



AFRICAN DEVELOPMENT BANK GROUP

PROJECT : SOUTH TUNISIAN GAS PIPELINE - NAWARA

COUNTRY : TUNISIA

**ECEXUTIVE SUMMARY OF THE ENVIRONMENTAL AND
SOCIAL IMPACT ASSESSMENT**

April 2014

Executive summary of the environmental and social impact assessment

Project name : South Tunisian Gas Pipeline - Nawara.

Country : Tunisia

Project number : P-TN-FD0-006

I. INTRODUCTION

The Bank was approached by the consortium OMV/STGP consortium to finance the STGP project in 2011. A Project Evaluation Note (PEN) was approved by OPSM management for a senior loan of up to USD 200 million as a project finance facility. However, under the post revolution scenario and in light of the Hasdrubal project experience in 2010, ETAP and the Bank have shown a preference for a corporate loan facility in favor of ETAP to finance its investment plan over the years 2013-2020.

It is noteworthy that within the Hadsrubal financing framework, the Bank requested from ETAP and monitored the implementation of an environmental and social management plan (ESMS) for all ETAP's activities in compliance to international standards. The Bank had then assisted ETAP in this assignment and approved the ESMS.

ETAP's Investment Program (IP) for the period 2013-2020 comprises two major activities: i) further development of oil & gas fields production and related infrastructure in the Tunisian southern region, and ii) the expansion of treatment and transport infrastructure for products from the fields to the port of Gabès. The STGP project represents the backbone of gas infrastructure network and will lay the foundation to develop hydrocarbon resources for future energy sufficiency.

ETAP currently hold participation interests in 23 concessions which are all under production. Capex investments are required in these concessions to either: (i) increase the production profile of hydrocarbon resources by drilling additional wells; or (ii) maintain as long as possible the current production levels and delay depletion of concessions.

Following strategic orientations and in particular the social welfare goals et the improvement of living conditions of citizens outlined in the programme for the development of natural gas, the South Tunisian Gas Pipeline (STGP) is necessary for the development of gas fields in the southern part of Tunisia, the reinforcement of the exploitation of gas reserves and contributes to energy sufficiency.

The project has the following components:

- Central Processing Facilities (CPF): located in Nawara, south of Tunisisa.
- Gas pipeline: de 24" of diameter and 370km length, with maximum capacity of 10 million Sm³/day.
- A gaz treatment plant (GTP): will be located on the coast in Ghannouch Industrial area near Gabès. Gas will be conditioned for sale whereas the condensate (LPG) will be recovered to produce commercial propane, butane and LPG.

The following report constitutes the summary of the environmental and social impact assessment of the project. This assessment has been carried in compliance with the African Development Bank's procedures and policies as well as national regulations. It also takes into account the population requests and demands which were collected during public consultations.

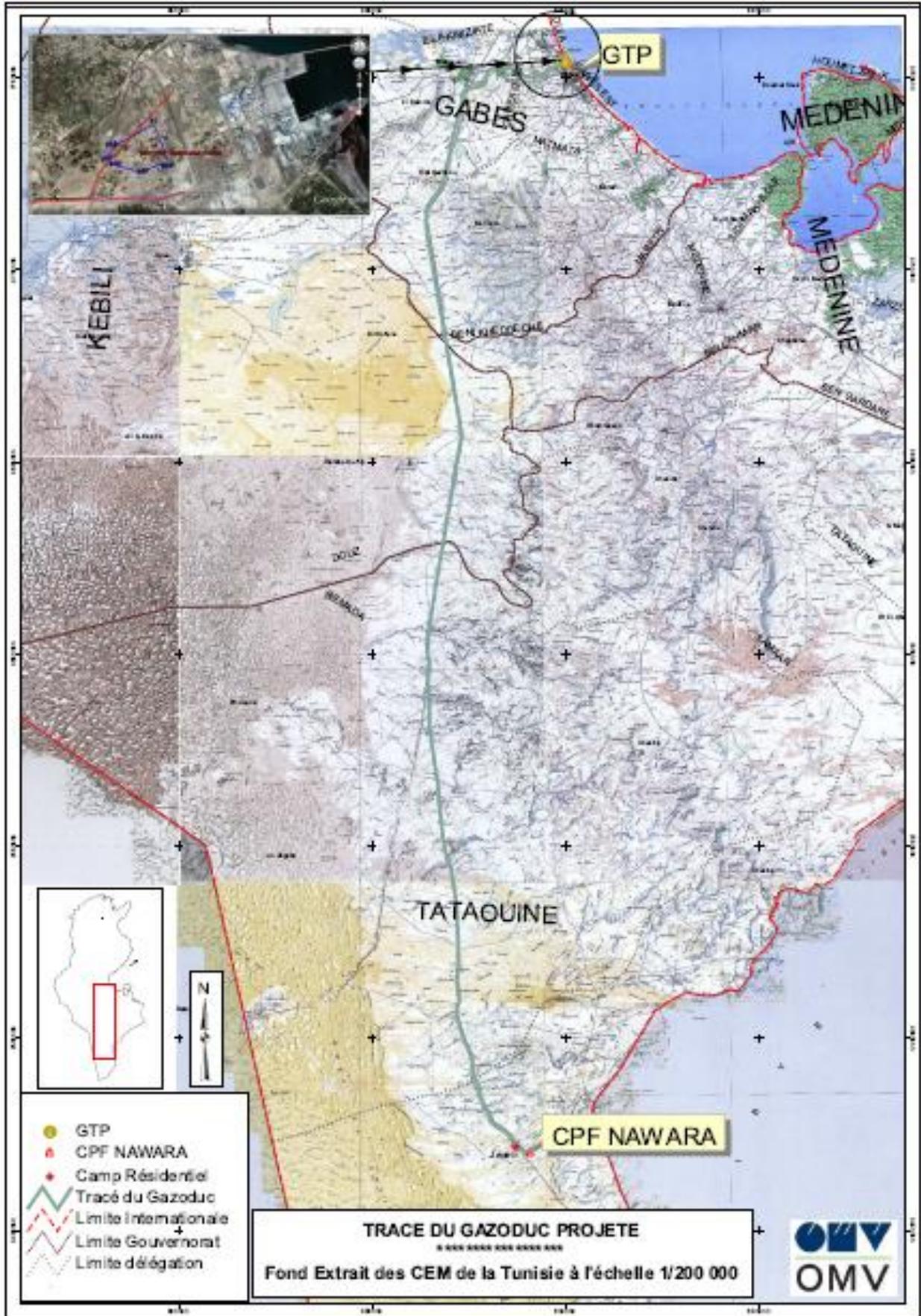
From an environmental standpoint, the project is classified as category 1, considering the nature of works, the project size and its potential direct and indirect effects in compliance to the procedures for environmental and social assessment in application at the Bank and to Tunisian law.

II. PROJECT DESCRIPTION AND JUSTIFICATION

1. PROJECT DESCRIPTION

The project has the following components:

- A Central Processing Facility (CPF): located near Nawara-1 well, it will collect gas received from all the Nawara concession wells southern fields to be compressed prior to transport via pipeline to the treatment plant in Gabès.
- Gas pipeline: de 24" of diameter and 370km length, with maximum capacity of 10 millions Sm³/day.
- A gaz treatment plant (GTP): will be located on the coast in Ghannouch Industrial area near Gabès and will have LPG storage facilities. The plant will have a capacity of 2.7 million Sm³/day. End-products (commercial gas, propane, butane and condensates) will be supplied to STEG and SNDP via pipeline of , 20'', 6'' and 4'' diameter
- From the GTP, the condensates will be stored in storage tanks.



Map 1: Location of the CPF, Pipeline and GTP in Gabès

2. PROJECT'S COMPONENTS

2.1 The Central Processing Facility in Nawara (CPF)

The Nawara Central Processing Facility will compose of :

- Fluids reception system with multiphases canals from production wells;
- Condensate/Gas/Water Separation ;
- Condensate stabilization of 5000 barrels capacity;
- Gas compression and dehydration units;
- Gas sweetening unit;
- HC dew pointing
- Water treatment station;
- Two gas turbines of 5 MW each;
- Command and control room ;
- Utilities necessary for the safe operation of the CPF.

The pre-treatment of the CPF consists in the separation, treatment and stabilization of effluents to reduce 2,7 MSm³/day of gas and 7000 barrels/day of condensates.

The stabilized condensate will be transported via a 10km pipeline of 6", to a tie-in point with the TRAPSA pipeline while another 370km will be constructed for the transportation of gas to the GTP in Ghannouch, Gabès.

The CPF will be installed on a surface of 2,25 hectares near Nawara-1 well. Two gas turbines of 5 MW each will supply the power for the base camp and equipment.

The base camp will be used for operational staff estimated at 10 persons.

The construction of the Nawara CPF installation, the intra-pipes and the pipeline for transport will require 4 construction phases:

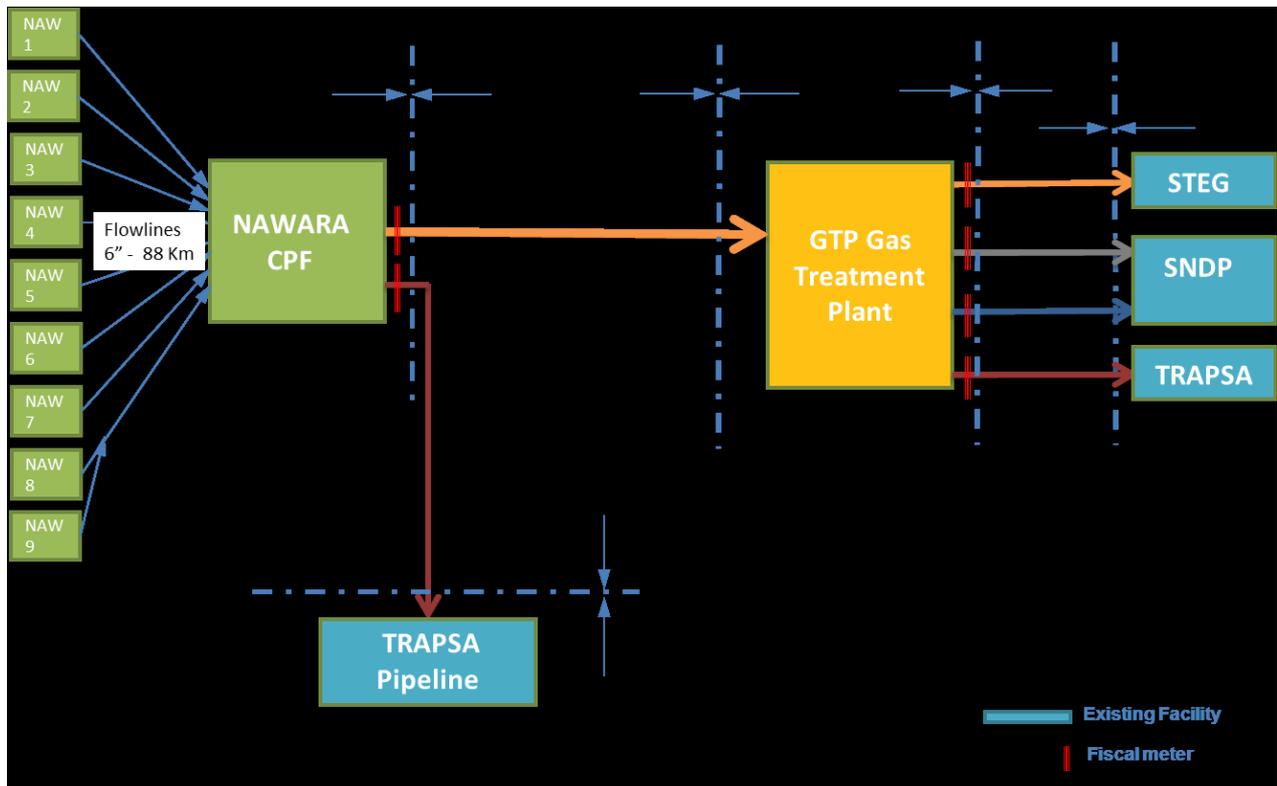
- civil works to levelize the sites and install foundations;
- setting up and assembling of buildings, pipes and equipment;
- setting up, connecting and testing of pipes;
- Installations commissioning.

Construction works will take 2 years. The team will vary in function of the construction phase with a peak of 600 persons. A construction camp will be erected for contractors involved in the constructions activities..

Diesel supply will be through trucks, and will be used for the base camp and equipments.

During the operation phase, gas will be required for power generation. Gas consumption is estimated at 0,1 MSm³/day.

All efficient and necessary communication tools will be available for works and personnel security.



Map 2: Project's

2.2 Gas pipeline

The gas pipeline will be 370km length and 24'' diameter. The pipe will go through 4 different Gouvernorats i.e Tataouine, Mednine, Kébili and Gabès. The pipeline will serve for the pre-treated gas from Nawara, in south Tunisia. These gases will be transported via this pipeline to the treatment station in Gabès.

The pipeline will have the following components:

- A principal line: 370 km pipeline
- 12 line valve stations (every 30 km security distance following code ASME).
- The offices for dispatching and valve stations ;
- kilometer markers every 25 km, in every intersection and/or change of course.
- Anti-corrosives protections installations and lightings posts.

2.2.1 Location categories

The locations where the pipeline will be laid under the norm NT109.01 related to transportation of gas via channels are classified in 3 categories A, B et C following soil occupation:

- **Category A:** desertic or mountain areas, lands for culture, forests, rangelands, pastures, rural regions where population density is less the 6 per hectare.
- **Category B :** rural regions where population density is between 6 and 30 maximum per hectare, sub-urban zones of agglomerations, less tha 75 m of a building receiving the public, roads or marines ways in the public domain.
- **Category C:** urban agglomerations or rural center where population density is more than 30/ha.

2.2.2 Pipeline route

Two alternatives were initially considered for the pipeline route: the eastern path and the western path.

The western route has been chosen taking into account other factors such as the length of the pipe and infrastructure. The western path passes through 4 Gouvernorats which are: Tataouine, Mednine, Kébili and Gabès. All along the pipeline, 12 line valve stations will be installed to ensure the control and security of gas transportation from the CPF to the GTP in Gabès.

2.2.3 Implementation works of the project

The works are scheduled to last for 2 years and include the following phases:

- Detailed studies necessary for the laying of the pipes.
- Procurement of different components not supplied by the contractor.
- Execution of civil works (opening of right of way, trenching, handtransport of tube all along the line etc...)
- Execution of mechanical works (welding of pipes, installation of line valves, testings etc...).
- Hydraulic test, in compliance with norm NT109.01, realized under the control of a body approved by the Ministry of Industry before start of operation
- Execution of preparation works for the start of operation

ETAP will ensure the security and protection of zones of intervention and pipeline's right of way.

2.2.4 Operation of the pipeline

Once execution works and testes are finalized and the pipeline commissioned by OMV, its operation will start after the connection to future clients.

The width of the pipeline will be 6m hence, this zone cannot be used for surface culture (not exceeding 0.5 m depth) or pastures.

2.2.4.1 Exceptional interventions

Rehabilitation works can be done on the pipeline locally and as-needed, generally after several years of operations or the connection of new users.

2.2.4.2 Monitoring of pipeline corrosion

The monitoring of corrosion, intern and extern, along the pipeline will be regularly carried out in compliance with norm NT109.01. Paragraph 6- Operation of transport facilities (6.3- Monitoring of corrosives actions)

2.2.5 Decommissioning phase

The operational life of the pipeline is estimated at 30 years. At the end of this period, 3 scenarios must be envisaged:

- Proceed to the abandonment of the pipeline and evacuate all elements to a public discharge
- Abandon the pipeline in situ et assess its impacts on the nature
- Assess the likelihood of another utilization

It is noteworthy that a detailed decommissioning plan will be designed after the pipeline lay-out. This plan will be approved the services of the Direction General de l'Energie (Ministry of Industry) in consultation with ANPE which is the practice in Tunisia.

2.2.6 Human and material resources

- Construction Phase and lay-out

For the lay-out of the pipeline, it is envisaged to mobilize 300 persons, backhoes and necessary engines to supply the site.

Works will be done by specialized companies and supervised by control firms and OMV project team in compliance with current regulations.

The transport of pipes will be done by trucks. Each truck will transport a maximum of 10 sections/parts equivalent to a maximum length of 14.6m. The section of pipes will be maintained by sidebooms.

During the construction phase, fuel supply will be done by approved companies. Fuel will be stored near the construction camps. Potable water will be supplied through mineral bottles. Daily consumption will be 100 l. Airtightness test will require water which will be supplied from an well near the Nawara concession and for which the drilling authorization has already granted by central and regional hydraulic and agricultural entities.

- Operation Phase

During this phase, a team of 6 person will ensure the pipeline maintenance.

During the operation of the pipeline, power will be supplied to valve stations through photovoltaic equipment.

- Decommissioning Phase

A decommissioning plan will be provided to the authority in compliance with current procedures and regulations. The program and the resources will be detailed in that plan.

2.3 Gas treatment plan (GTP)

2.3.1 Unit location

The GTP unit is located in a lot of 35 ha within the industrial zone of Gabès (Gouvernorat of Gabès).

2.3.2 Equipment installation phase

The conception of the GTP unit will go through the following steps:

- Site arrangement, access roads et constructions of premises.
- Arrangement of storage areas et setting up of rainwater, potable water, sanitation and power distribution networks.
- Installation of heavy equipment.

The GTP unit will be comprised of the following components:

- Unit for gas reception (Triphase Separator)
- Dehydration and mercure elimination unit
- NGL collection unit and LPG fractioning (columns)
- Commercial gas compression unit
- Operational storage and dispatch unit of LPG and Operational storage and dispatch unit of LPG of stabilized condensates.
- Final products fiscal metering units

The gas treatment unit should essentially comprise of the following utilities:

- Potable and service water and a treatment unit for effluents
- Eliminate oily water treated
- Firefighting water system
- System of generation and distribution of power

2.3.3 Treatment Phase at the GTP in Ghannouch

The natural gas is not transported under the format is extracted. It must be treated to be delivered in a gas compliant with specifications required by the clients.

The gas coming from Nawara, has been pre-treated at the CPF (Nawara concession, Gouvernorat of Tataouine). The pre-treatment will allow reducing the CO₂ concentration as well as the water content and heavy hydrocarbons to the limits required by end clients or for the transportation.

For that purpose, there will not be a step to eliminate the CO₂ in the treatment process that will be adopted for the GTP in Ghannouch.

Indeed, some metal substances such as Mercury exist in natural gas. The presence of Mercury, even in traces, can result in corrosion problems particularly in the Aluminum exchangers used in the liquefaction process

In the case of the gas in the Nawara concession, the content of Mercury could reach 70ng/m³.

The GTP is conceived to treat gases for which mercury content can reach 100ng/ m³.

The process to eliminate Mercury would be based on an absorption unit (filters in cartridge) capable of treating 2.7 Nm³/day of gas.

Once the treatment finalized, LPG collection would be assured through a first train capable of production 2.45 MSm³/day of commercial gas. Once treated, LPG will be separated and commercial gas will be compressed and delivered to SNDP and STEG respectively.

The GTP daily gases production (2.7MSm³/day for phase 1) is as indicated in the table below:

Products	Unit	Maximum Quantity
Propane	T/J	230
Butane	T/J	220
Commercial Gas	MSm ³ /J	2.45
Condensates	T/J	30

2.3.4 Human and material resources

- Construction Phase

The construction of the unit and the setting up of equipment will require the employment of (500) five hundred persons.

During the construction phase, water (potable and domestic water for workers) and electricity (for the equipment and lighting of the unit) will be needed and will be supplied by SONEDE and STEG respectively.

- Operation Phase

During the operation phase, 12 persons will ensure the different activities developed within the unit. Power will be produced from the treatment unit

The transport of final products to STEG and SNDP will be done from different pipelines.

III. PROJECT JUSTIFICATION

The project for the development of Nawara concession and the operation of STGP allow the use of existing infrastructures such as the production wells and the TRAPSA and also allow to increase the potential of exploitation of energy resources in the country.

The project is aligned with the Tunisian policy which encourages the valorization of natural resources et notable energy.

Spread over 20 years, the project for the development of the Nawara concession will have direct and indirect impacts on the national and regional economy.

The project will thus allow to:

- Valorize national resources;
- Help reduce the energy deficit of the country;
- Improve the forex account of the country;
- Develop the industrial sector in general.

IV. LEGAL, ADMINISTRATIVE AND POLITICAL FRAMEWORK

1. FRAMEWORK RELATED TO ADB POLICIES AND PROCEDURES

During the planning and execution of the project, AfDB will ensure the application of the following policies and procedures:

- a) Procedures for environmental and social assessment for public sector;
- b) Policy for involuntary resettlement;
- c) Gender Policy;
- d) Policy for disclosure of information;
- e) Policy related to consultation with civil society.

2. FRAMEWORK RELATED POLICIES AND PROCEDURES OF TUNISIAN AUTHORITIES

From an institutional point of view, the national agency for environmental protection (ANPE), is the entity in charge of monitoring the process integrity of preparation, assessment and approval of environmental evaluations in Tunisia.

Tunisia has an important legal arsenal for environmental and related to human security including numerous texts applicable to this type of facilities notably the Tunisian norm NT109.01 governing the transportation of liquid hydrocarbons via pipelines Ministry of Industry and Trade September 17th 1987.

The norm NT109.01 (1984) is the Tunisian norm of security for gas transportation facilities via pipelines. This norm involves 7 chapters:

1. General arrangements

2. Manufacturing of the transport facilities' elements
3. Plant manufacturing control
4. Establishment of transport facilities
5. Testing and before start of operations
6. Operations of ancillary transport facilities
7. Modality of application of the norm.

Within those chapters, we quote in particular:

- The paragraph 1.4 (location of pipelines) defines three categories of locations that can receive gas transportation pipelines;
- The chapter 4. (Establishment of transport facilities) describes the conditions under which a pipeline has to be laid. (In roads in public domain, crossing of water streams ..)

V. DESCRIPTION OF THE PROJECT ENVIRONMENT

The study zone covers four governorats including the governorat for the Nawara production in Tataouine, the governorat of the pipeline (Tataouine, Kebili, Mednine and Gabès) and the gas treatment unit in Ghannouch (Gabès).

The principals' natural components of the project's environment are detailed hereafter.

1. GEOLOGY

The south of Tunisia is considered by geologists as a stable platform that relays towards south of Chotts chains. This domain is sub-divided into two: the Dahar in the West and the Jeffara in the East. The former is in the form of a plateau of escarpments; the latter corresponds to a collapse structure filled with a thick siliciclastic serie from the Mio-Plio-Quaternaire age.

The Dahar lithostratigraphic serie is dated of Trias-Cretace superior. The lithofacies are of evaporitic, carbonated and skay nature. This serie relates to a sedimentary environment similar to a platform. Through the North (the south chain of chotts, Matmata, El Hamma,...), the lithostratigraphic serie presents intervals of earthenware and sands (Cretace inferior). The project route goes through Dahar and through the mounts of El Hamma. Two different geological situations come- The N-S section goes through the Dahar; the sedimentary bedrock is dated on Coniacien-Campanien. It is represented by marno-calcareous alternations and stratified limestone often chalky. This succession is covered by duricrust and dunes.

		
<p>Pipeline right of way projected by the paves of Remada</p>	<p>the carbonates and muds from Cretace Inferior at El Hamma</p>	<p>Tabular Structure of Dahar Mount of El Hamma</p>

The section NE-SW goes through the mount of El Hamma and the plain of Gabès. The serie is dated on Cretace inferior-Miocene. It consists of muds, marnes, limestones, dolomites and mud, limons and sand. The route passes following the section, by variable unit of age.

From a structure point of view, the Dahar corresponds to a tabular structure locally affected by flaws. The layers are sub-tabular and rarely present a slop of 5° on average (figure 13). The

mounts of Matmata - El Hamma are linked to the distortion of the south chain of chotts. This relates to the anticlinal structures largely affected by indentation.

2. GEOMORPHOLOGY

For the section N-S, the geomorphology is marked by dunes of oriental Erg located West. All along the route, geomorphologic elements remain the same

For the section NE-SW, the geomorphology changes and is marked the development of loess of regional extension.

The geomorphologic structures are visible in the reliefs of Matmata El Hamma. The main elements are:

- The high terraces, the slimes with calcareous concretions calcareous and calcareous crusts and the hamada
- The medium terrace and the slopes; the low terrace; the cuestras ; the piedmonts

3. HYDROLOGY ET HYDROGEOLOGY

a) Hydrology

From south to north, the hydrographic network varies with following rainfall. Thus, the section N-S is marked by oueds with flats beds temporarily flooded.

For the Matmata - El Hamma – Gabès region, the hydrographic network is more developed. The basins are represented by monoclinals geological structures.

b) Hydrogeology

In south Tunisia, there are two sets of profound aquifers which extend to the scale of Sahara Septentrional. The Aquifer System of Sahara Septentrional « SASS » dwell upon a large landscape which limits are located in Algeria, Tunisia et Libya. This basin encompasses a serie of aquifer layers which were grouped in two reservoirs called the Continental Intercalaire (CI) and the Complex Terminal (CT).

4. CLIMATE

The south of Tunisia is characterized by an arid climate with a strict variation of temperatures between the night and the day. The maximum temperature is 40°C during the summer while in winter it is 15°C on average. The annual evapotranspiration is of 2500 mm. These sever climatic factors make runoffs very rare and contribute poorly to the reload of profound shallows.

The rainfall is unequally allocated throughout the year. It is inferior to 150mm/year. It is a sever climate; average annual precipitations vary from 80 to 150mm/year.

5. FLORA

Flora is largely affected by arid climate. It is a scattered vegetation depending of soil quality. Recognized species in the south are the followings: *Atriplex suberecta*, *Bassia indica*, *Bromus catharticus*, *Caesalpinia gilesii*, *Casuarina stricta*, *Cionura erecta*, *Fumaria capreolata*, *Fumaria mirabilis*, *Heliotropium currassavicum*, *Hordeum murinum*, *Hornungia procumbens*, *Lawsonia inermis*, *Malva parviflora*, *Nicotiana glauca*, *Ocimum basilicum*, *Rubia tinctoria*, *Sphenopus divaricatu*. The inventory of the vegetation in the Nefzaoua region has detected two types of vegetal coverage:

- A vegetation adapted to sanding over such as *Limoniastrum guyonianum*, *tamarix pauciovulata*, *Suaeda fruticosa*
- A vegetation more adapted to salure and hydromorphy: *Zygophyllum album*, *Halocnemum stabilacum*, *Salicornia Arabica*, *Nitraria retusa*. The vegetal coverage is dominated by chamephytes' steppe.

6. FAUNA

From Dahar to Erg Oriental, animal scan exist and live in that arid zone. The dunes' gazelle lives in the northern and eastern parts of Grand Erg. The gondi, the fennec and a large variety of rondents, reptiles and insects also live there.

Numerous sedentary birds' species are adapted to climate conditions of the region and numerous migrating species rest in the region. Following climate conditions, this zone can be used as a pathway by camel herders.

For the mounts of Matmata- El Hamma, the wild fauna is represented by both migrating and sedentary birds, fennecs, rondents, reptiles and insects.

Domestic fauna is essentially represented by camels, sheeps and goats. Piedmounts and cuvettes constitute ideal pathway for this fauna. The pipeline route, the CPF at Nawara and the GTP in Gabès do not have areas of ecological importance.

7. VEGETAL COVER

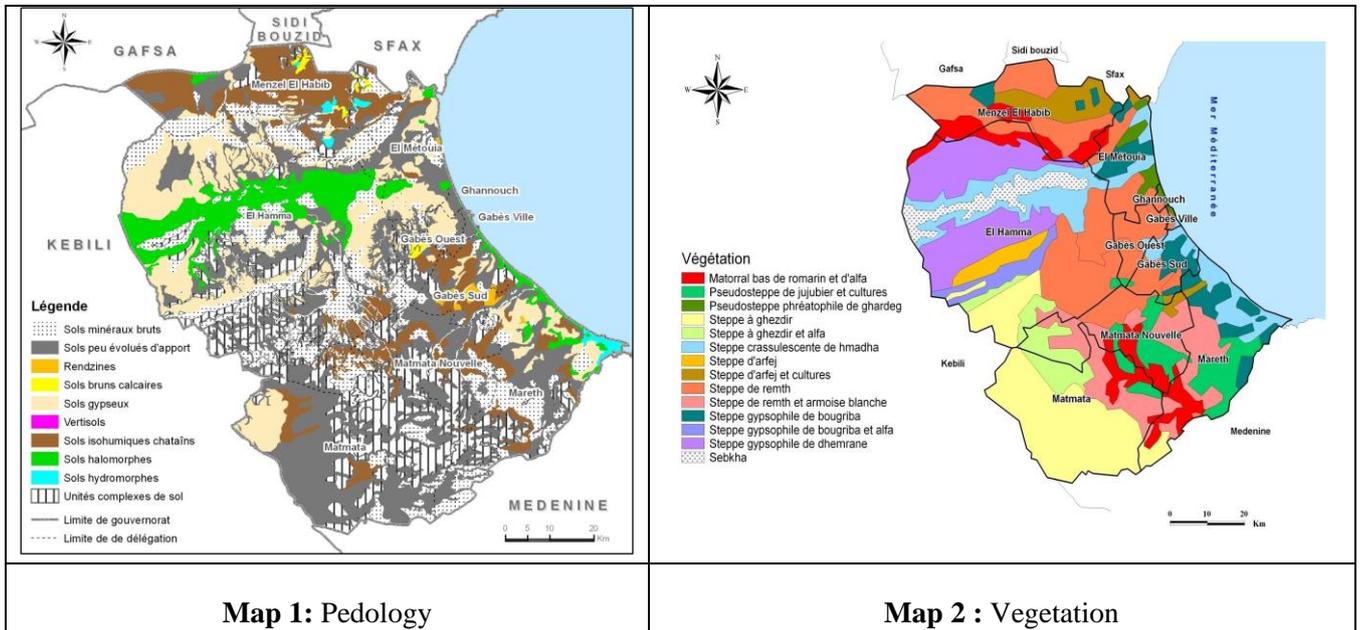
The vegetation map, established by in the Tunisian National, show a breakdown of formations highly marked by the pedologic and bioclimatic. Typical formations of the mediterraneo-steppic domain, the pre-desertics steppic domain and the saharan steppic domain cover most of the area.

The mediterraneo-steppic domain is represented by the romain and alfa low matorral which cover the heights of jebels in the north of Chott El Fejj and the highest sides of Mounts of Matmata. It is alsoe represented by the steppe of arfej associated with culture extending to the north of Menzel El Habib.

The pre-desertics steppic domain covers the largest acreage. It consists of different vegetal combinations: the steppe of remth which goes from Menzel El Habib, in the inner side of Gabès to south of El Hamma. The steppe of remth associated to white mugwort is typical of areas located to the south of the gouvernorat each part of romarin and alfa low matorral. In the same area, the remaining of the lands are occupied by thorny pseudo-steppes of jujubes associated to the crops. The gypsophiles steppes of bougriba are, as their names indicates, closely linked to gypsi soils extending to oriental plains.

The saharan steppic domain covers the interior lands of the gouvernorat. It comprises of the steppe of arfej which covers the Jbel Tebaga, the saharan steppes of regs in ghezdir and alfa which cover the backside of Dhahar and the saharan steppes and pseudo-steppes gypsophiles in dhemrane which goes to the edge of Chott El Fejj.

The phreatophiles pseudo-steppes of ghardeg and souida ly from the low littoral and sub-littoral plains in the north of the gouvernorat where there are edaphic conditions favorable for their development.



Map 1: Pedology

Map 2 : Vegetation

8. DESCRIPTION OF HUMAN, SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT

a) General data

The western route of the pipeline goes through the delegation of Gabès West, El Hamma, Matmata Jadida, Matmata (Gouvernorat of Gabès), Douz Nord et Douz Sud (Kébili) and Remada and Dhéhiba (Tataouine). The characteristics of Tataouine gouvernorat (ODS, 2011): - Natural and geographic characteristics: the acreage is quite large, diversified natural resources (oil, gas, useful substances and underground water). - Economic characteristics: the economy of the region is essentially based on agriculture activities notably livestock and arboriculture. – Tourism is a sector of growth, with promising perspectives. The region disposes of 8 shelter units and des relay and touristic stations. Kébili gouvernorat characteristics (OSD, 2011):

- Important natural potential: water resources estimated at 269,2 million m³, arable lands (50 thousand ha) and large paths (around 567,4 thousand ha) and useful substances (mud, stones, ...) that can be industrialized.
- Population: 131.914 inhabitants in 1994, 143.200 in 2004 and 152.900 inhabitants in 2011.
- Basic infrastructures comprised essentially of a road network (760 km paved), industrial zones (89,4 ha) and a network of telecommunication allowing to link the region to the national and international space.
- Diversified economic activities based on production of dates (112.000 tons/year), early leeks production by Geothermal water, fruits and vegetables and livestock and a booming tourism sector composed of 12 hotels, 27 travel agencies, 28 animations centers, etc ...

Gabès gouvernorat Characteristics (ODS, 2011):

- A privileged geographic location in the middle of the Mediterranean basin
- A littoral Oasis.
- A diversified economy comprised of agriculture activities, fishing, industrial place, diversified and attractive natural sites, handcrafts and other little activities.

- A modern and adequate infrastructure comprised of a commercial port, an international airport, a railways network of 135 km and a road network of 2118 km, 3 industrial zones (864 ha), an international fair, a university of 12 institutes ... – A high human potential.

b) Socio-economic data

Pastoral activity is the main occupation in the south of Tunisia. Non cultivated lands constitute 9/10e of the total area. In the Gouvernorat of Gabès, agriculture activity constitutes the main sector despite the important development of the industrial sector

According the map of soil occupation, the western route of the pipeline goes through xerophiles steppes and uncovered rocks.

Livestock activities

Livestock activities are the main occupation associated to nomadic lifestyle. The sector is becoming marginal due to the disappearance of numerous species and the scarcity of vegetal cover.

Historic sites

On the basis of bibliographic information and archaeological map of the concerned area of the pipeline, the western route does not pass any precise historic site. Only one barbarian monument exists and is located close to the route far from the pipeline. In the case of an eventual discovery (archaeological vestige, artistic or traditional object) during construction works or pipes lay out.

VI. ALTERNATIVES TO THE PROJECT

For the Nawara CPF component, there is no real alternative to the project. Considering the location of the center (CPF) is on the optimal zone compared to gas production wells.

In the same vein, the unit of gas treatment in Gabès within the industrial zone of Ghannouch represents the most adequate zone considering the existence of necessary infrastructures for the erection of the unit and the presence of other oil companies buying the end-products: the Tunisian electricity and gas company (STEG) for the methane and condensates and the Petroleum Products Distribution company (SNDP) for Butane and propane.

Two alternatives were initially considered for the pipeline: the eastern and the western route.

The selection criteria are based on optimal technical and economic studies that took into account the new synergies with the installations and pre-existing infrastructures at the Oued Zar compression station and/or the Gabès treatment station. The fine costs estimate has also allowed to better select the route. The western route was then selected considering factors such the length of the pipeline and exiting infrastructure from Hammouda station until the Gabès treatment station.

One of the main environmental factors justifying the pipeline construction is the selection of the route. Indeed, the route has been selected with the following criteria:

- The pipeline is distant from human activities and agglomerations,
- The pipeline will not cause negative impacts on agriculture activities (oasis)
- The pipeline will be buried considering its important length and will not cause any visual pollution
- The pipeline will not pose any conflict with existing infrastructures (roads, oil & gas pipelines) or urban areas (especially in Gabès)
- The pipeline will not impede wild life since other oil & gas pipelines were already constructed

- The construction works will not affect the underground water reserves which are deeper.

Another factor taken into consideration during the selection of the pipeline route was to minimize environmental and safety risks caused by the construction of 4 export pipes from the Nawara to transport final products.

VII. POTENTIAL IMPACTS AND MITIGATIONS/ENHANCEMENT MEASURES

The identification of impacts and proposal of measures were developed individually for each projects' components (Nawara production center, pipeline and gas treatment unit) through different phases of the project (Construction, operation and decommissioning).

1. IMPACTS AND MITIGATION MEASURES OF THE NAWARA CPF

Phases	Impacts	Mitigation/Enhancement measures
Construction Phase	Air Pollution: Dust and smoke from the machinery	Cover the dusty charges Water spraying to decrease dust. Ensure engines are well maintained, prevent essentially black smoke emissions. Plan road traffic to avoid noise disturbance, high volume of pedestrian and peak of traffic. Implement clear temporary road signals.
	Noise disturbance	
	Threats for public security	Not store pipes in areas that are not designed for that purpose. Construct an safety fence with clear warning signals. Deny access to unauthorized persons.
	Impacts on Hygiene and Safety	Design health & security warning on the project site. Design an emergency plan with actions to be taken in case of accidents. Create a medical center (first-aid workers, care materiel, medicines, etc.), communication transport tools. Organize periodical training and sensitization sessions on safety for the project team. Display orders and marking of the project area.
	Permanent damage to natural landscape	Clearly define flowlines route. Use existing paths/roads if practicable and minimize activity outside flowlines
Production Phase	Ecological Disturbance	Take all reasonable measures to restore affected areas to their initial state.
	Noise disturbance	Provide soundproof encapsulated equipment. Set up a tracking system for noise levels.
	- Impact and soil contamination	- Store chemical products in containers or plastic cans with covercushion against weatherproof. Construction of regulated recipient cuvettes for hydrocarbon storage and dangerous liquid substances. - Store used liquids in metallic recipients to be delivered to specialized companies. - Collect and transport raking products from flowlines to be treated by specialized companies.
	- Lands Expropriation for the CPF.	- Lands used for the CPF, the wells and the flowlines represent public and government domain. Their value define by authorized competent authorities are estimated at 25 000 DT. - The area is totally deserted with no impact on the soil.
	Atmospheric Pollution	Adequate regulation and mastering of combustion parameters and process (air excess, length and time of journeys, re-circulation of combustion gases, etc.) to optimize the energy yield and save full consumption hence reduce emissions.
	Impacts on Hygiene and Safety	Design an emergency plan with actions to be taken in case of accidents.
Decommissioning Phase	Impact on underground water	Disposal of production water into watertight watertanks Regular monitoring of underground water quality
	Soil contamination & Noise disturbance	Dismantle all installations following applicable rules and procedures Clean and restore sites.

2. IMPACTS AND MITIGATION MEASURES OF THE PIPELINE

Phases	Impacts	Mitigation/Enhancement measures
C o n s t	<u>Soil</u> - The pipeline route passes areas for different	- Concerned persons will be indemnified following compensation rules and regulations.

	<p>use thereof requiring a temporary occupation. A total of 1 295 ha is estimated for the 3 years.</p> <ul style="list-style-type: none"> - Extraction of piles during trenching excavation. - Possible leaks of oil or fuel from construction machinery 	<ul style="list-style-type: none"> - Compensation costs is estimated at 4 852 000 DT. - Piles extracted from trenches will be re-used to landfill the same trenches. - Collection of oil and fuel with the soil to be delivered to specialized and authorized companies.
	<p><u>Superficial waters</u></p> <ul style="list-style-type: none"> - Erosion and possible sedimentation in the oueds during rainy season's alternating with construction period. 	<ul style="list-style-type: none"> - Pass oued ; - Construction of adequate facilities in compliance with NT 109.01 (4.8 Water crossing)
	<p><u>Fauna</u></p> <ul style="list-style-type: none"> - Trenches excavation will cause momentary disturbance to animal life and species around the pipeline route. 	<ul style="list-style-type: none"> - The implementation of the pipeline through portion during the welding must preserve access and pathways of animals. Given the time necessary to implement each portion that does not exceed 1 month, impact on fauna is negligible.
	<p><u>Vegetal coverage</u></p> <p>Project works require deforesting around :</p> <ul style="list-style-type: none"> - 100 olive trees, - 100 fruits trees. <p>Some culture/crops will be impacted :</p> <ul style="list-style-type: none"> - agriculture subsistence around 20 ha 	<ul style="list-style-type: none"> ➤ Deforesting of olive trees will be done in compliance with applicable regulation. The law n°2001-119 dof 6 December 2001, providing portant banning of olive trees deforestation. Control and Monitoring by regional authorities. ➤ Compensations are estimated at : <ul style="list-style-type: none"> - olive trees 70 000 DT - fruits trees 80 000 DT - agriculture subsistence around 180 000 DT
	<p><u>Infrastructures</u></p> <ul style="list-style-type: none"> - The pipeline will cross roads 	<ul style="list-style-type: none"> - Inform different regional services; - Construction of facilities in compliance with NT 109.01 - Repair as construction works progress.
	<p><u>Waste and disturbance</u></p> <ul style="list-style-type: none"> - liquid waste - Solid waste - noise disturbance - Dust 	<ul style="list-style-type: none"> - Selective Collect of waste ; - Evacuate common waste to nearest public discharges; - Transport plastic waste, paper and scrap metals to authorized recycling companies; - Collect used oil and deliver to specialized companies. - Collect and store restroom water septic storages to be daily disposed of - Collect water of leakproofness tests and dispose of in storages. - Protect workers with adequate equipment (masques, helmet,) - Systematic water spray of areas
	<p><u>Road traffic disturbance :</u></p> <ul style="list-style-type: none"> - Pipeline crossings with roads 	<ul style="list-style-type: none"> - Prevent and inform the National Garde; - Crossing through digging ; - Respect roads capacity; - Install signal system indicating works; - restore to initial status
Production Phase	<p><u>Water resources :</u></p> <ul style="list-style-type: none"> - Leak risk and water contamination 	<ul style="list-style-type: none"> - Measures to prevent corrosion ; - Periodic raking and coating of the pipeline
	<p><u>Soil</u></p> <p>Limited use of 222 ha for 30 years.</p>	<ul style="list-style-type: none"> - Estimated compensation of 8 325 000 DT.
	<p><u>Wastes due to maintenance</u></p>	<ul style="list-style-type: none"> - Design a waste management and disposal plan
	<p><u>Safety risks</u></p> <ul style="list-style-type: none"> - gas leakages ; - fire ; - Explosion 	<ul style="list-style-type: none"> - Regulatory marking along the pipeline; - Set up a signaling system - Periodic tests of gas corrosivity - Measures the pipe potential and the electric resistance of the pipe at different points - Regular raking/coating of residual condensates in the pipeline - Periodic verification of leaks by detecting gas - An emergency plan will also be prepared and submitted to approval of authorities.
Decommissioning Phase	<p><u>Soil, water and neighbors</u></p>	<p>A decommissioning plan will be prepared and submitted to approval of authorities..</p>

3. IMPACTS AND MITIGATION MEASURES OF THE GTP IN GABÈS

Phases	Impacts	Mitigation/Enhancement measures
Construction Phase	On air quality: Dust and smoke from the machinery Noise disturbance	<ul style="list-style-type: none"> - Frequent water spraying of access path of machinery. - Regular maintenance of construction machinery in authorizes service providers. - Preparation of special areas for the storage of construction machinery. - Choose good engines
	On soil Pollution by households and industrial wastes	- Household's wastes will be collected in containers and evacuated to the nearest discharge. – Industrial wastes such as plastics and metallic cans will be delivered to specialized companies for the collect and recycling of wastes.
	Underground water : Pollution by infiltration of water	- Arrangement of channels linked to the sanitation system of the industrial
	Increase and disturbance of road traffic	Design a drive plan to organize the road traffic Sensitize personnel to respect driving rules and safety.
	Impacts on Hygiene and Safety	Design rules for safety in the project site. Design an emergency plan with actions to be taken in case of accidents. Create a medical center (first-aid workers, care materiel, medicines, etc.), communication transport tools.. Organize periodical training and sensitization sessions on safety for the project team. Display orders and marking of the project area.
Production Phase	Noise disturbance	Provide soundproof encapsulated equipment. Set up a tracking system for noise levels.
	- Impact and Soil contamination - Acquisition of 38 ha of land in the industrial zone of Ghannouch in Gabès for the GTP.	<ul style="list-style-type: none"> - Store chemical products in containers or plastic cans with covercushion against weatherproof. Construction of regulated recipient cuvettes for hydrocarbon storage and dangerous liquid substances. - Store used liquids in metallic recipients to be delivered to specialized companies. - Collect and transport raking products from flowlines to be treated by specialized companies.. - Land used by the GTP is estimated at 5 748 150 DT.
	Atmospheric Pollution	Adequate regulation and mastering of combustion parameters and process (air excess, length and time of journeys, re-circulation of combustion gases, etc.) to optimize the energy yield and save full consumption hence reduce emissions.
	Impacts on Hygiene and Safety	Design an emergency plan with actions to be taken in case of accidents
Decommissioning Phase	Soil contamination & Noise disturbance	Dismantle all installations following applicable rules and procedures Clean and restore sites

4. SUMMARY OF WASTES AND WASTE MANAGEMENT

Wastes		Origin	Management
Liquid waste	Sanitary water	workers	Sewage system
	Process water	Gas treatment activities	Will be collected in a closed drain clos for treatment to reduce hydrocarbon content to 10 ppm
	Lubricating oils	Machinery and engines	Collection in metallic container to be transferred to a specialized company
Solid waste	Inert waste	Construction wastes (rocks) from construction works	Collection and transportation to discharge
	Non dangerous wastes	Organic waste (food) produced by staff	Collection and transportation to discharge
		Recyclable wastes (plastic, metallic cans,...) produced by staff	Collection and transfer to a specialized company
		Waste contaminated by	Collection and transportation and

		condensates or by treatment process	treatment by a specialized company
		packs-wood, plastic, metallic container)	Collection and transportation and treatment by a specialized company
	Dangerous wastes	Saturated filters due to the mercury elimination step	Collection by the cartridges supplier and exportation. The process of eliminating the mercury would be based on an absorption unit (filters in cartridges) which will be able to treat 2.7MSm ³ /day of gas. The foreign supplier is responsible for the collection and replacement of saturated cartridges which will be exported to their country of origin. The supplier will also collect the wastes produced during the elimination process. The Jradou discharge is closed and a new discharge for dangerous wastes will be built in Gabès in 2 years.
		Engines, staff care	Selection collection and transfer to a specialized company

5. CUMULATED IMPACTS

4.1 Construction

Impacts generated between the different project phases/components have a minor cumulative effect due to noise and vibrations on receptacles not sensible, and a minor impact on waste generation during construction. These impacts are deemed minor because of the appropriate implementation of management plans which will reduce the potential negative effects. It is expected that a cumulative moderated impact will be due to the removal of vegetation and resulting loss of habitat, due to the land cleaning for the lay out of the pipe and ancillary infrastructures.

4.2 Operation

There are no significant cumulative effects associated to the operation of the pipeline and other facilities.

It is expected that a cumulative moderated impact will be due to the removal of vegetation and resulting loss of habitat, due to the land cleaning for the lay out of the pipe and ancillary infrastructures..

6. ENVIRONMENTAL RISK MANAGEMENT

The pipes laying phase and installations of facilities (CPF and GTP in Gabès) will not generate major environmental risk, all identified impacts whether or not important can be associated with mitigation and corrective measures.

During the operation phase, major risks are:

- Breakthrough, breach of a pipe transporting gas.
- Explosion, fire in the GTP in Gabès.
- Explosion, fire in the processing center in Nawara.

7. MONITORING AND INTERVENTION METHOD

The sponsor disposes of an emergency intervention plan which monitors and controls the network of gas transport.

a) Tele surveillance

The network is monitored through a remote dispatching and telesignal system which allows early detection of dysfunctionments on time.

However, in case of fire in the transport network, units tasked with surveillance and intervention have to quickly execute all necessary means to ensure security and safety of persons and goods.

There are four different phases of intervention:

- Alert.
- Acknowledgement.
- Security.
- Urgent repair.

b) Site Surveillance

To prevent fires that could happen in the site, OMV regularly carries the following surveillances in compliance with established procedures:

- Surveillance of pipes
- Surveillance of stations
- Surveillance of cathodic protection facilities

8. MONITORING AND INTERVENTION RESOURCES

OMV internal resources are constituted of necessary urgent intervention equipment and personnel organized to face anytime the different incidents that could happen in the network of natural gas transportation.

Considering the nature of gas transport activity, recourse to public resources remains necessary in the case of major accident. The role of participating public entities is listed in the PIU.

VIII. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The environmental and social management plan (ESMP) presents the different actions to be taken to comply with environmental protection regulations during the different phases of the project. This system of procedures seeks to guarantee security and hygiene as well as best uses of natural resources

The ESMS constitutes the objective of the environmental assessment as it links the following elements:

- Activities creating impacts on the project;
- Potential impacts created;
- Environmental protection measures;
- Key actors responsible for the execution and monitoring of these measures;
- Estimated costs of these measures.

1. MONITORING PROGRAM

OMV is tasked to ensure the monitoring of the project jointly and in partnership with other actors and participants. The monitoring is carried out periodically through the preparation of environmental and social monitoring reports.

Every stakeholder has the responsibility to contribute to the environmental monitoring. OMV, as project sponsor, supervises the monitoring of the development of component in the natural and human nature affected by the project. Independently, the environmental authorities through ANPE verify the implementation and compliance of the environmental measures. In addition, local authorities have the right to check the implementation of the environmental measures, especially when it involved their communities.

The population can intervene through a complaint/claim registry held at municipalities and analyzed by authorities before transmitted to the consideration of the contractor, the monitoring entity and the sponsors.

1.1 Monitoring Programme for the center de processing Nawara CPF

The environmental surveillance is necessary to measure and quantify the operational impacts on site. With the design of detailed plans, it is possible to minimize the production of waste, reduce disturbances and operate with great responsibility. The environmental surveillance will be implemented by the team in the field in compliance with the environmental management plan and will comprise of:

- Verification of the leakproofness for the liquid hydrocarbon reservoirs' by internal checks in compliance with applicable regulations;
- The monitoring of wastes generated by the activities in the CPF and holding a registry for the record of waste monitoring;
- Semi-annually monitoring of underground water during operation phase. This monitoring program will consist of analyzing the hydrocarbon index, saltiness, and mineral salts.
- The commitment to submit periodically during production phase a hazardous waste management report

1.2 Monitoring Program for the pipeline

Emissions	Parameters	Frequencies	Location	Responsibility
Construction Phase				
Dust	Suspended Particles (TPS)	Twice during sit works	In work sites and immediate vicinity.	Contractor/ OMV
noise	Noise level (dB(A))	Twice during sit works	Site vicinity, all residential areas and sensible areas.	Contractor/ OMV
Solid waste	Presence	Every day : inspections regarding presence of wastes	In work sites and immediate vicinity.	Contractor/OMV
Compensation		Twice during sit works	In work sites and immediate vicinity..	Contractor/ OMV
Works disturbances'	Different disturbances	Monthly meeting with all stakeholders	Site vicinity, all residential areas and sensible areas.	Contractor/ OMV

Operation Phase				
Annual compensation	Satisfaction of PAPs	During operation phase Once per year	Vicinity of all concerned areas	(OMV) Head of environment and safety
Gas leakage	Presence	During operation phase twice per year	Continuous measure gas flows detection system – stop in case of leakage Monitoring and control of the different facilities.	(OMV) Head of environment and safety

1.3 Monitoring Program of GTP

Measures	Parameters	Source	Sampling Points	Resources and methods used	Frequencies	Responsibility
Construction Phase						
Dust monitoring	Suspended Particles	Circulation of machinery and works	In work sites and immediate vicinity	Analysis by authorized lab	twice per year during construction	Contractor and OMV
Noise disturbance	Noise level dBA	Circulation of machinery and construction equipment	-Site vicinity, all residential areas and sensible areas. - In work sites and immediate vicinity.	measured by sound level metering	twice per year during construction	Contractor /OMV
Solid waste	Collect for disposal to or company	Food -wastes due to construction (rocks, packs, plants,...)	In work sites and immediate vicinity.	Sites Inspections and monitoring briefs	Every day	Contractor /OMV
Operation Phase						
Gas leakage		Different installations and pipe of exports	in the GTP and immediate vicinity	gas leakages detection	twice per year	(OMV) Head of environment and safety
Infrastructure : Rain water drainage system, sanitary		Rain water drainage system, sanitary and fire	-	Engage specialists	Every three months	
Atmospheric disturbances	-Monitor air quality by measuring PM10, NO2, SO2 and CO2		Outside depending on wind directions et situation compared to other polluting industries.	Engage an authorized lab	twice per year	
Noise disturbance	Noise level	Functioning of certain equipment	Inside and outside the site	sound-level meter	once per year (Inside and outside the site)	
Groundwater quality	Install 2 piezometers for monitoring of water quality	-	-	piezometers	yearly	
Soil quality	Control campaign of soil quality at 3 m depth	-	Site vicinity	Soil analysis by authorized lab	Every 4 years	

Environmental and social reports are presented as below:

- Environmental and social report at the end of each phase of the project;
- Yearly environmental and social report during project operation.

These reports will provide the results of the environmental and social monitoring programme, an analysis of every detail measure and recommendations. It is noteworthy that the ANPE's information regarding the different identified aspects is regulated by the creation law of ANPE.

2. INSTITUTIONAL ARRANGEMENT FOR THE IMPLEMENTATION OF THE MONITORING AND MITIGATION PROGRAMME

Presentation of OMV:

OMV is an oil company created in 1956 in Vienna. It started its activities in Tunisia in 1971 as a partner in the Golf of Hamamet license where oil has been discovered in 1977.

OMV is mainly interested in exploring natural reserves in the Ghadamès basin in the south of Tunisia. OMV is currently working in the development of the Nawara concession which included most of the discoveries. In November 2009, OMV drilled 5 wells in Jenein Sud and started production in 2010.

Early works have started and included the infrastructure construction and the STGP which will transport gas from the south to Gabès before onward transmission to local end-users.

In early 2012, OMV bought Pioneer's shares to reinforce its activities in south Tunisia:

- Production increase of 50%
- Proof of 9 successive wells (>400bcf of gas)
- 2 drilling activities for the development of oil in south Tunisia

OMV approach to inter-communities relationships:

The OMV group follows a clear and transparent process to identify inter-community projects. The company's standards related to inter-community projects follow the process of collectivities relationships management and seek to make OMV a model for social responsibilities towards local stakeholders. It guarantees that OMV's entities build trust with communities and mutual understanding and minimize negative impacts while developing a commercially viable project. The management process help professionals of inter-community relationship to better understand local need and how to design project that will enhance their skills and improve their quality of life.

Objectives of inter-communities relationships:

- Use dialogue and discussion to diffuse the frustration, marginalization and privation caused by prior investments
- Understand the new environment and complete the mapping of well-defined stakeholders
- Design projects based on skills and develop local content while encouraging SMEs and job creation
- Maximize job creation by multiplying training and learning initiatives:
 - The Academic Programme where engineering degree is a condition for job offer complemented by training
 - Program of scholarship and contribution to the E&P degree at the institutes of local technologies
 - Develop local content through capacity building and financial aid
 - Manage community needs by supporting economic development and capacity building to the civil society.

ESMP Implementation team

In compliance with its own procedures, OMV has set up a department of 6 staff for the implementation of the monitoring programme as well as the environmental and social management plan. The team is comprised of staff specialized and trained for that purpose.

Furthermore, for the social aspects, two consultants have been recruited to help manage the agreement with concerned persons and represent OMV at the different information groups and mediation.

In addition OMV's institutional arrangement for the implementation of the monitoring and mitigation programme will comprise of:

- designation and training of a head for security and environment
- Holding record of a manual of environmental protection (solid waste management, used oils, atmospheric pollution, used sanitary water, etc.)
- Periodic control of leakproofness of facilities, pipes and intervention when necessary
- Recording all interventions for control & reparation and design of an annual report.

IX. COSTS FOR ENVIRONMENTAL PROTECTION

The table below provides an estimation of costs induced by the implementation of preventive and mitigation measures, the environmental and social management plan and the environmental and social management programme. Costs indicated below are indicative but generally they are estimated between 1 to 5 % of investment costs.

Table 5 : Costs for mitigation measures and ESMP implementation

Measures	Investment (DT)	Maintenance annual consumables DT
COMPONENTS / Nawara Production Center (CPF)		
Consultant and personnel fees HSE		160 000
Waste management (liquid & solid)		160 000
Noise measurement and air quality surveillance		128 000
Others		80 000
Compensation for land occupation	25 000	
S-TOTAL-1	25 000	528 000
COMPONENT : Pipeline		
mitigation measures during construction phase	200 000	
mitigation measures during operation phase		70 000
monitoring programme during construction phase	30 000	
monitoring programme during operation phase		50 000
designation and training of a head for security and environment		50 000
compensation for deforestation and reforestation	180 000	
Compensation on cultures during construction phase.	180 000	
compensation for land occupation during construction phase.	4 853 000	
compensation for land occupation during operation phase	8 325 000	
S-TOTAL-2	13 588 000	170 000

COMPONENT : GTP		
mitigation measures during construction phase	32 000	
mitigation measures during operation phase		87 000
compensation for land occupation during operation phase	5 748 150	
S-TOTAL-3	5 748 150	87 000
TOTAL	19 361	785 000

X. PUBLIC CONSULTATIONS AND INFORMATION DISCLOSURE

In compliance with African Development Bank's requirements, a serie of consultation took place during field visits with stakeholders and in particular local population and technical team of contractor.

Discussions and exchanges during the different meeting permitted to highlight:

- The common and shared willingness to allow to population durable and perennial access to natural resources necessary to the viability of their economic activity.
- The strong request of consulted populations to be consulted during the entire resettlement operation and compensation. Their participation to the evaluation of the goods and the estimation of the compensation and/or the corresponding mitigation measures are seen as a vital obligation for the success of this process.
- The necessity to design specific actions for vulnerable groups
- The necessity to design measures for the environmental and social viabilisation of compensation sites.

The practice of participative approach requires a consultation with local authorities and stakeholders living on the land where the pipeline will go through. The objective is being to have a precise idea on the opinion of persons affected by the project, the pipeline route and the ROW compensation. Three meeting were held on 20, 21 and 31 may 2013.

The following table summarizes the meetings held during the public consultation inherent to the preparation of the resettlement action framework.

Meeting	Relevant Questions	Concerns and proposals
<ul style="list-style-type: none"> - Gouvernorat : Gabès - Delegation : Ghanouch - Venue : Délégation - Date : 20 mai 2013 	<ul style="list-style-type: none"> - P r o j e c t Presentation - Agriculture Activities - compensation 	<ul style="list-style-type: none"> - The pipeline rout and the portion in Ghannouch delegation from the city entry point until the industrial zone where the GTP will be located - Authorities have confirmed that this portion will go through the public domain which will cause no problem as there is neither infrastructure nor population in that area.
<ul style="list-style-type: none"> - Gouvernorat : Gabès - Delegation: Gabès Ouest - Venue : Delegation - Date : 20 mai 2013 <p>In the presence of stakeholders and leaders of the project areas.</p>	<ul style="list-style-type: none"> - P r o j e c t Presentation - - Agriculture Activities - socio- economic data and - property taxes - compensation 	<ul style="list-style-type: none"> - Persons that attended raised the price for the rent of lands, the payment modalities, in case of litigation representative prefer first a friendly settlement before considering tribunals in Gabes and not in Tunis. - In conclusion the population accepts the project with full recognition of their suggestion and remarks.
<ul style="list-style-type: none"> - Gouvernorat : Gabès - Delegation : Matmata Jadida - Venue : Delegation - Date : 21 mai 2013 	<ul style="list-style-type: none"> - - Agriculture Activities - socio- economic data and - property taxes - compensation 	<ul style="list-style-type: none"> - Some parcels are subject to conflict/disputes between inhabitants (to be solved with councilor who commits to solve the issue before start of construction). - Contact the councilor during construction phase and pipe layout to resolve all issue that could hamper the operation and to better negotiate to the best interests of populations in this area.
<ul style="list-style-type: none"> - Gouvernorat : Gabès - Delegation : Matmata - Venue : Delegation - Date :21 mai 2013 	<ul style="list-style-type: none"> - Agriculture Activities - socio- economic data and - property taxes - compensation 	<ul style="list-style-type: none"> - Council member informed that the pipeline will pass through the domain of local tribes and that the council is the legal representative of the population in that area - The president of the council commit to be responsible for the information, sensitization and persuasion of land owners about the importance of this project and its impact in the region given that most of the persons were not available given they live far away from Matmata. - In conclusion it is advised to contact the councilor during construction phase and pipe layout to resolve all issue that could hamper the operation and to bet negotiate to the best interests of populations in this area.
<ul style="list-style-type: none"> - Gouvernorat : Gabès - Delegation : Matmata - Venue : Delegation - Date: 22 et 31 mai 2013 	<ul style="list-style-type: none"> - Agriculture Activities - socio- economic data and - property taxes - compensation - 	<ul style="list-style-type: none"> - The first meeting was postponed to the 31 because of social unrest in the city - Population suggest that payment (rental of lands) should be made in advance and price should be negotiated - In conclusion it is recommended to take into consideration the frequent demonstrations in the region of El Hamma, and population suggestions to open a dialogue via the councilor.

XI. CONCLUSION

The south Tunisian gas pipeline will contribute to the improvement and reinforcement of gas reserves exploitation and will develop the production and services activities'. The project will allow access to cleaner energy with the utilization of natural gas and address the country energy needs'. The surplus of gas will be exported to Mediterranean countries.

The project will favor the creation of activities generating revenues which will allow an increase in household revenues'.

Environmental and social assessments were carried out in compliance with Tunisian regulation and African Development Bank's policies and procedures. These documents form the basis of the present summary.

An environmental and social management plan was designed for the different component and phases of the project and will be implemented by project' sponsors. The Bank reserves the right to supervise work progress and the implementation of the environmental and social management plan as outlined in the studies and the management plan.

XII. REFERENCES

The following documents form the basis of this summary:

1. Actualisation de l'étude d'impact sur l'environnement pour le développement de la concession Nawara - Projet de construction de l'oléoduc, janvier 2014 ;
2. Actualisation de l'étude d'impact sur l'environnement pour le développement de la concession Nawara - Projet du Centre de Production Nawara, janvier 2014 ;
3. Etude d'impact sur l'environnement pour le développement de la concession Nawara Project de construction de l'unité de traitement de gaz à Gabès ;
4. Etude Sociale et évaluation des besoins pour le développement du champ Jenein Sud, 2010
5. Etude d'impact social et sanitaire du projet de construction du Gazoduc, janvier 2014 ;
6. Etude d'impact social et sanitaire du projet de construction d'une unité de traitement de Gaz-Zone industrielle Ghannouch, décembre 2013 ;
7. Liste des propriétaires des terrains et biens affectés par le projet.
8. Etude économique et sociale du projet South Tunisia Gas Project

XIII. CONTACTS

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