grazing land and wood collection for local communities, forest adds significantly to the stabilization of lands and therefore to reduce erosion and silting of reservoirs.

2.1.4 Population

Sebou basin is the second most populated basin in the country counting 6.2 million inhabitants i.e. 21.3% of total Moroccan population.

Its population is growing faster than the average national growth, with an inter-annual average growth rate of 2.0% over 1994-2004 period vs. 1.4% for the whole country. Population will reach 7.8 million inhabitants in 2020 and 9 million in 2030.

The urbanization rate is significantly below the national average (urbanization rate of 49% vs. 55% nationally). There are 74 urban centres the most important being Fez (ca. 1 million inhabitants) and Meknes (700,000 inhabitants).

2.1.5 Economic activities

Sebou basin has an agricultural and industrial economy which contributes significantly to the national economy.

2.1.5.1 Agriculture

Sebou basin is one of the main regions in the country with an agricultural vocation. It has ca. 20% of irrigated utilised agricultural area (i.e. 357,000ha), and 20% of the utilised agricultural area of Morocco (i.e. 1,800,000ha).

The land use is relatively diversified with a predominant share of grain crops (60%), the remaining being occupied by fruit plants (14.4%), legume plants (6.6%), industrial crops – sugar beet and cane (4.2%), oilseed crops (3.6%), vegetable crops (3.1%) and forage (1.7%).

2.1.5.2 Industry

The industrial sector is highly developed in the Sebou basin, especially in the agribusiness (oil, sugar), leather and textile i.e water consuming activities.

Agribusiness: There are 200 major mills, producing 120,000 tons of olive oil and 70,000 tons of vegetable oils, representing over 65% of national production. 184,000 tons of sugar is produced annually in the basin, which accounts for half of national production.

Textile and Leather: leather and textile industry is highly developed in the basin. The region has a large number of tanneries especially in Fez, Meknes and Kenitra cities, and produces 60% of national production. These tanneries are a major cause of pollution of the Sebou river downstream.

2.1.5.3 Tourism

The touristic potential is driven by imperial cities (Fez and Meknes), mountains, thermal springs and beaches. The tourism growth has recovered thanks to the establishment of direct commercial airlines linking fez to other European capital cities.

2.2 Project area

2.2.1 Physical frame

2.2.1.1 Geography

The Project is extending from Mdez dam (construction in progress) to Saïss plain (included). Approximately 150km will be covered by the water transfer pipeline provided by the Project and can be divided into two different geographical areas (see Figure 5):

 The first 60 kilometres (from Mdez dam to the gates of Saïss plain) go through a relatively uniform landscape of rolling hills of medium altitude (750 to 450m). • The landscape is open: suitable areas have been converted to agricultural use whereas pastoral use dominates other areas. Population densities are low.



Picture 1 – typical landscapes of the first 60 kilometres of transfer, pastoral use (left) or agriculture use (right)

 The following 90 kilometres cross Saïss plain: terrain is much less pronounced, the environment has been transformed mainly due to agriculture activity, population and infrastructure densities are higher. In addition to numerous villages and burgs, there are two big cities at the East and West ends of Saïss plain: Fez and Meknes are linked by a highway crossing the larger length of the plain.



2.2.1.2 Surface water

Average annual water intakes in the operating area of Sebou ABH are 5,560 Mm³ per year, i.e. 887 m³/inhabitant on average.

Sebou basin has a large surplus capacity but it has to face an important variability of its water intakes on both temporal and spatial sides that can result in a variation ratio of 1 to 20.



Figure 2 – change in surface water intakes of Sebou basin ((Mm3/year)

Mdez river average intakes flowing to the dam equals 137 Mm^3 per year corresponding to an average flow of 4.3 m³/s. Saïss plain is itself drained by numerous rivers and sources of a total average flow is ca. 2.7 m³/s (87 Mm³/year).

2.2.1.3 Groundwater

Sebou basin is one of the richest basins in groundwater in the country. Its available resources (1,020 Mm3) represent ca. 25% of the potential available resources of Morocco. Sebou basin groundwater is stored in several aquifers, the most important are:

- Dradère-Souière aquifer ;
- Mamora aquifer;
- o Gharb aquifer ;
- Bou Agba aquifer ;
- Fez-Meknes basin aquifers corresponding to Saïss plain;
- Fez-Taza corridor aquifer;
- Causse aquifer of Middle Atlas ;
- Folded Middle Atlas aquifer.

The following table shows the average balance of aquifers over 1939-2002 period. To be noted that negative values (deficit aquifers) mean that these aquifers have water outflows exceeding water inflows, usually due to excessive harvesting that leads to a constant decrease of groundwater levels.

aquifers	Inflow	Outflow			balance	
		Abstraction	Rivers and sources	Transfer to other aquifer	Total	
Folded Middle Atlas	286	20	266		286	0
Fez-Taza corridor	157	13	48,5	95	157	0
Taza	13	12		8	19	-6,6
Tabular Middle Atlas	691	74	454	162	691	0
Fez-Meknes (Saïss Plain)	242	260	82		342	-100
Gharb	224	248		13	261	-37
Maamora	160	117	7	48	172	-12
Dradère – Souiere	111	22	20	69	111	0
Bouagba	3	4			4	-1
Net Total	1579	769	878	89	1737	-157

Table 1 – balance of groundwater resources in Mm3/year

Direct samplings amount at 769 Mm₃/year of which 22% concerning drinking water supply and 78% Private Irrigation in particular. The most stressed aquifers are:

- Fez-Meknes (Saïss plain): deficit of 100 Mm3/year
- Gharb : deficit of 37 Mm₃/year
- Maamora : deficit of 12 Mm3/year

The total « groundwater » balance of the basin is in a deficit position of ca. 157 Mm₃/year in volume. The 100 Mm₃/year deficit of Fez-Meknes aquifer is the main cause of the overall deficit that has been translating into a constant decrease of aquifers level for several years:



Figure 3 – Piezometry of Fez-Meknes aquifer (Saïss plain)

2.2.2 Protected areas

The study conducted in 1996 about protected areas in Morocco allowed the development of a network regrouping 10 national parks, 20 RAMSAR sites, 3 biosphere reserves and 160 Site of Biological and Ecological Interest (SIBE). On the bio-ecological map, this network is representative of areas with remarkable ecosystems, high concentrations of plant and / or rare or endangered endemic animal, or high index of biodiversity. The total area of these SIBE is 1,080,000 hectares. The closest protected areas to the Project are described below ranked in order of distance from the Project area:

- O Dwiyate SIBE (200 ha) is an artificial wetland located at the Northern edge of Saïss plain on the left side of Fez river in a lowland with the lowest altitude in Saïss Plain. This SIBE is characterized by the presence of a beautiful phragmyte, *Ruppia maritima* and *Scirpus maritimus*. It also has an internationally recognised status of Important Birds Area: the protected nature of the site -it is a 'Domaine Royal' with no public access- means that birds are largely undisturbed, and it is therefore of great importance to migrating waterfowl and other species. Around 180 species have been recorded, of which up to 80 are definite or potential breeders.
- Jbel Zerhoun is another Important Birds Area (11,000ha) located 10 km North of Saïss plain. The site is a wooded hill above the town of Moulay Idriss. Jbel Zerhoun is chiefly important for its breeding population of *Falco naumanni*. Over 200 pairs of this colonial cliff-nesting species utilizes nest-sites in the ravines of Jbel Zerhoun and in and around the walled town of Moulay Idriss.
- El Aderj SIBE (6,000 ha) is located 15km East of Mdez dam and in the upstream of the watershed: it's a limestone valley in the southwest foothills of Jbel Ich ou Anou (2,000 m). It is a very undulating landscape composed of successive micro-reliefs giving it an aspect of wide diversity. This SIBE is characterised by pure or mixed formations of *Tetraclinis articulata* and *Juniperus phoenicea* which are one of the best stands of Morocco replaced in altitude by oak and cedar groves.
- Jbel Tichoukt SIBE (12,500 ha) is located 20km south of Mdez dam and in the upstream of the watershed: it is a southwest-northeast stretched anticline link of the folded Middle Atlas. This SIBE has also an internationally recognized status of Site of Plants Importance: The Jbel rises to 2,787m with a ridge line that is maintained above 2,400m over most of its length. Among the ecosystems there are the cedar grove, the green oak grove, the xérophytae, the Juniperae Juniperus communis, many endemic plants and remarkable fauna and finally a freshwater wetland.
- Idriss Premier dam SIBE (5,700ha) is located 22km north east of Fez. It is a great artificial lake in Inawen river impounded in 1973. It extends for ca. 16km. its watersheds are composed of cultivated marl hills without natural vegetation. Its sinuous edges show in places (especially in the upstream) muddy or gravelly margins without macrophytes. The main focus of the site is linked to forty wintering residents species of birds. It has an internationally recognised status of Important Birds Area

 Ifrane national park (125,000ha) is located ca. 40km south of Saïss plain. It is one of the 11 sites applying for "Emerald" network and has an internationally recognised status of Important Birds Area and Site of Plants Importance.

Among all these sites, Dwiyate SIBE is the only site in contact with the Project area (i.e. Saïss plain). Idriss Premier Dam SIBE is the only site who will be affected by the water transfer to the extent that a share of Mdez waters flows to the downstream of Allal al-Fassi dam. Some of those waters are in turn transferred to Idriss Premier dam for electricity generation needs. None of the other sites is in contact with Saïss plain or with the planned route of water transfer. There are no internationally recognized or protected areas along the Sebou river in the downstream of the dam Mdez.

2.2.3 Biodiversity outside protected areas

2.2.3.1 Habitats

The project is located on two distinct natural regions of Morocco: the north-eastern Middle Atlas (Mdez dam area and upstream of the transfer) and Pre-Rif and Middle Sebou (downstream part of the transfer and Plain Saïss).

Due to its size, the Project area covers a variety of habitats of average and low altitude, presenting diverse exposures. Aquatic habitats are located in the upstream part and are limited to water sources and rivers, presenting an abundance variable ripisylve. Large streched stands in the Project Area are artificial: Idriss Premier and Allal al-Fassi dams, SIBE of Dwiyate.

Some of the habitats of ecological interest described in Annex I of the EU Habitats Directive exist in the Project area, of which:

- Quercus Ilex forests
- Olea and Ceratonia forests
- o Screes
- Chasmophytic vegetation of rocky slopes

2.2.3.2 Reptiles and amphibians

In Morocco, there are 103 species of reptiles and amphibians, of which 34 are considered rare or threatened. Fourteen species have been identified in the Project area: some of these species are linked to the aquatic environment, while others inhabit woodlands and meadows.

Order / common name	Scientific name	IUCN	EU habitat directive
Squamata			
-	Blanus tingitanus	LC	
Common chameleon	Chamaeleo chamaeleon	LC	Annex IV
False smooth snake	Macroprotodon cucullatus brevis	NT	
Grass Snake	Natrix natrix astreptophora	NA	
Atlas dwarf lizard	Atlantolacerta andreanskyi	NT	
-	Lacerta pater tangitana	LC	

Species found in the study area are listed in the table below:

Koelliker's glass lizard	Ophisaurus koellikeri	LC	
Small-fingered psammodromus	Psammodromus microdactylus	EN	
Many-scaled cylindrical skink	Chalcides polylepis	LC	
Atlas dwarf viper	Vipera monticola	NT	
Caudata			
North African fire salamander	Salamandra algira	VU	
Testudines			
Spur-thighed tortoise	Testudo graeca	VU	Annex II & IV
Anura			
_	Discoglossus pictus scovazzi	LC	Annex IV
Moroccan Midwife Toad	Alytes obstetricans maurus	NT	Annex IV

Psammodromus microdactylus is the only species listed as "endangered" by IUCN: it is "listed as Endangered because its extent of occurrence is less than 5,000 km², its distribution is severely fragmented, and there is continuing decline in the extent and quality of its habitat, and in the number of mature individuals. It is found in mountain areas where it has been recorded from closely cropped, dense grassland, and areas of dwarf palm in open country. It is not known if this species is present in protected areas." (IUCN)

This map (source: IUCN) shows the estimated range of *Psammodromus microdactylus* in the Project area. This area covers the eastern and southern parts of the Saïss Plain.



2.2.3.3 Mammals

Mammals are quite present in the study area, some species were encountered and others have been affirmed by earlier studies.

Large and medium-sized mammals are more present away from the Saïss Plain, in open and less transformed areas of the Project's upstream part. In the Saïss Plain, only small mammal (rodents, chiropters) are significantly present.

Among the 31 chiropters' species present in Morocco, 15 species can be found in the Project area.

Order / common name	Scientific name	IUCN	EU habitat directive
Chiroptera			
Savi's pipistrelle	Pipistrelluss avii	LC	Annex IV
Greater horseshoe bat	Rhinolophus ferrumequinum	LC	Annex II & IV
Lesser horseshoe bat	Rhinolophus hipposideros	LC	Annex II & IV
Mediterranean horseshoe bat	Rhinolophus Euryale	NT	Annex II & IV
Mehely's horseshoe bat	Rhinolophus mehelyi	VU	Annex II & IV
Geoffroy's bat	Myotis emarginatus	LC	Annex II & IV
Natterer's bat	Myotis nattereri	LC	Annex IV
Felten's myotis	Myotis punicus	DD	Annex IV
Common pipistrelle	Pipistrellus pipistrellus	LC	Annex IV
Kuhl's pipistrelle	Pipistrellus kuhlii	LC	Annex IV
Savi's pipistrelle	Hypsugo savii	LC	Annex IV
Leisler's bat	Nyctalus leisleri	LC	Annex IV
Serotine bat	Eptesicus serotinus	LC	Annex IV
Common bent-wing bat	Miniopterus schreibersi	NT	Annex II & IV
European free-tailed bat	Tadarida teniotis	LC	Annex IV
Rodentia			
Barbary ground squirrel	Atlantoxerus getulus	LC	
Crested porcupine	Hystrix cristata	LC	Annex IV
Carnivora			
Otter	Lutra Lutra	NT	Annex II & IV
Striped hyena	Hyaena hyaena barbara	NT	
African wildcat	Felis lybica	LC	
Common genet	Genetta genetta	LC	Annex V

The table below describes a few mammalian species having a conservation interest and likely to be present in the study area:

2.2.3.4 Birds

Thanks to its location and geography, Morocco's is an important country for birds and has a rich avifauna. There are about 500 species of birds whose presence is confirmed, 95 of which are considered as of "heritage interest" by the GREPOM, the most active association in Morocco for bird conservation.

The following table lists the birds around the study area observed during the Mdez dam's impact assessment. This list provides an indication of the species in the project area and is not exhaustive: 180 species have been identified in the single Dwiyate site of the Saïss Plain. Besides the resident species, it's worth mentioning that there migratory species, although their identification in the Project was not necessary.

Common name	Scientific name	UICN	EU birds directive
Ruddy shelduck	Casarca ferruginea	LC	
Red kite	Milvus milvus	NT	Annex I
Bonelli's eagle	Aquila fasciata	LC	
Golden eagle	Aquila chrysaetos	LC	Annex I
Egyptian vulture	Neophron percnopterus	EN	Annex I
Bearded vulture	Gypaetus barbatus	NT	Annex I
Griffon vulture	Gyps fulvus	LC	Annex I
Peregrine falcon	Falco peregrinus	LC	Annex I
Eurasian hobby	Falco subbuteo jugurtha	LC	
Cream-coloured courser	Cursorius cursor	LC	Annex I

Black-bellied sandgrouse	Pterocles orientalis	LC	Annex I
Stock dove	Columba oenas	LC	Annex II B
Pharaoh eagle-owl	Bubo ascalaphus	LC	
European roller	Coracias garrulus	NT	Annex I
Levaillant's woodpecker	Picus vaillantii	LC	
Great spotted woodpecker	Dendrocopos major maurit.	LC	
Horned lark	Eremophila alpestris atlas	LC	
White wagtail	Motacilla alba subpersonata	LC	
Alpine accentor	Prunella collaris	LC	
Short-toed treecreeper	Certhia brachydactyla maurit.	LC	
White-throated dipper	Cinclus cinclus minor	LC	
Hawfinch	Coccothraustes coccothraustes	LC	
Eurasian crimson-winged finch	Rhodopechys sanguinea aliena	LC	
Red crossbill	Loxia curvirostra poliogyna	LC	
Western jackdaw	Corvus monedula spermologus	LC	Annex II B
Black redstart	Phoenicurus ochruros	LC	
Moussier's redstart	Phoenicurus moussieri	LC	
Common blackbird	Turdus merula mauritanicus	LC	Annex II B
Mistle thrush	Turdus viscivorus deichleri	LC	Annex II B
Coal tit	Parus ater atlas	LC	
Eurasian nuthatch	Sitta europea atlas	LC	
Common redstart	Phoenicurus phoenicurus	LC	
European pied flycatcher	Ficedula hypoleuca speculigera	LC	
Blue rock thrush	Monticola solitarius	LC	
Common rock thrush	Monticola saxatilis	LC	
Northern wheatear	Oenanthe oenanthe seebohmi	LC	
Common whitethroat	Sylvia communis	LC	

2.2.3.5 Aquatic fauna

In the study area, the network of water sources and rivers are home to characteristic species of Middle Atlas freshwater. Fish populations have been largely affected by the socio-economic activities and hydro-agricultural development.

In permanent streams, we mainly note the presence of several species such as of the bearded and cyprinid which are not protected.

The Middle Atlas North-Eastern natural region (upstream part of the Project) has 3 rare or endangered aquatic species. These species are all macroinvertebrates and are associated mainly to rapid sources and streams (Wads El Bared, Souf Ou Lot, Chegg El Ard et Chouf Cherg) upstream watersheds and caves (groundwater). The most sensitive (considered « endangered ») is *Rhithrogena ayadi*, an ephemeral in cold fresh and fast water / (torrents ...). No sensitive aquatic specie in the region is related to the Project area.

Prerif and Middle Sebou natural Region (downstream part of the Project) also houses 4 rare or endangered aquatic species which are all macroinvertebrates. These species are primarily associated to hot and fast streams and water sources (thermal): it relates to two dipterous species(*Parydra flavitarsis and Hydrellia armata*), one damselfly species (*Calopteryx exul,* listed EN by IUCN) and one bivalve species (*Uniotifleticus*).

Sensitive sites in the Project area are resurgences of Saïss Plain as well as the Dwiyate waterbody which benefits from a protected status (see Section 2.2.2). The Project is not likely to impact those sites directly.

This map (source: IUCN) shows the estimated range of *Calopteryx exul* that beyond the Project area, covers a large part of North Morocco. The drving of water up streams, caused by climate change and agricultural activities is a major threat to this species.



2.2.3.6 Flora

The current state of Morocco's macro-flora inventory accounts nearly 4,500 species of vascular plants. The species present in the Project upstream area are influenced by land's altitude and exposure, proximity to water streams and human activities. In fact, the latter explains the presence of certain species (e.g. olive-growing) or the absence of other (intensive cultivation, grazing, firewood collection ...).

The following table provides a non-exhaustive list of species that are typically found in the upstream area of the Project:

Order / common name	Scientific name	UICN	EU habitat directive
Arecales			
Dwarf fan palm	Chamaerops humilis	NA	
Pinales			
Atlas cypress	Tetraclinis articulata	LC	
Cade Juniper	Juniperus oxycedrus	LC	
-	Pistacia lentiscus	LC	
Fabales			
Carob Tree	Ceratonia siliqua	NA	
Fagales			
Evergreen oak	Quercus ilex	NA	
Lamiales			
Rosemary	Rosmarinus officinalis	NA	
Munbyanus thyme	Thymus munbyanus	NA	
Violales			
Libanotis kistos	Cistus libanotis	NA	
Greek kistos	Cistus villosus	NA	
Thyme-leaved Fumana	Fumana thymifolia	NA	
-	Helianthemum cinereum	NA	
Cyperales			
-	Ampelodesmos mauritanica	NA	
-	Brachypodium ramosum	NA	
-	Carex halleriana	NA	
-	Stipa tenacissima	NA	
Scrophulariales			
	Globularia alypum	NA	

Wild olive	Olea oleaster	NA	
Green olive tree	Phillyrea latifolia	NA	
Ericales			
Strawberry tree	Arbutus unedo	NA	

The influence of human activity is even more pressing near or inside the Saïss Plain: altitude species are less present. In addition, a variety of native or introduced species used for ornamental purposes or windbreaks (such as *Cupressus* sp., *Pinus* sp., *Salix* sp., *Populus* sp. and *Tamarix* sp.) can be found outside the cereal, vegetable and tree areas (Rosaceae, citrus).

2.2.4 Population and socio-economic activities

2.2.4.1 Population

The total population of the Saïss Plain is estimated at about 500,000 inhabitants, in addition to urban population of Fez (1,120,000 inhabitants) and Meknes (650,000). The population growth is estimated at 3 to 5% per year.

The population in the upstream area of the Project is of low density. There is no large agglomeration along the transfer route. The proportion of native Tamazight speakers is expected to be substantial in some of those areas of the Middle-Atlas.

2.2.4.2 Basic infrastructure

The area is served by water and electricity. Collective sanitation is not available in all villages. The road network is good. The road network is very good, including a highway linking Fez to Meknes.

The satellite image below shows the land use in the Saïss Plain: arboreal areas ("spotted" fields in the foreground), agricultural plots of various sizes, water tank to alleviate the shortage of water (dark square in the image center), villages and small towns, and finally the highway crossing the image.



Figure 4 - Typical view of the Saïss plain (source: Google Earth, June 2016)

In terms of health infrastructure, the project area is well endowed given that as each commune has at least one health center. Fez and Meknes each have about 2,500 hospital beds.

Education is provided by a network of over 300 schools. The city of Meknes has a university. Fez has three universities, including the University of Al Karaouine (founded in 859, the oldest university in the world) and the Euro-Mediterranean University in Fez (founded in 2012) which aims to promote exchanges, intercultural dialogue, cultural and academic partnerships in the Euro-Mediterranean region as well as training and high-level research.

The study area has a high rate of illiteracy (50% and above), particularly for people older than 25 years old and for people living in rural areas. Levels of school attendance vary across the study area (28% to 56%), and 67% of children do not go further than primary school. The rate of illiteracy for females living in rural areas (54% to 63.5%) is twice the rate of male, with 55.8% to 63.8% having no education at all. Although varying across the provinces, it is estimated that 86.7% to 92% of girls between 7 to 12 years old receive education, compared to an average of 94% at national level.

The rate of poverty registered across the study area is 21%, which is higher than national average (14.2%). Poverty levels tend to vary depending on the proximity to urban areas, with greater poverty in remote areas. These people are likely to be particularly sensitive to the affordability of the future water tariffs.

2.2.4.3 Land tenure

The Saïss Plain land structure is characterized by the preponderance of five statutes, i.e., the Melk, the Collective, the Guiche, the Habous and the private domain of the State (DPE).

- Melk (51% of the total area) is largely the predominant status. This is private land ownership as per Roman law (usus, abusus, fructus). The Melk land is owned by one or more people who have full right of use.
- Land reform (21%) is land available to farmers who cultivate. This is a redistribution of cropland. Land reform can also include credit measures, training, and land consolidation.
- The Collective (12%): ancient tribes' lands that have been transformed by law (Dahir of 27 April 1919) to "imprescriptible, inalienable and indefeasible" land belonging to ethnic groups under the supervision of the Ministry of Interior. These lands are distributed among rights holders who have an inalienable right of use. Incorporated communities own collectively an area that can be registered and delimited.
- The private domain of the State (14%): These are lands belonging to the Moroccan State. They are operated either directly by state companies, or indirectly by private sector under lease contracts.
- Habous and Guiche land (2%): Habous represents land that has been bequeathed by a person to a religious foundation. Guiche land (2%) is land pertaining to the State private domain, granted for use to tribes in exchange for military rendered services.

2.2.4.4 Agricultural Activity

Agriculture is by far the main economic activity in the Saïss Plain. The table below shows the distribution of land by class of farms following studies conducted as part of Project.

Size classes	Number of farms	Number of farms %	Area (ha)	Area %	Utilised agricultural area (ha) average farm
< 5 ha	944	13%	2484	5%	2,6
5 - 15 ha	5309	74%	32290	65%	6,1
> 15 ha	904	13%	14903	30%	16,5
Total	7157	100%	49677	100%	6,9

Tableau 1 - Distribution of land by class of farms (ha)

By analysing the cultivation plan for the study area, we notice the following:

- Vegetable crops come first before arboriculture accounting for 44% of the total area. Potatoes and onions are the principal cultivations in in the study area.
- Arboriculture represents 39% of total utilized agricultural area; it is dominated by the Rosaceae and olive tree.
- The third place is shared between forage crops (7%) and cereals (7%) representing 14% of the total area. Berseem is the most dominant culture occupying 45% of the forage area, while wheat is the predominant occupying 84% of the cereal area.
- Legumes are practiced in 2% of useful agricultural land with a dominance of beans.
- Industrial crops occupy 1% of the total study area. The cultivation of Tobacco was the main industrial crop in the area. The occupied lands by the Tobacco cultivation experienced a sharp decline in favour of particular cultures such as industrial Tomato.

The analysis of land use situation shows a balanced crop rotation and a pretty average intensification of production since the crop intensification rate hardly exceeds 100% for the entire study area. This rate reflects the use of agro-soil potential of the Saïss Plain, caused by the limits of the actual availability of irrigation water.

3 PROJECT DESCRIPTION

3.1 Project rationale

The Project's objective is to respond to the water deficit in the Saïss Plain thanks to the intake of an equivalent volume of surface water from the Sebou Basin (Saïss Plain being in the Sebou basin).

The average annual water deficit in the Fez-Meknes water table has been estimated at 100 Mm3 over the last few years (see Section 2.2.2) as a result of the use of groundwater for irrigation of the Saïss Plain. The water transfer from the M'Dez dam, which is under construction, was selected for the following reasons:

- The average available resource from the M'Dez dam allows an average transfer equivalent to the observed deficit, i.e. 100 Mm3;
- The construction of the M'Dez dam makes available a regulated source of surface water on an inter-annual basis;
- The location of the M'Dez dam allows for an entirely gravity-fed transfer of surface water to the Saïss Plain.

The solution of the transfer from M'Dez dam was on this basis considered as a solution to achieve the objective of safeguarding Fez-Meknes aquifer water table and preserving the Saïss Plain agricultural activity.

3.2 M'Dez dam

The M'Dez Dam, under construction, is not part of the project, but represents the starting point. At the end of its construction, the dam will be the water tank and starting point of water transfer to the Saïss Plain, as financed by the Project.

The M'Dez is one of the rivers that form the Sebou. The dam construction has been considered for a long time by the Moroccan State and has been accelerated following the major floods of 2008-2010 that have affected the Sebou basin.

The dam construction is ongoing, funded by the Ministry in charge of Water at an overall cost of around EUR 150 million. The M'Dez dam was primarily designed as a protection project against floods. It is particularly dimensioned to retain flood similar to those of 2008-2010: with its 700 Mm3 impounding capacity, the M'Dez will be ranked eighth in the country in terms of size. Its large size will protect downstream areas against flooding in addition to improving the regulated volume of the high Sebou. The M'Dez dam will indeed regularize annual volume of about 196 Mm3 primarily intended to safeguard the Saïss water table.

The dam is 109 m high from the foundation with a crest length of 320 m. It is expected that the structure will be completed in 2018 at the earliest.

The main characteristics of the structure are described below:

- Hydrological Characteristics :
 - Catchment basin : 3,490 km²

- o Average annual pluviometry : 455 mm
- \circ Design flood flow : 5,000 m³/s
- Return period : 10,000 years
- Construction site flood flow : 1,300 m³/s
- Return period : 100 years
- Characteristics of the Reservoir
 - Normal level : 810 m
 - Highest water level : 816 m
 - Volume at normal level : 700 hm³
 - Surface area at normal level : 27.5 km²
- o Dam
 - Type : Concrete-face embankment dam
 - o Subgrade : Alternate layers of marl and sandstone
 - o Maximum height on the foundation : 109 m
 - o Maximum height on the natural ground : 101 m
 - \circ Crest elevation : 819 m
 - Length along crest : 320 m
 - Width along crest : 8 m
 - Upstream slope gradient : 1.6H/1V
 - Downstream slope gradient : 1.6H/1V
 - \circ Volume of the dam : 2.5 Mm³



Picture 4 – Views of the construction site – early 2016: access roads were built, left and right bank abutments were prepared and underground works were ongoing.

3.3 The project: water transfer to Saïss Plain

The Project consists in the construction of a water transfer infrastructure from M'Dez river to Saïss Plain.

The transfer intake structure of the M'Dez dam will be elevated by 760m from the water table. The available load will achieve gravity-fed water and supply drip irrigation to a significant area without pumping with the right pressure.



Figure 5 - The proposed development (The Project includes the adductor and the main pipe, represented by a blue line)

The digital terrain model of the project area has highlighted from the adductor a natural barrier, peaking between 900 and 1,100 m. The barrier stands between the dam site and the Saïss Plain. This analysis also showed that there is only one possible way for a gravity supply. In order to cross the mountainside, the first section of the supply from the M'Dez dam is expected to be in a pressure tunnel. Then, the tunnel supplies a gravity-fed pipe. The pipes' linear is as follows:

- A main transfer pipeline ("conduite d'adduction tête-morte"): measuring 60 km and conveying water from the intake on the M'Dez dam to the main distribution pipeline ("conduite d'adduction CA") at the entrance of the irrigated perimeter. The main transfer pipeline is composed of:
 - A first section of 17 km with a 3200mm diameter starting from the intake designed to convey a maximum discharge of 15 m3/s, including gallery parts totalling around 5 km,
 - A second section of 43 km with a 3200mm diameter which will be mainly a 3,000 or 3,200 mm (depending on the final solution adopted) diameter pipe,

- A main distribution pipeline (*"conduite d'adduction"*) of 90 km conveying water from the entrance of the project irrigation perimeter to the primary networks: this component and the previous one form the Project.
- Primary networks ("conduites primaires") conveying water from the main distribution pipeline to the irrigation perimeters or the pumping plants. The total length of the primary pipes is around 90 km,
- Secondary pipes ("conduites secondaires"), which convey water to irrigation blocks within each irrigation sector.

4 INSTITUTIONAL AND REGULATORY CONTEXT

4.1 Institutional context

The programmes and institutions involved in the past, present or future activities that will influence the Project are described hereafter:

The Ministry of Agriculture and Maritime Fisheries is the Project developer. Via its Agricultural directorate, the MAPM is in charge of the elaboration and implementation of the Government policy concerning the agricultural and rural development. In that respect, the MAPM deploys its action through a network of regional directorates.

In 2008, the Green Morocco Plan (PMV) has been developed by the MAPM to address the issues met in the agricultural sector. PMV's objective is to make the agricultural sector the main levy of economic growth in the country for the next ten years, through the implementation of the following specific goals:

- Strengthen the agriculture contribution in the GDP;
- Promote employment in rural areas;
- Increase exports value;
- Contribute to the fight against poverty in rural areas;
- Improve food safety level thanks to better local production.

The Project is part of the PMV.

The Agriculture Chambers created by MAPM play a key role in the trade between farmers or between farmers and MAPM representatives. These chambers are composed of elected farmers and have an important role in decision making on one hand and for the dissemination of information and knowledge on the other. In that respect, they will play a key role in explaining and disclosing information about expected changes in the coming years in the Saïss plain: water transfer from M'Dez, implementation of an aquifer contract...

Aquifer contracts are legal instruments for establishing a regulatory framework for water use of underground aquifer. Morocco has a proven experience in the implementation of these contracts, and Moroccan water act has been recently amended (2016) to facilitate the effective implementation of aquifer contracts.

These several texts form part of the policy pursued by the Delegated Ministry in charge of water. This ministry has, in particular, undertaken integrated planning studies of water use in order to cope permanently with community's water needs. The objectives carried on are:

- $\circ\,$ Planning and integrated management of surface waters and underground aquifers;
- $\circ~$ The optimal allocation of water resources to meet the present and future demand in the medium and long term in line with the process of economic

and social development of the country, nationally, regionally and at sectoral level;

- Access to water in different regions of the country to ensure a balanced development and promotion of water-poor regions via water transfers from surplus to deficit regions; and
- Protection and water resources conservation.

This planning has resulted in the preparation of Integrated Master Plan of Water Resources (PDAIRE) for each hydrological basin, and the creation, also for each basin, of a Water Basin Agency (HBA). In general, the PDAIRE is prepared by the HBA for each basins or set of hydrological basins within its action area.

In the framework of the Project, the Sebou HBA prepared the PDAIRE covering the Project area (see chapter 6.2).

The Project is consistent with the plans developed at the national level for agriculture sector (PMV) and the plans prepared for the Sebou basin for the rational use of water resources (PDAIRE).

4.2 Regulatory framework

The regulatory framework applicable to the Project includes the Moroccan legislation as well as the donors' environmental and social policy requirements: EBRD and GCF (GCF refers to the safeguard policies of the International Finance Corporation - IFC).

4.2.1 Moroccan Legal Framework

The Project does not require any Environmental Impact Assessment according to the Law n°12-03 relative to environmental impact assessments.

The main Moroccan laws regarding environmental and social issues applicable to the construction and operation phases of the Project are the following:

- Law No. 11-03 on environment protection and enhancement: In general, the Act provides environmental protection and management guidelines and drafts out the overall legislative framework for conservation, leaving it up to sectorial application standards to specify its content.
- Laws No. 10-95 and 36-15 on water with regards to the establishment of a national water policy based on a prospective vision that accounts for both the evolution of resources on one hand, and the national water needs on the other. It provides legal measures to rationalize the use of water, widespread access to water, inter-regional solidarity, reducing disparities between cities and rural areas to ensure the hydraulic security throughout the Kingdom.
- Law 65-99 on the Labour Code enacted in September 2003. The law aims to guarantee every person the right to free public services in employment and the right to a job suited to one's health, qualifications and skills, and to freely choose to exercise any employment or activity that is not prohibited by law.
- Law No. 13-03 on the fight against atmospheric pollution: This law aims to prevent, reduce and limit emissions of pollutants into the atmosphere.

- Law No. 28-00 on waste management and disposal: This law establishes the rules and principles which must now constitute the basic reference for all waste management and disposal matters.
- Law No. 07-81 of 6 May 1982 regarding expropriation for the sake of public use and temporary occupation: this law includes four titles, the first being dedicated to expropriation for the sake of public use, the second to temporary occupation, the third to added-value compensation, and the fourth with the transitional and application arrangements. This right to expropriation is open to the State, local authorities and other legal persons in public and private law, or to other persons to whom public authority has delegated its rights to undertake business or operations declared as of public utility. Public interest is declared by an administrative act which specifies the area likely to be hit by expropriation (Article 6).
- Law No. 12-90 on urban planning and its implementation decree: This Act contains provisions for the protection of farmland. Its implementation decree was released in 1993. Important provisions of the law provide for the preservation of agricultural land and forests, on the occasion of the development of various Master Plans and Urban Development Plans.

4.2.2 Donors' environmental and social policies

The environmental and social policies of the EBRD and of the IFC (followed by the GCF) are very similar, thanks to the close collaboration between the two institutions aimed at harmonizing their policies. One of the main differences is that the EBRD, in addition to the "Best International Practices" also refers to the objectives of EU Directives, where those are applicable at the project level.

The environmental and social policies of the EBRD and IFC are structured according to a largely comparable set of "Performance Requirements" (PR) for the EBRD and "Performance Standards" (PS) for the IFC, which are largely comparable:

EBRD	IFC		
Performance Requirements	Performance Standards		
PR 1: Assessment and Management of	PS 1: Assessment and Management of		
Environmental and Social Impacts and Issues	Environmental and Social Risks and Impacts		
PR 2: Labour and Working Conditions	PS 2: Labour and Working Conditions		
PR 3: Resource Efficiency and Pollution	PS 3: Resource Efficiency and Pollution		
Prevention and Control	Prevention		
PR 4: Health and Safety	PS 4: Community Health, Safety, and Security		
PR 5: Land Acquisition, Involuntary	PS 5: Land Acquisition and Involuntary		
Resettlement and Economic Displacement	Resettlement		
PR 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources		
PR 7: Indigenous Peoples	PS 7: Indigenous Peoples		
PR 8: Cultural Heritage	PS 8: Cultural Heritage		
PR 10: Information Disclosure and Stakeholder			
Engagement			

5 SCREENING OF THE PROJECT AND SCOPING OF THE ASSESSMENT

The EBRD environmental and social (E&S) specialists carried out an Initial E&S Examination visit of the Project in order to determine its categorization and scope the Environmental and Social Due Diligence. The objective of the site visit was to identify the main E&S risks and potential impacts related to the Project. In particular, the initial examination aimed at identifying whether any of the Project's components or associated facilities was triggering an "A" categorization as per EBRD's environmental and social policy.

5.1 Associated facilities

The Project consists in a water transfer pipeline with a number of appurtenant structures (regulation and settling tank, surge protection infrastructure, river and networks crossing infrastructures, etc...). The facilities that are considered as "associated facilities" (as defined EBRD's E&S policy) to the Project are essentially the distribution system that will be connected to the Project and all the temporary or secondary infrastructures needed for the project, such as access roads.

The M'Dez dam was not considered as an "associated facility" as defined EBRD's E&S policy for the following reason:

- $\circ~$ The M'Dez dam was decided, designed and its construction was launched before the Project was decided.
- The M'Dez dam construction was launched to protect the lower Sebou basin against flood, not to serve the Project's.
- The transfer of water from the M'Dez dam was not the only solution to save the Saïss Plain aquifer (see chapter 6.2)
- $\circ~$ The M'Dez reservoir water transfer for the Project needs is an opportunitis use of the M'Dez dam.
- The M'Dez dam does not solely exist to serve the Project, and the Project could have been implemented without the M'Dez dam.

For this reason, the M'Dez dam is considered as a connected (linked) facility, and was not considered by EBRD as forming part of the Project or of its associated facilities. The implication is that the EBRD E&S Performance Requirements do not apply to the M'Dez dam. Nevertheless, an audit of the E&S potential risks related to the M'Dez dam was requested by EBRD, in order to clear significant risks. The results of this audit are described in chapter 7.2.

5.2 "B" Categorization

After the initial E&S examination, the Project was categorised B by EBRD, based on the following considerations:

 $\circ~$ The Project is not expected to trigger physical resettlement: following the usual practice in Morocco for pipeline works, the Ministry in charge of

Agriculture confirmed that the Project was being designed so that any physical resettlement would be avoided.

- The Project's right-of -way will be entirely expropriated (included where it goes through public land this is for property transfer reasons) and affected land owners and users will need to be compensated for their land and agricultural losses Agriculture on the right-of -way will not be tolerated after construction above the main pipe. This right-of -way (including a track for maintenance) will be 20m wide. The Project will not result in the involuntary conversion to irrigation of existing rain-fed agricultural land or in the extension to new agricultural areas in the Saïss Plain.
- The water transfer pipeline will be several kilometres from the closest protected area, Ifrane National Park.
- There is no wetland or sensitive area downstream M'Dez dam with a national or international (Ramsar) protection status. The lower Sebou basin irrigation schemes will not be affected by the Project, since the Sebou river, as the excess of water from the Sebou river that flows to the Atlantic Ocean largely exceeds the volumes that will be transferred to the Saïss Plain.
- The Saïss Plain is located within Sebou basin, and therefore the Project will not result in any transfer of water from one basin to another basin.
- The Sebou basin and the Saïss Plain aquifer are entirely located in Morocco and therefore the Project is not associated with any kind of transboundary risks or impacts.

The Project was therefore categorized B and the M'Dez dam was subject to an environmental and social audit together with the Project's E&S due diligence.

5.3 Scoping of the assessment

The Project's E&S assessment scoping was done during the initial E&S examination visit. In this aim, meetings were held with the Ministry in charge of Agriculture and its regional and provincial directorates, with the Sebou Basin Agency, and with farmers (one large farmer and two small farmers) who kindly accepted to meet EBRD E&S specialists.

The content of the assessment presented in the present document was defined after these meetings and after the initial examination site visit.

6 EXAMINATION OF ALTERNATIVES

6.1 No-Project alternative

The alternative "no project" would imply not to step in to fill the water deficit of the Saïss Plain and involve a gradual disappearance of the water table, resulting in a growing competition for the overexploitation of the available resource and lower revenues for farmers. Farmers would be gradually forced to abandon irrigated crops and should return to rainfed crops (winter wheat) with low added value and exposed to climate hazards. The negative impact on farmers' income and the impoverishment of the Saïss Plain accompanied by a rural exodus are the direct consequences of such a choice. Agriculture is the main economic activity of the 500,000 people (excluding urban areas) living in the Saïss Plain.

6.2 Alternatives to preserve the Saïss Plain aquifer

6.2.1 Master Plan of the Sebou basin

The analysis of alternatives for the preservation of the aquifer of the Saïss plain was conducted in 2011-2012 in the context of updating the Integrated Master Plan of Water Resources for the Sebou Hydraulic Basin towards 2030 ("PDAIRE").

The Master Plan was updated by taking into account sectoral needs in water, by involving all stakeholders in its development and validation through a long consultation process, and especially respecting the guidelines of the national water strategy, and incorporating the orientations of the various sectoral development plans including the Green Morocco Plan. The development of PDAIRE and its application is the first objective of the Water Basin Agency (ABH) as part of Article 20 of the 10-95 water act.

Apart from structural and more or less predictable developments since the preparation of the previous Master Plan, other factors guided the preparation of PDAIRE :

- 10/95 Water Act , which is the legal basis for water management in Morocco and which establishes the Water Basin Agencies with all their prerogatives;
- The recognition of the economic value of water (principles of "polluter pays" and "user-pays") and the active involvement of local authorities and users in decision making;
- The recognition of the patrimonial value of water and the need to preserve the quality of water systems;
- The observation of recent consecutive drought periods that have not allowed the renewal of stocks in dams and led to significant restrictions on volumes available for irrigation or hydroelectric generation;
- The occurrence of major floods on many sub basins and villages;
- \circ $\;$ The need to expand access to safe drinking water to the rural areas.

The main themes addressed in the PDAIRE are in line with the guidelines of the National Strategy for Water Sector and the National Water Plan, whose main components relate to the following plans of action:

- Saving Water in Irrigation,
- o Maintenance of water infrastructure and interconnection of systems,
- Realization of large dams,
- Realization of small and medium dams,
- o Artificial recharge of water tables,
- Exploring the deep aquifers,
- Capture of rainwater,
- Reuse of treated wastewater,
- Protection works against floods,
- Conservation of water resources quality and improvement of the ecological status of aquatic environments.

In compliance with the requirements of the 10-95 water act, several monitoring and dialogue bodies have been created:

- Technical Monitoring Committee, including in particular: the Sebou Water Basin Agency, the State Secretariat for Water and Environment, the Ministry of Agriculture and Maritime Fisheries through its directions the DIAD (AGR), the High Commission for Water and Forests, the Provincial Directorates of Agriculture, the Regional Office of Agricultural Development of Gharb, the National Electricity Office, the National Office of Drinking Water, the distribution companies, the Regions, the Local Authorities,
- Extended Monitoring Committee, including, beyond the members of the Technical Monitoring Committee: The Provinces, the Municipalities, the Associations.

More than 30 consultation meetings were thus held during the duration of the study.

6.2.2 Selected alternative for Saïss Plain conservation

Several exploratory scenarios were simulated by varying agricultural applications from the current situation to the saturation of existing resources. The scenario that was selected after discussions and consultations between the members of the technical monitoring committee takes into account the new irrigation projects and expansion of the irrigable area by program Green Morocco Plan and the national irrigation development program as it relates to dams in order to maximize water regulation. Several alternatives for land use planning and management of the water resource mobilization works were considered, including:

- Alternative "2.1": Saïss replenishment from future M'Dez dam, strengthening of the Meknes AEPI from future Ouljet Soltane dam, realization of dams - Bab Ouender on the Ouergha river, Sidi Abbou on the Lebene river, Sidi Mokhfi on the Amzaz river, Timedrine on the Sebou river, Adarouch on the Tigrigra river
- Alternative "2.2" : Saïss replenishment from Wahda dam, strengthening of the Meknes AEPI from future Ouljet Soltane dam, realization of dams - Bab Ouender on the Ouergha river, Sidi Abbou on the Lebene river, Sidi Mokhfi on the Amzaz river, Timedrine on the Sebou river, Adarouch on the Tigrigra river

The average annual volume to be transferred to the Saïss area to safeguard the slick was estimated at about 100 million Mm³ to compensate for the excess of current withdrawals.

The economic comparison of the two alternatives was very clearly in favour of the supply from the M'Dez dam: 40% lower investment costs (MAD 2,369 million vs. 3,779), 5 times lower energy costs (MAD 1,143 million vs. 5,365 in present value).

7 ENVIRONMENTAL AND SOCIAL ASSESSMENT AND MITIGATION MEASURES

7.1 Environmental and Social Impact/Issues of the Project

7.1.1 Physical impacts of the Project

7.1.1.1 Construction period

The Project consists in a buried pipeline, up to 3200 mm diameter, for water transfer from the Mdez dam to the Saïss Plain.

During the construction period, the physical impacts of the Project will essentially be related to the presence of a rolling work site, with an open trench of around 1km and associated temporary infrastructures (access roads, storage areas, workers accommodation, spoil and borrow areas, etc.). The trench where the pipeline will be laid will be around 5 meters deep (due to the size of the pipe). Once the pipeline is laid, the corresponding section of the trench will be kept open until pressure tests are performed. Once pressure tests are satisfactory, the section of the trench will be closed. The 150 km of pipeline under the Project are planned to be built over 4 years ½, which corresponds to an average progress of 100 m per day, or 1km every 10 days.

In practice this means that an area that is located on the pipeline alignment will on average be physically impacted during 10 days, from the first excavation work to the end of the refilling.

Once the trench is refilled, grazing and agricultural activities will be authorized. Tree planting will not be authorized.

7.1.1.2 Operation period

During the operation period, the main impact of the Project will be the transfer of around 100 Mm3 per year from the Sebou upper basin to the Saïss Plain. It is expected that maintenance and repair work will occasionally occur along the pipeline corridor, but this should be limited to local and temporary activities, for example to fix a leak.

7.1.2 PR 1: Assessment and Management of Environmental and Social Impacts and Issues

7.1.2.1 Environmental and social assessment

The Project is not subject to an Environmental Impact Assessment under the Moroccan legislation. The Project was subject to an Environmental and Social Due diligence organized by EBRD in accordance with its Environmental and Social Policy for "B" category projects.

The actions required to ensure that the Project is structured to meet EBRD Performance Requirements are listed in chapter 9.
7.1.2.2 Environmental and Social Management Systems

During the construction period, contractors involved in the Project's activities will be required to prepare an Environmental and Social Management Plan meeting the Moroccan legal requirements as well as EBRD Performance Requirements. The PIU consultant that will be mobilized for the project will assist the PIU in this aim.

During the operation period, the PPP contractor will be the main player. In order to ensure a level of environmental and social management meeting good international practices, the PPP contractor will be required to operate under an integrated and certified Environmental and Social Management System ISO9001, ISO14001, OHSAS18001 and SA8000.

7.1.2.3 Organisational capacity and commitment

The MAMF under which the Project PIU will be operating has an extensive experience in managing similar projects. The MAMF has developed standard environmental and social specifications that contractors have to follow when working for the MAMF: these specifications go beyond regulatory requirements and indicate the MAMF's commitment to deliver a sustainable Project.

The experience of Guerdane Project (co-financed by the World Bank) has demonstrated the capacity of the MAMF to carry out water transfer projects successfully and in compliance with the requirements of International Financing Institutions.

7.1.2.4 Supply chain management

No specific biodiversity or labour risks associated with the supply chain of the Project have been identified.

7.1.2.5 Transboundary impacts

The Project is aimed at transferring surface water within the Sebou river basin. The Sebou river basin is entirely located in Morocco and flows to the Atlantic Ocean. The Project is therefore expected to have no transboundary impact.

7.1.2.6 Cumulative impacts

There are other water management projects being considered in the Sebou basin in the frame of the Basin master plan prepared by the Basin Agency, but all of them are smaller than the Saïss Project, which itself plans the use of only a small part of the unused surface water resources at the basin level (100 Mm³ out of 4500 Mm³).

No cumulative impacts are expected to be triggered by the Project.

7.1.2.7 Project monitoring and reporting

The Project will be subject to monitoring by the EBRD during the entire duration of the financing agreement. Standard requirements for B category projects will apply. These

requirements form covenants of the financing agreement between EBRD and the MAPM, and should in the Project context include:

- Regular monitoring using a reporting template prepared by EBRD, which includes a description of the progress made to implement the Environmental and Social Action Plan (see chapter 9):
 - During the construction period, every 6 months;
 - During the operation period, every year.
- Incident reporting: immediately upon the occurrence of any incident or accident relating to the Project which has or is likely to have a significant adverse effect on the environment, or on public or occupational health or safety, the MAPM shall inform the EBRD. This applies notably to:
 - an incident or accident related to the Project if it occurs on any site used for the Project or, if it is caused by facilities, equipment, vehicles or vessels used for or relating to the Project;
 - An incident or accident is considered to have a significant adverse effect on the environment or on public or occupational health or safety (including fatality and serious injury requiring hospitalisation).

7.1.3 PR 2: Labour and Working Conditions

Morocco has a well-developed and progressive Labour code which covers adequately most of the requirements of EBRD in terms of Labour and Working conditions. Child labour, forced labour, non-discrimination are covered comprehensively in the Labour code.

Morocco is a member of the ILO. It has ratified 7 of the 8 fundamental conventions and is yet to ratify Convention no. 87 on Freedom of Association and the Right to Organise. National labour and OHS legislation is mostly consistent with the expectations of PR2. Compliance issues are generally related to enforcement, rather than the letter of the law, and to the fact that the Labour Code does not apply to the large informal labour market, as well as the self-employed and some workers covered under separate legislation or working for small/family businesses.

During construction about 3,000 workers will be employed, with preference reportedly given to local recruitment. There are currently no plans for building separate worker accommodation but it remains a distinct possibility and associated risks would need to be well understood and carefully managed.

While human resources within the MAMF are managed in accordance with the Moroccan Labour Code, labour risks and potential impacts of the Project are mainly associated with the contractors and sub-contractors during construction, and then – to a lesser extent - the PPP during operations. Labour requirements in line with PR2 will thus need to be integrated in the tendering process for both construction and operations contracts.

In order to ensure full compliance with EBRD's PR 2, the following requirements were included in the Environmental and Social Action plan:

 Comply with the Moroccan labour code and with EBRD's requirements concerning working conditions, and with the EBRD/IFC guidance on worker accommodation. Audit contractors and sub-contractors against these requirements.

- Include in the tendering documents the establishment of a structured framework accessible to all contract workers that allows for the receipt of workers' requests or grievances.
- Include conditions in service contracts with enterprises involved in the Project requiring (i) an assessment of the risks (health and safety, and working conditions) to which security staff will be exposed, carried out prior to hiring safety or security personnel and (ii) the implementation of the necessary preventive actions to eliminate any significant risks.

7.1.4 PR 3: Resource Efficiency and Pollution Prevention and Control

7.1.4.1 Pollution prevention and control

In the context of the Project, pollution risks are mainly associated with the construction period. Given the nature of the works to be implemented (mainly large volume of earth works), the main pollution risks are associated erosion and sediments transport, as well as oil/fuel spills risks. The reuse of top soil is an important issue in the Saïss Plain, from an environmental and social perspective (to prevent productivity losses). In the upstream part of the Project (from the Mdez dam to the Saïss Plain), top soil conservation measures will in most cases not be implementable, because of the predominance of stones, and erosion control will require surface water management, as usual in Morocco.

7.1.4.2 Greenhouse gases

The assessment of the project's greenhouse gas emissions shows that the Project will during the operation phase result in a slight increase of GHG emissions. This result is based on the following considerations:

- **Reduced GHG emissions:** the Project will result in a reduction of pumping from the Saïss aquifer. Pumps used by farmers are mostly run by gas fuelled motors with a low efficiency.
- Additional GHG emissions: Some of the distribution sectors fed by the Project will need to be equipped with booster pumps to deliver the planned 3 bars service pressure required for the irrigation system.
- Loss of avoided GHG emissions: Part of the water that will be transferred to the Saïss Plain could have been turbined by the downstream hydropower schemes (Allal al Fassi and Idriss Premier Dams).

Totally the project would result in a slight increase of GHG emissions, estimated to a maximum of 30 000 tons CO2e/year (assuming 100% of the Mdez flow could be turbined, which is very unlikely considering the volumes of the recent floods) and considering the present energy mix in Morocco (85% fossil fuel based).

7.1.4.3 Water

The Project will by nature increase the consumption of surface water and reduce the consumption of underground water.

The average inflow to Mdez dam is around 137Mm3 per year, out of which 10% will probably be retained as environmental flow, and 10% will be lost through evaporation and

infiltration, leaving an average of 110 Mm3 for the transfer to Saïss under the present conditions. On a longer term, taking into account the expected climate change impact by 2060, this figure would decrease by 20%, resulting in an average volume of 90Mm3 available for transfer.

The impacts that the transfer of water could have on the Sebou river basin downstream the Mdez dam was assessed in the frame of the Project: considering that Morocco has all the necessary legal, institutional and technical tools to manage the Sebou basin in an integrated manner, the objective of the assessment we made was mostly to make sure that no significant issue had been omitted.

In practice, the operation of Mdez dam and the transfer of water to the Saïss Plain will be organized as part of the Sebou basin water management by the Water Basin Agency. The regulatory framework under which the Agency operates is defined by the Water Law of Morocco, which is largely comparable to the EU Water Framework Directive.

The transfer of water will translate in the following changes downstream Mdez dam:

- From Mdez dam to Allal al Fassi dam (located 28 km downstream straight line distance), the river flow will be reduced and limited to the environmental flow on the first kilometres. The river is then fed by a number of permanent tributaries and springs (notably the Aïn Sebou spring). The Technical Support that will be provided by EBRD in the frame of the Project will allow resources to be mobilized to define the minimum flow requirements in application of the new Water Law.
- Downstream Allal al Fassi dam, most of the water is diverted to Idriss premier reservoir. Water is mainly used for hydropower production, until it reaches the lower Sebou basin, where part of the water is abstracted for irrigation. An impact of the Project on water availability for these downstream irrigation schemes is excluded due to the abundance of water in the catchment area: the present needs from surface water represent 1000 Mm3/year, while the average flow from Sebou river is 5500 Mm3/year.

7.1.4.4 Waste

The Project construction will generate a number of domestic and construction wastes that will need to be managed in compliance with Morocco legislation and EBRD Performance Requirements: this is a standard requirement and will be monitored by the consultant in charge of the project's supervision.

The only hazardous waste that might be produced during construction is related to the possible presence of old asbestos-cement pipes underground that would need to be disposed in accordance with good international practices.

7.1.4.5 Safe use and management of hazardous substances and materials

No hazardous substances or materials are planned to be used for the Project.

7.1.4.6 Pesticide use and management

The use of pesticides during the construction period is not expected. The use of pesticides is banned for the operation period and vegetation removal for maintenance needs should therefore be implemented mechanically.

7.1.5 PR 4: Health and Safety

7.1.5.1 Occupational health and safety

Contractors working on the Project will be contractually obliged to work in compliance with Morocco legislation, EBRD Performance requirements, and MAMF specifications related to occupational health and safety. Excavation works are a significant source of accidents on EBRD financed projects, due to the collapse of excavations. By its nature, the Project will require workers to undertake tasks inside deep excavations, and this is expected to be the main source of risks for the Project.

The Environmental and Social Action Plan (see chapter 9) therefore includes a specific requirements for works in excavations to be undertaken:

- Organise training activities about excavation works;
- Work in excavation zones must be authorised only after a specially trained person, authorised by the company, has assessed the risks and verified the armouring of the excavations;
- Work must be organised in such a way that the presence of personnel inside excavations is minimised.

Occupational health and safety will be supervised on a daily basis, with weekly reporting to the E&S Manager of the Project.

During the operation period, occupational health and safety risks will be managed under the integrated environmental and social management system, that will include be certified OHSAS18001 (see chapter 7.1.2.2).

7.1.5.2 Community health and safety

Community health and safety issues associated to the project are mostly related to the construction period, and notably to the risks of interaction with the construction site or with the construction related traffic. Given the rolling nature of the work site, regular engagement with stakeholders will be required to ensure that the population in the vicinity of the worksite is aware of the risks -and of the duration of such risks- during the whole construction period. This is reflected in the Stakeholder Engagement Plan of the Project.

Community health and safety risks and issues during the operation phase are expected to be limited to interaction with workers during maintenance activities and will be managed directly by the PPP contractor.

7.1.6 PR 5: Land Acquisition, Involuntary Resettlement and Economic Displacement

It is estimated that for Sections I – III, a total land acquisition of 579ha of land will be required, though only about 182.8ha along the 150km of transfer and main distribution pipeline will be permanently excluded from agricultural activities. The preliminary route identification has been performed for Sections I and II and the main distribution pipeline component of Section III. The preliminary route identification employed a visual reconnaissance of the pipeline route in order to follow existing roads to the extent possible to make use of the existing state road easement (state-owned land) for the construction footprint of the Project and to avoid protected areas such as forests.

The final routing of all of the pipelines will remain consistent with this approach and, in particular, will avoid any physical resettlement and need for removal of buildings. MAMF is currently undertaking a more detailed topographical survey to determine the final route.

The declaration of public utility has not been made for the Project and the Project is not yet considered to be at the stage of execution. The acquisition process has therefore not started and land owners have not been engaged in the process to date. Expropriation is expected to begin before construction works start, and be finalised by Q4 2017. Expropriation will follow the procedure as described in Law no 7-81 related to expropriation for cause of public utility and will also be implemented in line with PR5 standards.

7.1.6.1 Avoid or minimise displacement

As mentioned above, the detailed field studies during which the exact position of the pipeline will be defined are yet to be carried out. This "micro-location" work will be undertaken by a team including not only technical specialists, but also an environmentalist and social specialist, in order to ensure that environmental and social issues are appropriately considered.

The current practice in Morocco for this kind of Project is to avoid inhabited areas and therefore to avoid physical resettlement. This is consistent with the approach previously adopted by the MAMF on past projects and the same principles will also be applied for the Saïss Irrigation Project. No physical resettlement is therefore expected and economic displacement will be minimised as well to the extent possible.

7.1.6.2 Land Acquisition and Compensation Framework

Land will be acquired along the whole pipeline route through an expropriation process that will allow the transfer of property from private land owners, collectives, and other Government agencies to the MAMF, and this will form the basis for compensations. Disruption to land owners and users will be temporary for the larger areas taken up for construction activities only, but a 20m corridor above the pipeline will remain permanently where agricultural activities will not be authorised (this includes a 10m-wide maintenance track). This represents about 180 ha of land and it is not currently known what proportion of this is owned or used by individuals who will need to be compensated for the land and/or resulting economic displacement. In the Saïss Plain, land expropriated for the installation of primary and secondary distribution pipes, will be available for agricultural use after construction albeit with some limited land use restrictions.

Overview of the anticipated land acquisition requirement for the Project and associated facilities:

Project Component	Approx. Length (km)	Approx. Land Requirement (ha)
Section I This traverses cross-country, requiring an easement of 15-20m width.	17	25.5
Section II This traverses cross-country, requiring an easement of 15-20m width.	45	67.5

Section III – Main Distribution		61.4		
41km of Section III traverses cross-country, requiring	41	61.1		
an easement of 15-20m width.				
Section III – Main Distribution				
48km of Section III traverses along road-sides,	48	28.7		
requiring an easement of 6m width.				
Sub Total				
Section I, II and Section III & Main Distribution	151	182.8		
Pipeline				
Section III – Primary Pipes				
19km traverses cross-country and requires a 15m	19	27.8		
easement.				
Section III – Primary Pipes				
74km traverses along road-sides and requires a 6m	74	44.5		
easement.				
Section III – Secondary Pipe	E20	224		
Based on 21,600ha irrigated perimeter.	559	524		
Tetal	779km Total Pi	peline Length		
TOtal	579ha Total Lan	d Requirement		
* At the time of the ESDD study, an irrigated perimeter of 38,432ha was considered. Based on				
959km of secondary pipe and a formula of '25m/ha * 6m * 38,432/10,000', the total calculated				
land requirement is 575ha. The estimate of length of secondary pipe, together with land				
acquisition requirement, has been reduced on a pro-rate basis to reflect the current 21,600ha				
irrigated perimeter design.				
** The slight discrepancy in pipeline length arises from rounding of lengths and is not due to				
differences in measurement <i>per se</i> .				

A preliminary Land Expropriation Framework (LEF) has been developed for the Project and will form the basis for the final Land Expropriation Plan (LEP). The MAPM will work with the appropriate surveyor and consultant groups experienced in carrying out expropriation activities at the national level, and it will also retain the expert services of an international advisor experienced in the development of best practice expropriation plans, in order to ensure all the necessary information is collected, structured and evaluated in the most effective and comprehensive manner, and that a robust LEP is prepared that is commensurate with the impacts caused by the Project's land-take. This independent advisor will support the MAPM and PIU in developing, implementing and reviewing the LEP and build their capacity to manage the process in line with PR5 and PR10 over the entire duration of the expropriation and livelihood restoration period.

With the assistance of a social expert familiar with the Moroccan expropriation process as well as the implementation of international standards, a land expropriation plan that complies with Moroccan regulations and satisfies the standards of Performance Requirement 5 will be prepared as per the ESAP. This Plan will also be comprised of a brochure to inform and consult with the stakeholders affected by the expropriation process.

A Public Consultation Plan (PCP), including a grievance mechanism, has been prepared for the Project that includes consultation requirements related to the land acquisition process, and that will need to be finalised by the MAMF.

7.1.6.3 Monitoring

MAMF will be responsible for the implementation of all aspects of the LEP. Parties involved in the different aspects of Project implementation will be required to comply with the requirements set out in the detailed LEP. The implementation of the detailed LEP will have three key stages:

- Survey and meetings are conducted.
- Development and implementation of the LEP including payment of compensation in compliance with the Morrocan legislation.
- Monitoring and reporting process of the LEP.

The budget needed for the implementation of the LEP will be established after the completion of the census activities, once the number of affected people is confirmed. The budget will cover land acquisition, compensation, livelihood restoration, monitoring and evaluation as well as contingencies and administrative expenses. The cost of livelihood restoration will be included in the overall costs of the Project. Specific monitoring measures are included to ensure that income and living standards of affected people are restored to pre-project levels or improved. Monitoring indicators will include the number of compensation agreements signed, the number of affected people enrolled in livelihood restoration measures, spending on land acquisition and livelihood restoration, and the number and types of grievances received and resolved.

The MAMF will include monitoring data and progress reports on LEP implementation in their annual reports to EBRD as required by the overall Environmental and Social monitoring of the Project.

7.1.7 PR 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

7.1.7.1 Mitigation hierarchy

As of today, the detailed field studies during which the exact position of the pipeline will be defined are yet to be carried out. This "micro-location" work will be undertaken by a team including not only technical specialists, but also an environmentalist and social specialist, in order to make sure that environmental and social issues are appropriately considered.

This approach will allow ensuring that the pipeline layout is not established on purely technical grounds, and that environmental impacts are avoided or minimized where possible.

7.1.7.2 Legally protected and internationally recognized areas

The legally protected and internationally recognized areas located in the upper Sebou catchment and upstream Mdez dam will not be affected by the project.

Downstream Mdez dam, the Idriss Premier SIBE and Important Bird Area is the only protected area hydraulically connected to the Mdez dam downstream reach, although this is done through an artificial transfer of water from Allal al Fassi dam. The volume of water that will be abstracted from Mdez dam, around 100 Mm3/year, represents a potential reduction of flow by 20 to 25% for the Idriss premier reservoir inflows, which will reflect on the reservoir regime. The only valuable ecological feature of Idriss Premier Reservoir is the presence in winter of around 40 species of birds (but not more than 4000 individuals). Given the lack of natural vegetation around the majority of the site, its key interest is as a stopping point for Palearctic migrants. The site was not retained as a Ramsar site. The project is expected to have an influence on Idriss Premier Reservoir operation (the amplitude of

annual fluctuations will decrease), and a marginal influence only on Idriss Premier birds populations. The reservoir has practically no riparian vegetation because of its water level fluctuations, and therefore the Project is expected to have no impact on riparian birds' habitats or nesting sites.

Within the Project area, Dwiyate SIBE and Important Bird Area is the only site that requires specific attention: this site is actually located within the Saïss Plain, within one of the agricultural sectors that might be supplied by the Project (see 2.2.2).



Figure 6 – Map (source: birdslife international) and satellite view (source: google earth) of Dwiyate Sibe

It is unlikely that the water transfer will have any impact on Dwiyate, since the pipeline alignment is project around 15 km south from Dwiyate. However, construction works might be undertaken by the PPP contractor in the vicinity of the farm that hosts the SIBE during the distribution network construction. The potential for negative impacts on the Dwiyate SIBE resulting from such works are deemed very low for the following reasons:

• The Dwiyate SIBE is located inside the farm territory, which is not easily accessible and is protected by its royal status;

- The PPP contractor will provide access to the water infrastructure at the boundary of agricultural parcels, not inside;
- $\circ~$ The Dwiyate farm is located on the edge of the Saïss Plain, and therefore there will be no necessity to cross its territory.

As a conservatory measure, it is required in the environmental and social action plan to associate an ornithologist to the design and implementation of any works in the vicinity of Dwiyate SIBE, notably to avoid additional disturbances (eg noise) during nesting periods.

7.1.7.3 Protected or sensitive species and habitats

The baseline studies have identified a number of species which can be found in the Project area and are considered as Vulnerable of Endangered by the IUCN (see chapter 2.2.3). This includes three reptiles species (*Psammodromus microdactylus* - EN, *Salamandra algira* – VU and *Testudo graeca* – VU), one chiropter species (*Rhinolophus mehelyi* – VU) and one bird species (*Neophron percnopterus* - EN).

Rhinolophus mehelyi is a chiropter that is mainly theatened by the loss of roosting sites. The species is declining in Morocco due to disturbance in caves. The species only roosts in caves and abandoned mines and does not use other artificial roosts. The Project will by nature follow the flattest areas and will avoid cliffs or rock outcrops where caves are most likely to be located. Although localized and temporary disturbance caused by the construction activities might occur, no permanent or long term significant impact is expected by the Project on this species.

Neophron percnopterus is a raptor that breeds in Morocco. It has been affected worldwide by a number of factors that include poisoning of carnivores, loss of breeding sites (typically in cliffs caves or ledges, exceptionally on the ground), electrocution and collision with power infrastructure, habitat change and, in Morocco at least, the use in traditional medicine. Although localized and temporary disturbance caused by the construction activities might occur, no permanent or long term significant impact is expected by the Project on this species.

Specimens from the three species of reptiles that would happen to be on the pipeline corridor during construction works will be at risk of getting crushed by machineries, earth movements or cars. The most sensitive sites for these species are expected to be avoided at the pipeline "micro-location" stage. No monitoring of the Project's construction impacts on these three species can reasonably be held and it was therefore decided to insist on preventing the risks for these three species. In this aim, it is planned to conduct training and awareness raising of the construction staff about environmental protection and protected species: this is an approach that EBRD has followed on other projects with linear infrastructure in Morocco, and it has proven to be an efficient way to ensure that workers, as a minimum, do not voluntarily kill the reptiles they happen to see during construction works and, where possible, remove them. This awareness raising activity is included in the Stakeholder Engagement Plan prepared for the Project.

7.1.8 PR 7: Indigenous Peoples

EBRD has determined that no indigenous people are present in the project area and PR7 is therefore not applicable.

7.1.9 PR 8: Cultural Heritage

The National Heritage Registry available on the Ministry of Cultures website indicates 33 sites in the Wilaya of Meknes. With regards to the Project footprint, the majority of the sites are recorded in either Meknes, or north of the Project at *Volubilis,* where there are Roman Ruins. As such, based on the Ministry of Culture records, the risk for the Project is considered low.

While the Project will cross territories that are not known to be particularly rich from an archaeological perspective, a chance find procedure will be prepared for the Project, as a standard requirement for this type of linear infrastructure project, and relevant training will be provided to construction contractors and their workers. This is a specific requirement of the environmental and social action plan (see chapter 9).

7.1.10 PR 10: Information Disclosure and Stakeholder Engagement

7.1.10.1 Public Consultation Plan

A Public Consultation Plan (PCP) has been developed based on national requirements and EBRD PR10 standards to ensure the timely provision of information and engagement in meaningful dialog with project affected people and other interested parties. The PCP identifies stakeholders and a programme for information disclosure and consultation with the identified groups, taking account of vulnerable people and specific measures to ensure their inclusion in the process. The presence of native Tamazight speakers is likely in some areas of the Middle-Atlas crossed by Phases I and II of the pipeline, and stakeholder engagement will need to take account of the Tamazight dialect spoken in these areas of the Project and ensure information disclosure and consultation is carried out in an accessible and culturally appropriate manner.

The PCP also includes a grievance mechanism and defines roles and responsibilities within the MAMF. The Plan will have to be finalised and tailored to reflect Project developments, including the selection of construction contractors who will be partly responsible for the implementation of the PCP during construction, as well as the selection of the private company responsible for public engagement during the operational phase.

The public consultation process integrates discussion on social issues related to water management such as barriers faced by particular user groups, for example, women, in their implementation of proposed irrigation technologies and practices. In this regard the PCP also includes coordination with the EBRD-funded technical cooperation project for Supporting Women's Economic Inclusion in the Saïss Region through Sustainable Commercial Agriculture. The PCP will further be used as an input to the development of a Stakeholder Participation Programme (SPP) covering the whole of the Saïss Plain with

respect to changes in the water use and irrigation sectors. The SPP will be aimed at encouraging the adoption of more efficient and sustainable irrigation practices by water users, increasing awareness of water users' legal rights and obligations, and also effectively communicating the institutional changes underway within the Saïss Plain to assist in an effective transition.

The person with the overall responsibility for the management of the PCP is Ahmed El Bouari (a.elbouari@agriculture.gov.ma) and the final PCP will be disclosed on the MAMF website: www.agriculture.gov.ma, and be available locally in different locations readily accessible to affected stakeholders.

7.1.10.2 Initial information Meeting

On September 15, 2016, the MAPM organized an information and awareness day for the Saïss Project that was held at the Qualipole Alimentation in Meknes. More than 50 participants attended the meeting, comprising big/medium and small farmers as well as regional officials (DRA and DIAD), an EBRD representative, and the ESDD consultant.

The meeting was interactive and the audience actively engaged. Farmers showed a lot of interest in the project, and clearly expressed that the water deficit impacts their production and the type of crops they were cultivating. They were keen to benefit from the additional water supply for surface irrigation and stated that their wells are generally insufficient for irrigation. Main points discussed included the price of water, timing of the project, exact areas to be connected, whether the transferred water will be sufficient for all beneficiaries and whether there will be limitations of water volume per ha, as well as the possible increase in value of the region's farm land as a result of the Project.

7.2 Mdez dam E&S risks and impacts

The Mdez Dam, although not part of the Project, was subject to a review of technical, environmental and social risks to inform the EBRD, with the main purpose of verifying the absence of major risks in this Project.

The dam is a structure built by the Ministry in charge of water. The infrastructure had been considered for a while (studies in the 1980s were mentioned) and the decision to build it was accelerated following the catastrophic floods of 2008-2010.

The dam was subject to an environmental impact assessment according to Moroccan law. The dam is expected to be completed in 2018. Its management will be entrusted to the Sebou WBA.

The findings of assessment are the following:

- The dam does not affect legally protected areas or internationally recognized for its biodiversity;
- Within the Dam and future Reservoir's reach, there is no ecological habitat deemed noteworthy (intrinsically or because its hosting of interesting species in terms of conservation) and which would be destroyed or impacted by the Project;

- 250 families were physically displaced (mainly in the reach of the future reservoir). The displacement procedure followed the Moroccan legislation for expropriation. Compensation payments were made up to 90%. The remaining 10% are cases of family disputes.
- From a technical point of view, the dam is built in accordance with international best practices.

8 STAKEHOLDER ENGAGEMENT

8.1 Stakeholder identification

8.1.1 Identification of main stakeholders

This section of the document identifies Project affected and interested parties, i.e. stakeholders, at a local, district and regional levels.

Stakeholders can be individuals and organisations who may be directly or indirectly affected by the Project either in a positive or negative way, who wish to express their views:

- **Stakeholders:** any person, group or organisation with a vested interest in the outcome of the Project; and
- **Key stakeholders:** any stakeholders with significant influence on or significantly impacted by the Project and where these interests and influences must be recognised if the Project is to be successful.

Stakeholders can be grouped into the following categories:

- International (e.g. lenders).
- Government (e.g. Moroccan state, regional and local regulatory bodies).
- Non-government and civil society organisations.
- Services / suppliers.
- Customers, which would include irrigation users.
- $\circ~$ Education and training institutions (e.g. schools, universities, colleges, think tanks, etc.).
- Agricultural and Industrial sectors (e.g. trade bodies, manufacturers).
- Internal stakeholders (e.g. employees, trade unions).
- Affected communities and public groups (e.g. nearby residents, local community groups).
- \circ The media.

If stakeholders are not on the list below and would like to be kept informed about the project, contact should be made with Ahmed El Bouari (contact details provided above) who has responsibilities for stakeholder communications.

8.1.2 Key stakeholders identified during the development of this plan

Key stakeholders associated with the project have been identified in Table 2. The Stakeholder list also targets vulnerable groups of the local communities. Vulnerable groups include those expected to be disproportionally affected by the project and/or those less able to access information, participate in the consultation process or benefit from positive outcomes of the Project, and therefore require special consideration throughout the consultation process. Vulnerable groups are project specific and depend on a range of issues which must be understood such as project socio-economic and demographic context, as well as the type of impacts anticipated. For this project this could include women who should be allowed meaningful participation in consultations and in decision-making and any

nomadic/seasonal land users with no fixed residence. As nomadic/seasonal land users might not be present year round, this could limit their participation in the decision making process if not appropriately planned for.

Table 2 – Stakeholders identification

Stakeholder Group	Key Stakeholders	Summary of Specific Interest
National and Regional	Ministry of Agriculture and Maritime Fisheries: Station	Within MAPM itself, specific groups exist that will require internal
Government –	Dbagh-Avenue Hassan II BP 607, Rabat	engagement or can provide forums for engagement. As part of the
Agricultural Bodies		Saïss Project, MAPM has developed a programme to strengthen
		capacity and management for the delivery of the Project, with benefits
		to wider water resource management in general. The Water Act
		provides for three main forums where issues relating to water
		resources management are discussed: Conseil d'Administration
		(Administrative Council \ 'the Board'): le Conseil de l'Agence
		Hydraulique (Water Agency Council); and, les Commissions
		Provinciales ou Préfectorales de l'Eau (Provincial or Prefectorial Water
		Commissions). In the context of the Saïss Project, these agencies could
	Directorate of Irrigation and Agricultural Development:	particularly have a role in monitoring of groundwater and water-
	Station Dbagh-Avenue Hassan II BP 607, Rabat.	related risks and public disclosure and dissemination of data to
	Fes-Meknes Regional Agricultural Directorate: Rue othmane	provincial, regional and local institutions via the internet.
	ibnou affane Ville Nouvelle, Meknes.	Directorates with the MAPM responsible for the promotion and
	Chamber of Agriculture Agence Urbaine de Meknès, 13 Rue Pasteur, Meknès	development of irrigation projects including the Saïss Plain project.
		In charge of advisory and capacity building missions among farmers.
		Regional chamber offices are responsible for advice and training to
		farmers for best practice in agriculture, optimal choice of crops, use of
		pesticides and fertilisers etc. Available as a primary point of contact
		for local stakeholders in the agricultural industry.

Stakeholder Group	Key Stakeholders	Summary of Specific Interest
National and Regional	Ministry of Energy, Mines, Water and the Environment: Rue	The Moroccan State administrative entity that will oversee the
Government – Non-	Abou Marouane Essaadi BP: Rabat Instituts 6208, Haut	construction and operation of the Project has yet to be created by
Agricultural Bodies	Agdal, Rabat.	Ministerial Order, but is expected to take the form of an inter-
	Ministry of Health	Ministerial Piloting Committee – comprised of the MAMF along with
	Ministry of Finance	the Ministries of Mines, Energy, Water and Environment, Ministry of
	Ministry of the Interior	the Interior, Ministry of Health and Ministry of Finance, Employment
	Ministry of Labour and Social Affairs: Rue Al Jommayz, Hay	and labour protection, including health and safety.
	Riad, Rabat.	The Ministry of Energy, Mines, Water and the Environment includes
		the Water Basin Agencies, responsible for the management of public
		water assets within their respective basins. Notably, the Water Basin
		Agencies deliver authorisations or concessions for using water
	Ministry of Culture	resources. The Project will involve the Sebou Water Basin Agency.
	Provinces of Fes Medina, Sefrou, Mekens El Menzeh, El	Chance Finds of cultural heritage
	Hajeb, and Ifrance	Regional and Local Municipalities: Water resources availability,
	Local municipalities: Douyet, Ain Cheggag, Dkhissa, Ain	economic development in the region, employment, land access and
	Jemaa, El Hajeb, Ain Taoujdate, Azrou	use.
Internal Stakeholders	Employees of the government bodies with direct	Internal training and responsibilities for the Project
	responsibility for planning and execution of the Project	Any particular policies and procedures for the Project
Potential Users of the	PPP farms	Engagement on development of the project including schedule
Project (communication	Small and medium sized farms	Changes to the services and facilities, in particular pricing and
methods will	Farm cooperatives and associations, specifically including	reliability of access to water supply
differentiate between	women-led farms and cooperatives	Any changes to land access and other potential environmental and
these groups)	Agricultural workers on the land of the plain of Saïss	local community impacts and benefits
Project Affected People	Land owners affected by the expropriation of the the right	Engagement on development, including design decisions, scheduling,
and Communities	of way for the transfer and distribution pipeline	procurement and construction works
	Any other formal or informal land users that might be	Prior (eg two weeks before) information during construction about the
	present in the land area of the project, for example, any	risks associated with the worksite, the increase of traffic, the possible
	herders along the pipeline route that could have their	service disruptions, etc
	access to land and other ressources temporarily limited	Any changes to land access and other potential environmental and
		local community impacts and benefits
		Employment / local service opportunities

Stakeholder Group	Key Stakeholders	Summary of Specific Interest
Other Local Communities and Public Groups	ONCA Organisation National de Conseil d'Agriculture Association of Olive Growers; representing growers, product manufacturers and distributors of olive based products Fruit Growers Association FEDAM Rue la Patrouilleuse, Résidence Nouria, Immeuble E, Appartement 46, Ville Nouvelle, Meknès Other General Stakeholder Groups: Local agricultural merchants or other intermediate supply	Engagement on development, including design decisions, scheduling, procurement and construction works Any changes to land access and other potential environmental and local community impacts and benefits Employment / local service opportunities
	chain organisations Non-governmental organisations	
Construction and Operational Suppliers, Services	Construction workers (and their trade union representation where applicable) Various contractors for supply of technical services, personnel and equipment	Working conditions and worker accommodation EHSS requirements and standards Project supply needs and schedule Conduct regular campaigns during construction to raise the workers awareness about (i) environmental care, with a focus on protected reptiles in the Project area, and (ii) good relations with the Project's neighbouring population.
Media	Local newspapers: Maroc Soir, Maroc Matin Local radio: Medina FM, Hexagone FM, RadioHayabiib, WFIT Television advertisements: SNRT , Al Aoula, Laayoune TV	Development and procurement plans Potential environmental and local community impacts and benefits

The table will be updated if new stakeholders are identified during the course of the project.

In particular, this table will be updated as needed following the census and inventories to be undertaken for land acquisition and livelihood compensation.

8.2 Ministry of Agriculture and Maritime Fisheries stakeholder relations and approach

8.2.1 Overview of existing stakeholder and community relations

The Ministry of Agriculture and Maritime Fisheries is responsible for the planning phases of the project and for any community engagement and communication with regards to the project. At the time of the first publication of this PCP, no formal public consultation has taken place or any specific corporate social responsibility / community development activities.

A questionnaire has been undertaken in June 2015 for Phase III of the project to provide supplementary information for the agro-socio-economic analysis. The survey involved 24 people living in the plain of Saïss, from small land owners (less than 5ha) to very large land owners (more than 50 ha). Questions asked included details on the owner (age, date of installation, ownership status), details on the land (surface irrigated, land status), infrastructure and agricultural material, labour, animal and crop production, costs, commercialisation techniques and future expectations. Other technical questions included the total surface irrigated, the number of boreholes and their depth, the type of irrigation and the type of energy used. An estimation of the cost of irrigation (Dh/m3) was subsequently undertaken taking into account energy use but also maintenance costs and amortization.

While some potential future beneficiaries of the project have been surveyed as part of the supplementary information collection as described above, no formal consultation has been undertaken at the time of commencement of this PCP, with most people likely to be affected by the project. In particular, the techno-economic report conducted in 2016 estimated a total of 830ha to be expropriated (830ha required, with some portion expropriated from private land owners if not already state-owned) for the main distribution pipeline and primary pipeline right-of-ways, before the construction works start. It is considered that these people have not been formally informed of the project. For Phases I and II, approximately 250ha of land will need to be expropriated and this will involve an element of economic displacement. Land owners in the pipeline route have not been consulted to date, due to the fact that the right-of –way was not defined yet at detailed level.

The Ministry of Agriculture and Maritime Fisheries is committed to organising information days where people will be able to ask questions about the project and subscribe to it. The Ministry has been receiving questions or subscription requests from farmers and collecting them and taking them into account. However, no formal coordination, for example, a combined spreadsheet demonstrating record of and response to comments, has been developed at the time of this report. An official grievance mechanism had not yet been implemented at the time of commencement of this PCP. However, a formal grievance mechanism will now be used for the project, as described in Section 7.

The Chamber of Agriculture is identified as one of the main points of contact for the farmers to date, which is easily accessible to them. The Chamber is formed of 84 elected people coming from the nine provinces of the Fès - Meknès region and has been described by farmers as a good mediator between agricultural workers and public authorities (i.e. RDA and Ministry).

On September 15, 2016, the MAPM organized an information and awareness day for the Saïss Project that was held at the Qualipole Alimentation in Meknes. More than 50 participants attended the meetings, comprising big/medium and small farmers as well as representatives from the central and regional services of MAMF (DRA and DIAD).

The consultant and expert in irrigation made a general presentation of the project to the future potential beneficiaries. He presented information about the targeted areas and Project implementation steps; explained the Project goals, stressing the importance of the subscription campaign to determine the beneficiaries' areas; and presented the Project indicators and consequences.

DIAD presented the future steps and timing of the Project, clarifying that the information and consultation activities have just started and that a locally-based campaign will be organized once the Project's technical studies' have been completed in order to prepare future beneficiaries to the subscription campaign and raise awareness about the importance of the Project to offset Saïss Plain water deficit and irrigation.

The meeting was interactive and the audience actively engaged. Farmers showed a lot of interest in the project, and clearly expressed that the water deficit impacts their production and the type of crops they were cultivating. They were keen to benefit from the additional water supply for surface irrigation and stated that their wells are generally insufficient for irrigation. Main points discussed included the price of water, timing of the project, exact areas to be connected, whether the transferred water will be sufficient for all beneficiaries and whether there will be limitations of water volume per ha, as well as the possible increase in value of the region's farm land as a result of the Project.

8.2.2 Documenting future engagement activities

Stakeholder engagement activities will record the following information on an ongoing basis:

- Type of information disclosed, in what forms (e.g. oral, brochure, reports, posters, radio, newspapers etc.), and how it was released or distributed.
- The locations and dates of any meetings undertaken.
- Individuals, groups, and / or organisations that have been consulted.
- Key issues discussed and key concerns raised.
- Response to issues raised, including any commitments or follow-up actions.
- $\circ\,$ Process undertaken for documenting these activities and reporting back to stakeholders.

8.3 Public consultation programme

8.3.1 Disclosure of information

The types of information disclosed and the specific method of communication to be undertaken by the Ministry of Agriculture and Maritime Fisheries and its Project implementation partners are summarised in the Public Consultation Programme in Table 2 below. The objectives of external communications and consultation are to provide continuous engagement with targeted audiences with regard to the activities, performance, development and investment plans and their implementation.

8.3.2 The future programme

8.3.2.1 General Principles

The MAPM will comply with the following principles for the conception and deployment of its public information and consultation initiatives.

- Participation that is free (without coercion), informed (pertinent information being made available before or during the consultation), and in advance. (before corresponding decisions are taken);
- Conceive the participation as a dialogue across the whole project cycle (design, construction, operation).
- $\circ\,$ Respect the requirements of Moroccan legislation concerning public information and consultation.
- Respect international standards, in particular EBRD PR 1.
- Structure the informing and consultation as a dialogue between the project sponsor, the affected communities and the other parties concerned.
- Include in the process all relevant stakeholders identified in the current plan, and apply the principles of non-discrimination and transparency.
- Include all groups susceptible to exclusion due to gender, poverty, education, and other factors of social exclusion, by assuring them fair access to information and the opportunity to make their opinions and concerns known.
- Effectively taking into account contributions, requests and concerns of stakeholders in project decisions.
- Manage grievances and respond rapidly, fairly and efficiently.

8.3.2.2 Languages

As well as Arabic, Tamazight is one of the 2 official languages of the Kingdom under the 2011 Constitution. In the project zone, French is understood by only a minority, and it is Moroccan Arabic ("darija") that remains the language most generally used.

However the project may potentially have to communicate in Tamazight in the cases where neither Arabic or French are understood, most notably in informal face-to-face communication along the water transfer pipeline corridor in the more isolated Middle Atlas zones, and it will possibly be necessary that certain Project representatives, in particular those in contact with the local rural population, master the local dialect, and be recruited locally.

The project will therefore, in its communications and informing, use the following linguistic policy:

- Written communication in literal arabic (« fusha »), and in French for those documents of an official character for the Administration.
- $\circ~$ Oral communication in Moroccan Arabic (« darija ») and potentially in the local berber dialect.

The public consultation plan and the information documents that accompany the consultation should also be finalised in Arabic by the MAPM and with the assistance of the supporting consultant provided by the EBRD to work with the Operational directorate of the Project.

Information to be communicated to the public will be presented at key locations; these will include information presented on notice boards in local community locations as required.

The Ministry of Agriculture and Maritime Fisheries will collate any comments and feedback associated with the project and will document these. All comments received will be reviewed in accordance with the commitments made under 'Best International Practice' as documented within 'The Requirements' section provided in Section 3.3.

All communications will be reviewed for the feasibility to make changes to satisfy the request and interest and the communicator will be informed of the outcome.

Through communication channels such as local media, group and one-to-one meetings, and other community feedback, the Ministry of Agriculture and Maritime Fisheries will monitor comments and provide response as appropriate. Should future important public consultation meetings or public exhibitions be arranged at venues to enable stakeholders to participate, an open book (with pens provided) will be positioned in a suitable location for recording comments anonymously. This book will be presented in an obvious area of the exhibition but in an area that will not be directly monitored by host staff (e.g. by the exit). The information will be recorded by the Ministry of Agriculture and Maritime Fisheries so that a response and feedback can be made to stakeholders.

The future programme of engagement is presented in Table 2 below which will be reviewed and finalised with the assistance of the consultant appointed by EBRD to support the Project PIU, and it will also be updated on an on-going basis. The Project will require an extensive engagement programme based on its geographical scale and the need for general community buy in to make the project feasible.

Table 3 – Stakeholder engagement needs

Activity	Information to be Disclosed / Topic	Locations, Timing and Forms of	Stakeholder Groups	Other Information /
	for Engagement	Communication	Consulted	Engagement Approach
Reporting to Investors	Annual reports regarding the environmental and social performance of the project against requirements, including implementation of the Public Consultation Plan, Land Acquisition and	One year after loan signing agreement / reports provided annually comprising: ESAP status Resolution on grievances Others reports in accordance with the ESAP for the	Disclosure to EBRD.	
	Compensation Framework, and resolution of any grievances associated with the project. Any intermediate reports in accordance with the ESAP for the Project.	Project.		
Ongoing Coordination with other Government bodies and employees involved in the development of the Project and its Associated Facilities	Regular updates on the Project development in order to best coordinate Project development efforts including plans for engagement with the community and planning for construction works. Disclosure of defined roles and responsibilities. Training for Project staff. Coordination on the design and implementation of the Stakeholder Participation Programme (SPP)	Regular, with precise timing to be determined between the government bodies and based on the topic of coordination and project programme. Forums would include in-person meetings or conference calls. Detailed engagement and communication plan to be delivered as per the SPP.	To initially be determined by MAMF based on the Project Development plans. Will include all regional and local agricultural bodies and adapt over time as needed. Local municipalities.	
Specific engagement with Project:	th construction companies, project affected	d communities and potential users of the Project during	g the planning, construction a	nd operation phases of the
As part of the finalisation of the detailed design of the pipeline routing:	Proposal for route, associated land and access requirements. Project and construction timetable. Overview of Moroccan legal process for land acquisition and commitments within the LACF.	In accordance with the LACF.	At the individual property holder level. Consultation with all individuals that will experience any other form of economic displacement	This stage is important to build trust with the host communities and implement the expropriation process in line with Moroccan and
			such as restriction to land.	EBRD standards.

Activity	Information to be Disclosed / Topic	Locations, Timing and Forms of	Stakeholder Groups	Other Information /
	for Engagement	Communication	Consulted	Engagement Approach
Prior to the	Development plans for the Project	Detailed engagement and communication plan to be	Agricultural farmers and	The ability of individuals to
finalisation of the	including design, design decision-	delivered as per the SPP.	workers on the land of the	attend the open house and
approach for project	making processes, and schedule.	Use of existing community forums for	plain of Saïss.	other meetings, both
participation (land use	Proposed changes to the water	communication / distribution of information such as	Communities, including	physically and financially,
needs are specifically	infrastructure and availability, including	the Chamber of Agriculture, local service stations	specific demographic	will be considered and
discussed in the	planned changes to existing borehole	and cooperatives.	groups within those	appropriate measures put
following row)	and other non-Project access to water.	Although communication tools will include displays /	communities as	in place to allow equitable
	Potential environmental and local	notice boards, forms of communication will include	appropriate, such as	access to the meetings.
	community benefits and impacts.	non-written communication and project specific	women's groups, and	The workshop will happen
	Learnings from similar projects.	meetings or workshops.	including residents	as soon as possible to
	Employment needs and local service	Informative announcements and press statements in	adjacent to the project	allow early incorporation
	opportunities.	local papers, local TV and potentially state level	facilities, including the	within design and will
	Grievance mechanism.	media will also be incorporated.	pipelines and drip	include topics such as
		Use of phone calls or text messages to contact	irrigation.	access tariffs, any physical
		individuals.	Media.	barriers to participation,
		Information Days for Project sign-up. Open house	Local municipalities.	role in decision-making
		days will not be the first meetings / communications	Agricultural merchants.	processes.
		the public receive regarding the project, rather these	Non-governmental	
		meetings will serve as a forum for final questions	organisations.	
		and clarifications.		
		MAMF, in consultation with this stakeholder group,		
		will consider an organised visit to the project site to		
		demonstrate progress and provide visual evidence		
		and confirmation of the project progressions.		
		Will include a focus group / workshop, as soon as		
		possible, with representatives from the community		
		to look at incorporating measures within the project		
		design to specifically maximise the use and benefit		
		of the project by women and to avoid any		
		disproportionate negative impacts.		
		rargeted communication with potentially vulnerable		
		groups. This will include ensuring appropriate		
		decision making process. This would be informed in		
		part by the surveys required for the land		
		Acquisition and Componsation Framework		
		Acquisition and compensation Framework.		

Activity	Information to be Disclosed / Topic	Locations, Timing and Forms of	Stakeholder Groups	Other Information /
	for Engagement	Communication	Consulted	Engagement Approach
Pre-construction	The Project rationale, steps taken to	Targeted communication with land users whose	Land users whose access	All reasonable efforts will
planning and Site	minimise land use needs, land	access to land will be altered by the Project.	to land will be altered by	be made to individually
preparation prior to	requirements and process for land	In addition to the general engagement above, this	the Project. This will	contact each land user that
construction – <u>Land</u>	access / expropriation will be the main	group will be engaged on requirements / impacts	include both formal and	could either have their
Use Needs	subject of the engagement, including	specific to them with respect to land use.	informal land users,	land expropriated or their
	timing. This will include a description of	The consultation requirements of Moroccan Law no	including herders.	informal use or access to
	how to access the Project grievance	1-81-254 on expropriation for community benefit	Government agencies	land restricted. The Project
	mechanism and other recourse.	("utilité publique") and temporary occupation (15th	responsible for land	processes and standards
	Based on the LACF for land acquisition,	June 1983), completed by the Decree no 2-82-382	expropriation.	and legal requirements on
	compensation and restoration of	(16th April 1983), will be followed.		the topic will be clearly
	livelihoods, the principles applied by	In addition to these legal requirements, which		explained, along with the
	the PPP Plain Saïss and expropriation	include posting of notices on the intent to		individuals' rights with
	procedures should be a document	expropriate, and compensation due, communication		respect to compensation
	(brochure, bookletetc) for	will include proactive engagement, using the forums		and to any grievances or
	information of the persons concerned	identified above for general engagement but also		recourse.
	and explaining (i) the amicable	holding specific meetings and letters / emails as		
	approach before the implementation of	needed.		
	the judicial process, (ii) the method of	This engagement will occur as soon as possible and		
	evaluation of amicable	prior to the associated land expropriation or access		
	compensation(taking into account	restriction.		
	replacement costs) and (iii) the rights	Document prepared and distributed before the start		
	and duties of people before, during and	of procurement procedures.		
	after the work according to the			
	procedure applied (definitive			
	acquisition or easement, agreement or			
	expropriation), and (iv) now to access			
	the grievances handling mechanism.			
	i ne document snould clarify in			
	particular the opportunity to grow /			
	move over or near the underground			
	pipes.			
	shall also be used to convert this			
	shall also be used to convey this			
	information.			

Activity	Information to be Disclosed / Topic	Locations, Timing and Forms of	Stakeholder Groups	Other Information /
	for Engagement	Communication	Consulted	Engagement Approach
Appointment of a	Tender documents for PPP contract,	Advertisements in press, trade journals.	Contractors / Suppliers.	
Public-Private	including selection criteria.	Announcement in the local / regional / state	Communities.	
Partnership contractor	Award of contract.	newspaper and on local radio.	Internal employees.	
for the project and	Employment and supplier	Internal communications.	Media.	
other project	opportunities.	Other local community forums as identified above,		
procurements		such as the Chamber of Agriculture and local service		
		stations.		
Construction and	Ongoing schedule of construction works	Announcements in press, newspaper and on local	Communities.	
commissioning phase	and activities.	radio.	Media.	
	Progress of construction.	Other local community forums as identified above,		
	Construction impacts and mitigation	such as the Chamber of Agriculture and local service		
	measures (with opportunities for	stations.		
	feedback from affected communities).	Detailed engagement and communication plan to be		
	Announcements to stakeholders	delivered as per the SPP.		
	detailing any disruption due to Project			
	activities and updates to traffic			
	management plans for construction.			
	Employment and supplier	Publication of an updated web page at least annually		
	opportunities.	a consistent set of information chosen by the PPP		
	Public information on environmental	and showing good environmental and social		
	and social performance of the project.	performance of the Project.	Contractors / Suppliers.	
		Raise awareness workers to environmental	Internal employees.	
		protection in the context of the Project, with a focus		
	Workers awareness	on the presence of protected reptiles in the project		
		area		
	Construction EHS Management Plan.	During induction and through ongoing training		
		programs.		

Activity	Information to be Disclosed / Topic	Locations, Timing and Forms of	Stakeholder Groups	Other Information /
	for Engagement	Communication	Consulted	Engagement Approach
Project operations	Public information on environmental and social performance of the project. Sign-up procedure(s) for new operators in the region. Ongoing schedule of maintenance works and activities. Employment and supplier.	Publication of an updated web page at least annually a consistent set of information chosen by the PPP and showing good environmental and social performance of the Project. Provision of a fact sheet on sign up procedures for new applicants. For ongoing schedule updates and employment and supplier opportunities other local community.	Communities. Media.	
	Operations EHS Management Plan	forums as identified above, such as the Chamber of Agriculture and local service stations. Also newspapers for employment and supplier opportunities. Ongoing provision of information as detailed in the information campaign as part of the SPP. During induction and through oppoing training	Contractors / Suppliers	
	including waste management plan.	programs.	Internal employees.	

8.4 Grievance mechanism

To avoid recourse to tribunals in cases of complaint or dispute, the MAPM will ensure that contractors put in place extra judicial grievance mechanisms to treat grievances and disputes, using 3rd parties to explain and mediate. This mechanism will be comprised of the following stages:

- Online registration of the complaint or dispute;
- `Out of court` treatment by the MAPM and of the proposition to resolve; and,
- Referral to independent mediation if necessary.

The setting up by the MAPM of the system does not constitute an obligation to find a solution to all grievances, it does however constitute an obligation to receive, register, treat, and document all grievances. There remains nevertheless when considering the mechanism of expropriation, a certain number of questions that can only be resolved by judicial recourse, even if the `out if court` mechanisms can help.

8.4.1 Grievance mechanism general principles

The figure on next page sets out the mechanism for managing grievances that will be put in place by the MAPM. In the first instance the grievances are recorded by the MAPM in an electronic register maintained by a community liaison agent located in the information bureau. Following the first internal examination by the MAPM and/or the construction company concerned, a resolution is proposed to the plaintiff (or the complaint is refused or considered to be inadmissible).

If the plaintiff is in agreement with the proposed resolution, a statement of agreement is made and the complaint closed. If the plaintiff makes clear their disagreement with the proposed resolution, the complaint is kept open in the system, and a second `stage` is implemented. A mediation committee, established for this purpose by the MAPM and consisting of members from outside the MAPM (see below), receives the complaint and is invited to propose a solution (this solution may be the same as that initially proposed by the MAPM or different, as is the case).

If the plaintiff is satisfied by the resolution proposed by the mediation committee, then the complaint can be closed. If not, the plaintiff is invited to find a resolution via the legal means available to them.

8.4.2 Timescales in addressing grievances

For each complaint registered:

- \circ A written receipt will be made within seven (7) calendar days; and,
- A proposal for resolution will be made within thirty (30) calendar days thereafter. Subject to the claimants acceptance of the proposed resolution, referral to a mediation committee may be required following the initial proposal.



8.4.3 Registering of grievances

The project will put in place a grievances register. The existence of this register and the conditions of access (where it is available, when one can have access to the agents responsible for registering grievances etc.) will be made known to the affected populations within the framework of the consultation and public information activities.

The grievances will be registered as follows:

- At the information centre opened by the MAPM; and,
- By electronic means on the MAPM website (the form and handling to be put in place in liaison with the site provider).

Presented overleaf is an example of the grievance form. A register monitoring report of grievances will be produced for the attention of the MAPM management and lenders.

8.4.4 Mediation Committee

In order to consider those grievances that could not be resolved by the first `stage` of examination and treatment (see figure above), the MAPM will put in place a process of mediation adapted case by case. A provisional mediation committee will be put in place comprised of the following independent and impartial members:

- A representative of the local authorities;
- A representative of the communes concerned ; and,
- Three to five representatives of the populations, including women's representatives, chosen from amongst the local community organisations, the old, the traditional and religious authorities.

The provisional mediation committee will be composed of persons having the trust of the various stakeholders in the grievance or the litigation in question.

8.4.5 Procedure for addressing grievances

Before a grievance or litigation can be registered, the MAPM will prepare the technical elements (for example the compensation proposed, list of interviews or meetings held with the plaintiff, the exact reason for the grievance).

The plaintiff(s) will be called before the mediation committee, who will attempt to propose a solution acceptable to the two parties (the MAPM and the plaintiff).

As required other meetings will be organised, and the committee will designate one of its members to continue the arbitrage in a less formal setting than the monthly meetings.

Any agreement reached will be confirmed by a protocol signed by the parties and of which the president of the Mediation committee.

8.4.6 Public Grievance Form

Reference No:	
Full Name	My first name
Note: vou can remain	
anonymous if you prefer or	My last name
request not to disclose your	
identity to the third parties	Lwich to raise my grievance anonymeusly
without your concent	
without your consent	
	i request not to disclose my identity without my consent
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Date: _____

Please return this form to: Mme Rajaa Tanji, head of promotion and installation of PPP for irrigation within the Directorate of Irrigation and Agricultural Development, MAMF Address: Station Dbagh-Avenue Hassan II BP 607, Rabat, Maroc, Tel.: +212 5 30 10 32 83 or +212 6 14 21 02 63 or E-mail: email <u>r.tanji@agriculture.gov.ma</u>

8.5 Application of the plan and publication of stakeholders

8.5.1 Responsibilities and means

The MAPM is responsible for the application of this plan and will provide the means necessary for the different phases of the project.

The MAPM will associate the local authorities (notably the rural community councils around the project) in the application of this plan, in particular for the activities of public consultation and information and acts of expropriation, in compliance with Moroccan legislation and the requirements of this plan.

Ahmed El Bouari, Director, MAMF will have the overall responsibility for managing the consultation and information disclosure process. This will require the assignment of a local community liaison team to deliver all the planned activities including organisation of the consultation process, communications with identified stakeholder groups, collecting and processing comments / grievances, and responding to any such comments and grievances. Depending on the nature of a comment / complaint, some comments or grievances will be provided to the appropriate person in the company for a response.

Name of the person and title	Contact Information	
Ahmed El Bouari, Director, MAMF	Station Dbagh-Avenue Hassan II BP 607, Rabat, Maroc,	
	a.elbouari@agriculture.gov.ma, +212 530 10 31 77 or +212	
	537 29 75 44	

The MAPM will post before the start of works one or more community liaison agents, preferably recruited locally and mastering the local dialects in the zone, to an information bureau opened locally. This agent will be under the responsibility of Ahmed El Bouari, Director, MAPM, and will be responsible for:

- the organisation of the local public information and consultation actions;
- liaison with community councils;
- o management of grievances as per the procedure set out in Chapter 8.4; and,
- Preparation of monthly reports for management (public information and consultation actions, grievances and disputes).

8.5.2 Monitoring Reports

Other than the monthly reports for internal use produced by the community liaison agent, the MAPM will integrate the following points in an annual report on the environmental and social monitoring destined for the EBRD:

- \circ $\,$ The main consultation and public information actions carried out during the year.
- $\circ~$ The functioning of the information bureau and the resources allocated to consulting and information.
- Elements concerning the MAPM website (documents made available and the contact form).
- Elements concerning the grievances and disputes, including:

- $\circ\,$ Classification of grievances (environmental, land acquisition and compensation, information, other)
- \circ $\;$ Number of grievances open in the the period and their classification.
- \circ $% \left(N_{1},N_{2},N_{2},N_{3},N$
- Number of grievances remaining open (undergoing consideration either internally or by the mediation committee)
- Average time taken to resolve grievances

8.5.3 Modifications and updates to PCP

This PCP will be modified and finalised, and translated into Arabic, with the assistance of the supporting consultant provided by the EBRD to work with the Operational directorate of the Project and it will also be reviewed and updated annually to take into account the evolution of the project and where applicable to present certain new actions. In this case the revised version of the plan will be sent to the EBRD for examination.

9 ENVIRONMENTAL AND SOCIAL ACTION PLAN

No.	Action	Environmental and Social Risks and Benefits	Legal requirement, Performance requirement or good international practice	Resources, responsibilities	Schedule	Objective and implementation evaluation criteria
PR 1	Assessment and Management of Environmental and Social Impacts and Issues					
1.1	Person in charge of the ESAP : MAMF to appoint (within MAMF) a person in charge of the implementation of the ESAP.		EBRD PR1	MAMF	As soon as the financing agreement with EBRD is signed, and for the whole duration of this agreement	Responsible person appointed for the entire duration of the financing agreement (the person might change, but the role must be maintained)
1.2	 Environmental and social monitoring report Provide EBRD with a progress report on: the present ESAP implementation Environmental and social performance of the project related activities 	Environmental and social monitoring	EBRD PR1 Loan Agreement requirement	MAMF Reporting format to be provided by EBRD	During construction : every six months During operation : Within 120 days after the beginning of each financial year, during the financing agreement duration	Reports submitted to and approved by EBRD
1.3	Environmental and Social management during the design and construction phase: Include the present ESAP and the obligation to comply with the Moroccan legislation and with EBRD's environmental and social policy in the contracts of companies involved in the Project's construction.	Implementation of regulatory and ESAP requirements.	Morocco Legislation EBRD PR1	MAMF	During contracts preparation	ESAP and obligations included in contracts.

No.	Action	Environmental and Social Risks and Benefits	Legal requirement, Performance requirement or good international practice	Resources, responsibilities	Schedule	Objective and implementation evaluation criteria
1.4	Impact minimisation during localisation process of pipeline/associated infrastructure: During final studies aimed at defining the exact location of pipelines and infrastructures, associate a biodiversity and a social expert to the office and field works in order to avoid or minimize the impacts on sensitive environmental and social receptors. Keep a record of the modifications made or options explored to avoid or minimize impacts.	Application of the mitigation hierarchy principle	EBRD PR1	MAMF	During the project detailed studies	Biodiversity and social expert associated to field work. Written record of modifications made in order to avoid or minimize negative impacts.
1.5	 Environmental and social monitoring during design and construction phases Make resources available to the person in charge of the ESAP implementation (see action 1.1) for the environmental and social supervision of the Project: environmental and social auditors, office space and equipment, transportation means. Regular environmental and social monitoring organised by the person in charge of the ESAP implementation, including weekly reporting on -and management of- non-compliances, in line with Moroccan legislation and EBRD's Environmental and Social Policy. 	Application of regulatory requirements and of the ESAP.	Morocco Legislation EBRD environmental and social policy	MAMF, for example with the support of the consultant in charge of the project's technical supervision	During the design and construction phases	Effective monitoring Weekly internal reporting Non compliances identified and managed.
1.6	Implementation of an integrated Environmental and social management system (ESMS) certified to ISO 9001, ISO 14001, OHSAS 18001 and SA8000, covering all of the private partner activities for the operational phase.	Quality insurance and continuous improvement	EBRD PR1	MAMF	ESMS prepared during the first operation year Certification (optional for SA8000) during the second year of operation	Integrated ESMS ready and certified Regular re-certification (optional for SA 8000)
No.	Action	Environmental and Social Risks and Benefits	Legal requirement, Performance requirement or good international practice	Resources, responsibilities	Schedule	Objective and implementation evaluation criteria
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1.7	Promotion of women's access to production means and employment in rural areas (in connection with the Plan Maroc Vert and with the national strategy for the development of social and fair economy 2010-2020), facilitate the implementation of a technical cooperation program aimed at promoting women's participation in the agribusiness sector and in agricultural enterprises, with the assistance of a specialized consultant	Improving the Project's gender impact	BERD ESP	MAMF : supervision and monitoring Consultant potentially financed by EBRD	December 2017	Technical cooperation programme defined and prepared by the consultant, in liaison with MAMF
PR 2	Labour and Working Conditions					
2.1	Individual grievance mechanism Include in the tendering documents the establishment of a structured framework accessible to all contract workers that allows for the receipt of workers' requests or grievances.	Conflicts prevention	EBRD PR2	MAMF	During contracts preparation	Grievance mechanism effectively implemented; Register of complaints and of related solutions maintained.
2.2	Comply with the Moroccan labour code and with EBRD's requirements concerning working conditions, and with the EBRD/IFC guidance on worker accommodation. Audit contractors and sub-contractors against these requirements.	Transparency and compliance in the management of human resources	Morocco Legislation EBRD PR2	MAMF and Contractors	From the beginning of the operation phase	Regular human resources and labour audits.
2.3	Safety and security personnel : Include conditions in service contracts with enterprises involved in the Project requiring (i) an assessment of the risks (health and safety, and working conditions) to which security staff will be exposed, carried out prior to hiring safety or security personnel and (ii) the implementation of the necessary preventive actions to eliminate any significant risks.	Anticipation and prevention of the risks to which security staff will be exposed.	Morocco Legislation EBRD PR2	MAMF	During the preparation of contractual documents for enterprises involved in the Project	Clause included in contracts.
PR 3	Resource Efficiency and Pollution Prevention and Control					

No.	Action	Environmental and Social Risks and Benefits	Legal requirement, Performance requirement or good international practice	Resources, responsibilities	Schedule	Objective and implementation evaluation criteria
3.1	Erosion prevention and soil conservation The earthworks undertaken for the Project will need to comply with good international practice related to top soil management, erosion prevention and borrow-spoil areas management.	Pollution prevention and control	Morocco Legislation EBRD PR3	MAMF	Before the works start	Topsoil conservation and reuse Surface flow management in order to avoid erosion and sediments transport to rivers.
3.2	Asbestos-cement pipes Include in the Contractors tender documents the obligation to proceed to the removal, transport and disposal of old asbestos-cement pipes in compliance with the Morocco legislation and good international practices : - store waste asbestos-cement pipes on racks or pallets and broken parts in a container covered by a tarpaulin, - label or mark the waste pipes up to their final disposal site, - Dispose waste pipes in an authorized disposal site.	Old asbestos-cement pipes might be present underground	Morocco Legislation EBRD PR2, EP3, EP4 Good International Practices	MAMF	During tender documents preparation	Procedure applied
3.3	Ban of the use of pesticides The Project does not require the use of pesticides (insecticides or herbicides) during the construction or operation phase. Ban the use of pesticides by the private partner in all of its operations.	Pollution prevention and control	EBRD PR3 Good International Practices	MAMF	From the beginning of the construction and throughout the duration of the financing agreement	Ban formulated and applied
PR 4	Health and Safety					

No.	Action	Environmental and Social Risks and Benefits	Legal requirement, Performance requirement or good international practice	Resources, responsibilities	Schedule	Objective and implementation evaluation criteria
4.1	 Excavations works (trenches) Include in contractors' tender documents the following requirement: Organise training courses about working in trenches. Develop written procedures related to work in trenches. Work in trenches must be authorized only after risks and protection measures were assessed by a person specially trained and authorized by the contractor. Trenches must be inspected daily by habilitated staff. Work in trenches must be organized such that the number of worker descents into the trench is minimised as much as possible. 	Work in trenches is a significant source of risks. Procedures are available but need to be formalised and included in the ESMS.	Morocco Legislation	MAMF	From the date when construction works start	Objective of zero accident and zero lost- time incident as a result of excavation collapses.
PR 5	Land Acquisition, Involuntary Resettlement and Economic Displacement					
5.1	Expropriation process detailed documentation: With the assistance of a social expert familiar with the Moroccan expropriation process as well as the implementation of international standards, prepare a land expropriation plan that complies with Moroccan regulations and satisfies the standards of Performance Requirement 5. This Plan will also be comprised of a brochure to inform and consult with the stakeholders affected by the expropriation process.	Prevention of the risks associated with the expropriation and mitigation of the risk of delays during construction	Morocco Legislation EBRD PR 5 Good International Practices	MAMF	Plan finalized by MAMF after the cadastral survey Plan approved by EBRD. Implementation monitored by MAMF and the social expert.	Plan prepared and implemented Implementation reports submitted to EBRD with the environmental and social monitoring report
PR 6	Biodiversity Conservation and Sustainable Management of Living Natural Resources					

No.	Action	Environmental and Social Risks and Benefits	Legal requirement, Performance requirement or good international practice	Resources, responsibilities	Schedule	Objective and implementation evaluation criteria
6.1	Birds Protection –Dwiyate SIBE The Dwiyate Royal farm site hosts a SIBE and an internationally recognized Important Birds Area. If the farm is planned to be provided with water from the Project, a review of the biodiversity risks will be undertaken in consultation with an ornithologist in order to determine whether a specific study is required, and define the actions to be implemented in order to avoid any adverse impact on the SIBE (works phasing, pipes alignment)	Birds protection	Morocco Legislation EBRD PR6	MAMF and contractors	During detailed studies and works	Birds risks assessment, including mitigation measures if needed Mitigation measures implemented.
PR 8	Cultural Heritage					
8.1	Chance find procedure: Inform workers involved in the Project about the applicable procedure in case of chance find, the type of physical cultural heritage that could be unexpectedly encountered during the Project construction, and the required actions in case of chance find.	Cultural heritage protection	Morocco Legislation EBRD PR8	MAMF Contractors	Before construction starts	Workers informed
PR 10	Information Disclosure and Stakeholder Engagement					
10.1	Public Consultation Plan (PCP) : Finalize and implement the PCP in order to ensure access to information for all Project affected or interested stakeholder groups including vulnerable persons/groups (illiterate stakeholders, women headed households, etc.). The Plan will be reviewed and adapted when deemed necessary by the contractors.	Public information, grievance management	EBRD PR10	MAMF	During works. Plan approved and monitored by MAMF	ThePCPisimplemented by MAMFandconstructioncompaniesduringconstruction period, andupdated when relevant.Report to EBRD aboutthePCPimplementationthroughtheannualenvironmentalandsocial reports.

No.	Action	Environmental and Social Risks and Benefits	Legal requirement, Performance requirement or good international practice	Resources, responsibilities	Schedule	Objective and implementation evaluation criteria
10.2	Public information regarding the Project's environmental and social performance. Regularly disclose (at least once a year) an updated webpage presenting a relevant set of information selected by MAMF that demonstrates the Project's environmental and social performance.	Demonstration of the Project's environmental and social performance	EBRD PR10	MAMF	Starting from the first year after start of ESAP implementation	Annually updated webpage.

10 ESAP ENFORCEMENT AND MONITORING

The ESAP that was prepared for the Project will be agreed with the MAFM and will form part of the financial agreement signed between EBRD and MAFM for the Project.

The implementation of the ESAP will be monitored by EBRD through Environmental and Social Reports provided by the MAMF (every six months during construction, then every year during the entire duration of the financing agreement), and through specific monitoring visits at key development stages or if specific issues arise.