



**New Partnership for
Africa's Development (NEPAD)
Comprehensive Africa Agriculture
Development Programme (CAADP)**



**Food and Agriculture Organization
of the United Nations
Investment Centre Division**

GOVERNMENT OF THE LIBYAN ARAB JAMAHIRIYA

SUPPORT TO NEPAD–CAADP IMPLEMENTATION

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Volume IV of V

BANKABLE INVESTMENT PROJECT PROFILE

Great Man–Made River Distribution Facilities

June 2006

LIBYA: Support to NEPAD–CAADP Implementation

Volume I: National Medium–Term Investment Programme (NMTIP)

Bankable Investment Project Profiles (BIPPs)

Volume II: Food Security Scheme (Wheat, Dates & Olives, Seed Production)

Volume III: Warehouse for Grading, Packing and Storage

Volume IV: Great Man–Made River Distribution Facilities

Volume V: Fisheries Development Project

NEPAD–CAADP BANKABLE INVESTMENT PROJECT PROFILE

Country:	Libya
Sector of Activities:	Agriculture
Proposed Project Name:	Great Man–Made River Distribution Facilities
Project Area:	Coastal belt area around Tripoli, comprising four regional administrative areas (Tajura– Nawahi, Tripoli, Jaffara and part of Zawia)
Duration of Project:	10 years
Estimated Cost:	US\$325 million

Suggested Financing:

<i>Source</i>	<i>US\$ million</i>	<i>% of total</i>
<i>Government</i>	125	39
<i>National and International Investors</i>	140	43
<i>Domestic Private Sector</i>	60	18
<i>Total</i>	<i>325</i>	<i>100</i>

LIBYA:
NEPAD–CAADP Bankable Investment Project Profile
“Great Man–Made River Distribution Facilities”

Table of Contents

Currency Equivalents	iii
Abbreviations.....	iii
I. PROJECT BACKGROUND.....	1
II. PROJECT RATIONALE.....	2
III. PROJECT AREA.....	2
IV. DESCRIPTION AND SPECIFICATIONS	2
V. SOURCE OF FINANCE	3
VI. PROJECT BENEFITS	4
VII. IMPLEMENTATION ARRANGEMENTS	4
VIII. TECHNICAL ASSISTANCE REQUIREMENTS	4
IX. ISSUES AND PROPOSED ACTIONS	5

Currency Equivalents

(1 June 2006)

Local Currency	=	Libyan dinar (LYD)
US\$1.00	=	LYD1.29
LYD1.00	=	US\$0.775

Abbreviations

AEFF	Authority for the Encouragement of Foreign Fund
CAADP	Comprehensive Africa Agricultural Development Programme
FAO	Food and Agriculture Organization of the United Nations
GMMR	Great Man–Made River
GMMRA	Great Man–Made River Authority
IDB	Islamic Development Bank
IFAD	International Fund for Agricultural Development
NEPAD	New Partnership for Africa’s Development
NMTIP	National Medium–Term Investment Programme

I. PROJECT BACKGROUND

I.1. The broad objective of the Great Man–Made River (GMMR) project is to improve the living conditions of the people of Libya by utilizing for productive purposes the vast underground reserves of fresh water, which are found in the southern part of Libya. This fresh water is being recovered from well fields and carried by pipelines to coastal regions where the majority of the population is concentrated. Traditional water resources in the coastal regions are increasingly at risk from intensive use, which has increased water salinity as a result of sea water intrusion to the coastal aquifer.

I.2. Phases I and III of the project will provide 3.5 million cubic meters (Mm³) of water per day from well fields in the south (Kufra, Tazirbo and Sarir) to the eastern coastal belt which extends from Sirt in the west to Benghazi in the east (around 800 km).

I.3. Phase II of the project will provide 2.5 Mm³ of water per day from the south (Jabl El–Hesouna) to the western coastal belt, which extends from Musrata in the east to Zawia in the west (around 300 km).

I.4. Eventually all phases of the GMMR project will connect in one huge network that will supply a total of 6.0 Mm³/day of fresh water, with 30 percent allocated for domestic and industrial use and 70 percent to irrigate around 200,000 ha of existing and newly reclaimed agricultural lands.

I.5. In conclusion, the important benefits that this project brings are summarized below:

- Existing agriculture will cease to be dependent on existing water wells, which are increasingly at risk from sea water intrusion into the coastal aquifers as a result of intensive use. The new source of water will, therefore, provide a good opportunity for the coastal aquifers to recover a considerable part of the groundwater lost during past years.
- Cultivation and development of large areas of fertile land, which have remained idle for lack of sufficient irrigation water.
- Protection and improvement of the fertility of agricultural lands, which have become sterile as a result of sea water intrusion into the coastal aquifer.
- Realization of a great measure of self–sufficiency in the production of staple foods, such as cereals, meat and dairy products.
- Development of light industries in rural areas, which will directly benefit from GMMR project water.
- Increased support for existing industries, effectively increasing their production.
- Revival and steady development of cities and villages threatened by water shortages.
- Agricultural expansion encouraging people in rural areas to stay on their land, which will become rich in agricultural potential, thus relieving the population pressure in big cities like Tripoli and Benghazi.
- Creation of new fields of employment, which will eliminate or considerably curtail unemployment and provide needed diversification for the time when oil revenues diminish.

II. PROJECT RATIONALE

II.1. Water is life, both natural and human systems are critically dependent on water. It is the primary requirement not only for the survival of human beings but also for socio–economic development and healthy ecosystems. In addition, access to water plays a critical role in poverty alleviation and food security.

II.2. Food security issues rank very highly in Libyan agriculture sector priorities. Therefore, since the coastal belt area targeted by GMMR investment programs has historically been the food basket of the country, it becomes a strategic area for food security.

II.3. Maintaining life, socio–economic development and food production in this coastal region is in danger of a looming crisis because of a serious supply/demand imbalance in its traditional water resources. The prevailing trends of rising population, increasing urbanization, more water– intensive life styles, as well as agricultural technologies are going to make water resources ever scarcer unless timely action is taken.

III. PROJECT AREA

III.1. GMMR phase II is the development project targeted by this bankable project profile. It is located in the western part of Libya and covers the coastal belt area, which extends from Musrata to Zawia. Within this region the investment project targets the agricultural areas most affected by seawater intrusion into the coastal aquifer. The project area is located around the city of Tripoli (from 30 km to the east to 35 km to the west, at a depth of 30 km from the coastline). The total area is estimated around 200,000 ha; the net area to be irrigated by GMMR water has not yet been determined but is expected to be between 20,000–80,000 ha. The irrigated area will depend on the results of technical studies and socio–economic surveys of the existing farming situation, the course of the main irrigation pipeline, the location of agricultural balance reservoirs and the quantity of water to be allocated from the GMMR (preliminary estimates are that up to 380 Mm³ per year can be allocated).

IV. DESCRIPTION AND SPECIFICATIONS

IV.1. This project is mainly directed to supply water to improve the development in the targeted area around Tripoli, which is the area most severely affected by sea water intrusion into its aquifer as a result of intensive use for irrigated agriculture, among other uses.

IV.2. This area comprises around 16,000 farms in the form of private farm holdings, range from 1 to 60 ha in size. The number of the farms that will benefit from this investment program and the quantity of water to be allocated to each farm will depend on the results of the feasibility studies.

IV.3. The investment program has two components as follows:

IV.4. **First component – Main System Construction.** The activities of this component will be the responsibility of the Great Man–Made River Authority (GMMRA) and will include the following:

- Constructing the main irrigation pipeline (68 km long, 2.8–4.0 m in diameter) connected to the main conveyance system.
- Building nine agricultural reservoirs with a capacity of 86,000 m³ each.

- Building the required pumping stations for the system.
- Installing the electricity, control and communications network.
- Designing the operation and maintenance of the system.

IV.5. **Second component – Distribution System.** The activities of this component will be the responsibility of private investors, who will receive the water from the agricultural reservoirs and deliver it to the farmers at the farm gate. These activities will include:

- Surveying, mapping and designing the water distribution system for the specified area.
- Implementing the main, secondary and auxiliary distribution networks that deliver water to the farm gate.
- Implementing all required pumping stations, electricity, control and communications systems and all that is required for this network to be capable of delivering water to farm gates all year round.
- Designing the operation, maintenance and management of the system.
- Determining the total cost (capital, operation, maintenance and management) of implementing the system and estimating the cost per cubic meter to be charged to the beneficiaries (farmers).
- Discussing these costs with the GMMRA, who will be the supplier of the water, and with the government, who may provide subsidies for the extra cost.
- Contracting with farmers who will be the end users of the water.

V. SOURCE OF FINANCE

V.1. The required financing for the project components is expected to be jointly provided by the Libyan government and by national and international private investors according to the following breakdown:

Project component	Total cost (US\$ million)	Public sector share	National investors share	International investors share
First component	125	100%	0%	0%
Second component	200	0%	30%	70%
Total	325	39%	18%	43%

V.2. Libyan authorities are expecting national and international funding agencies and private investors to participate in financing the project’s second component. This may involve the establishment of an investment company or companies to finance and sponsor the implementation, operation and management of the irrigation networks and sell the water to the farmers at the farm gate at a fixed price that covers the cost of the services.

VI. PROJECT BENEFITS

VI.1. In addition to the overall objectives of the GMMR project mentioned above, the objectives of this project are to maintain life in the vital coastal areas currently threatened by sea water intrusion, increase food production and productivity, generate employment and improve the rural incomes and livelihoods of the beneficiaries by providing year-around irrigation for the project area. Additional benefits will directly or indirectly reach the approximately 1.5 million people living in the four *Shabyat* that comprise the project.

VII. IMPLEMENTATION ARRANGEMENTS

VII.1. The GMMRA will be the implementing agency for the project. Its functions include implementation, operation, maintenance and management of all stages of the GMMR project, starting from drilling the wells in the southern areas up to delivering water to the agricultural reservoirs in the coastal areas. GMMRA will look for support from all possible technical and financial partners for implementation of the components of the project that are not the responsibility of the public sector. GMMRA will further define the components of the project, prepare all required technical and legal documents specifying responsibilities and rights in the process and coordinate with the *Authority for the Encouragement of Foreign Fund* (AEFF), central and regional authorities and farmers’ associations to facilitate the participation of investors to take part in financing, implementation and operation of the project.

VIII. TECHNICAL ASSISTANCE REQUIREMENTS

VIII.1. To accelerate implementation of development programs, technical assistance from regional and international bodies, as well as from countries with well-established agriculture practices, will be imperative. The assistance requirements for this project include:

- Assistance in undertaking a socio-economic field survey to define all the problems and difficulties of the project area and suggest appropriate solutions to the issues.
- Assistance in undertaking project technical and feasibility studies to determine the best irrigation system and crop pattern for each area that minimizes water needs/waste and maximizes farm income.
- Assistance in providing material and equipment for research, extension and training.
- Assistance in further defining project components and formulating all required documents.
- Assistance with experts and consultancies in specific fields identified by agricultural authorities.

IX. ISSUES AND PROPOSED ACTIONS

IX.1. Since this proposed project is still in its preliminary stage, further attention and actions would be required to deal with pertinent issues, such as:

- Due to the nature of the project, complete cooperation will be required at all levels, starting from farmers up to the highest government authorities in order to direct all efforts to the success of the project in realizing its socio–economic development and environmental objectives.
- Clear production policy and objectives will be needed to take into account all possibilities for improving the production and productivity of existing crops and introducing new varieties that satisfy society’s needs and market demand, as well as maximize farmers’ income and maintain the sustainability of resources.
- Priority should be given to extension services and training farmers on how to be aware of the importance of water as a costly resource and how to use it as efficiently as possible.
- Performance of all required feasibility studies.
- Clear definition will be required for the relations between GMMRA, central authorities, local authorities at the *Shabyat* level, investors and farmers. These should be formulated into legal documents specifying the rights and responsibilities of each in this process.
- Concerted efforts to approach international investors to attract their participations in this project.