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Programmatic Environmental Assessment

**Private Sector Participation
In Environmental Services Program
For Low Income Housing in Tunisia**

U.S. AID Project 664-0356/HG-V

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EXECUTIVE SUMMARY

This assessment found that no significant adverse impacts are anticipated from programs that would receive budget support under the Private Participation in Environmental Services program (PPES). The Tunisian government currently implements environmental review procedures that ensure adequate minimization or mitigation of potential impacts from urban development programs.

The purpose of this document is to fulfill the requirements of 22 CFR Part 216, regarding the evaluation of environmental impacts of projects undertaken by USAID. The focus of this report is the Private Participation in Environmental Services program in Tunisia, (also known as HG-V), consisting of a \$3 million grant for technical assistance and policy development, and \$50 million over five years in loans for budget support to Tunisian government programs for low income housing and basic services to existing low income neighborhoods. Discussion of the potential environmental impacts of these Tunisian government programs is presented in two parts: consideration of the impacts from a typical new housing development project, and evaluation of the ability within the government of Tunisia to review project plans and require mitigation measures.

The approach used to assess the Tunisian government's ability to perform environmental review was primarily to interview key personnel in the relevant ministries and government agencies, obtaining and analyzing laws and regulations on environmental review, and examining sample impact study documents.

Based on an understanding of the environmental, socioeconomic, cultural, and historic characteristics of Tunisia, and knowledge of the specific activities that would receive PPES budget support, a general assessment of potential environmental impacts was prepared and compared to the "no project" alternative. Existing Tunisian government (GOT) environmental review procedures can be expected to successfully mitigate potential adverse environmental impacts. Such potential impacts, if not mitigated through the existing GOT impact study process, were identified in the areas of predetermined land use, siting in areas of inherent hazards, surface water and groundwater contamination, runoff control, vegetative cover, shoreline degradation, encroachment on archeological or historic sites, assurance of adequate capacity in basic services such as sewage treatment, access to public transportation, and management of solid waste including construction debris.

The Tunisian agency primarily responsible for environmental review of project plans and mitigation of adverse environmental impacts is the Agence Nationale de Protection de l'Environnement (ANPE). ANPE has the authority to prevent a project from being carried out based on environmental concerns, and has demonstrated its ability to exercise that authority. Under a 1991 law, every urban development project must have ANPE approval before proceeding. For projects of the type that would receive budget support under PPES, ANPE has staff who are adequately trained to review impact studies and require appropriate mitigation measures. The GOT agencies who would implement the programs with PPES support are aware of the legal requirement for ANPE approval and would obtain it before project implementation begins.

The existing environmental review procedures and level of ANPE staff training are adequate to ensure that environmental impacts from PPES supported projects are minimized or sufficiently mitigated provided that the GOT program agencies continue to comply with the requirement to obtain ANPE approval for each project.

While the PPES programs' potential adverse environmental impacts are sufficiently minimized or mitigated by existing regulations and procedures, GOA could take several steps to further improve its system:

- (1) **Enhancement of ANPE Capabilities.** ANPE project review would be facilitated by a detailed guidance manual on the preparation and review of impact studies for housing developments and other projects. In addition, ANPE may be understaffed and underfunded for the volume of regulatory development work that lies ahead. Specific regulations that define siting criteria, setback requirements, runoff control, green space and recreational area provisions, air and surface water quality standards, and management of solid wastes are not yet in place.
- (2) **Timely Inspections.** Inspections of work by private firms that construct and install basic services are important to ensure the systems function properly and to avoid costly repairs. The agencies responsible for these networks should continue to perform these inspections in a timely manner, or establish contracts for inspection services with qualified independent firms. More systematic inspections during construction are likewise recommended.
- (3) **Training.** Environmental protection in Tunisia will be strengthened by the increase of personnel specifically trained in environmental sciences, planning, and engineering, within both ANPE and the private sector.

Environmental regulation is in its infancy in Tunisia. Technical assistance to accelerate environmental regulation and guidance manual development, specifically in the areas mentioned above, is recommended for inclusion in the Policy Action and Coordination Timetable (PACT). No special conditions precedent to disbursement are required, however.

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Appendix A: List of Proposed Sites by Program

Appendix B: Organization Charts

Appendix C: Regulation Regarding Impact Studies

LIST OF ACRONYMS

AFL	Agence Fonciere d'Habitation (Housing Land Agency)
ANPE	Agence Nationale de Protection de l'Environnement (Environmental Protection Agency)
ARRU	Agence de Rehabilitation et de Renovation Urbaine (Urban Rehabilitation and Renewal Agency)
CRL	Commission Regionale de Lotissements (Housing Regional Commission)
IEE	Initial Environmental Examination
GDP	Gross Domestic Product
GOT	Government of Tunisia
ONAS	Office National de l'Assainissement (National Sanitation Agency)
PDUI	Programme de Developpement Urbain Integre (Urban Integrated Development Program)
PACT	Policy Action and Coordination Timetable
PEA	Programmatic Environmental Assessment
PPES	Private Participation in Environmental Services
RHUDO	Regional Housing and Urban Development Office
SONEDE	Societe Nationale de Distribution et d'Exploitation des Eaux (Water Authority)
SMIG	Salaire Minimum Industriel Guaranti (Minimum Industrial Guaranteed Wage)
STEG	Societe Tunisienne d'Electricite et de Gaz (Electricity and Gas Company)

1.0 INTRODUCTION

1.1 PURPOSE OF THE PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

The purpose of this document is to fulfill the requirements of Title 22 Code of Federal Regulations (CFR), Part 216, regarding the evaluation of environmental impacts of projects undertaken by the U.S. Agency for International Development (USAID). The Private Participation in Environmental Services program, also known as HG-V, consists of a \$3 million grant program to provide a) technical assistance to the Government of Tunisia (GOT) in establishing improved financial and legal processes to involve the private sector in providing environmental services in urban areas, and b) a \$50 million loan program to provide budget support for extending basic services in poor urban neighborhoods over the next five years.

The scope of this programmatic assessment is limited to the general consideration of potential environmental impacts of five GOT programs that are eligible for budget support by the PPES loan program, and an evaluation of the GOT's ability to evaluate and mitigate environmental impacts on a project specific basis. Throughout this document, the acronym PPES refers exclusively to activities in the capital investment (loan) portion of the program. Various organizations within GOT would be involved in the site selection, distribution of PPES funds, and project execution. USAID will not be involved in these activities once the eligible programs have been approved. Thus, any deficiencies observed in the process or standards employed in environmental review by GOT organizations are identified in this document, and mitigative measures in the form of recommendations for policy or procedural changes are offered.

1.2 REGULATORY BACKGROUND

As a prerequisite for funding assistance, USAID has to comply with environmental review procedures defined in 22 CFR Part 216. These procedures identify, as early as possible in the planning and design of a project or program, potentially significant impacts on natural resources, social and economic parameters, and cultural resources. The intent is to avoid or minimize potential adverse environmental impacts of the project by considering project alternatives, modification of project elements, or other mitigative measures.

A programmatic environmental assessment (PEA) differs from a typical environmental assessment in that a PEA may cover multiple projects similar in nature and potential environmental impacts, or programmatic activities that are not country-specific. A typical environmental assessment describes only one project, one set of project alternatives, and associated environmental impacts.

An environmental assessment or PEA is prepared after a finding of positive threshold determination is made, based on an initial environmental examination (IEE). A preliminary IEE for the PPES project was prepared in May 1993 by USAID/Tunis (Ref. 1), resulting in a positive threshold decision. This document has been prepared to fulfill the subsequent

2requirement for an environmental assessment. Within the PEA, potential environmental impacts that may result from projects receiving PPES budget support are discussed. In addition, the ability of the government of Tunisia to incorporate environmental considerations into the land use planning process and into the approval process for proposed housing developments and rehabilitation activities is examined.

1.3 ORGANIZATION OF THE DOCUMENT

Following this introductory section, Chapter 2.0 describes the methods used in collecting information and developing recommendations. Chapter 3.0 describes each of the five GOT programs eligible for budget support under PPES and their associated potential environmental impacts. The general environmental setting is described in Chapter 4.0, and potential environmental impacts are discussed in Chapter 5.0. Chapter 6.0 focuses on the regulatory framework and environmental review procedures established by the Tunisian government. A discussion of strengths and weaknesses of the existing environmental review process is included. Chapter 7.0 presents a program monitoring plan whereby USAID can ensure that PPES projects are receiving adequate GOT environmental review and appropriate mitigation measures are applied when necessary. A summary of findings and conclusions is presented in Chapter 8.0, with recommendations for enhancing the Tunisian government's ability for environmental review, mitigation of adverse impacts, and environmental monitoring. Sources of information used in the preparation of this report are listed in Chapter 9.0, followed by appendices.

2.0 APPROACH

Based on the purposes stated above, the focus of the efforts in-country were (1) to evaluate the potential environmental impacts of PPES budget support to eligible GOT programs, and (2) to evaluate the ability of the GOT to assess and mitigate environmental impacts on a project-specific basis. The approach used to accomplish the first objective is essentially the same as that used anywhere in the U.S., and was based on an understanding of project activities and the affected environmental media.

The evaluation of the Tunisian government's ability to perform environmental review was more complicated. The following steps describe the methods used to obtain the information needed to evaluate the environmental review process.

- Clarify project objectives with RHUDO and Mission staff.
- Obtain list of relevant contacts known by RHUDO and Mission staff.
- Talk with highest ranking government official whose responsibilities cover the subject of the project.
- Seek suggestions from this person for additional contacts.
- Talk to various ministries involved in land use planning or environmental protection; obtain laws and regulations.
- Talk to various agencies involved in land use planning or environmental protection; obtain laws and regulations.
- Develop understanding of basic governmental structure through interviews with government officials and review of laws and regulations.
- Develop understanding of interaction of agencies with ministries through interviews of government officials and agency personnel, and review of laws, regulations, and agency brochures.
- Develop understanding of laws and regulations and how they are interpreted and applied.
- Focus on implementation: revisit key agencies if necessary.
- Request examples of key implementation documents: land use plans, impact studies, etc.
- Talk to consultants or firms involved in similar activities.
- Talk to technician/staff level people for details on procedure and implementation.

- **Interview key people in nongovernmental organizations to assess public interest, awareness, and involvement.**
- **Analyze material**
- **Document findings**

3.0 DESCRIPTION OF PROGRAM OPTIONS

Five existing Tunisian programs have been identified as eligible for budget support under PPES. Each of them has as an element or primary objective to improve the urban quality of life for low income populations. Some programs have already demonstrated a significant level of success; others are new and currently in the pilot project stage. Each program is described below, followed by a general discussion of potential environmental impacts and any policy or procedural activities that may need to be addressed.

3.1 PROGRAMME DE TRAMES ASSAINIES (Site and Services Housing Program)

3.1.1 Program Description

The primary objective of the Site and Services Housing Program is to provide lots for low income families and assistance to build modest dwellings on the lots. This program has been assisted by international finance institutions, aimed at low income citizens who are eligible for loans through the Banque de l'Habitat (Housing Bank).

The Agence Fonciere d'Habitation (AFL) initially acquires acreage for this program. The property is platted and roads are built. Water, electricity, and sewer are provided to the site. Individuals may purchase the lots through the Banque de l'Habitat, which provides loans at favorable rates for low income families or individuals.

House plans are provided to the purchaser to construct a basic two-room unit. This dwelling can be added to by extending the house into the rear courtyard and by building on a second level with three additional rooms. The Banque de l'Habitat provides financing for building extensions, once the owner/developer demonstrates that the prior phase of work has been completed.

It is the responsibility of AFL to provide roads and bring utilities to the development site. Either AFL, the municipality, or private developers must provide the utility network within the housing development and connect each dwelling unit or lot to the utilities.

An applicant for a lot must be an adult and a Tunisian; foreigners must obtain authorization from the governorate. The applicant must not be the owner of a dwelling or buildable land in the District of Tunis or in the governorate of the lot requested.

Certain restrictions are placed upon the lot purchaser, as follows (Ref. 2):

- The purchaser must put the lot to use according to the conditions defined in the purchase agreement
- The purchaser cannot sell or transfer the lot before constructing, before completely paying the purchase price, and before allowing five years to elapse from the date of purchase

- The purchaser must begin construction within one year of purchase, and complete it within two years

3.1.2 Potential Environmental Impacts and Concerns

The most serious potential environmental impacts that could result from this program lie within the realm of siting. However, AFL would ensure that each area selected for Site and Services Housing conforms to the existing land use plans for the municipality (or governorate) in which the development is located. "Fatal flaws" that must be avoided are siting the development (or a portion of the development) in a flood plain, on unstable soils, in a seismic zone, on steep slopes, in the presence of toxic or hazardous materials, in a landslide area, under high voltage lines, in a wetland, or in another dangerous location. Important but less catastrophic are proximity to employment sources and markets, access to public transportation, availability and capacity of water supply, availability and capacity of sewage treatment, and access to other utilities.

Under current law and practice, an impact study that examines the considerations mentioned above and others as detailed in Chapter 5.0 would be submitted to the Agence Nationale de Protection de l'Environnement (ANPE) for review and approval. Review by ANPE would ensure that the location of the proposed housing development is environmentally sound, and that other physical, biological, social, and cultural impacts are considered. AFL would ensure that any mitigation measures required by ANPE are implemented.

If the provision of water, sewer lines and connections, electricity, and roads would be provided by private firms, it is important that the relevant agencies, Societe National pour l'Exploitation des Eaux (water utility, SONEDE), the Office National de l'Assainissement (sewer utility, ONAS), and Societe Tunisienne d'Electricite et de Gas (electrical and gas utility, STEG), continue to ensure that the networks are properly installed through timely on-site inspections. If the individual lot or house owner pays for the installations, the municipality, AFL, or utility agencies should provide inspections before the house owner is required to pay the service installer. Funding for these inspections would be anticipated in the program costs, and ultimately ONAS, STEG, and SONEDE would be held responsible for the proper installation of these services.

3.2 PROGRAMME NATIONAL DE REHABILITATION DES QUARTIERS POPULAIRES (National Rehabilitation Program for Low Income Neighborhood)

3.2.1 Program Description

The Programme National de Rehabilitation des Quartiers Populaires, under the management of the Agence de Rehabilitation et de Renovation Urbaine (Urban Rehabilitation and Renovation Agency, ARRU), is targeted at low income neighborhoods, primarily spontaneous settlements. ARRU considers sites for rehabilitation at the request of central or local government agencies. ARRU oversees building reconstruction, road improvement, and installation of sewer, potable water supply, electricity, and gas.

The Rehabilitation Program is currently planned to address 223 neighborhoods in 134 municipalities and all governorate. The program will be implemented in two phases: 104 neighborhoods from 1993 to 1995, and 119 neighborhoods from 1994 to 1997. The total cost of the program is estimated at T 50.5 million (US\$ 52.6 million), of which only T 46 million is budgeted in Tunisia's Eighth Plan. At the funded level, only 182 neighborhoods can be rehabilitated. A list of the proposed sites is provided in Appendix A.

3.2.2 Potential Environmental Impacts and Concerns

The major potential environmental impacts of ARRU's rehabilitation projects in this program would lie primarily in the realm of surface water and groundwater effects. Because the project locations are in existing housing areas, siting alternatives are moot. However, some mitigation of impacts based on poor siting could be implemented during renovation programs, for example, using soil retention methods (terracing, plantings, etc.) around housing built on slopes with erodible soils.

In all cases where sewer service would be provided, the sewer networks would be expected to improve public health by containing sanitary wastes and limiting human exposure to this waste stream. However, there may be associated impacts to surface water or groundwater, depending on the type of wastewater treatment system used.

Where neighborhoods would be connected to existing sewage treatment plants, there would be a net reduction in the quantity of sanitary waste that is discharged to the street, ground, or surface water. Additional treated wastewater would be discharged from the sewage treatment plant, regulated by Tunisian wastewater discharge standards, resulting in a slight impact on the receiving water quality.

Where neighborhoods would be connected to a septic tank, sand filter, or other land treatment system, there would be a net decrease in the quantity of sanitary waste discharged to the street or directly to surface water. Contamination of groundwater may be a risk, depending on the depth to the aquifer under the site and quality and type of soil receiving wastewater.

Under current law and practice, the specific topographic, geologic, and hydrogeologic characteristics of the proposed site for each project would be examined in detail, and the capacity of the sewage treatment plant to handle the additional input would be confirmed. These considerations would be part of the impact study that ANPE would review before construction. ANP would apply appropriate mitigation measures as required.

If private enterprises would provide or improve water, sewer lines and connections, electricity, and roads, it is very important that the relevant agencies (SONEDE, ONAS, STEG) continue to ensure that the networks are properly installed through timely on-site inspections. Funding for these inspections would be anticipated in the project costs, and ultimately ONAS, STEG, and SONEDE would be held responsible for the proper installation of these services.

3.3 PROGRAMME NATIONAL D'ASSAINISSEMENT DES QUARTIERS POPULAIRES (National Program for Neighborhood Sewer Services)

3.3.1 Program Description

In the late 1980s, the Office National de l'Assainissement (National Sewage Office, ONAS), in cooperation with local and regional authorities, identified over 300 low income urban neighborhoods (primarily spontaneous settlements) in Tunisia that needed sewer services. ONAS began a major program in 1989, the Programme National d'Assainissement des Quartiers Populaires (National Program for Neighborhood Sewer Service), to provide these areas with sewer networks.

The scope of the program includes 204 neighborhoods in over 100 municipalities and all 23 governorate. A list of proposed sites is provided in Appendix A. The program is being implemented in two stages. The first stage consists of two phases: first, installing sewer piping and connections in 42 neighborhoods, to be completed in 1993; and in an additional 82 neighborhoods to be completed between 1994. This stage includes the installation of a total of 280 kilometers of pipe, and the connection of 25,800 dwellings. Sewer service will be provided in 90 additional neighborhoods in the second stage of the program, beginning in 1995. The installation of 244 kilometers of pipe and connection of 24,600 dwellings is planned in this stage (Ref. 3).

Many sites have been completed and others are underway in the first phase of the program. Feasibility studies are currently in progress for the second phase. Total program costs are estimated at T 35 million (US\$ 36.5 million), of which only T 25 million (US\$ 26 million) is available for economic development in the country's Eighth Plan (Ref. 4).

3.3.2 Potential Environmental Impacts and Concerns

Major potential environmental impacts of the Programme National d'Assainissement des Quartiers Populaires would be limited to surface water and groundwater effects. In all cases, the sewer networks would be expected to improve public health by containing sanitary wastes and limiting human exposure to this waste stream.

The potential impacts to surface water and groundwater, and the essential considerations within the project impact study are the same as those identified in the Neighborhood Rehabilitation Program, described in Section 3.2.2.

Under current law and practice, the specific topographic, geologic, and hydrogeologic characteristics of the proposed site for each project in this program would be examined in detail, and the capacity of the sewage treatment plant to handle the additional input confirmed. These considerations would be part of the impact study that ANPE would review before construction. ANPE would apply appropriate mitigation measures as required.

If private companies provide sewer lines and connections, ONAS would continue to ensure that the networks are properly installed through on-site inspections. Funding for these inspections would be anticipated in the program costs, and ultimately ONAS would be held

responsible for the proper installation of these services.

3.4 PROGRAMME DE DEVELOPPEMENT URBAIN INTEGRE (Integrated Urban Development Program)

3.4.1 Program Description

The Programme de Developpement Urbain Integre (Integrated Urban Development Program, PDUI) is a new program under the direction of the Ministere du Plan et du Developpement Regional (Ministry of Planning and Regional Development). Established in 1993, PDUI has as its primary goal the creation of sustainable economic activities in urban areas. PDUI is pursuing the following objectives:

- To increase employment in the cities, particularly in areas where needs are most acute, thereby reinforcing the urban and regional economy and decreasing unemployment among young people (ages 15 to 24)
- To increase the productivity of low income families
- To increase the participation of women in the economy
- To improve living conditions and surroundings in disadvantaged urban areas and raise them to the average level of the city
- To decrease the inequalities among regions, particularly among interior and coastal cities

In the first phase of this program, a feasibility study has been initiated for three sites: the Ezzouhour neighborhood in the city of Kasserine, Bourgi in Kairouan, and Ennasr in the city of Mateur. The purpose of this study is to identify and test types of intervention, project methodology and preparation, and institutional and financial support, and to determine project selection criteria.

Two types of intervention are proposed. The first would be to improve living conditions by providing urban services, complementing the programs of ARRU and ONAS (Sections 3.2 and 3.3) and governorate programs for social amenities. The second type of involvement would be to support employment programs for the sole breadwinner (if unemployed), and to encourage women to enter the workforce. This support could take the form of financing for existing programs, technical assistance and training to help create small businesses, land development, and construction of local business areas, and training of job applicants.

The second phase of the program would be to target 10 to 12 urban areas for socioeconomic improvement. The design of projects undertaken in these locations would be based on the results of the feasibility study. The neighborhoods would be selected according to the criteria defined in the first phase, favoring those areas where unemployment is high and potential for economic development exists, and poor urban communities with more than 3,000 inhabitants

in cities with populations over 10,000. At this time, a list of proposed sites is not available (the list will be available in July).

3.4.2 Potential Environmental Impacts and Concerns

It is unclear what types of environmental impacts could result from PDUI projects. At the conclusion of the feasibility study, more will be known about specific types of projects that may be implemented through PDUI and their potential environmental impacts. Tunisian law requires proponents of any urban development projects to obtain project approval from ANPE by submitting an impact study. Therefore, if a small business area were to be constructed, for example, an impact study describing plans for the development and potential environmental impacts would be prepared. Any mitigation measures required by ANPE would be implemented by the developer.

3.5 PROGRAMME DE LOGEMENTS SUBURBAINS (Suburban Housing Program)

The Programme de Logements Suburbains helps finance low income housing development projects. The lending institution is the Banque de l'Habitat. Because this program makes use of an intermediate financing institution, it is categorically excluded from the environmental assessment requirement of 22 CFR 216. Nonetheless, it is anticipated that ANPE would review projects in this program and that sufficient mitigation measures would be implemented as required under current law and practice.

3.6 SUMMARY OF PROGRAM OPTIONS AND POTENTIAL ENVIRONMENTAL IMPACTS

A summary of program options, major potential environmental impacts, and implementation issues is presented in Table 3.1. Potential environmental impacts are described in greater detail in Chapter 5.0. The implementation issues identified at this time include the assurance of submittal and approval of impact studies for each project proposed, application of the required mitigation measures, and inspection of construction or installations to ensure that basic services have been correctly installed and connected.

**Table 3.1
Summary of Program Options and Environmental Impacts**

PROGRAM AND PRIMARY AGENCY	POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS TO BE MITIGATED THROUGH REVIEW BY ANPE	IMPLEMENTATION ISSUES
Programme de Trames Assainies (Site and Services Housing Program) - AFL	Siting problems (e.g., designated land use, flood plain, unstable soils, wetlands, toxic materials, high voltage lines, etc.); proximity to employment sources and markets; proximity to dangerous industrial activities; access to public transportation; availability and capacity of water supply, sewage treatment, and utilities access; surface water or groundwater effects from sewage treatment system.	Impact study required; ensure that mitigation measures are implemented; ensure proper installation of basic services through inspections; ensure O&M follow-up.
Programme National de Rehabilitation des Quartiers Populaires (National Rehabilitation Program for Low Income Neighborhood) - ARRU	Potential mitigation of siting impacts; effects on surface water or groundwater quality depending on type of sewage treatment system; availability and capacity of water supply, sewage treatment, and utilities access.	Impact study required; ensure that mitigation measures are implemented; ensure proper installation of basic services through inspections; ensure O&M follow-up.
Programme National d'Assainissement des Quartiers Populaires (National Program for Neighborhood Sewer Service) - ONAS	Effects on surface water or groundwater quality depending on type of sewage treatment system; availability and capacity of water supply, sewage treatment, and utilities access.	Impact study required; ensure that mitigation measures are implemented; ensure proper installation of sewer network through inspections; ensure O&M follow-up.
Programme de Developpement Urbain Integre (Integrated Urban Development Program) - PDUI	Specific impacts unknown at this time.	Unknown at this time.
Programme de Logements Suburbains (Suburban Housing Program) - Banque de l'Habitat	Categorically excluded.	None.

4.0 ENVIRONMENTAL SETTING

4.1 GEOGRAPHY

The Republic of Tunisia is the smallest country in North Africa, sharing borders with Libya to the south and Algeria to the west. The country's northeastern boundary is defined by 800 miles (1,300 kilometers) of Mediterranean shoreline on the north and east sides. Tunisia supports a population of more than 8 million within 63,170 square miles (163,610 square kilometers) (Ref. 17), a land area slightly smaller than Missouri. Since Tunisia gained its independence from France in 1956, its economic development has progressed more rapidly than many other African countries and it now faces environmental problems that will intensify as the economy advances and population grows.

Characteristics of climate and vegetation in Tunis range from humid Mediterranean conditions in the north to arid conditions in the south. The terrain includes low mountains and Tunisia's one major river, the Medjerda, in the north; semiarid highland with relatively poor soil and scarce rainfall in the central area of the country; and barren, arid lands in the south that merge into the Sahara. Crude oil, phosphates, lead, zinc and other non-ferrous metals, iron, salt, natural gas, extensive beaches, productive fisheries, and many square miles of arable land comprise Tunisia's primary natural resources.

4.2 GOVERNMENT

Tunisia's government is characterized as a presidential republic, where the executive branch is the primary decision-making authority. The President appoints the Prime Minister, the Cabinet, and 23 provincial governors. Several ministries and secretaries of state operate under the Prime Minister, each concerned with specific activities.

In 1991, a new ministry was created specifically to address the environmental issues in national and international contexts. In general, the responsibility of the new *Ministere de l'Environnement et de l'Aménagement du Territoire* (Ministry of Environment and Land Use) is to promote legislation for protection of the environment, conservation of natural resources, and land development, including reduction of risks to people, flora and fauna, the atmosphere, water, and soil environments; to preserve and develop the open spaces necessary for future generations; and to set aside space allowing development of wild species and natural habitat (Ref. 5).

This ministry, l'Agence Nationale de Protection de l'Environnement (National Agency for Environmental Protection, ANPE), was established in 1988 to carry out environmental protection.

4.3 PRODUCTION

Table 4.1 indicates the relative contributions of Tunisia's major product categories to gross domestic product (GDP) and total exports, including the primary products in each group. Industry and tourism are rapidly growing sectors in the country's economy. Agriculture, energy, and mining sectors are experiencing slowing trends. The GDP in 1990 was approximately 10.91 billion Tunisian dinars (roughly \$11 billion U.S.) (Ref. 6).

ECONOMIC SECTOR	SHARE OF GDP	SHARE OF EXPORTS	PRIMARY PRODUCTS
Agriculture	16.3%	7.0%	Cereals, olives for oil, citrus fruits, potatoes, meat, eggs, milk, fish
Mining	9.4%*	10.4%	Phosphate, iron, non-ferrous metals, salt
Energy	9.4%*	12.1%	Crude oil, refined petroleum products, natural gas
Industry	22.5%	23.2%	Fertilizer, textiles, clothing, leather goods
Tourism	4.4%	18.7%	Tourist services and products
Services, trade	33.9%	6.3%	Mechanical and electrical engineering, civil service
Other	13.5%	22.1%	Other activities

* Mining and Energy combined equals 9.4% of GDP.

Source: Ref. 6

4.4 NATURAL RESOURCES

4.4.1 Soil

Tunisia has a total of roughly 16.5 million hectares of soil resources, which are categorized as follows:

- 2.9 million hectares of fertile land, ideal for farming
- 6.5 million hectares with moderate to low farming potential
- 7.1 million hectares of uncultivated land, consisting primarily of sand deposits, salt flats, and naked rock outcrops

Approximately 5 million hectares are currently used to cultivate cereals, trees, olives, livestock feed, vegetables, and other crops. Roughly 300,000 hectares are irrigated, representing only 7% of total cultivated land, and producing about one-third of the total agricultural output (Ref. 6).

4.4.2 Natural Vegetation

Natural vegetation covers approximately 4 million hectares, of which 368,000 hectares are natural forest land, and an additional 262,000 hectares have been reforested. About 300,000 hectares of deteriorated forest areas, now consisting of garrigues and scrub growth, are used as natural rangeland. Annual wood production is 320,000 m³, far short of national demand. The national forest cover rate is 6% (Ref. 6).

Other vegetative domains include 2.6 million hectares of alfa steppe in the center-west region, and 264,000 hectares of other steppe vegetation and deteriorated rangelands. The steppe forest areas and natural rangelands provide an average of 651 million fodder units per year for livestock (Ref. 6).

4.4.3 Water

Total water resources are calculated at 4.4 billion m³, comprising 2.6 billion m³ of surface water, and 1.7 billion m³ of groundwater. Seventeen dams are operating, retaining 1.3 billion m³ surface water. Renewable groundwater resources total 586 million m³ per year. These aquifers are almost totally tapped; in 1990, approximately 100,000 wells withdrew 95% of the total renewable resources available in these aquifers.

The annual recharge rate for the deep aquifers is only 2 to 5%, representing an annual resource of 1.1 billion m³ of water. About 850 million m³ are used at present. The total tapped water resources equals 2.9 billion m³, of which 70% is used (53% for irrigation). A usage rate of 100% is forecast for the year 2015 (Ref. 6).

4.4.4 Marine and Coastal Resources

Tunisian waters cover approximately 77,300 square kilometers, and the country has 1,300 kilometers of coastline. Eight major groups of islands lie off the coast. A wide range of marine flora and fauna lie along the coast, as well as several areas of productive fishing. An estimated 700 kilometers of beach are suitable for resort activities, and approximately 100 kilometers of beach are currently a major tourism resource.

Fishery production levels average 95,000 tons per year. Fishing and fish processing provide approximately 40,000 jobs (Ref. 6).

4.4.5 Mineral and Energy Resources

Major phosphate deposits are located in Gafsa, producing about 6.5 million tons per year. Other minerals include iron (250,000 to 350,000 tons per year), lead, zinc, spar, and barytine. Tunisia has no coal deposits and limited hydraulic potential. Oil or natural gas

fired power stations produce 98% of the country's electricity. Oil reserves are estimated at 30 million tons, with annual production of 5 million tons per year. The potential for natural gas production is unknown (Ref. 6).

4.5 ARCHAEOLOGICAL AND HISTORIC RESOURCES

Tunisia's rich cultural and archaeological heritage stems from the influence of Phoenician, Berber, Roman, Vandal, Byzantine, Arab, Turkish, and French settlement, beginning about 3,000 years ago. In addition, several prehistoric sites in the country date back to the stone age. Many archeological sites from the Phoenician, Roman, Byzantine, and Arab periods are sprinkled throughout the area, including the remains of Phoenician ports, a Roman coliseum, Roman theaters, aqueducts, numerous temples, baths, villas, and Arab palaces and fortresses. Impressive collections of Roman mosaics and statues, Phoenician coins and jewelry, and early Arab manuscripts are maintained in Tunisian museums.

In addition, Tunisia's heritage includes historical sites from the Arab period. These sites are active old cities situated in the midst of modern urban developments, such as the Medina of Tunis. These sites are typical historic and traditional sites, exemplifying vernacular architecture and urban structure. They are rich in both number and diversity, in need of measures to rehabilitate, protect, and adapt them to their current urban settings.

4.6 MAJOR ENVIRONMENTAL ISSUES

The central issue underlying Tunisia's environmental challenges is the tension between preservation of natural resources and management of urban growth and industrial/economic development.

Nationwide, the major environmental problems are (Ref. 6):

- Loss of soil resources due to erosion and desertification
- Deterioration of mobilized water resources as result of increased industrial and agricultural pollution and aquifer overuse
- Rapid decrease in flora and fauna with genetic weakening of several botanic and animal species
- Beach erosion, overfishing, pollution of marine environment
- Pollution due to uncontrolled discharges of industrial waste and domestic waste disposal problems
- Spontaneous settlements and lack of sanitary waste systems

4.7 URBAN ENVIRONMENTAL SETTING

The urban population is concentrated in the east coast provinces, areas that account for approximately 25% of the country's land area and contain around 78% of Tunisia's urban population, or 60% of the total population. Continuation of the major shift in population from rural to urban is anticipated to raise the urban proportion to 70% by 2001 (Ref. 6). The average urban growth rate has been 3.0% per year since 1984 (Ref. 7).

In urban areas, the major environmental problems include proliferation of "spontaneous settlements" as a result of the rural exodus and lack of affordable housing; management of sanitary and solid wastes; storm water management; and air and noise pollution. Spontaneous settlements may house as much as 10% of total urban populations. These settlements have exacerbated existing urban environmental concerns, resulting in a general deterioration of the quality of urban life.

Generally established by low income families, these informal settlements start with the appropriation of land, either through squatting or purchase. No housing designs are generated; people build what they can where they want to, using scavenged or purchased materials. A haphazard housing development is the result. Often these informal settlements arrange for the supply of electricity to the neighborhood. However, there is typically no sewer system and sanitary wastes are often improperly managed. In many cases, the settlement depends on a common source of potable water, which may not be protected from contamination. Road construction within these settlements may be not allow for the passage of vehicles and or for adequate parking.

Other problems may also exist. The price of the land may have been low due to the presence of potential hazards unknown to the purchasers. For example, the land may be prone to flooding. The soils may be unstable. The neighborhood may be located too close to a quarry or polluting industrial facility. Little or no consideration is given to proximity to the water table or to surface water, protection of archaeologically significant areas, aesthetics, preservation of green space, provision of recreational areas, protection of views, or other parameters. The permitting processes have been avoided in both the purchase and the development of these neighborhoods. These developments are essentially survival housing.

5.0 ENVIRONMENTAL IMPACTS

5.1 NEEDS TO BE ADDRESSED BY PPES PROJECTS

The programs that would receive PPES budget support address existing problems or needs in the urban environment in many locations throughout the country. None of the five programs is limited to a particular region or metropolitan area. In fact, proposed projects within the ONAS and ARRU programs are located in all 23 governorate.

The programs operated by AFH, ONAS, and ARRU, as described in Chapter 3.0, are intended to help ameliorate the urban problems discussed in Chapter 4.0. The AFH Site and Services Housing Program provides building lots and assistance for low income housing. The ONAS Neighborhood Sewer Service Program provides sewer service to existing neighborhoods. The ARRU program, in conjunction with ONAS, provides for the rehabilitation or renovation of low income neighborhoods, including sewer upgrades and connection to sewage treatment systems, and the provision of other basic services. The Integrated Urban Development Program may involve similar activities with improvement of urban employment and business opportunities in addition.

It is within this setting that the PPES budget support for these programs is proposed. Potential environmental impacts are discussed below.

5.2 POTENTIAL ENVIRONMENTAL IMPACTS OF THE "NO PROJECT" ALTERNATIVE

The current situation as described in Chapter 4.0 has or could lead to a number of adverse environmental impacts, including the following:

- Improper siting and land use
- Use of valuable agricultural or forested land for housing
- Inefficient use of the land
- Poor design without consideration of vehicular traffic needs
- Improper building construction methods and materials
- Loss of vegetation
- No provision of green space
- Damage due to flooding
- Inadequate source of potable water
- Aquifer overuse
- Contamination of soil and the upper aquifer with sanitary waste and garbage
- Contamination of surface water with sanitary waste and garbage
- Overly dense living conditions
- Encroachment on historic, archeological, or culturally significant sites

5.3 POTENTIAL ENVIRONMENTAL IMPACTS OF PROJECTS SUPPORTED BY PPES

Programs receiving budget support under PPES would involve construction of low income housing, provision of basic services (utilities) such as water and sewer to an existing neighborhood, or rehabilitation or upgrading of housing and basic services in multiple locations. Discussion of the potential environmental impacts of these programs is presented in two parts: general consideration of the impacts from the broadest of the proposed projects, i.e., new housing developments (following); and evaluation of the existing ability in the government of Tunisia to review project plans and require mitigation measures (Chapter 6.0). The magnitude of adverse impacts of PPES-supported projects depends heavily on review of individual project plans and anticipated impacts by government authorities, effective application of appropriate mitigation measures, and follow-up.

The projects with the broadest environmental impact are those involving establishment of new housing developments, starting with raw land. All other projects that PPES may support share elements of the environmental considerations for new housing developments. Thus, the following discussion addresses potential impacts in all programs, though no one project or program would necessarily include all of the types of impacts addressed.

Due to the dispersed locations of these projects within each program, their typically small size relative to the urban centers where they are located, and the many variables among projects, an evaluation of cumulative impacts of all potential projects receiving PPES budget support could be neither accurate nor meaningful. The intent of this discussion is to describe general impacts, which can be qualitatively extrapolated to a national scale, but cannot in any way be quantified at this time.

This general description of potential environmental impacts addresses the parameters and characteristics that may be typically included in the construction permit application process and in ANP's environmental review. Through the use of impact studies prepared by project applicants, ANPE can require mitigation of adverse environmental impacts as a condition of project approval. Further discussion of these procedures and the regulatory and legal framework for environmental review is provided in Chapter 6.0.

Land

The location for a housing development is the most important factor influencing the magnitude of environmental impact on the land. The selection process is performed initially by the municipality or agency that proposes the site, reviewed by the programming agency (AFH, ONAS, or ARR), and subsequently reviewed by the Commission Regionale de Lotissements (CRL). This selection is typically made according to the land use plan of the region or municipality. In this way, protection of agricultural lands, forests, and archeological sites is maintained. Specific criteria for screening out proposed sites located on steep slopes, unstable soils, or in flood plains may not be fully prescribed by regulation. However, these factors are generally considered in the preparation of the land use plans.

Atmosphere

Anticipated air emissions from PPES projects include only fugitive emissions from construction activities. Dust control does not appear to be considered a high priority in Tunisia. Fugitive dust could be easily controlled by the periodic spraying of water on the exposed ground at the site.

Surface Water

Potential impacts on surface water could result from project location or, more likely, the type of sewage service at a particular location. Tunisia has few lakes, many miles of Mediterranean coastline, one major river, and many oueds (creeks). At present, housing is not required to have setbacks from surface water bodies or wetlands. Provision of sewer networks would redirect sanitary waste and gray water from the ground surface (and high human exposure potential) to a wastewater treatment system or to a point discharge into a dry oued or other surface water body. In areas where the provision of wastewater treatment is not anticipated for several years, the Tunisian government feels it is in the interest of public health to contain sanitary effluents and discharge them to surface waters, in other words, to utilize the assimilative capacity of the receiving stream, rather than to continue the totally uncontrolled discharge of this effluent. ANPE would carefully consider this issue on a case-by-case basis and may apply appropriate mitigation measures or even deny projects.

Another surface water consideration is the location of the proposed development site relative to the flood plain. Such site locations could be avoided by adhering to the local land use plan, the site selection process, or by appropriate ANPE action during the environmental review process.

Groundwater

Potential impacts on groundwater could include withdrawal from a well and discharge to ground from a community septic system. The Ministere de l'Agriculture controls most well construction and water use. In most PPES projects, water supply would consist of connection to the existing city water supply. The source of this water is either treated surface water (in the northeast) or well water (in other parts of the country). Construction of new wells is not anticipated under PPES programs. Likewise, PPES will not fund the provision of septic tanks, only establishment of sewer piping and connections for new or upgraded housing development. Environmental impacts would be controlled through adherence to local land use and water use plans and through environmental review by ANPE.

Runoff

The primary source of runoff from PPES projects would be stormwater. A less important source of runoff would be water that is used to clean the floors of houses and swept into the streets. Currently, stormwater is minimally controlled in low income residential developments through the use of ditches and the slope of streets.

Plants

The vegetation removed from a housing development site would depend on the region in which the site is located and its previous use, if any. Means of protecting threatened or endangered species are not known; however, this may be considered in preparing land use plans. New housing developments would be designed with a percentage of green space to

enhance aesthetics, preserve soil, and to fulfill social functions.

Energy

New housing projects would be equipped with electrical power (and gas in some areas), and upgrading projects may also include electrical supply, if needed. Most existing neighborhoods will already have electricity. Natural gas would be supplied where it is locally available. This would minimize the reliance on other energy sources for heating and cooking, particularly for wood which is not abundant.

Environmental Health

A primary objective of the Tunisian government and activities funded by PPES is to provide adequate sanitary systems for urban developments. This would result in a significant improvement of public health and quality of life in the locations selected for PPES projects. No other environmental health impacts are anticipated.

Noise

Noise impacts are anticipated only during construction. Construction periods may range from 2 to 12 months, depending on the size and type of project. Typical ONAS sewer connection projects to install sewer piping and hookups for 150 to 300 dwelling units last from three to six months. Construction using heavy equipment would be conducted only during normal daylight working hours.

Shoreline Use

Land use plans include consideration of shoreline impacts. Tourism in the coastal areas has precipitated more attention to beach preservation, water quality, and sediment impacts. For a new housing development, the site selected would comply with the current land use plan for the area. Housing developments do not appear to have any specific setback requirements from shorelines. ANP would carefully scrutinize shoreline development issues in the review of impact studies, and apply appropriate mitigation measures.

Housing

Each project application would state the number of dwelling units to be constructed or provided with basic services. All PPES projects would be for low income housing, defined as a population where 90% or more of the families fall below the median income level for the area. In the case of rehabilitation and renovation projects, the project application should state the number of dwelling units to be eliminated, rebuilt, or extended. Because all the PPES projects would represent housing improvements, no mitigation measures are anticipated.

Aesthetics

New housing developments and rehabilitation and renovation projects would be sensitive to aesthetic considerations in design. Any views should be maintained. Each project application would state proposed exterior building materials and appearance. No mitigative measures would be anticipated.

Historic and Cultural Preservation

New housing developments would avoid encroachment on archeological and historical sites, and aim to protect culturally significant sites. Tunisian laws protecting areas of archeological,

historical, and cultural importance are in place and used in preparing land use plans. Some projects anticipated for funding by PPES would be intended to directly help improve neighborhoods in culturally significant urban areas. Adherence to land use plans, the program site selection processes, and ANPE environmental review would assure adequate protection of these resources.

Transportation

Full consideration would be given to the proximity of public transport in selecting sites for new housing development. Low income residents rarely own cars so dependence on public transportation to get to work and markets would be a significant rating factor. The design of roads in a housing area would anticipate the use of cars, adequate space for parking, and traffic flows (current and projected). These considerations would be considered in the impact study, and mitigation measures required by ANPE as needed.

Utilities

Each project application would include a survey of utilities available at the site: electricity, natural gas, potable water, garbage service, telephone, sanitary sewer, and septic system. The project application would provide a complete description of the utilities proposed for the project, the agency or organization providing the service, and general construction activities that may be needed at the site or in the immediate vicinity. ANPE would review the impact study, verify system capacities, and require mitigation measures as needed.

Solid Waste

Each project that involves construction would generate some debris, including broken pavement, extra cement blocks and other building materials, excess soil, roofing tiles, etc. Currently, the disposal of this material is uncontrolled. Construction firms would be required to dispose of this debris in a designated and certified landfill.

Some projects would involve the extension of garbage collection service, which is currently provided in urban areas. Tunisia has no environmentally protective landfills as yet. Mitigation of the household solid waste problem, a nationwide issue, is currently in the pilot project stage. Aside from provision of household waste collection services, no treatment or improved disposal options are currently available.

5.3 SUMMARY OF IMPACTS AND PROPOSED MITIGATION MEASURES

Table 5.1 summarizes the potential impacts of the "no project" alternative, projects that would be funded through PPES, and suggested mitigation measures for the PPES impacts.

Table 5.1 Summary of Environmental Impacts

	POTENTIAL IMPACTS OF "NO PROJECT" ALTERNATIVE (EXISTING CONDITIONS)	POTENTIAL IMPACTS OF PPES PROJECTS	MITIGATION MEASURES
LAND	Loss of agricultural or forested land; encroachment on archeological, historic, or culturally significant sites; location in flood plain; location near seismic activities; location near polluting or dangerous industrial activities; erosion.	Fully mitigated.	Adherence to land use plans. Consideration of land impacts in site selection process. ANPE review and mitigation requirements.
ATMOSPHERE	Odors from sanitary waste and garbage. Temporary generation of fugitive dust during construction.	Temporary fugitive dust emissions during construction.	None or spraying site with water.
SURFACE WATER	Contamination of surface waters with sanitary waste and garbage.	Possible increase in point source sanitary discharge, with corresponding decrease in public exposure, groundwater and soil contamination.	Favor selection of sites with sewage treatment access. Determination of optimal discharge point. ANPE review and mitigation requirements. As resources allow, Tunisia will provide sanitary wastewater treatment to all urban areas.
GROUNDWATER	Contamination of aquifer with improperly situated well; overpumping of aquifer; contamination of soil and groundwater with sanitary waste.	Potential increase in groundwater withdrawal depending on source of potable water. Potential increase in discharge to ground from community septic tanks.	Adherence to land use and water use plans.
RUNOFF	No control of stormwater or protection of soil.	Minimal control of stormwater.	ANPE review and mitigation requirements.
PLANTS	Loss of vegetation. No replanting.	Vegetation may be removed when site is cleared.	Adherence to land use plan. Provision for green spaces.
ENERGY	Deforestation from use of trees as fuel.	Reduction of dependence on wood fuel. Increase in electrical power or natural gas use.	None.
ENVIRONMENTAL HEALTH	Exposure to sanitary waste; potential for contaminated drinking water.	Provision of improved sanitary waste collection systems.	None.
NOISE	Temporary generation of noise during construction activities.	Temporary generation of construction noise.	Limit construction to daytime hours.
SHORELINE USE	Degradation of beaches, pollution of intertidal zone, marine and fresh waters.	Fully mitigated.	Adherence to land use plans. Setback requirements. ANPE review and mitigation requirements.

	POTENTIAL IMPACTS OF "NO PROJECT" ALTERNATIVE (EXISTING CONDITIONS)	POTENTIAL IMPACTS OF PPES PROJECTS	MITIGATION MEASURES
HOUSING	Housing is unplanned, unsupervised, and haphazard. Living conditions are below standard.	All projects represent urban housing improvements.	None.
AESTHETICS	No or little consideration of aesthetics.	Improvement of urban aesthetics.	None.
HISTORIC AND CULTURAL PRESERVATION	Possible encroachment on significant archeological, historic, or cultural sites.	Fully mitigated.	Adherence to land use plans. Setback requirements. ANPE review and mitigation requirements.
TRANSPORTATION	No or little consideration given to road placement or provision for parking.	None.	Siting new housing developments near access to public transportation. Provision of parking and adequate road design. ANPE review and mitigation requirements.
UTILITIES	A full complement of utilities is not provided.	Projects specifically include provision or improvements in utilities.	None.
SOLID WASTE	Construction debris is left nearby. Household waste may be inadequately stored and collected.	Construction projects will generate construction debris. Occupancy of housing areas will generate garbage.	Require construction companies to dispose of waste in designated and certified landfill. Address garbage collection in project plans. ANPE review and mitigation requirements.

6.0 ENVIRONMENTAL REVIEW AND MITIGATION CAPACITY

This chapter presents the institutional and regulatory framework for environmental review and provides an assessment of the Tunisian government's capability to require mitigation measures for PPES programs.

6.1 INSTITUTIONAL AND REGULATORY FRAMEWORK

Several government institutions are involved in land use planning and environmental review of housing development projects. This section describes the institutional and legal framework pertaining to the PPES programs. This discussion does not encompass the entire institutional and legal environmental framework of the Tunisian government, but focuses on the laws and regulations directly related to housing development and environmental protection.

6.1.1 Institutional Overview

The primary national institutions directly and indirectly responsible for environmental policy and management of housing development and wastewater have been created over a period of 18 years (1973-1991). They are:

- Agence Fonciere d'Habitation (Housing Land Agency, AFH), 1973
- Office National d'Assainissement (National Sanitary Office, ONAS), 1974
- Agence de Rehabilitation et de Renovation Urbaine (Urban Rehabilitation and Renovation Agency, ARRU), 1981
- Agence Nationale de Protection de l'Environnement (Environment Protection Agency, ANPE), 1988
- Ministere de l'Environnement et de l'Amenagement du Territoire (Environment and Land Development Ministry, MEAT), 1991

Local and regional institutions involved in urban development projects include the municipalities, regional councils, governorate, Commissions Communales de Lotissements (Housing Communal Commission), and the Commissions Regionales de Lotissements (Housing Regional Commission, CRL). These institutions are briefly described below. Organization charts of the Ministere de l'Environnement et de l'Ameragement du Territoire, ONAS, ARRU, and AFH are presented in Appendix B.

6.1.1.1 National Institutions. AFH is an autonomous agency with a financial and commercial status, operating under the Ministere de l'Equipeement et de l'Habitat. The objectives of the agency are to fight land speculation, reduce the recurrence of spontaneous settlements, and help municipalities accomplish their urban projects. AFH buys lands, forms lots, and provides the basic infrastructure, then sells the lots to developers and individuals who build their homes.

ONAS is also an autonomous agency, with a financial and commercial status, operating under

the *Ministere de l'Environnement et de l'Amenagement du Territoire*. The mission of ONAS encompasses conserving water, collecting and treating wastewater (constructing sewers and wastewater treatment plants), providing each Tunisian region with sewerage infrastructure, and protecting coastal areas, rivers, dams, and groundwater. The agency operates and maintains sewer networks and treatment plants in 80 cities representing 70 to 75 percent of Tunisia's urban population. Feasibility studies and sewer construction projects are now accomplished more often through contracts to private firms. ONAS presently has more than 3,000 employees and expects to grow to 5,000 by the year 2000.

ARRU operates under the direction of the *Ministere de l'Equipement et de l'Habitat* as an autonomous agency, with financial and commercial characteristics. ARRU is responsible for upgrading sub-standard housing sites, extending basic services to neighborhoods not previously equipped, and renovating or building new housing. ARRU does not have its own investment budget, but operates as a principal for municipalities or ministries. The state provides the agency's operating budget; therefore, ARRU does not charge for its services. ARRU has a limited in-house production capacity and contracts most projects and studies to private or public firms.

ANPE is an autonomous agency under the direction of the *Ministere de l'Environnement et de l'Amenagement du Territoire*. The agency's mission consists of participating in global and sectorial environmental policy making, proposing preventive measures to avoid natural and industrial catastrophes, fighting all pollution sources, and reviewing investment projects whose implementation might have an impact on the environment. The agency has to encourage environmental training, education, and research. ANPE has the authority to enforce environmental laws, decrees, and regulations.

The *Ministere de l'Environnement et de l'Amenagement du Territoire* is the newly created (October 1991) ministry for environment and land use management with two general directions: environment and quality of life, and land use management. Land use management was previously a part of the *Ministere de l'Equipement et de l'Habitat*. One of its first missions is to regroup all the legal texts pertinent to the environment, make a coherent synthesis, and propose further environmental laws and regulations. The creation of this ministry shows the determination of the Tunisian government to establish a solid institutional framework for implementing environmental protection and improvement. Both ANPE and ONAS are under this ministry, and contribute to making and implementing policy.

6.1.1.2 Local and Regional Institutions. The municipalities in Tunisia are weak despite the GOT's policy of decentralization in force since the mid-1970s. Direct municipal responsibilities are limited to providing services such as issuing building permits; maintaining local roads, street lighting, and open space; collecting refuse; and some sewage maintenance.

Each of the 23 governorate has a *Commission Regionales de Lotissements (CRL)*. Their purpose is primarily to enforce land use plans. The CRL reviews all applicant files for land development permits and building permits except for a few that are reviewed by the *Commission Communale des Lotissements*. The *Directeur Regional de l'Equipement* presides over the Commission. All the agencies involved in land development and building (ONAS, SONEDE, STEG, AFH, ARRU, ANPE, and other technical services, plus the municipalities

concerned) are represented, if necessary, to review the project applications. The role of the CRL is further explained in Sections 6.2.1 and 6.2.2 where the administrative procedures of site development and building permits are presented. The CRLs have a very important role in applying the land use plans.

The **Commission Communale de Lotissements** has a similar purpose to the CRL except that it is more decentralized. The President of the Commune presides over the Commission. The Commission's role is explained in more detail in Section 6.2.2 where the administrative procedures for building permits are presented.

6.1.2 Laws and Regulations

6.1.2.1 Overview. Tunisia does not yet have a single and coherent environmental code. The body of Tunisian laws and regulations concerning the environment is scattered among various institutional texts. These texts have been promulgated over a long period of time which makes them difficult to identify, collect, and interpret. The overall impression is of a patchwork with many gaps. The Tunisian government needs a coherent set of environmental laws and implementing regulations.

The laws and decrees govern a wide array of topics but do not treat the subject systematically or completely. For example, there are laws on the protection of agricultural land, quarry exploitation, and protection of archeological sites. There are decrees on hazardous industries, effluent discharge, wastewater standards, used oils, and hook-up conditions to the public wastewater network.

However, there is a Forestry Code (Code des Forets), a Water Code (Code des Eaux), a Labor Code (Code du Travail), and an Urban Development Code (Code de l'Urbanisme). The Forestry Code promulgated in 1966 and revised in 1988, protects forestry land and includes environmental protection concerns. The revision of the Forestry Code provided an opportunity to upgrade the protection of nature, fauna and flora, and wetlands.

The Water Code (1975) includes a series of prohibitions to prevent the pollution of surface water and groundwater. It includes provision on urban wastewater treatment, individual sanitation, and general conditions governing the discharge of substances into the receiving environment. Four Tunisian water quality standards were adopted thereafter and in 1988 the decree governing discharge of effluents into the environment was promulgated.

The Urban Code (1979), four procedural documents (1980), and three decrees on land use (1990) govern urban development.

Table 6.1 summarizes the main environmental legal and regulatory texts pertinent to this study.

6.1.2.2 Environmental Protection in Urban Housing Development. Apart from the laws that establish the key agencies, ONAS, ARRU, ANPE and the Ministère de l'environnement et de l'Amenagement du Territoire, this review focuses primarily on laws and regulations for land use zoning, building permits, and impact studies.

Three land use decrees were published in 1990. The first defines a general use for urban area "Plan Directeur d'Urbanisme"; the second is more precise: "Plan d'Amenagement Urbain"; and the third is a detailed land use plan. Site development and building permits have to be checked against these land use plans. The content of each of the three land use plans is similar:

- A report consisting of a socioeconomic and geographical study of the area under plan
- A development study taking into account the equilibrium between urban development and rural land
- The main phases of development, and its financial options
- Detail maps varying from 1/50,000 for the Plan Directeur and 1/500 for the Detail Plan

The only difference between the three plans is the level of detail required in the socioeconomic and geographical report, development study, and maps.

The documents needed to submit a site development application were fixed by decree in 1981, and the procedure changed by the "circulaire"¹ No. 13, April 3, 1991, of the Ministere de l'Equipement et de l'Habitat and of the Ministere de l'Interieur. Essentially the decree fixes the list and kind of documents necessary to put together a land development application. The "circulaire" No. 13 simplifies the existing administrative procedure. The site development applicant must provide:

- A demand on a legal form with notarized signature of the owner(s)
- A property title
- A plan of the lot to be developed and a plan of the property performed by a registered surveyor
- A report by the specialized services stating that the site could be serviced for potable water, sewers, and electricity
- A list specifying the rights and obligations of the site developer, the owners or renters, and the development and sanitation program (type of construction and architectural style, public areas, green and open space)

The site developer's obligations as to the viability and sanitation of the lot are also spelled out in this decree. The execution of potable water, sanitary sewer, electricity, and road network

¹ This "circulaire" exists only in Arabic.

Table 6.1
Main Tunisian Environmental Laws and Decrees

	Subject	Date	Law/Decree/Arrete #
Agencies			
AFH	Creation	April 14, 1973 January 21, 1974	Law No. 73-21 Decree No. 74-33
ANPE	Creation of ANPE Administrative & Financial Organisation of ANPE Experts' Statute of ANPE Impact Studies	August 2, 1988 November 30, 1992 October 18, 1988 February 8, 1993 December 25, 1990 March 13, 1991	Law No. 88-91 Law No. 92-115 Decree No. 88-1784 Decree No. 93-335 Decree No. 90-2273 Decree No. 91-362
ARRU	Creation of ARRU	August 1, 1981	Law No. 81-69
MEAT	Attributions	February 1, 1993	Law No. 93-303
ONAS	Hook-up Conditions Effluent Tunisian Norms Wastewater Tariffs Attributions	September 8, 1979 January 2, 1985 July 20, 1989 December 15, 1992 April 19, 1993	Decree No. 79-768 Decree No. 85-56 Arrete of the Ministry of Economy Arrete des Ministeres des Finances et du MEAT Law No. 93-41
Environmental Protection			
	Forestry Code		Law in 1966 Revised in 1988
	Water Code	March 31, 1975 July 6, 1981 August 2, 1988	Law No. 75-16 Law No. 87-35 Law No. 88-94
	Used Oils	October 16, 1982 July 18, 1983	Decree No. 82-1355 Arrete of the Ministry of Economy
	Agricultural Land Protection Quarry Exploitation	November 11, 1983 February 22, 1989 May 31, 1990	Law No. 83-87 Law No. 89-20 Arrete of the Ministry of Economy
	Labor Code Hazardous Industries Building Permit Land Use Permit	April 30, 1966 March 28, 1968 February 4, 1976 December 22, 1981 April 3, 1991	Law No. 66-27, Chapter 6, Articles 293 ... Decree No. 68-68 Law No. 76-34 Decree No. 81-1817 Circulaire no. 13, Ministere de l'Equipement et de l'Habitat and Ministere de l'Interieur
	Shelters Archeologic Sites Zoning Plan, General Zoning Plan, City (PA) Zoning Plan, Detail (PAD) Annual Tax on Hazardous Industries	April 12, 1986 May 9, 1986 May 28, 1990 December 31, 1990 June 18, 1991	Decree No. 86-438 Law No. 86-35 Decree No. 80-732 Decree No. 80-733 Decree No. 80-734 Law No. 80-111, Article 56 Decree No. 91-861

and their hook-up to existing networks are the developer's responsibility.

The building permit regulation was the object of a law in 1976. This law fixes the content of the application and the administrative procedure to follow in order to secure a building permit. The building application consists of:

- A demand on a legal form with signature of applicant(s)
- A property title
- A project of the construction established by a registered architect except if the building permit application is for an individual house less than 80 m² or an extension of an existing house whose total surface remains under 100 m².

The project of the construction includes a plan of the project and of the adjacent buildings, the type of used water evacuation, and the opening and ventilation of the building.

Both procedures--building permit and site development permit--are presented in Section 6.2.

The important environmental impact studies regulation was also promulgated under a decree in 1991, but there are not yet any implementation decrees. This decree specifies that an environmental impact study is mandatory for a list of projects named in the Annex 1 while the projects listed in the Annex 2 necessitate only a short description listing the potential environmental impacts and describing the projected measures to mitigate these impacts. However, projects not covered by the annexes 1 and 2 may have to follow the procedure specified in Annex 2, if the authority delivering the permit judges it necessary.

Annex 1 includes projects such as hazardous and dangerous establishments, oil and gas refineries, cement and chemical plants, steel and non-metal production units, oil and gas extraction, paper and cellulose mills, leather processing plants, railroad, highway, and airport construction, commercial harbors, industrial, urban, and tourist zone development, canal and dam construction, and wastewater treatment plants.

Annex 2 lists units requiring only a short description of the potential environmental impacts and the mitigating measures taken. This list includes specific units in agriculture; extractive industries; energy and metal industries; glass and chemical industries; food, wood and textile industries; and specific infrastructure projects.

The ANPE has to approve the environmental impact study before any other administrative permits. Some PPES programs fall under Annex 1 requirements.

6.1.2.3 Conclusion. Considering the existing laws and regulations, what is found lacking to make this set of laws and regulations coherent is mostly the "decrets d'application" which define and further specify further the articles of the main laws or decrees.

6.2 REVIEW PROCEDURES

This section presents the administrative procedures for land development and building permits which are common to all the agencies including those implementing PPES. This section also presents the articles of Decree No. 91-362 on environmental impact studies and the criteria for site selection by ONAS, ARRU, and AFH.

6.2.1 Administrative Procedure for Land Development

The developer submits an application for a land development permit to the relevant municipality. The municipality determines if all the required documents (specified in the Decree No. 81-1817) are present. The file is transmitted directly to the Commission Regionale de Lotissements. This commission compares the project plans with the land use of the city and verifies compliance with various other regulations. If found acceptable, the project plans are reviewed by SONEDE, ONAS, and STEG. If all agencies approve of the project plans, final approval (accord definitif) is given to the developer. This allows the project proponent to proceed with site development.

Once the development is finished, the "recollement" occurs. Essentially this is the reception of the jobs by ONAS, SONEDE, and STEG. In case of acceptance, the precedent agencies assure the maintenance and operation of the various networks.

This procedure varies slightly depending on whether the site to be developed is within a municipality and whether the municipality or rural area has a land use plan. If the site is outside a municipality and/or has no land use plan, the application is transmitted to the delegation of the governorate which processes the file and transmits it to CRL for final approval.

6.2.2 Administrative Procedure for Building Permit Application

The administrative procedure for building permit applications is similar to the land development application process although there are more steps to follow. To obtain a building permit from a municipality that has technical services and a land use plan, an application is submitted to the municipality. Technical staff reviews the file for completeness. If the file is complete, it is transmitted to the Commission Communale de Lotissements and the Direction Regionale de l'Equipement et de l'Habitat. Copies are also sent to ONAS, STEG, and SONEDE. These reviewing agencies approve or reject the application.

To obtain a building permit from a municipality that has no technical services but does have a land use plan, the application is submitted directly to CRL, which processes the application as described above.

To obtain a building permit from a municipality with or without technical services but without a land use plan or with a plan that is not yet approved, the municipality sends the application to the Direction Regionale de l'Equipement et de l'Habitat (DREH) which is the regional branch of the Ministere de l'Equipement et l'Habitat. After review and preliminary approval, the application is sent to CRL for final review.

To obtain a building permit outside a municipality, the application is sent by the Delegation of the Governorate to the DREH for initial review. The application is then sent to the CRL for final review.

Apparently this procedure has to be followed twice: once for Accord de Principe and again for the Accord Definitif.² The intent of this double procedure is to minimize the applicant initial costs, since the Accord de Principe necessitates a less detailed technical file than the Accord Definitif.

After construction is finished, ONAS, SONEDE, and STEG do inspections, as needed.

6.2.3 Environmental Impact Studies: Decree No. 91-362, March 13, 1991

The Decree on Environmental Studies in Tunisia is relatively recent (promulgated in 1991). However, several legal texts paved the way to the 1991 decree. Law No. 83-87, November 11, 1983, on the protection of agricultural land, mandates a technical description of the project and its potential implications for water, soil, and air for any projects that request a land use change from agricultural use to industrial, urban, or tourist use. The Decree No. 85-86, January 2, 1985, regulating effluents in the environment, implicitly authorizes discharge only after the effluent characteristics are known and follow the norms established by this decree. The Laws No. 88-20 and No. 89-20, concerning respectively forest protection and quarry exploitation, request an impact study as well before any authorization is given to a development project near a forest or initiation of a quarry's exploitation.

However, the precedent texts have only a punctual and precise sectorial impact. It is only with the law creating the Agence National de Protection de l'Environnement in August 1988 that the notion of impact studies is expanded to all the projects--industrial, agricultural, and commercial--that might negatively impact the environment. The Decree No. 91-362, March 13, 1991 specifies the conditions under which industrial, commercial, and agricultural activities must present an impact study to ANPE before any other administrative permits.

This decree lists the information necessary to do an environmental impact study. It also defines for what types of activities an impact study is mandatory and provides general procedures. The entire decree is presented in Appendix C.

Content of an Impact Study as described by Article 9:

1. Detailed description of the project;
2. Site analysis and its natural and socioeconomic surroundings with an emphasis on the possible impact of the project on natural resources;

² This description relies heavily on "Etude de la Reforme de la Pratique des Lotissements," August 1990. It is possible that the procedure has been simplified since then, as the procedure for the land development permit was. However this information was not available at the time this report was prepared.

3. Direct and indirect analysis of the project's impacts on the environment, including countryside, resources, and natural environment, biological equilibrium; human environment, hygiene, and public sanitation, noise, odors, light;
4. Project's technical reasons and adopted means to protect the environment;
5. Mitigation measures proposed by the owner to eliminate, reduce, and if possible compensate for the project's negative effects on the environment, and estimation of the cost of these measures.

ANPE can specify the level of detail required for an impact study, based on the type of proposed activity. The project proponent bears the cost of preparing the impact study.

Mandatory Impact Study

Urban development projects are listed in the decree as one type of project for which an impact study is mandatory. The programs that may be funded by PPES propose to do urban development projects that involve construction activities.

For large urban projects, such as lot developments or rehabilitation and restructuring of entire neighborhoods, a detailed impact must be prepared. For projects involving, for example, the installation and connection of sewer lines, a less exhaustive impact study is required.

Administrative Procedures

Three copies of the environmental impact studies are transmitted to ANPE, and one copy to each ministry with authority over the realization of the project. ANPE's review of the impact studies occurs prior to any other administrative authorizations necessary to realize the project.

ANPE has three months to review the impact study and notify the project owner of its decision. If the period passes without a ANP making a decision, the project is considered acceptable by default.

Penalty

ANPE has authority to issue penalties if the mitigation measures agreed to in the impact study are not implemented.

Review Process

ANPE reviews the impact studies which are submitted to it. ANP's review process may involve several persons because no one is expert in all technical areas. A dialogue is initiated between ANPE and the applicant. The applicant proposes mitigation measures for the problematic areas identified by ANPE. The owner signs a consent agreement stating that the project will adhere to the plans reviewed by ANPE and the mitigation measures approved by ANPE.

ANPE seems to have absolute power of veto on environmental grounds. It also appears that the public has no recourse mechanism and that ANPE's decision is final.

6.2.4 Implementing Agencies' Site Selection Criteria

Three agencies have implemented criteria to choose sites that might fall into their overall program. The following presents these criteria.

ONAS has established criteria for site selection, including the following:

- Sites outside an existing land use plan are eliminated
- Spontaneous habitats that have ownership problems and need an integrated intervention (larger than sanitation problems) are eliminated
- Sites where the income level is low are selected
- Sites where the sewer network has problems or where there is a sanitation problem are selected
- Sites are eliminated if the projected network will have a negative impact on other sites
- Sites where the sanitation project is too expensive for the resources of the program are eliminated
- If there are neither potable water nor wastewater problems (the amount of used water is minimal), the sites are eliminated
- Sites are eliminated if the cost of sewer provision is above a specified threshold

ARRU has established a complex method for site selection that takes into account:

- The infrastructure: water, sewer, electricity, drainage, asphalt roads
- Location vis-a-vis the city center
- Ownership status
- Housing growth and green space
- City growth
- Buildings status
- Occupation rate
- Socioeconomic infrastructure: schools, dispensaries, libraries, etc.
- Socioeconomic status of the site
- Existence of physical risks: electrical wires, flooded sites, industrial emissions, etc.

AFH continuously buys lands in advance for future development. The properties are situated in cities that have a land use plan. The specific site selection for the "Trames Assainies" Program is not specified. The beneficiaries must earn less than twice the SMIG (for 40 hours a week, the Salaire Minimum Industriel Garanté--Industrial Guaranteed Minimum

Wage--is T 124 a month, and for 48 hours a week, the SMIG is T 148 a month) and have savings of at least T 650. AFH requires a down payment of 20 percent of the loan. The financing bank is the Banque de l'Habitat.

6.3 CAPABILITY TO PERFORM ENVIRONMENTAL ASSESSMENT

The government of Tunisia is capable of ensuring that the proposed PPES programs will have no adverse impact on the environment. Elimination of environmentally unsound projects can happen at three stages:

- During site selection by the program agency (ONAS, ARRU, and AFH)
- During review of the impact study by ANP
- During the building permit application process by CRL

The weaknesses and strengths of the environmental review process are outlined below.

6.3.1 Weaknesses

The following weaknesses do not impede the review process of the proposed PPES programs.

Laws

The Tunisian government lacks regulations that specify:

- Sating criteria
- Setback requirements
- Air standards for emission and ambient air quality
- Groundwater protection standards
- Surface water quality standards
- Performance standards

The implementing decrees should be promulgated without delay to fill the holes in the legislation.

Procedure

The lack of formal reviewing procedures is not important in the present context since the implementing agencies for PPES are well aware of the Tunisian government's requirements in environmental matters. Nevertheless, it should be addressed and implementation decrees published.³

Education and Training

Academic programs in environmental studies do not exist yet in Tunisia. Environmental professionals and ANPE employees have to go abroad to be properly trained, which is

³ This should be part of an overhaul of Tunisia's environmental laws and regulations. Technical assistance should be welcome here to accelerate the process.

expensive.⁴

Guidelines

The lack of internal ANPE guidelines to assess environmental impact studies in a systematic manner is a weakness as well.⁵

6.3.2 Strengths

The Tunisian government has over the years tightened its environmental regulations by promulgating a series of laws and decrees:

- Forestry Code, 1966, revised in 1988
- Water Code, 1975, being revised
- Building permit procedure, 1976
- Urban Code, 1979
- Land use permit procedure, 1981
- Law on agricultural land protection, 1983
- Decree on effluents, 1985
- Tunisian norms on water, 1989
- Decrees on zoning plans, 1990
- Decree defining the environmental impact studies, 1991.

Decree No 91-362

The Decree No. 91-362 defining the environmental impact studies is wide and vague enough to allow ANPE to have unlimited power over environmental matters. This power appears overwhelming and might need delineation through implementing decrees.

Mandatory Review by ANPE

Decree No. 91-362 gives ANPE sole reviewing power for environmental impact studies.

Authority

As mentioned above, ANPE has unlimited power over environmental matters and has exercised its denial authority on several occasions.

ANPE Staff

Although the ANPE staff is small in number (54 overall), they are enthusiastic and well trained in their field. Staff strength may be sufficient now, since enforcement of this decree has just begun. It will not be sufficient in a few months when impact studies start to overwhelm the staff. To keep the ANPE staff small and its administration flexible, it is

⁴ Other international donor technical assistance here is welcome. There is preliminary talk of establishing in Tunisia a technology transfer center for the Near East and Africa. This center might include an environmental training center to serve public and private needs.

⁵ Other international donor technical assistance is welcome here as well.

recommended that qualified private firms be contracted to review the impact studies.

Agencies' Awareness

All the agencies contacted are well aware of the environmental problems and seem to think that environmental control is needed.

ONAS

Tunisia has 25 wastewater treatment plants. This number will increase by 40 or so at the end of the VIIIth Plan.

NGOs, Public Awareness, and Private Sector

A growing number of nongovernment organizations are working toward environmental awareness by conducting environmental education programs in schools and public campaigns on environmental matters. In addition, four or five private Tunisian companies have entered the environmental field (SIDES, COMETE Engineering, Audit Environnemental).

7.0 PROGRAM MONITORING PLAN

It is incumbent on USAID to ensure that environmental impacts of projects supported by PPES are consistently minimized throughout the term of the loan program. GOT has a legal requirement for all urban development projects to obtain approval from ANPE by submitting an impact study and signing an agreement on the required conditions of the project before any other administrative authorization, as explained in Chapter 6.0. This approval procedure thus generates (at least) one consent agreement document for each project. In addition, inspection records created by ONAS, SONEDE, and STEG would be generated on projects where private firms do the work.

As part of each program's annual reporting process under PPES, copies of these consent agreements and inspection records would be available for USAID review. Two to four representative projects would be selected from each program. The corresponding impact studies, inspection reports, and any intermediate correspondence for these selected projects would be obtained from ANPE and other agencies.

A Tunisian professional who is familiar with public works and development projects, understands the types of mitigative measures that may be applied to housing projects in an urban environment, and is not employed by a government agency or any design or construction firm involved in PPES-supported projects would review the impact studies and corresponding consent agreements. This professional would visit each selected site to verify whether the required mitigation measures as stated in the impact study and consent agreement have been applied. The conclusions from these inspections would be documented in a detailed report to USAID. An estimated 40 to 60 hours plus travel time would be required to perform the monitoring inspections and prepare the report.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 SUMMARY OF FINDINGS

Implementation of existing legal requirements for environmental review and approval of urban development projects can ensure that potential adverse impacts of projects receiving PPES support are minimized. Potential impacts would be recognized and controlled in the areas of predetermined land use (e.g., loss of agricultural land), siting in areas of inherent hazards, surface water and groundwater contamination, runoff control, vegetative cover, shoreline degradation, encroachment on archeological or historic sites, transportation considerations, solid waste management, and capacity of basic services such as sewage treatment and potable water supply.

The government is well aware of the environmental problems that threaten Tunisia's natural resources, ecological balance, quality of urban and rural life, and long-term economic growth. In 1988, the Agence Nationale de Protection de l'Environnement was created to begin addressing these problems. In 1990, ANPE formulated a Program of National Action in Favor of the Environment (Ref. 8), which lays out projects on a regional basis and within each major environmental sector (e.g., sewage treatment, soil conservation, industrial pollution). In 1991, the Ministere de l'Environnement et de l'Amenagement du Territoire was formed, to give more prominence to environmental issues and authority to develop the laws and regulations needed for environmental protection.

In 1991, the Prime Minister issued a regulation that is critical to ensuring environmentally protective activities within PPES projects. This regulation requires that a project applicant prepare an impact study for review by ANPE. ANPE has the authority to approve or disapprove the project and to require the applicant to include mitigation measures. ANPE may levy penalties for failure to comply.

ANPE has staff who are adequately trained to review impact studies for the types of projects that PPES would support. ANPE may need to supplement its personnel to handle the volume of projects that may be proposed over the term of the PPES program, and to perform compliance inspections. This might be done through contracts with private Tunisian consulting firms. Other areas that could be improved include developing detailed guidance for impact study preparation and review, and promulgating regulations specifying siting criteria, setback requirements, resource standards, performance standards, and other specific parameters. Probably the most serious constraint facing the government at this time is the lack of personnel trained in environmental sciences, environmental planning, and environmental engineering. No such training is currently available in the country, and sending staff to Europe or the U.S. for training is costly.

As private enterprises increase their involvement in housing project construction, the importance of ensuring quality control by the responsible government agency also increases. An increasing volume of inspections would have to be performed at job sites during and after construction to ensure that equipment and connections are being properly installed to minimize future repairs and rehabilitation of the services. These inspections could be

performed by qualified private firms that have been approved by ONAS, SONEDE, or STEG for their expertise in the respective service networks.

8.2 RECOMMENDATIONS

To ensure that projects receiving PPES budget support are environmentally sound, it would be necessary for the Tunisian government to continue implementing existing regulations and procedures. An impact study must be prepared for ANP review for each project or for groups of related projects. Each project plan must have ANPE approval before proceeding and appropriate mitigation measures must be implemented.

Post-construction inspections would continue to be required by the public utilities (ONAS, SONEDE, and STEG) to ensure that equipment and services have been properly installed. The cost of these inspections would be anticipated in the GOT program estimates.

To further improve the Tunisian government's ability to adequately review PPES projects and to enhance the existing GOT environmental protection capacity, the following activities are recommended:

- Develop a detailed guidance manual for environmental review
- Develop specific urban environmental regulations (e.g., air quality standards, siting criteria, setback requirements, landfill construction and operation standards, green space provisions, etc.)
- Train ANPE personnel and private consultants in urban environmental issues, environmental planning, and environmental engineering

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APPENDIX A
LISTS OF PROPOSED SITES BY PROGRAM

ON.S

REF/PROGNAT.QP (49)N

**PROGRAMME NATIONAL DE REHABILITATION DES
QUARTIERS POPULAIRES**

ET

**PROGRAMME NATIONAL D'ASSAINISSEMENT DES
QUARTIERS POPULAIRES**

PREAMBULE

Le présent document présente la liste des quartiers concernés par le Programme National de Réhabilitation des Quartiers Populaires et le Programme National d'Assainissement des Quartiers Populaires.

161 communes sont concernées au moins par l'un des Programmes.

134 communes sont concernées par le Programme National de Réhabilitation des Quartiers Populaires.

112 communes sont concernées par le Programme National d'Assainissement des Quartiers Populaires.

Le coût total de ces 2 Programmes s'élève à 85,5 Millions de Dinars dont 72 Millions de Dinars sont programmés au cours du VIIIème plan (soit 46 Millions de Dinars pour le Programme National de Réhabilitation des Quartiers Populaires et 26 Millions de Dinars pour le Programme National d'Assainissement des Quartiers Populaires).

I . PROGRAMME NATIONAL D'ASSAINISSEMENT DES QUARTIERS POPULAIRES

Ce Programme interesse 214 quartiers répartis sur 112 communes et 23 Gouvernorats.

4.1 Coût du Programme

Le coût de ce Programme est évalué à 35 Millions de Dinars, dont 26 Millions de Dinars sont programmés au cours du VIIIème Plan.

4.2 Réalisation du Programme

La réalisation de ce Programme est prévu en deux tranches.

La première tranche comprend (117 + 7) quartiers et sera réalisée en deux phases. La première phase comprend (39 + 3) quartiers et sera réalisée entre 1992 et 1993. La deuxième phase comprend (78 + 4) quartiers et sera réalisée entre 1993 et 1994.

La deuxième tranche comprend 90 quartiers et sera réalisée entre 1995 et 1997.

4.3 Etat d'avancement du Programme

Les travaux relatifs à la première phase sont en cours de réalisation et les études d'exécution relatives à la 2 ème phase sont en cours.

II. PROGRAMME NATIONAL DE REHABILITATION DES QUARTIERS POPULAIRES

Ce Programme interesse 223 quartiers répartis sur 134 communes et 23 Gouvernorats.

§.1 Coût du Programme

Le coût de ce projet est évalué à 50,5 Millions de Dinars dont 46 Millions de Dinars seulement sont programmés au cours du VIIIème plan.

L'enveloppe de 46 Millions de Dinars permettra la réhabilitation d'uniquement 182 quartiers.

Faute de crédits supplémentaires, les autres quartiers (soit 41 concernés également par la 2ème tranche du Programme National d'Assainissement des Quartiers Populaires) concernés par ce Programme seraient réhabilités au cours du IX Plan.

§.2 Réalisation du Programme

La réalisation de ce Programme est prévue en deux tranches.

La première tranche en deux phases et intéressant 104 quartiers sera réalisée entre 1993-1995.

La deuxième tranche intéressant 119 quartiers sera entièrement réalisée entre 1994-1996 en cas de disponibilité des fonds nécessaires.

§.3 Etat d'avancement du Programme

L'appel d'offres pour les études des quartiers de la première tranche a été lancé le 20/08/1992.

**PROGRAMME NATIONAL DE REHABILITATION DES QUARTIERS POPULAIRES
ET
PROGRAMME NATIONAL D'ASSAINISSEMENT DES QUARTIERS POPULAIRES**

TABEAU RECAPITULATIF

GOUVERNORATS	NOMBRE DE COMMUNES	QUARTIERS RETENUS DANS LE PROGRAMME NATIONAL DE REHABILITATION DES QUARTIERS POPULAIRES					QUARTIERS RETENUS DANS LE 2eme PROJET D'ASSAINISSEMENT DES QUARTIERS POPULAIRES					COUT TOTAL DU PROJET EN MDT
		1ere TRANCHE		2eme TRANCHE (94 - 96)	NOMBRE DE LOGEMENTS	COUT DU PROJET EN MDT	1ere TRANCHE		2eme TRANCHE (95 - 97)	NOMBRE DE LOGEMENTS	COUT DU PROJET EN MDT	
		1ere PHASE (93 - 94)	2eme PHASE (93 - 95)				1ere PHASE (92 - 93)	2eme PHASE (93 - 94)				
TUNIS	5	4	3	15	15.168	9.188	2	8	3	2.006	1.172,8	10.360,8
ARIANA	7	1	2	13	8.851	4.510	2	10	16	12.009	7.838,2	12.348,2
BEN AROUS	6	2	1	1	1.715	1.283	2	2	1	1.472	822,4	2.105,4
NABEUL	18	1	7	9	4.657	3.023	3	8	12	3.446	2.901,4	5.924,4
ZAGHOUAN	4	1	1	1	1.021	621	2	0	1	340	288,5	909,5
BIZERTE	10	2	6	13	4.301	3.242	2	12	7	2.049	1.418,6	4.660,6
BEJA	5	1	3	9	3.797	1.684	3	2	5	1.134	697,2	2.381,2
JENDOUBA	6	0	2	6	2.183	1.263	2	2	7	2.400	1.454,4	2.717,4
KEF	6	2	2	3	1.642	1.285	0	2	2	325	367,9	1.652,9
SILIANA	8	3	6	5	3.662	2.227	1	2	0	575	477,0	2.704,0
KAIROUAN	5	1	2	4	2.782	1.176	1	1	3	941	580,1	1.756,1
KASSERINE	7	2	3	3	7.672	2.390	4	3	1	5.421	2.491,8	4.891,8
SIDI BOUZID	3	2	1	0	1.323	956	0	1	0	450	385,6	1.341,6
SOUSSE	13	4	4	11	9.847	4.437	6	6	6	3.945	2.826,5	7.263,5
MONASTIR	19	2	4	9	5.649	2.694	3	9	9	5.238	3.516,6	6.210,6
MAHDIA	6	1	2	6	4.380	2.174	0	3	6	3.295	2.303,9	4.477,9
SFAX	8	3	2	4	1.634	1.103	3	1	2	940	955,5	2.058,5
GAFSA	8	1	8	0	5.027	2.255	1	3	2	1.848	1.469,0	3.724,0
TOZEUR	3	0	0	3	1.060	747	2	0	4	1.218	874,4	1.621,4
KEBILI	4	1	3	0	2.379	764	1	1	1	547	474,7	1.238,7
GABES	3	1	0	1	1.400	603	1	1	0	700	532,9	1.135,9
MEDEJINE	5	3	2	3	3.412	2.504	0	1	2	370	489,8	2.993,8
TATAOUINE	2	1	1	0	2.020	432	1	0	0	800	660,8	1.092,8
TOTAL GENERAL	161	39	65	119	94.582	50.561	42	82	90	51.469	35.000	85.561,0

VILLAGES	COMMUNES	LISTE DES QUARTIERS RETENUS DANS LE PROGRAMME NATIONAL DE REHABILITATION DES QUARTIERS POPULAIRES					LISTE DES QUARTIERS RETENUS DANS LE 2eme PROJET D'ASSAINISSEMENT DES QUARTIERS POPULAIRES				
		1ere TRANCHE		2eme TRANCHE	NOMBRE DE LOGEMENTS	COUT DU PROJET EN MDT	1ere TRANCHE		2eme TRANCHE	NOMBRE DE LOGEMENTS	COUT DU PROJET EN MDT
		1ere PHASE (93 - 94)	2eme PHASE (93 - 95)	(94 - 96)			1ere PHASE (92 - 93)	2eme PHASE (93 - 94)	(95 - 97)		
AMR	ARIANA		Hannoutra I & II		920	378,0		Hannoutra I & II		920	380,6
				Darouiche	160	106,0		El Anel	100	79,4	
				Dar Fadhel I & II	450	148,0		Darouiche	160	125,1	
				Ezzabani	120	78,0		Dar Fadhel I & II	450	512,3	
				Enmassine	585	263,0		Sidi Soufiane	800	429,8	
								Sante et Ezzabani	150	155,8	
								Enmassine	394	449,9	
								Arab Deji	106	77,6	
								Cite la Mosquee	80	87,8	
										500	165,2
	ETTRACHANEN				El Bjaoui 1	100	197,0	Cite Mogra		1500	852,8
					El Bjaoui 2	400		Enmass		1100	536,8
								2 Mars & 18 Janvier		400	211,3
								Avenue 7 Novembre		430	236,5
								Donar Micher		200	173,5
								Cite Bouchoucha		500	369,7
								Cite de la liberte		50	54,5
								Ali Zouaoui		40	39,8
								El Frachiche		300	203,4
								El Mouda		170	80,3
							Lyce		500	508,7	
							Gaaloui		250	265,4	
			El Bassatine			2150	1.351,0				
				Arab & Abdallah	800	283,0					
				Essalana	650	703,0					
OUID ELLE				Cite El Ward	500	164,0	Cite la Mosquee		66	55,7	
				Cite El Gobbaa	700	230,0			450	263,9	
				Sakhaja	800	263,0			700	357,1	
									840	594,8	
									320	223,8	
KALAAT ANDALOUS SIDI THABET HAKOURA YEROUNGA				Cite des Martyrs	136	96,0	Cite Hozia		68	29,3	
				El Madaleh	150	99,0	El Malaah		55	19,9	
				Saida Hanoubia	75	49,0	Cite des Martyrs		136	121,4	
					155	102,0			150	81,5	
		Errissal						132	118,7		
ARIANA	7	1	2	13	8851	4.510,0	2	14	16	12009	7.838,2

PILONNATS	COMMUNES	PROGRAMME NATIONAL DE REHABILITATION DES QUARTIERS POPULAIRES				QUARTIERS RETENUS DANS LA Zone PROJET D'ASSAINISSEMENT DES QUARTIERS POPULAIRES					
		1ere TRANCHE		2eme TRANCHE	NOMBRE DE LOGEMENTS	COUT DU PROJET EN MDJ	1ere TRANCHE		2eme TRANCHE	NOMBRE DE LOGEMENTS	COUT DU PROJET EN MDJ
		1ere PHASE (93 - 94)	2eme PHASE (93 - 95)	(94 - 96)			1ere PHASE (92 - 93)	2eme PHASE (93 - 94)	(95 - 97)		
AROUS	BEN AROUS										
	BORJAC			Bir Eszenoua	135	96.0	Emmassia 1 & 2			206	118.9
	N'KANDIA	Cite Essaada			1200	665.0	Cite Essaada		Bir Eszenoua	700	400.1
	BORJ BOUJA									200	198.9
	MARJAM LIF	Oued Trabelsia			300	457.0				66	69.1
	BEZMARA		Loelija		80	65.0				300	35.4
TOT AROUS	6	2	1	1	1715	1.283.0	2	2	1	1472	822.4

COMMUNALITE	COMUNE	QUARTIER	SURFACE		EVALUATION PAR COMPOSANTE EN DDT (1)				COUT TOTAL	FINANCEMENT	CONTENU	CAPACITE	PIC
			EN HA	EN LOTS	ASSAINIS	VOIRIES	E.POT	E.PUD					
STANIS	LA BOULETTE	EL BALJA	0	320	403	373	0	0	378	213	343	0	1120
STANIS	CAITHANE	INDOUMED ALI	13	270	0	177	0	0	177	33	124	0	700
STANIS	CAITHANE	YARJIM	26	230	0	152	0	0	152	46	106	0	700
STANIS	CAITHANE	FEL MAMOURA 1&2	43	920	0	344	31	23	370	113	253	743	5300
STANIS	CAITHANE	VERDINE	3	153	0	107	0	0	107	31	71	346	400
STANIS	CAITHANE	LOULJA	2	80	0	33	6	6	65	20	96	1372	1100
STANIS	CAITHANE	IBTI AMR	4	393	0	239	0	20	279	86	193	1699	2900
STANIS	CAITHANE	SETHMER 1 ET 2	4	123	102	87	9	0	193	58	135	486	800
STANIS	CAITHANE	LANOUACH	5	100	0	87	31	6	146	44	102	304	1300
STANIS	CAITHANE	CEITE JARDIN	0	163	0	109	0	0	109	33	76	421	910
STANIS	CAITHANE	100 LA LIMITE	10	306	210	119	0	0	329	107	140	230	130
STANIS	CAITHANE	CEITE POPULAIRE	0	300	0	197	16	14	227	60	139	72	130
STANIS	CAITHANE	CEITE POPULAIRE	3	169	73	59	0	0	134	40	94	31	130
STANIS	CAITHANE	CEITE POPULAIRE	0	70	0	43	0	4	49	15	34	444	435
STANIS	CAITHANE	CEITE POPULAIRE	0	0	134	192	0	13	329	100	231	2363	2600
STANIS	CAITHANE	CEITE POPULAIRE	0	0	0	30	0	4	62	19	63	397	300
STANIS	CAITHANE	CEITE POPULAIRE	2	90	0	50	0	12	163	49	114	114	1330
STANIS	CAITHANE	CEITE POPULAIRE	0	232	0	152	0	0	152	49	114	114	1330
STANIS	CAITHANE	CEITE POPULAIRE	2	69	0	46	0	4	50	15	35	134	1350
STANIS	CAITHANE	CEITE POPULAIRE	4	100	0	66	0	0	74	22	32	134	1350
STANIS	CAITHANE	CEITE POPULAIRE	9	30	64	32	0	5	123	37	84	359	300
STANIS	CAITHANE	CEITE POPULAIRE	3	90	0	63	5	4	72	22	30	1319	1350
STANIS	CAITHANE	CEITE POPULAIRE	30	400	132	132	0	6	290	87	203	204	900
STANIS	CAITHANE	CEITE POPULAIRE	3	800	40	263	0	5	314	94	220	215	400
STANIS	CAITHANE	CEITE POPULAIRE	2	71	40	81	4	4	129	39	90	830	2250
STANIS	CAITHANE	CEITE POPULAIRE	0	136	0	91	0	6	113	34	77	719	1000
STANIS	CAITHANE	CEITE POPULAIRE	0	307	0	193	20	19	214	70	164	204	400
STANIS	CAITHANE	CEITE POPULAIRE	30	400	82	64	0	6	134	46	100	170	130
STANIS	CAITHANE	CEITE POPULAIRE	0	85	0	56	0	3	61	18	63	209	300
STANIS	CAITHANE	CEITE POPULAIRE	0	490	0	134	0	0	134	60	74	209	300
STANIS	CAITHANE	CEITE POPULAIRE	0	40	0	39	46	9	143	43	100	186	300
STANIS	CAITHANE	CEITE POPULAIRE	0	350	0	230	0	0	230	69	161	263	640
STANIS	CAITHANE	CEITE POPULAIRE	4	85	70	38	0	3	135	29	92	89	310
STANIS	CAITHANE	CEITE POPULAIRE	0	170	97	39	0	0	138	47	97	63	200
STANIS	CAITHANE	CEITE POPULAIRE	0	434	0	143	0	0	143	43	100	200	610
STANIS	CAITHANE	CEITE POPULAIRE	0	436	0	148	0	11	159	48	112	334	370
STANIS	CAITHANE	CEITE POPULAIRE	33	1000	0	164	74	19	239	70	161	1015	1300
STANIS	CAITHANE	CEITE POPULAIRE	0	874	0	287	32	43	362	109	253	1015	1300
STANIS	CAITHANE	CEITE POPULAIRE	30	350	123	100	0	0	243	73	170	29	243
STANIS	CAITHANE	CEITE POPULAIRE	23	800	0	130	29	13	200	60	140	211	330
STANIS	CAITHANE	CEITE POPULAIRE	0	432	104	91	0	6	263	41	142	166	300
STANIS	CAITHANE	CEITE POPULAIRE	3	45	42	47	6	6	121	36	85	370	330
STANIS	CAITHANE	CEITE POPULAIRE	3	150	123	29	0	6	164	50	116	199	340
STANIS	CAITHANE	CEITE POPULAIRE	30	70	0	82	0	19	101	30	71	90	320
STANIS	CAITHANE	CEITE POPULAIRE	6	126	0	33	0	4	39	18	41	312	300
STANIS	CAITHANE	CEITE POPULAIRE	2	130	0	78	0	0	106	32	74	62	270
STANIS	CAITHANE	CEITE POPULAIRE	30	483	0	100	0	13	113	34	79	34	150
STANIS	CAITHANE	CEITE POPULAIRE	0	300	13	164	45	13	235	71	145	270	490
STANIS	CAITHANE	CEITE POPULAIRE	0	300	0	87	27	25	134	40	94	73	230
STANIS	CAITHANE	CEITE POPULAIRE	35	94	0	62	0	6	68	20	40	180	190
STANIS	CAITHANE	CEITE POPULAIRE	2	40	29	39	0	4	72	22	30	123	340
STANIS	CAITHANE	CEITE POPULAIRE	35	1000	0	329	0	0	329	99	230	0	0
STANIS	CAITHANE	CEITE POPULAIRE	0	190	0	43	0	9	72	22	30	85	120
STANIS	CAITHANE	CEITE POPULAIRE	0	200	0	132	0	0	132	40	92	419	730
STANIS	CAITHANE	CEITE POPULAIRE	0	0	0	164	0	0	164	49	115	419	730
STANIS	CAITHANE	CEITE POPULAIRE	12	240	0	213	31	4	248	80	180	183	370
STANIS	CAITHANE	CEITE POPULAIRE	0	1427	82	66	25	0	173	52	121	137	320
STANIS	CAITHANE	CEITE POPULAIRE	13	230	102	82	0	0	184	55	129	92	240
STANIS	CAITHANE	CEITE POPULAIRE	20	320	160	83	0	13	206	62	144	117	330
STANIS	CAITHANE	CEITE POPULAIRE	0	374	0	115	0	9	124	37	87	192	290
STANIS	CAITHANE	CEITE POPULAIRE	0	90	0	120	0	0	120	36	84	329	145
STANIS	CAITHANE	CEITE POPULAIRE	0	764	0	151	0	0	159	48	111	306	310
STANIS	CAITHANE	CEITE POPULAIRE	30	630	304	215	0	30	537	167	390	1520	3270
STANIS	CAITHANE	CEITE POPULAIRE	25	420	172	130	0	6	316	95	221	437	990
STANIS	CAITHANE	CEITE POPULAIRE	30	670	0	110	22	6	130	41	97	102	370
TOTAL	21	39	65	442	22453	2796	6177	537	484	11074	3348	8326	

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BEST AVAILABLE COPY

PROGRAMME NATIONAL DE REHABILITATION
DES QUARTIERS POPULAIRES

ETAT RECAPITULATIF PAR TRANCHE & PAR PHASE

DATE: 31 OCTOBRE 1992

DESIGNATION		NOMBRE DE GOUVERNORATS	NOMBRE DE COMMUNES	NOMBRE DE QUARTIERS	NOMBRE DE LOGEMENTS	COUT TOTAL EN M D T
PREMIERE TRANCHE	IERE PHASE	21	37	39	29119	17514
	2EME PHASE	21	59	65	22453	11894
SOUS TOTAL		22	96	104	51572	29408
DEUXIEME TRANCHE		19	64	119	43010	21155
TOTAL GENERAL		23	134 (2)	223	94582	50563

(1) Y COMPRIS FRAIS D'ETUDES & DE GESTION (15%); IMPREVUS (10%)

(2) 26 COMMUNES SONT CONCERNEES PAR LA 1ERE & LA 2EME TRANCHE

MONTAGE FINANCIER

DATE: OCTOBRE 1992

TABLERAU N 2

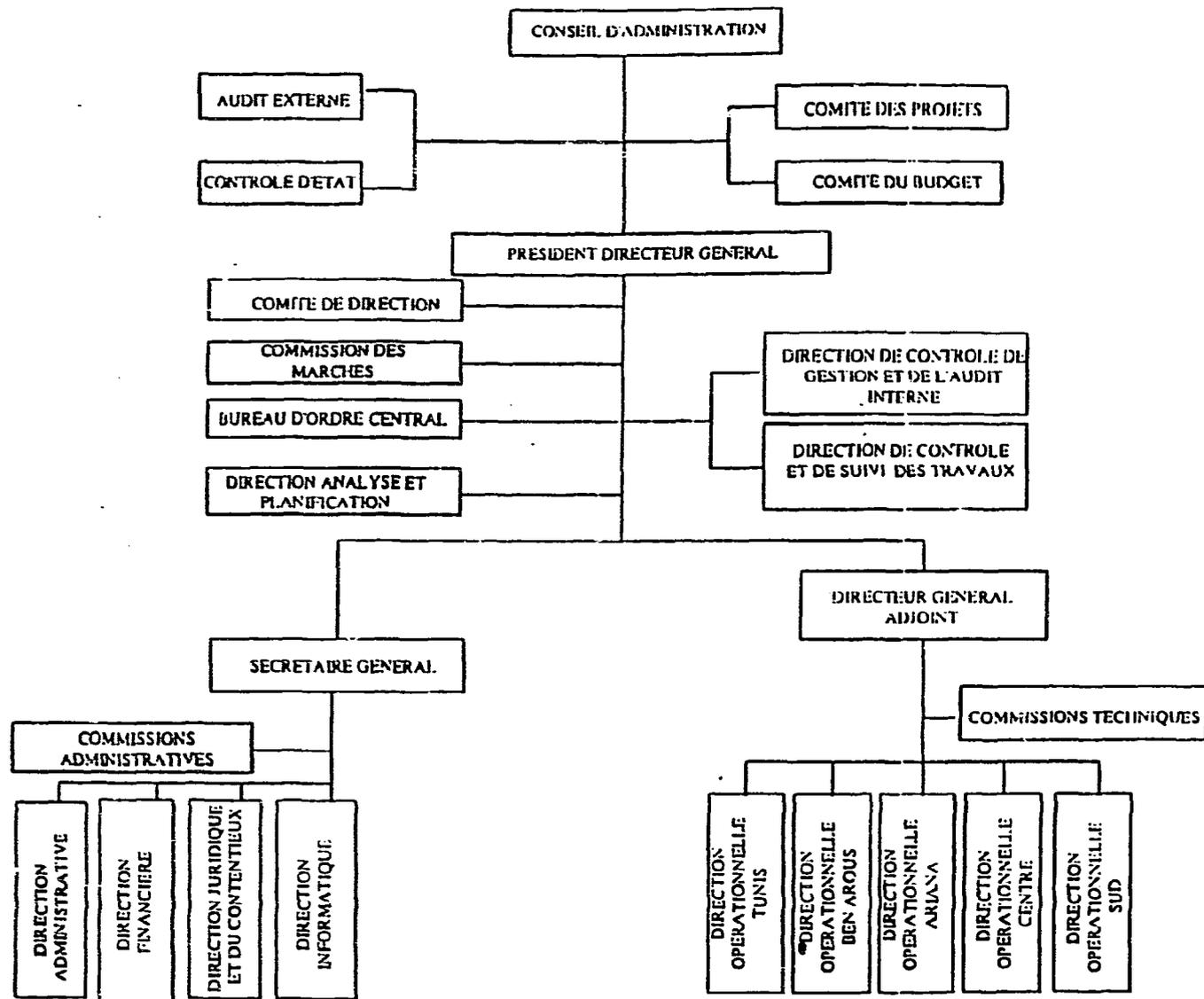
DESIGNATION	COUT TOTAL PREVISIONNEL	SURVENTION	EMPRUNT MUNICIPAL	AUTOFINAN- COMMUNAL
IERE TRANCHE	29408	20586	5881	2941
2EME TRANCHE	21155	14806	4231	2116
TOTAL	50563	35394	10112	5057

GOUVERNORAT	COMMUNE	QUARTIER	SURFACE EN HA	N° DE LOUITS	EVALUATION PAR COMPOSANTE (EN DT 11)			COUT TOTAL EN DT	FINANCE- MENT ANNUAL	CONDI- TION ETAT	CAPACITE D'AMBITON EN DT	PIC IMBAS EN DT	
					ASSAINIS	VOLERIER	L.PU						
TUNIS	TUNIS	MAJAR HORJI	0	2000	0	316	0	0	316	95	221	0	2400
TUNIS	TUNIS	KARJOUNA	0	2200	0	327	0	0	327	30	89	0	2400
TUNIS	TUNIS	KANTATE KHASSIR	0	1200	0	305	0	0	305	119	277	0	2400
TUNIS	TUNIS	JEBEL KHARROUBA	0	500	0	164	0	0	164	40	115	0	2400
TUNIS	TUNIS	KITTOUH EL	0	700	0	152	0	0	152	40	92	0	2400
TUNIS	TUNIS		0	300	0	219	0	0	219	99	270	0	2400
TUNIS	TUNIS		0	400	0	253	0	0	253	75	184	0	2400
TUNIS	TUNIS	MAJLA	0	300	222	102	0	0	222	07	130	0	2400
TUNIS	TUNIS	EL HADJ PATRALLAH	0	600	197	155	0	0	352	101	253	0	2400
TUNIS	TUNIS	EL HADJ CHEDDI KHARROUBA	0	700	0	209	0	0	209	111	250	0	2400
TUNIS	TUNIS	CAMPUS RED ALI	0	800	0	95	0	0	95	29	17	0	2400
TUNIS	TUNIS	EL HADJ KHARROUBA	0	800	244	200	0	0	444	109	440	0	2400
TUNIS	TUNIS	EL HADJ	0	0	1090	2022	0	0	2910	073	2022	0	2400
TUNIS	TUNIS	EL HADJ	0	60	0	40	0	0	40	16	36	0	3320
TUNIS	TUNIS	EL HADJ	0	60	0	40	0	0	40	16	36	0	3320
TUNIS	TUNIS	EL HADJ	0	60	0	40	0	0	40	16	36	0	3320
ARTANA	ARTANA	EL HADJ	0	100	0	101	0	0	101	32	71	7043	3300
ARTANA	ARTANA	EL HADJ	0	505	0	263	0	0	263	79	184	7043	3300
ARTANA	ARTANA	EL HADJ	0	120	0	70	0	0	70	23	53	7043	3300
ARTANA	ARTANA	EL HADJ	0	430	0	140	0	0	140	44	104	7043	3300
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ARTANA	ARTANA	EL HADJ	0	150	0	99	0	0	99	30	81	117	175
ARTANA	ARTANA	EL HADJ	0	75	0	49	0	0	49	15	34	374	620
ARTANA	ARTANA	EL HADJ	0	700	0	230	0	0	230	69	161	234	550
ARTANA	ARTANA	EL HADJ	0	500	0	164	0	0	164	49	115	234	550
ARTANA	ARTANA	EL HADJ	0	600	0	213	0	0	213	79	184	234	550
ARTANA	ARTANA	EL HADJ	0	300	0	104	27	0	104	39	88	1440	2700
ARTANA	ARTANA	EL HADJ	0	450	407	213	0	3	783	211	492	1440	2700
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ARTANA	ARTANA	EL HADJ	0	300	0	99	10	3	112	34	78	2102	3700
ARTANA	ARTANA	EL HADJ	0	500	0	162	16	4	182	51	71	2102	3700
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ARTANA	ARTANA	EL HADJ	0	710	0	76	0	35	111	33	78	1249	1730
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ARTANA	ARTANA	EL HADJ	0	60	0	37	0	7	44	14	32	225	330
ARTANA	ARTANA	EL HADJ	0	50	0	33	0	5	38	11	27	225	330
ARTANA	ARTANA	EL HADJ	0	115	0	73	0	4	77	23	54	204	775
ARTANA	ARTANA	EL HADJ	0	120	0	73	0	0	70	23	55	204	775
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APPENDIX B

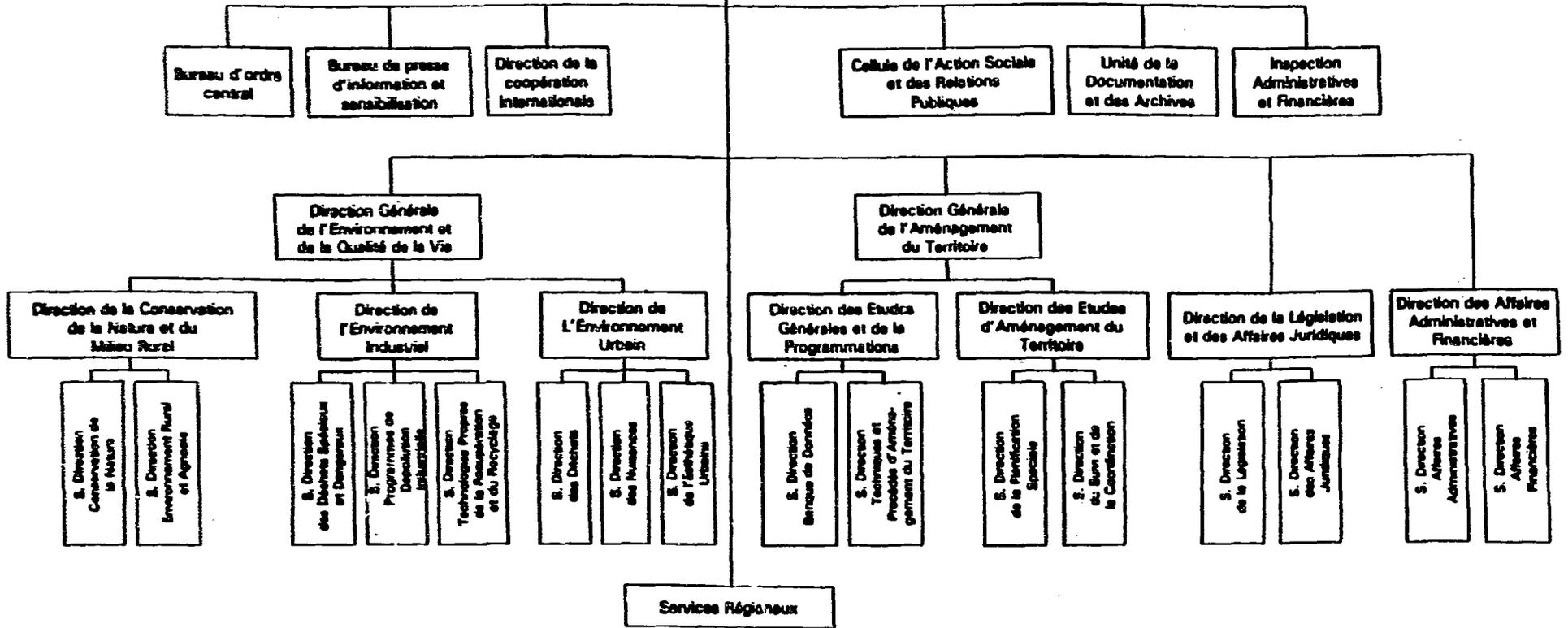
ORGANIZATION CHARTS

**ORGANIGRAMME GENERAL
DE L'AGENCE FONCIERE
D'HABITATION**

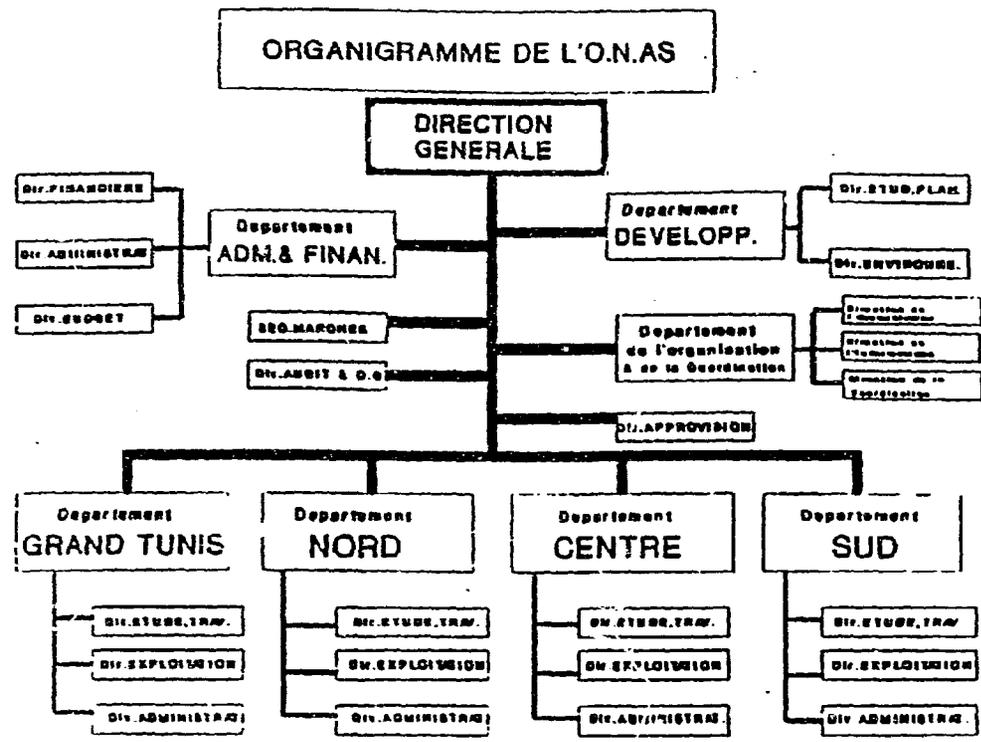


LE MINISTRE

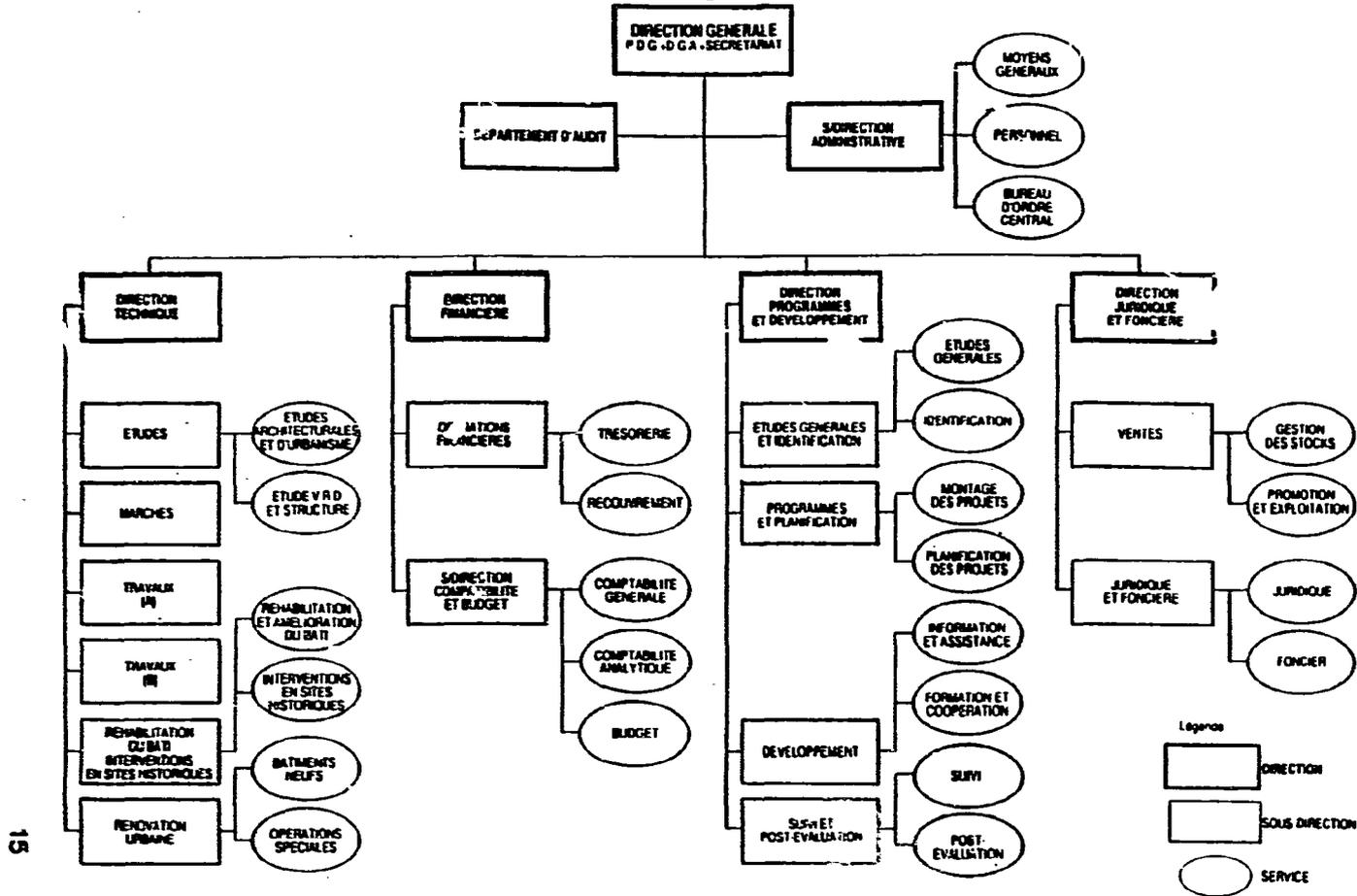
LE CABINET DU MINISTRE



10



ARRU – Organigramme



APPENDIX C
REGULATION REGARDING IMPACT STUDIES

11

L'étude d'impact est exigée en vue de l'obtention de toute autorisation administrative pour la réalisation d'une unité industrielle, agricole ou commerciale dont l'activité peut être génératrice de pollution ou de dégradation de l'environnement. Le présent décret N° 91-362 du 13 mars 1991 réglemente les procédures d'élaboration et d'approbation des études d'impact.

Article premier. — Les termes ci-après sont définis comme suit :

1) Etude d'impact : le document exigé en vue de l'obtention de toute autorisation administrative d'unités industrielles agricoles ou commerciales permettant d'apprécier, d'évaluer et de mesurer les effets directs et indirects, à court, moyen et long terme de ces unités sur l'environnement tel que défini à l'article 2 de la loi n° 88-91 sus-visée et l'article 208 de la loi n° 88-20 du 13 avril 1988 portant refonte du code forestier.

2) Unité : Toute installation ou tout ouvrage industriel, agricole ou commercial dont l'activité peut être génératrice de pollution ou de dégradation de l'environnement.

3) Maître de l'ouvrage ou pétitionnaire : la personne physique ou morale auteur d'une demande d'autorisation concernant un projet privé, ou l'autorité publique initiatrice du projet d'unité.

4) Autorisation : la décision de l'autorité ou des autorités compétentes qui donne le droit au maître de l'ouvrage ou au pétitionnaire de réaliser l'unité.

Art. 2. — L'autorité ou les autorités compétentes ci-dessus visées ne peuvent délivrer l'autorisation pour la réalisation de l'unité qu'après avoir constaté que l'agence nationale de protection de l'environnement ne s'oppose pas à sa réalisation.

Le maître de l'ouvrage ou le pétitionnaire ne peuvent se prévaloir d'une autorisation administrative non conforme à ces dispositions.

L'autorisation de réalisation délivrée à chaque unité soumise à l'étude d'impact, conformément aux prescriptions de ce décret, doit comporter parmi ses vises l'exécution et le respect des procédures citées dans cette étude.

Art. 3. — Les études d'impact régies par le présent décret sont réalisées préalablement à toute autorisation administrative exigée pour la réalisation de l'unité envisagée.

Art. 4. — Sont obligatoirement soumis à l'étude d'impact les projets d'unités énumérées à l'annexe 1 du présent décret.

Art. 5. — Chaque fois qu'il s'agit d'un projet ayant un lien avec les domaines prévus par l'annexe 2 du présent décret, l'autorité habilitée à délivrer l'autorisation doit exiger du maître de l'ouvrage ou du pétitionnaire une description sommaire du dit projet mentionnant les incidences éventuelles de celui-ci sur l'environnement et les conditions dans lesquelles l'opération projetée satisfait aux préoccupations d'environnement en vue de la transmettre à l'agence nationale de protection de l'environnement.

Art. 6. — Dans un délai ne dépassant pas 20 jours à compter de la réception effective de la description ci-dessus mentionnée, l'agence nationale de protection de l'environnement doit aviser le déposant soit de son approbation du projet soit de l'exigence de la présentation d'une étude d'impact et transmettre une copie de sa décision à l'autorité concernée.

A l'expiration du délai prévu et en cas de silence de l'agence, le projet est considéré conforme aux objectifs de préservation de l'environnement.

Art. 7. — Toute modification substantielle ou extension d'un projet déjà existant.

Sont dispensés de la procédure de l'étude d'impact les travaux d'entretien et de grosses réparations, quelles que soient les unités auxquelles elles se rapportent.

Art. 8. — Si l'autorité habilitée à délivrer l'autorisation considère que le projet peut avoir des conséquences négatives sur l'environnement, même en l'absence de lien avec les deux annexes citées ci-dessus et le projet, elle peut lui appliquer les dispositions de l'article 5 du présent décret.

Art. 9. — Le contenu de l'étude d'impact doit refléter l'incidence prévisible de l'unité sur l'environnement et doit comprendre au minimum les éléments suivants :

1) la description détaillée du projet d'unité;

2) une analyse de l'état initial du site et de son environnement naturel socio-économique et humain portant, notamment, sur les éléments et les ressources naturelles susceptibles d'être affectées par le projet d'unité;

3) une analyse des conséquences prévisibles, directes et indirectes, du projet d'unité sur l'environnement, et en particulier sur les sites et paysages, les ressources et milieux naturels, les équilibres biologiques, le cadre de vie du citoyen, sur l'hygiène et la salubrité publique et sur la commodité du voisinage des conséquences des bruits, vibrations, odeurs, émissions lumineuses et autres;

4) les raisons et les justifications techniques du choix du projet ainsi que les procédés à adopter par le maître de l'ouvrage ou le pétitionnaire compte tenu des préoccupations de protection de l'environnement;

5) les mesures envisagées par le maître de l'ouvrage ou le pétitionnaire pour supprimer, réduire et, si possible, compenser les conséquences dommageables du projet sur l'environnement, ainsi que l'estimation des dépenses correspondantes.

Le détail des analyses requises au terme du présent article est arrêté dans un cahier des charges élaboré par l'agence nationale de protection de l'environnement.

Les frais de la réalisation de l'étude sont à la charge du maître de l'ouvrage ou du pétitionnaire.

Art. 10. — L'étude d'impact sur l'environnement doit être déposée par le maître de l'ouvrage ou le pétitionnaire en trois exemplaires auprès de l'agence nationale de protection de l'environnement et en un exemplaire auprès de chaque ministère habilité à intervenir dans l'autorisation de la réalisation du projet.

Art. 11. — Lorsque le projet soumis à l'étude d'impact peut avoir un effet sur un parc national ou une autre aire spécialement protégée, l'agence nationale de protection de l'environnement informe le conservateur ou l'autorité administrative de cette aire de la possibilité de l'existence de cet impact.

Le conservateur ou l'autorité administrative responsable doit faire connaître son avis à l'agence nationale de protection de l'environnement dans un délai maximum d'un mois à compter de sa connaissance de cet impact.

A l'expiration de ce délai, l'agence nationale de protection de l'environnement peut considérer ce projet conforme aux objectifs de préservation de l'environnement.

Art. 12. — L'agence nationale de protection de l'environnement dispose d'un délai de 3 mois à compter de la date de la réception de l'étude d'impact pour notifier sa décision de son approbation du projet.

A l'expiration de ce délai le projet est considéré conforme aux normes de préservation de l'environnement.

Art. 13. — Nonobstant les sanctions prévues par la législation en vigueur l'autorisation sera retirée au cas où les procédures mentionnées dans l'étude d'impact présentée par le maître de l'ouvrage ou le pétitionnaire, n'ont pas été respectées.

Art. 14. — Les dispositions du présent décret s'appliquent aux unités industrielles, agricoles ou commerciales nouvelles.

On entend par unité nouvelle, toute installation qui n'a pas fait l'objet d'une autorisation à la date d'entrée en vigueur du présent décret ou toute installation existante qui fait l'objet d'extension, de transformation ou de changement de ses procédés de fabrication entraînant des risques de pollution ou de dégradation de l'environnement.

Art. 15. — Le Premier ministre et les ministres concernés sont chargés, chacun en ce qui le concerne, de l'exécution du présent décret qui sera publié au Journal Officiel de la République tunisienne.

Unités visées à l'article 4 paragraphe 1

- 1) Etablissements dangereux, insalubres ou incommodes des deux premières catégories tels que classés par la nomenclature visée à l'article 245 de la loi n° 66-27 du 30 avril 1966, portant code du travail;
- 2) Raffineries de pétrole brut et installations de gazéification et de liquéfaction d'au moins 500 tonnes de charbon ou de schistes bitumineux par jour.
- 3) Centrales thermiques et autres installations de combustion d'une puissance calorifique d'au moins 300MW.
- 4) Installations destinées à stocker ou à éliminer les déchets quelle que soit la nature et le procédé d'élimination de ceux-ci.
- 5) Installations destinées à la fabrication du ciment.
- 6) Installations de fabrication de produits chimiques, de pesticides, de produits pharmaceutiques, de peintures et de vernis, d'élastomères et de peroxydes.
- 7) Installations sidérurgiques et installations de production des métaux non ferreux.
- 8) Unités d'exploration et d'extraction du pétrole et du gaz naturel.
- 9) Extraction à ciel ouvert de ressources minérales et les carrières.
- 10) Projets de remembrement rural.
- 11) Opérations de reboisement d'une superficie supérieure à 100ha.
- 12) Défrichements et projets d'affectation de terres incultes ou d'étendues semi-naturelles à l'exploitation agricole intensive d'une superficie supérieure à 100ha.
- 13) Sucrieries.
- 14) Unités de fabrication de pâte à papier, de papier et de carton.
- 15) Unités de production et de traitement de cellulose.
- 16) Unités de tanneries et de mégisserie.
- 17) Construction de voies pour le trafic des chemins de fer, d'autoroute ainsi que d'aéroports dont la piste de décollage et d'atterrissage a une longueur de 2100 mètres ou plus.
- 18) Port de commerce, de pêche et de plaisance.
- 19) Travaux d'aménagement de zones industrielles.
- 20) Travaux d'aménagement urbain.
- 21) Ouvrages de canalisation et de régularisation de cours d'eau.
- 22) Barrages et autres installations destinés à retenir les eaux ou à les stocker d'une manière durable.
- 23) Installation d'oléoducs et de gazoducs.
- 24) Installation d'aqueducs.
- 25) Village de vacances et hôtels d'une capacité supérieure à 250 lits.
- 26) Stations d'épuration.
- 27) Stockage de ferrailles.
- 28) Fabrication de fibres minérales artificielles.
- 29) Fabrication, conditionnement, chargement ou encartouchage de poudres et explosifs.
- 30) Ateliers d'équarrissage.
- 31) Les industries textiles et les teinturerie.
- 32) Les stations d'épuration des zones urbaines.

ANNEXE II

Unités visées à l'article 5

- 1) Agriculture :
 - a) projets d'hydraulique agricole;
 - b) exploitations pouvant abriter des volailles;
 - c) exploitations pouvant abriter des porcs;
 - d) installations d'aquaculture;
 - e) récupération de territoires sur la mer;

u) forages en profondeur à l'exception des forages pour étudier la stabilité des sols, et notamment :

- les forages géothermiques;
- les forages pour le stockage des déchets;
- les forages pour l'approvisionnement en eau;

b) Extraction dans des exploitations souterraines de ressources minières:

- c) Cokeries (distillation sèche du charbon).
- 3) Industrie de l'énergie;

a) installations industrielles destinées à la production d'énergie électrique, de vapeur et d'eau chaude (autres que celle visées à l'annexe I);

b) installations industrielles destinées au transport de gaz de vapeur d'eau chaude, transport d'énergie électrique par lignes aériennes

- c) stockage aérien de gaz naturel
- d) stockage de gaz combustibles en réservoirs souterrains
- e) stockage de gaz combustibles fossiles

f) agglomération industrielle de houille et de lignite

g) installations destinées à la production d'énergie hydroélectrique

4) Travail des métaux

a) emboutissage, découpage de grosses pièces

b) traitement de surface et revêtement des métaux

c) chaudronnerie, construction de réservoirs et d'autres pièces de tolérances

d) construction et assemblage de véhicules automobiles et construction de moteurs pour ceux-ci

e) chantiers navals

f) installations pour la construction et la réparation d'aéronefs

g) construction de matériel ferroviaire

h) emboutissage de fond par explosifs

i) installation de calcination et de frittage de minerais métalliques

5) Fabrication du verre

6) Industrie chimique :

a) installation de stockage de pétrole, de produits pétrochimiques et chimiques

7) Industrie des produits alimentaires

a) industrie des corps gras végétaux et animaux

b) conserve de produits animaux et végétaux

c) fabrication de produits laitiers

d) brasserie et malterie

e) confiseries et siroperies

f) installations destinées à l'abattage d'animaux;

g) féculeries industrielles;

h) usines de farine de poissons et d'huile de poissons;

8) industrie textile, industrie du cuir, du bois et du papier :

a) usines de lavage, de dégraissage et de blanchissement de la laine

b) fabrication de panneaux de fibres, de particules et de contreplaqué;

c) teinturerie de fibres

9) Industrie du caoutchouc;

— traitement de produits à base d'élastomères

10) projets d'infrastructure :

a) construction de routes et d'aérodromes (projets qui ne figurent pas à l'annexe I)

b) les tramways

11) Modification des projets figurant à l'annexe I et qui ont donné lieu précédemment à une étude d'impact sur l'environnement.