AFRICAN DEVELOPMENT BANK

PROJECT: NATIONAL DRAINAGE PROGRAMME (NDP)

COUNTRY: EGYPT

PROJECT APPRAISAL REPORT

May 2015

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AFRICAN DEVELOPMENT BANK

EGYPT

NATIONAL DRAINAGE PROGRAMME (NDP)

APPRAISAL REPORT

OSAN DEPARTMENT

May 2015

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Currency Equivalents

As of March 2015

1 UA	=	1.2521 EUR
1 UA	=	10.7183 EGP
1 EUR	=	8.9697 EGP

Fiscal Year

1 July – 30 June

Weights and Measures

1metric tonne	=	2204 pounds (lbs)
1 kilogramme (kg)	=	2.200 lbs
1 metre (m)	=	3.28 feet (ft)
1 millimetre (mm)	=	0.03937 inch (“)
1 kilometre (km)	=	0.62 mile
1 hectare (ha)	=	2.471 acres
1 feddan	=	0.42 hectares

Acronyms and Abbreviations

ADB	African Development Bank
CPIA	Country Policy and Institutional Assessment
CSP	Country Strategy Paper
CUA	Collectors Users Association
DPG	Development Partners Group
DRI	Drainage Research Institute
EA	Executing Agency
EC	Electrical Conductivity – a measure for salt content
EIB	European Investment Bank
EPADP	Egyptian Public Authority for Drainage Projects
EGFO	Egypt Field Office
Fd	Feddan (a measure of land equivalent to 0.42 Hectares)
FM	Financial Management
GOE	Government of Egypt
Ha	Hectares
IsDB	Islamic Development Bank
KfW	Kreditanstalt fur Wiederaufbau (German Bank for International Development Financing)
M&E	Monitoring and Evaluation
MIC	Ministry of International Cooperation
MIC TAF	Middle Income Countries Technical Assistance Fund
MWRI	Ministry of Water Resources and Irrigation
MTR	Mid Term Review
NCB	National Competitive Bidding
NWRC	National Water Research Center
O&M	Operation & Maintenance
ORNA	Operations Regional Northern Africa
PCN	Project Concept Note
PD	Planning Department
PCR	Project Completion Report
PCU	Project Coordination Unit
PSC	Project Steering Committee
SBD	Standard Bidding Documents
TA	Technical Assistance
UA	Units of Account
USD	United States Dollar
WB	The World Bank
WTD	Water Table Depth
WUA	Water Users Associations

Loan Information

Client's information

BORROWER:	The Arab Republic of Egypt
EXECUTING AGENCY:	Egyptian Public Authority for Drainage Projects (EPADP)

Financing plan

Source	**Amount (EUR)**	**Instrument**
ADB	50.20 million	Loan
Government	24.79 million	Counterpart
TOTAL COST	**74.99 million**	

ADB's key financing information

Loan / grant currency	Euro (EUR)
Interest type*	Floating base rate with option to fix Base Rate (floating) 6-month LIBOR
Contractual spread	60 base points (bps)
Funding Margin	For the period 1 August 2014 to 31 January 2015: +5 basis points
Other fees*	None
Tenor	20 years
Grace period	5 years
FIRR, NPV (base case)	19%, Euros 41 million at 12%
EIRR (base case)	23%, Euros 68 million at 12%

Timeframe - Main Milestones (expected)

Concept Note approval	February, 2015
Project approval	May, 2015
Effectiveness	November, 2015
Closing Date	June, 2021
Completion	December, 2020
Last repayment	June 2035

Project Summary

Project Overview

The National Drainage Programme (NDP) aims to optimize the benefits of irrigation by draining excess irrigation water from agricultural land in order to reduce water logging and consequent soil salinity, in addition to making more land available for cultivation. This is expected to result in higher crop yields in the target areas, higher farm incomes and increased food security and poverty reduction in general. A typical gravity drainage system in Egypt consists of surface and sub-surface drains. Drainage water is collected from the fields by subsurface drains and through open drains and flows into the Nile and its branches or the Northern Lakes and the Mediterranean Sea. The project components include: (i) Construction and Rehabilitation of Subsurface and Surface Drainage for 125,000 feddans; (ii) Strengthening the capacity of the Egyptian Public Authority for Drainage Projects (EPADP) for Operation and Maintenance; and (iii) Project Coordination and Management.

The direct beneficiaries include 125,000 farming households (625,000 persons – of which 50% are women) in five regions of the country whose crop productivity will increase by 15-21% for various selected crops. This will result in increased incomes and food security in these communities with increased economic off-farm activity as well.

Cost and Financing

The total cost of the National Drainage Programme is USD 190 million to be financed in parallel by the Islamic Development Bank (IsDB), KfW/EU and the Bank. The Bank financed project is estimated at Euros 74.99 million, including physical and price contingencies. The costs are composed of Euros 70.61 million (94%) in local costs and Euros 4.38 million (6%) in foreign currency. The cost of the project will be financed by an ADB loan of Euros 50.20 million. The Government will contribute Euros 24.79 million as counterpart contribution towards project activities. The Bank is also processing a Middle Income Country Technical Assistance Fund (MIC-TAF) grant to provide complementary Technical Assistance for the NDP.

Implementation

The Project will be implemented by the Egyptian Public Authority for Drainage Projects (EPADP), within the Ministry of Water Resources and Irrigation (MWRI). EPADP has extensive experience implementing such projects and will be responsible for the design and technical supervision of project activities in addition to the procurement, financial management and Monitoring and Evaluation (M&E). The Project will have a duration of six years.

Bank's Added Value

The Bank's intervention in this project will add significant value to the investment made by the Government of Egypt and other development partners for this important National Drainage Programme. This programme is critical to the country considering the extent of intensive irrigation and its effects. The Bank's intervention will assist a Regional Member Country (RMC) in fulfilling its national programmes and strategies. In addition, the Bank's holistic approach combining investment with strengthening capacity is its distinct characteristic of focusing on development and sustainability. Finally, the Bank's intervention has the multiplier effect of economic development through infrastructure development, in line with the Bank's Ten Year Strategy for 2013-2022.

Knowledge Management

The knowledge gained through the implementation of several projects and studies in the sector in Egypt has been duly applied in designing this project. In the same pattern, the knowledge that will be generated by this Project will be instrumental in designing and managing subsequent phases of the National Drainage Programme in the future. The results from the proposed studies and other surveys, including the socio-economic impact study will inform the stakeholders on how to put the acquired knowledge attributes into practical use for better results-oriented achievements and sustained benefit flows.

RESULTS-BASED LOGICAL FRAMEWORK

Country and project name: Egypt, National Drainage Programme (NDP)
Purpose of the project: To increase agricultural productivity and incomes of households in the project area

RESULTS CHAIN		PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
		Indicator (including CSI)	Baseline	Target		
IMPACT	**Impact** Increased economic growth through improved agricultural productivity	Agricultural growth rate (value addition)	2.92 %[1]	4%	Government National Statistics	1. Regional and country political stability. 2. Global climate change.
OUTCOMES	**Outcome 1** Increased HH income and food security	1. HH incomes for rural population	EGP 21,370[2] annually	EGP 23,570 (10% increase) in the project area	1. Government surveys and statistics 2. Project progress reports 3. Bank supervision missions	*Risks* 1. Adverse climatic conditions on environment and agricultural production in Egypt. 2. Delays in receiving government contributions to the project. *Mitigation* 1. Government to institute environmental mitigation measures and technical studies to inform decisions. 2. Efforts will be made to ensure financial requirements are properly budgeted and included in EPADP's allocation from MOF for the year.
	Outcome 2 Increased efficiency of drainage for 125,000 feddans	1. Average yields per feddan for 5 major crops[3] 2. HHs benefitting from improved drainage efficiency	Rice – 3 t/fed Maize – 3 t/fed Wheat – 2.3 t/fed Beans 1.2 t/fed Cotton 1 t/fed 2. None	Increase Rice by 17% Maize by 17% Wheat by 20% Beans by 21% Cotton by 15% 2. 125,000 HHs		

[1] World Bank 2012 report.
[2] Data from CAPMAS (Central Agency for Public Mobilization and Statistics) for 2010/2011. This is the current authorized data with a survey expected in 2016.
[3] Data from EPADP trials for 3 year average before drainage and 3 year average after drainage.

OUTPUTS	***Component 1*** Construction and Rehabilitation of Subsurface and Surface Drainage *Outputs* 1.1 Installation of new sub-surface drainage systems on 10,000 feddans; 1.2 Replacement/ rehabilitation of old subsurface drainage systems on 105,000 feddans; 1.3 Deepening and remodelling of existing surface drains on 10,000 feddans. **Component 2** Strengthening EPADP Capacity for Operation and Maintenance *Outputs* 2.1 Purchase of machinery and equipment for maintaining drainage systems 2.2 Technical studies conducted 2.3 Training for CUAs and EPADP Staff conducted 2.4 Improved participation and decision making skills for women in CUAs **Component 3** Project Coordination and Management *Outputs* 3.2 Implementation of project activities 3.1 Administrative and financial reports	1.1 Area with new sub-surface drainage (feddans) 1.2 Area with new rehabilitated sub-surface drainage (feddans) 1.3 Area with rehabilitated surface drainage (feddans) 1.4 Average water table depth (WTD, m) 1.5 Average soil salinity (EC, ds/m) 2.1 Number of drainage complaints/ problems presented to EPADP per period of time 2.2 No. of environmental studies conducted 2.3 No. of training modules for CUAs and EPADP Staff 2.4 Rate of participation of women in CUAs 3.1 No. of annual work programmes prepared and executed. 3.2 Periodic M&E reports; progress reports, annual audit reports submitted on time	1.1 - 0 feddans 1.2 - 0 feddans 1.3 - 0 feddans 1.4 WTD < 1.0 m 1.5 EC > 4 dS/m 2.1 Number/year at the beginning of the project. 2.2 – 0 Studies 2.3 – 0 Training 2.4 – < 10% 3.1 – 0 work programmes 3.2 – 0 periodic reports	1.1 - 10,000 feddans; 1.2 - 105,000 feddans; 1.3 - 10,000 feddans 1.4 WTD > 1.0 – 1.5 1.5 EC < 4 dS/m 2.1 Reduce rate of complaints by 20% in project area 2.2 – 1 study conducted 2.3 – 10 modules of training for the CUAs and 3 for EPADP staff 2.4 – 30% 3.1 – 6 annual work programmes 3.2 – quarterly and annual progress reports, annual audits and financial reports, etc.		1. Project cost overruns due to the rise in the cost of materials due to rising costs of raw materials may lead to cost increases. *Mitigation*: Efficient procurement timing to address the increases, as well as adequate price contingencies for the unavoidable increases will mitigate the risk. 2. Pollution and abuse of open drains for dumping of wastewaters, municipal solid wastes and other pollutants. *Mitigation*: Effective measures to sustain drainage water quality for reuse through enforcement of environmental protection laws and regulations and promoting public awareness of wastewater pollution in agricultural drains through CUAs. Drainage reuse should be integrated in irrigation management both on farm level and main system level. 3. Delay in providing counterpart funding by GoE which will be providing 33% financing for infrastructure activities could result in implementation delays. *Mitigation*: Close follower up with the borrower will be made during implementation to ensure timely allocation and availability of counterpart funding.
KEY ACTIVITIES	**COMPONENTS**				**INPUTS**	
	Component 1 1.1 Civil works for subsurface and surface drainage 1.2 Design and supervision of civil works **Component 2** 2.1 Purchase machinery and equipment for O&M of drainage systems 2.2 Upgrade the EPADP pipe manufacturing factory 2.3 Conduct technical studies 2.4 Conduct training for CUAs and EPADP staff **Component 3** 3.1 Establish project coordination and management structures 3.2 Establish M&E, FM, audit and procurement systems and procedures				Component 1 – EUR 61.10 million Component 2 – EUR 13.00 million Component 3 – EUR 0.89 million **TOTAL EUR 74.99 million**	

Project Time Frame

Activity	2015				2016				2017				2018				2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Loan Approval																												
Loan Signature																												
Loan Effectiveness																												
First Disbursement																												
Component 1: Construction of Drainge Infrastructure																												
Bid documents, tendering																												
Civil Works																												
Design and supervision																												
Component 2: Strengthening EPADP Capacity																												
Bid documents, tendering																												
Purchase of equipment and vehicles																												
Technical Studies																												
Training activities																												
Component 3: Project Coordination and Management																												
Project Management and Monitering																												
Mid-term review																												
Project Completion																												
Disbursement Deadline																												

REPORT AND RECOMMENDATION OF MANAGEMENT TO THE BOARD OF DIRECTORS ON PROPOSED LOAN TO THE REPUBLIC OF EGYPT FOR THE NATIONAL DRAINAGE PROGRAMME (NDP)

Management submits the following Report and Recommendation on a proposed ADB loan of EUR 50.20 million to finance the National Drainage Programme (NDP) in Egypt.

I. STRATEGIC THRUST & RATIONALE

1.1 Project linkages with country strategy and objectives

1.1.1 The Bank is currently implementing the interim Country Strategy Paper (i-CSP) 2012-2013 for Egypt which has been extended to June 2015 when a new CSP 2015-2018 will be adopted. The i-CSP 2012-2013 identifies two pillars to be prioritized for Bank support. Pillar I: Infrastructure in support of Stabilization and Economic Recovery; and Pillar II: Governance in support of Inclusive Growth to Reduce Poverty. Sub-Pillar 1.2 focuses on Economic Recovery with an emphasis on improving the efficiency of sector resource use while maximizing the impact of the Bank's investments in view of stimulating the recovery of the economy and it is within this pillar that the proposed project falls. Two of the key development policy and strategy documents of the Government, are Egypt's Sustainable Development Strategy: 2030 Vision, whose goals are Economic Development, Market Competitiveness, Human Development and Citizens' Happiness; and Egypt's Five Year Macroeconomic Framework and Strategy 14/15-18/19. Both of these development strategies identify enhanced agricultural productivity through improved water resource management systems and investment in infrastructure. These development strategies are addressed by key outputs of the NDP. The NDP is included in the Bank's ongoing i-CSP for Egypt and will be implemented over a period of 6 years to 2021.

1.1.2 The National Drainage Program is a key part of the government's Water Resources Development Strategy which seeks to optimize the efficiency of water resource use as well as improve the efficiency of the drainage systems. The National Drainage Programme began in the 90s under NDP-I which was financed by the World Bank and other development partners. NDP-II was approved in 2000 and was financed by the WB, KfW, EIB and the Government of Egypt for a total amount of approximately USD 320 million. The NDP-II received additional financing and an extension in 2010 and is expected to end in 2015. The NDP will finance the third phase of the National Drainage Programme which addresses the aims of the national development initiatives to expand agricultural production capacities and improve the efficiency of sector resource use through the development of new water resources infrastructure while stimulating the economy. This is expected to result in higher crop yields in the target areas, higher farm incomes, and poverty reduction in general.

1.2 Rationale for Bank's involvement

1.2.1 The Bank's new Agriculture and Agribusiness Strategy 2015-2019[4], the Agriculture Sector's Water Business Plan as well as the Bank's Ten Year Strategy (TYS) 2013-2022, identify agriculture related infrastructure development as a key area and the TYS identifies agriculture and food security as an area of special emphasis. The Bank's Gender Strategy 2014-2018 calls for economic empowerment, knowledge and capacity building for women. This project addresses all of these key Bank strategies and policies.

1.2.2 While the Bank has not been a major actor in Egypt in the agriculture sector in the recent past, it did implement a couple of key projects in the irrigation and drainage sector during the 90s and 2000s. One of these projects was the Rehabilitation of Agricultural Drainage Systems. The experience from implementing these projects and from the more recent studies completed in 2014 including the Feasibility Study for the Rehabilitation/Reconstruction of Zefta Barrage and the Comprehensive Study and Project Preparation for the Rehabilitation of Ismailia and Nubaria Canals, give the Bank substantial experience in

[4] The strategy was presented to SMCC and is expected to be approved this year, 2015.

this sector, in addition to experience from other countries. The government has therefore requested Bank support to re-engage in the agriculture sector due to the experience from implementing past projects and numerous studies in the sector and to re-establish the Bank as a financier for this critical sector. Egypt already has one of the most intensively cultivated agricultural lands in the world in the Nile delta, with almost all of it irrigated.

1.3 Donor coordination

Sector or subsector*	Size		
	GDP (11/12)	Exports	Labor Force
Agriculture	14.0%	10%	32%

Players - Public Annual Expenditure (average over)** in Agriculture			
Government	Donors		
0.45 UA m	[1.10 UA m]	*KfW*	*47%*
40%	60%	*World Bank*	*21%*
		IFAD	*7%*
		EIB	*5%*
		ADB	*0.5%*

Level of Donor Coordination	
Existence of Thematic Working Groups	[Y]
Existence of SWAPs or Integrated Sector Approaches	[Y]
ADB's Involvement in donors coordination***	[M]****

** as most appropriate ** Years [yy1 to yy2] *** for this sector or sub-sector*
***** L: leader, M: member but not leader, none: no involvement*

1.3.1 Development Partners active in the country come together in a Development Partners' Group (DPG) to coordinate their activities and engage as one with government. Traditional development partners in the irrigation and drainage sector include the World Bank, KfW and the EIB which funded NDP I & II and the Integrated Irrigation Improvement and Management Project (IIIMP). The overall cost of NDP is Euros 190 million which will be financed through parallel financing from three donors. The Islamic Development Bank (IsDB) has already approved financing for Euros 28.60 million, KfW/EU will provide financing of Euros 50 million (appraisal in the first half of 2015) and the AfDB will provide financing of Euros 50.20 million. The balance will be financed by the GOE through counterpart funding. The projects for each of the respective donors have similar activities but cover different geographical areas. The Bank actively participated in the DPG agriculture/irrigation sector group in the dialogue with the Ministry of Water Resources and Irrigation along with other key development partners to enhance investment and aid effectiveness for the modernization of agricultural water management, small farmer market access and the land reclamation program. The result of this joint dialogue was the signing of a Joint Integrated Sector Approach (JISA) in October 2014. The objective of JISA is to harmonize under a common umbrella the protection and use of water resources more efficiently and effectively by all the relevant stakeholders in the country and development partners. One of the outcomes of the JISA is the coordinated financing of the NDP by several development partners, AfDB, IsDB and KfW/EU.

II. PROJECT DESCRIPTION

2.1 Project components

2.1.1 The NDP aims to optimize the benefits of irrigation by draining excess irrigation water from agricultural land in order to reduce water logging and consequent soil salinity, in addition to making more land available for cultivation. This is expected to result in higher crop yields in the target areas, higher farm incomes, and increased food security and poverty reduction in general. Water logging and the resulting soil salinity can reduce crop productivity by 20-30%. The NDP is composed of 3 components namely: (i) Construction and Rehabilitation of Subsurface and Surface Drainage; (ii) Strengthening EPADP Capacity for Operation and Maintenance; and (iii) Project Coordination and Management.

Table 2.1: Project Components

Component name	**Est. cost (EUR million)**	**Component Outputs**
1. Construction and Rehabilitation of Subsurface and Surface Drainage	61.10	• The installation of new sub-surface drainage systems in an area of 10,000 feddans; • Replacement and/or rehabilitation of old subsurface drainage systems in an area of 105,000 feddans; and • The deepening and remodelling of existing surface drains in an area of 10,000 feddans.
2. Strengthening EPADP Capacity for Operation and Maintenance	13.00	Purchase of equipment, machinery and spare parts for operation and maintenance, including: • Machinery (2 hydraulic excavators, 2 backhoe loaders, 5 utility vehicles (4X4), 20 pickups, 8 Minibus/Vans, 4 Microbuses, 1 semi-bed trailer, 1 tractor, 150 Motorcycles); • Spare parts and raw materials for the EPADP plastic pipe manufacturing factory, and for the heavy machinery; • Equipment including routers, switches, servers, software and water quality testing equipment; • Socio-economic study on impacts of drainage; • Training for Collector Users' Associations and for EPADP staff (O&M, integrated water management systems, gender mainstreaming);
3. Project Coordination and Management	0.89	• Project Management • M&E • Financial Management, Audit, etc.

2.2 Technical solution retained and other alternatives explored

2.2.1 Sustainability of Egypt's intensively irrigated agriculture depends on an effective and efficient drainage system. A typical gravity drainage system in Egypt consists of open and subsurface drains. Drainage water is collected from the fields by subsurface drains, and through open drains flows into the Nile and its branches. Pump stations are used, where necessary, along the course of the drains to lift water to the terminal points. The subsurface drainage systems consist of laterals (field drains) and collectors. A lateral drain is made of buried plastic pipes at an average depth of 1.2 m below the surface. The collector drain consists of plastic pipes with diameters of increasing widths towards the downstream. Concrete man-holes are installed at intersections of laterals with a collector drain to allow inspection and cleaning of the collector. The use of sub-surface drains as opposed to open drains increases the available land for cultivation. Another option considered for addressing the drainage problem is using crops that have short roots and are resistant to soil salinity. However, there are few varieties of these types of crops and those that exist may not be familiar to the people in this region. The retained option was therefore to use sub-surface drainage to address the problem of water logging.

The improved drainage conditions, through evacuation of excess irrigation water, will reduce water logging and soil salinity problems. Improved soil quality in turn results in improved yields and consequently increased crop production and improved incomes for farmers.

Table 2.2: project alternatives considered and reasons for rejection

Alternative name	Brief description	Reasons for rejection
Changing the Cropping Pattern	Changing the crops grown to those with short roots and tolerant to salinity.	▪ Reduction of the farmers income due to reduction of yields; ▪ Marketing difficulties for produced crops which may not be familiar to locals.
Surface drainage only	Substitution of sub-surface drainage to only surface drainage	▪ Loss of agricultural lands ▪ Fragmentation of lands ▪ High maintenance cost ▪ Reduced efficiency

2.3 Project type

2.3.1 The National Drainage Programme is implemented through a programme approach. Phases I and II of the NDP were financed by the World Bank, KfW and the EIB. The third phase of the programme will be financed by the AfDB, IsDB and KfW. As the three institutions are not at the same level of preparedness, they will finance their respective projects in parallel. The project activities for each of the donors are very similar but cover different geographical areas.

2.4 Project cost and financing arrangements

2.4.1 The cost for the Bank financed project described above is estimated at Euros 74.99 million, including physical and price contingencies. The costs are composed of Euros 70.61 million (94%) in local costs and Euros 4.38 million (6%) in foreign currency. Physical contingencies have been estimated at 6% of the base cost and provisions for price escalation are estimated at 6%, taking into account the rate of inflation of the sector. The tables below provide the summary of the Project costs which are based on analysis of unit prices obtained from records of recent competitive bidding for similar works. The financing costs include an ADB loan of Euros 50.20 million.

Table 2.3: Project cost estimates by component

		(EGP '000)		(EURO Million)			% Foreign	% Total
Components	**Local**	**Foreign**	**Total**	**Local**	**Foreign**	**Total**	**Exchange**	**Base Costs**
1. Construction and Rehabilitation of Subsurface and Surface Drainage	467,793.75	12,581.25	480,375.00	52.15	1.40	53.56	3	80
2. Strenghthen EPADP Capacity for Operation and Maintenance	88,688.25	26,170.00	114,858.25	9.89	2.92	12.81	23	19
3. Project Coordination and Management	7,500.00	-	7,500.00	0.84	-	0.84	-	1
Total BASELINE COSTS	563,982.00	38,751.25	602,733.25	62.88	4.32	67.20	6	100
Physical Contingencies	36,600.00	-	36,600.00	4.08	-	4.08	-	6
Price Contingencies	32,724.63	539.88	33,264.51	3.65	0.06	3.71	2	6
Total PROJECT COSTS	633,306.63	39,291.13	672,597.76	70.61	4.38	74.99	6	112

2.4.2 The project will be financed by an ADB loan of Euros 50.20 million and the Government will contribute Euros 24.79 million as counterpart contribution towards project activities. The ADB loan will cover 65% of the civil works and 90% of the equipment and machinery. The Government will cover 100% of the Project Coordination and Management.

Table 2.4: Sources of financing (Euros million)

Sources of Financing	Foreign Currency	Local Currency	Total Costs	Percent
Government of Egypt	0.00	24.79	24.79	33.1
ADB Loan	4.38	45.82	50.20	66.9
TOTAL	4.38	70.61	74.99	100.0

2.4.3 The overall cost for the third phase of the NDP in Euros is 190 million which will be financed through parallel financing from three donors. The Islamic Development Bank (IsDB) has already approved financing for Euros 28.60 million (15.1% of the total programme cost), KfW/EU will provide financing of Euros 50.00 million (appraisal in the first half of 2015 – 26.3%) and the AfDB will provide financing of Euros 50.20 million (26.4%). The balance amounting to Euros 61.20 (32.2% of the total programme cost) will be financed by the GOE through counterpart funding. This high level of counterpart contribution for the entire programme and the inclusion of enhanced agricultural productivity through improved water resource management systems in the Government's new Development Strategies demonstrate the country's commitment to implement the overall development programme. This is one of the three criteria in the Expenditure Eligible for Bank Financing Policy for an ADB country to finance less than 50% of the total programme. In addition, the risk of financing the programme is spread among the three financiers.

Table 2.5: Project cost by category of expenditure

		(EGP '000)		(EURO Million)			% Foreign	% Total
Categories of Expenditures	**Local**	**Foreign**	**Total**	**Local**	**Foreign**	**Total**	**Exchange**	**Base Costs**
I. Investment Costs								
A. Civil Works	457,500.00	-	457,500.00	51.01	-	51.01	-	76
B. Goods	75,787.50	25,262.50	101,050.00	8.45	2.82	11.27	25	17
C. Services	11,576.25	13,488.75	25,065.00	1.29	1.50	2.79	54	4
Total Investment Costs	544,863.75	38,751.25	583,615.00	60.75	4.32	65.07	7	97
II. Total Recurrent Costs	19,118.25	-	19,118.25	2.13	-	2.13	-	3
Total BASELINE COSTS	563,982.00	38,751.25	602,733.25	62.88	4.32	67.20	6	100
Physical Contingencies	36,600.00	-	36,600.00	4.08	-	4.08	-	6
Price Contingencies	32,724.63	539.88	33,264.51	3.65	0.06	3.71	2	6
Total PROJECT COSTS	633,306.63	39,291.13	672,597.76	70.61	4.38	74.99	6	112

Table 2.6: Category of expenditure by source of financing (Euros millions)

	Govt. of Egypt		ADB		Total		For.	Local
	Amount	**%**	**Amount**	**%**	**Amount**	**%**	**Exch.**	**(Excl. Taxes)**
A. WORKS								
Construction & Rehabilitation of Drainage	20.45	35.0	37.98	65.0	58.43	77.9	-	58.43
B. GOODS								
1. Vehicles	0.23	10.0	2.04	90.0	2.27	3.0	0.57	1.71
2. Equipment	0.91	10.0	8.18	90.0	9.09	12.1	2.26	6.83
Subtotal	1.14	10.0	10.23	90.0	11.36	15.2	2.83	8.53
C. SERVICES								
1. Training, Seminars, Workshops	0.00	-	0.12	100.0	0.12	0.2	0.06	0.05
2. Technical Assistance	0.93	34.0	1.81	66.0	2.74	3.7	1.49	1.25
3. Audit	-	-	0.06	100.0	0.06	0.1	-	0.06
Subtotal	0.93	31.9	1.99	68.1	2.92	3.9	1.55	1.37
D. OPERATING COSTS	2.27	100.0	-	-	2.27	3.0	-	2.27
TOTAL	24.79	33.1	50.20	66.9	74.99	100.0	4.38	70.61

Table 2.7: Expenditure schedule by component

	Base Cost (EUR million)						
Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Total**
1. Construction and Rehabilitation of Subsurface and Surface Drainage	5.13	10.25	12.97	10.37	9.72	5.13	53.56
2. Strenghthen EPADP Capacity for Operation and Maintenance	11.36	0.32	0.33	0.37	0.28	0.15	12.81
3. Project Coordination and Management	0.14	0.14	0.14	0.14	0.14	0.14	0.84
Total Baseline Costs	16.62	10.71	13.43	10.89	10.13	5.41	67.20
Physical Contingencies	0.39	0.78	0.99	0.78	0.74	0.39	4.08
Price Contingencies	0.16	0.34	0.72	0.83	1.00	0.66	3.71
Total Project Costs	17.17	11.84	15.15	12.50	11.87	6.46	74.99

2.5 Project's target area and population

2.5.1 The Bank financed Project will be implemented in five regions of the country as follows: East Delta, Middle Delta, West Delta, Middle Egypt and Upper Egypt. Efficient drainage will result in improved soil quality of 125,000 feddans covered by the project in these regions. Selection of drainage areas is demand driven due to the following factors: (i) water table that is less than one metre for at least 75% of the area; (ii) soil salinity exceeding 4 dS/m; and (iii) areas where declines of agricultural productivity by 20-30% are reported due to water logging and/or soil salinity. The primary beneficiaries will be the farming households in the project areas. Given the current land tenure in Egypt where the average farm size is one feddan, this means that the primary/target beneficiaries will be approximately 125,000 households or 625,000 people[5], of which 50% are women. Some of the cultivated land is under some type of leasehold and this together with crop consolidation allow larger contiguous areas of major crops to be grown in blocks. Some indirect project beneficiaries include labourers who will benefit from employment on construction of the drainage system. Increased incomes in the project areas will also result in increased off-farm activities where traders and business people will also benefit indirectly. The main project outcomes for this target population will be improved soil drainage for their farms thereby resulting in increased crop productivity, by 15-21%, and increased household incomes.

2.6. Participatory process for project identification, design and implementation

2.6.1 The proposed project is an extension of previous projects financed by other development partners as discussed above (NDP I & II). The Bank financed project will therefore be implemented by the already established institution responsible for drainage related projects, the Egyptian Public Authority for Drainage Projects (EPADP), which managed NDP I and II. Management and key staff of EPADP have previous experience engaging the key beneficiaries and partner institutions in the implementation of these projects. Implementation of previous phases included field visits and dialogue with local famer associations and Collector Users' Associations (CUAs), on issues such as topography, pedagogy, hydrology, socio-economic and environmental aspects in the proposed project areas. Bank appraisal mission discussions with beneficiaries indicated that farmers support the drainage improvement initiatives, and appreciate that these are for their long term benefit. Beneficiaries also support the government's programme for crop compensation and cost recovery arrangements. The extension service of EPAD is continually consulting farmers with respect to improved benefits, suitability of the infrastructure and timing of construction. Project implementation will place emphasis on the active involvement of women farmers in the CUAs, to ensure that their opinions are not only heard, but that they participate in the making of key decisions that affect all farmers.

[5] The average family size in rural Egypt is about 5 people per household.

2.7 Bank Group experience, lessons reflected in project design

2.7.1 The Government of Egypt has historically been a key partner of the Bank and is its largest client in terms of historic approvals with USD 5.64 billion approved between 1974 and today. The Bank's on-going portfolio in Egypt comprises 30 operations with a total commitment of UA 1.26 billion in the areas of power (78%), finance (10%), water and sanitation (4%), social sector (4%), and multi sector (2%). Eighty seven percent of the portfolio is composed of public sector operations, 12% of private sector operations and 1% of technical assistance grants.

2.7.2 Over the recent past, the Bank has not been very active in the agriculture sector in Egypt and currently has only one ongoing operation in the sector, the Master Plan for Hydraulic Structures. During the 90s and 2000s, the Bank implemented a couple of irrigation and drainage projects in the country including the Rehabilitation of Agricultural Drainage Systems Project in the 2000s.

2.7.3 More recently, the Feasibility Study for the Rehabilitation/Reconstruction of Zefta Barrage and the Comprehensive Study and Project Preparation for the Rehabilitation of Ismailia and Nubaria Canals were concluded in December 2014. The PCR for the Zefta Barrage study had an overall rating of 3.24 (on a scale of 4). Overall, the ongoing operations are progressing well, however, the Technical Assistance (TA) operations tend to suffer from delays. The delays have been attributed to the political and institutional transitions that the country has gone through over the past few years and also due to the limited capacity of the executing agencies to some extent. The Implementation Progress Report (IPR) ratings for a couple of ongoing studies are quite favourable. The rating for the Transaction Advisory Services for Helwan Wastewater from the November supervision was 3 for the Development Objective (DO) and 3 for Implementation Progress (IP), on a scale of 4. Supervision ratings for the Preparation of the Masterplan for the Rehabilitation/Replacement of Major Hydraulic Structures was 2.75 for the Development Objective and 2.42 for Implementation Progress. In addition, the Bank has conducted a number of feasibility studies intended to lead to bigger investments in the field of water management infrastructure. The current pipeline of projects include: (i) On-Farm Irrigation Modernization Project; (ii) Rehabilitation of Zefta Barrage; (iii) Rehabilitation of the Nubaria and Ismailia canals; and (iv) Land Reclamation Project.

2.7.4 The key lessons learnt from the drainage and irrigation projects in the early 2000s and the earlier phases of the NDP include: (i) the importance of having Monitoring and Evaluation Unit specific to the project to provide analytical content in progress reports; (ii) delayed effectiveness of projects due to numerous and onerous conditions precedent to effectiveness; (iii) the need for a qualified procurement expert within the Executing Agency and the streamlining of procurement approvals; and (iv) the need for an integrated approach of interventions that go beyond project financing and should be embedded in an integrated sector approach that links ESW, policy based operations and Technical Assistance (TA). NDP has therefore incorporated the lessons learnt and, has recommended the recruitment of a qualified procurement officer for the project; has used minimum but sufficient conditions precedent to effectiveness; the Bank is currently processing a MIC-TAF grant to provide complementary studies and TA for the project; and the EPADP already has a strong M&E unit. The Bank is also working closely with the other development partners (IsDB, KfW and the WB) in implementing this programme under the Joint Integrated Sector Approach (JISA).

2.8 Key performance indicators

2.8.1 The key performance indicators for monitoring of project achievements are identified and captured in the results based logical framework. The key outcomes include reduced rural poverty rates and increased efficiency of drainage. The key indicators are increased crop productivity and increased land under drainage. These indicators will be collected and analysed regularly by the M&E unit of EPADP through crop trials and monitoring progress on drainage construction. The M&E unit will collect and report data disaggregated by gender during project implementation.

2.8.2 The EPADP will prepare quarterly and annual project progress reports presenting the progress on output indicators disaggregated by gender where appropriate. Outcome indicators will be monitored through EPADP's management system and national statistics. Indicators will be updated in the Implementation Progress Report (IPR) and necessary adjustments will be made as appropriate. A medium term report (MTR) and Project Completion Report (PCR) will be prepared. All of these reports are circulated widely within the Government, the Bank and to other development partners.

III. PROJECT FEASIBILITY

3.1. Economic and financial performance

Table 3.1: key economic and financial figures

FIRR (base case) 19%	NPV Euros 41 million at 12%
EIRR (base case) 23%	NPV Euros 68 million at 12%

NB: detailed calculations are available in Annex B6 (technical annexes)

3.1.1 The project is financially and economically viable, as indicated by the Project's Financial Internal Rate of Return (FIRR) of 19% and Economic Internal Rate of Return (EIRR) of 23%. At the enterprise level, a typical one feddan farm model shows that as a result of the project, annual net margin is calculated to increases by 40% from EGP 4,847 per farm to EGP 6,772 per farm at full development. This demonstrates that at the enterprise level, the project is financially feasible.

3.1.2 The analysis has considered the following assumptions (i) project life period of 30 years; (ii) infrastructure operating cost of 2% per year during the project life; (iii) cost recovery of the project costs repaid over 20 years with no interest; and (iv) implementation schedule of investment built from the expenditure schedule of activities. The key costs that are considered for the analysis include the capital investment costs for the drainage systems and incremental operational and maintenance costs.

3.1.3 The benefits considered in the analysis are those derived from increased productivity of crops due to enhanced water management through drainage. The increase in productivity of 5 selected crops ranges from 15 - 21%. This increase in productivity translates directly into increased incomes at the household level. The project includes other benefits which have not been factored in the EIRR analysis above such as, increase in land values after installation of drainage systems; increase in off-farm activities due to increased household income; improved health of households due to reduction of water-borne diseases and better nutrition. If all of these benefits are calculated, the EIRR would even be better.

3.1.4 Sensitivity analysis was conducted on the EIRR for four scenarios and demonstrated that the project is quite robust and would remain viable under a range of alternatives. The results are presented in the table below.

Table 3.2: Results of the Sensitivity Analysis on the EIRR

Scenario	**EIRR**	**NPV (EUR million, 12%)**
10% increase in crop prices	24.53	79.55
10% decrease in crop prices	21.60	57.37
10% increase in investment costs	21.52	62.63
10% decrease in investment costs	24.92	74.30

3.2 Environmental and Social impacts

Environment

3.2.1 The NDP has environmental positive effects as it lowers the water table, reduces the occurrence of waterlogging, eliminates stagnant water bodies resulting from canal seepage, reduces soil salinity, the risk of desertification and instances of infection by water borne diseases. The NDP therefore is classified as category 2 as few if any, of its environmental impacts are irreversible, and can be avoided by applying the

required mitigation measures. The major mitigation measure that shall be taken into consideration is to minimize the impact of salts and other sub-surface drainage pollutants on downstream receiving media. However, the salt and chemical loads in drainage water are site specific and will be diluted with upstream drainage water. It will also be monitored and evaluated by the Drainage Research Institute (DRI) and the EPADP for corrective action in case required. The Government recently abandoned the use of herbicides, which is a positive environmental step.

Climate Change

3.2.2 The arid and semiarid regions are particularly vulnerable to climate change, such that any changes in precipitation patterns will have significant impacts on hydrological regimes and water resource systems. Subsurface drainage projects are particularly sensitive to change in precipitation and temperature. Despite recent advances in climate change science, great uncertainty remains as to how and when climate will change and how these changes will affect planning design and management of subsurface drainage systems. Water authorities should therefore begin to re-examine design criteria for the present and future planned drainage systems under a wide range of climatic conditions. Some of the climate adaptation measures that will be undertaken by the project include increased institutional capacity for responding to climate related damage through the purchase of machinery and equipment for emergency repairs to damaged farm buildings and irrigation infrastructure. The Project will also increase institutional knowledge through a number of environmental studies.

Gender

3.2.3 All households within the catchment area will benefit from improved drainage, irrespective of whether the household has a male or female head. It is estimated that female headed households in rural Egypt constitute approximately 15% of the households. The project will aim to reduce gender inequality and promote equal access to resources. Gender disparities remain persistent in Egypt where women comprise only 25% of the labour force participation. In the agriculture sector, farming employs 83% of rural women and 43% of rural men, although most of it is non-cash family labour. Women have the legal ability to own and inherit land, but the legal framework and social custom discriminate against women, resulting in low levels of women's land ownership. Lack of land ownership often prevents the active participation of women in Water Users Associations as well as receiving a loan for the purchase of water pumps in one's name. It is important to note that gender disaggregated data for the agriculture sector in Egypt is scarce. Water logging and soil salinity have a negative impact on crop/food production in general and in particular increasing women's social and economic vulnerability, as well as exposing them to other risks, such as violence. However, for this reason, any improvement in cash generated from farming operations due to the project will impact rural women directly (for the female headed households) and indirectly (where they provide family labour that will benefit from enhanced crop production). With increased incomes, women can also pursue off-farm entrepreneurial opportunities. Gender mainstreaming training will be conducted for both EPADP staff and the CUAs. The project will endeavour to ensure that women participation in the CUAs is at least at 30% and not only nominally but in leadership positions as well. One of the reasons given for female extension workers not being able to go to the field is lack of transport. The project vehicles that will be purchased by EPADP will facilitate female extension workers to go to the field. Sensitization will be conducted for the contractors to consider giving women a priority in employment on labour intensive activities.

Social

3.2.4 Potential social benefits and substantial farm-level benefits as a result of installing NDP subsurface drainage projects in Egypt are expected. This is a combined result of the following changes: (i) an increase in cropping intensity; (ii) a shift in cropping pattern towards more remunerative crops; (iii) a significant increase in crop yields; (iv) an increase in gainful employment; and (v) a conversion of abandoned, marginal lands into agricultural use.

3.2.5 In other words, subsurface drainage helps to improve farm incomes by creating conducive conditions for crop intensification and crop diversification, for overcoming crop calendar constraints, for allowing mechanisation of farm operations, for enhancing the impact of fertilisers and other inputs, for lowering production costs, and for mitigating adverse environmental impacts. As a result of the above, the project beneficiaries will have more income to address their economic and social needs including education for their children, provision of health services, procure food items to supplement their dietary needs, attend to social functions such as weddings and funerals, buy clothes and improve their houses. In addition, the NDP will reduce the adverse effects on people's health due to disease vectors in stagnant water in surface on-farm open drains which will be replaced by sub-surface field drains. Therefore, the Project is expected to improve economic growth through improved agricultural performance, agricultural productivity and consequently higher crop yields in the target areas, higher farm incomes, improved socioeconomic status of the project population and poverty reduction in general.

Involuntary resettlement

3.2.6 The project does not involve any resettlement. However, farmers whose land will be subjected to drainage of civil works will suffer some disruption to farming activities, and loss of crops in the field. The Executing Agency will compensate the farmers according to the size, type of crop and anticipated economic loss. The Government already has a tried-and-tested compensation plan which is well accepted by the farmers. The methods and procedures followed in calculating and paying the amount of crop compensation due to damages resulting from the construction of irrigation and drainage projects, are defined by periodically issued Ministerial Decrees. The decree publishes updated lists of the values of compensation for each Karat[6] of crop type. The decree describes the process for determining the value for compensation, the responsibilities of each party and the method to be followed. According to the Decree, a committee for crop compensation is formed at the local level for each drainage project.

IV IMPLEMENTATION

4.1 Implementation arrangements

4.1.1 The Project will be executed by the Egyptian Public Authority for Drainage Projects (EPADP) under the Ministry of Water Resources and Irrigation (MWRI). EPADP was created in 1973 as a semi-autonomous organization to be responsible for the design, procurement and implementation of all drainage works, as well as for maintenance of field drainage systems and open drains. EPADP will be responsible for the design and technical supervision of project activities in addition to the procurement, financial management and Monitoring and Evaluation (M&E). Regarding cost recovery, the GoE has existing legislation (Law 12/1984) whereby investment costs such as these are recoverable from beneficiaries over a 20 year period with no interest charge. EPADP has established Collector User Associations (CUA) at the level of each collector drain to enhance the role of farmers by shifting the maintenance responsibilities of subsurface systems to the beneficiaries, to disseminate information on drainage issues, communicate early warnings in the case of malfunctioning drains and address health, environmental and social concerns. The presence of the Egypt Field Office (EGFO) will also be very instrumental in quickly addressing various operational requirements for procurement, disbursement, etc. to enhance project implementation.

4.1.2 **Project Coordination Unit (PCU)**: For the efficient, effective and timely implementation of the Project, EPADP will designate staff who will be responsible for the day-to-day running of the project. The following key staff will be provided for the PCU to be dedicated to the project on a full time basis: a senior official designated as the Project Coordinator; a Finance Officer; a Planning, Monitoring and Evaluation (PME) Officer; and a Gender and Social Officer. These staff will be designated from the current EPADP staff. In addition, given the complexity and critical nature of procurement to project implementation, a Procurement Specialist with the required qualifications and experience will be recruited competitively. The PCU will be responsible for all the activities relating to project implementation including preparing

[6] "Karat" is 1/24 of one feddan.

and submitting to the Bank for no objection the work plans and budgets of the projects, tender documents, bid evaluation reports, contract awards and contracts, audit and progress reports, as well as making appropriate recommendations to the steering committee. **Steering Committee**: In line with GOE's current practice of ensuring project coordination is effectively managed across ministries, a Project Steering Committee (PSC) comprising representatives from the MWRI (including specialized agencies such as the DRI and other relevant ones), Ministry of Finance (MOF) and the Ministry of International Cooperation (MIC) will be established. The PSC will be responsible for the strategic direction and coordination of the Project.

Procurement Arrangements

4.1.3 Public procurement in Egypt is governed by the Law 89/1998 that was enacted by decree 1367/1998 (which includes the Executive Statutes of the Law). In 2011 the Bank conducted an assessment of the National procurement procedures of Egypt to consider whether they can be used for NCB procurement. This Assessment report revealed several key discrepancies (listed in the technical Annex) with the Bank's rules for which any arrangement for mitigation has not yet been found within the country. Further, efforts made so far to improve the legal framework including reducing the broad nature of some key provisions that do not allow predictability have not yet been completed. In fact, the last CPAR (dated 2003 and updated in year 2005) has pointed out, the broad nature of the principles in the law and its executive statutes that left considerable room for extensive discretionary power that could result in lack of transparency and/or inconsistent decisions. In order to address these issues, The World Bank has support the country and carried out in 2009 an analysis between the Executing Regulations (ER) and the UNCITRAL law in order to reduce the gap between these documents. Unfortunately, to date, the Draft Executing Regulations that came out after this initiative are still pending at state council level since more than 4 years awaiting to be cleared.

4.1.4 In a view of the above, all procurement of goods, works and consulting services financed by the Bank will be in accordance with the Bank's *Rules of Procedure for Procurement of Goods and Works* or, as appropriate, *Rules of Procedure for the Use of Consultants*, dated May 2008 and revised July 2012, using the relevant Bank Standard Bidding Documents. For National competitive bidding foreseen for small and medium works at regional level, an acceptable Bidding document in Arabic will be developed and used in order to align with common practice in Egypt. To that extent, the Arabic version of the Bidding document used in the previous World Bank projects with the NDP will be adjusted and used. The decision of using an Arabic version of bidding documents for small and medium works is based on lessons learned in the country. It has been observed in previous projects (by others IFIs as well) that using foreign language (English) bidding documents in NCB tender at regional level often constitutes a barrier to the type of small and medium contractors targeted and negatively impacts the level of competition.

Table 4.1: Procurement Arrangements (Euro Million)

	Procurement Method					
	International Competitive Bidding	National Competitive Bidding	Consulting Services: QCBS	Local Shopping	N.B.F.	Total
A. WORKS	-	58.43	-	-	-	58.43
		(37.98)				(37.98)
B. GOODS						
1. Vehicles & Equipment						
Vehicles	-	2.27	-	-	-	2.27
		(2.04)				(2.04)
Equipment	8.92	-	-	0.17	-	9.09
	(8.03)			(0.16)		(8.18)
C. SERVICES						
1. Training, Seminars & Workshops	-	-	-	-	0.12	0.12
					(0.12)	(0.12)
2. Technical Assistance	-	-	2.74	-	-	2.74
			(1.81)			(1.81)
4. Audit	-	-	0.06	-	-	0.06
			(0.06)			(0.06)
D. OPERATING COSTS	-	-	-	-	2.27	2.27
TOTAL	8.92	60.71	2.81	0.17	2.38	74.99
	(8.03)	(40.03)	(1.87)	(0.16)	(0.12)	(50.20)

4.1.5 A procurement capacity assessment of EPADP carried out during project preparation found that EPADP is missing a qualified procurement specialist to adequately handle Bank procurement procedures. In terms of procurement risk assessment, this is considered Substantial. To mitigate procurement risks, a procurement specialist will be hired for the project life and conduct procurement capacity development to ensure the internalization and appropriate use of the Bank's rules and procedures. The various items under different expenditure categories and related procurement arrangements agreed for each contract to be financed by the loan are summarized in the Annex B 5.5 of the technical Annex to the PAR.

Financial Management

4.1.6 The financial management aspects of Project Implementation will be under the responsibilities of Egyptian Public Authority on Drainage Projects (EPADP) using the existing structure of the entity to carry out the Financial Management functions. EPADP has a functional Finance and Planning Department which is headed by a Director of Finance. The delay in implementation of a computerized accounting system since 2010 has constituted a concern. However, the current combination of manual and comprised processing of accounting data to generate information is sufficient enough in meeting the Bank's requirements of the financial management elements – budgeting, treasury management, accounting and financial reporting, and internal controls. Overall, the Financial Management operations assessment of EPADP reflected an adequate environment to provide, with reasonable assurance, accurate and timely information on the status of the project and as such the existing systems shall be adopted for budgeting, accounting, data/transactions processing and day to day work which shall be governed by the existing Accounting Manuals. However, it is recommended that due to the unreliability of using a spreadsheet for financial reports, the project accounting system should be computerized within one year of the project operations. Adequate provisions would be provided in the project costings to meet the cost of computerisation.

4.1.7 **Financial Reporting and Auditing Arrangement:** To meet fiduciary requirements, the project shall submit audited financial statements (which shall include a management letter) to the Bank, within six months following the closure of each financial year. The reports shall include (i) the sources and uses of funds; (ii) income and expenditures; (iii) balance sheet and cash flow statements; (iv) statement of changes in sources and application of funds (v) Special Account Statement (vi) Statement of Expenditure (SOE), (vii) Reconciliation of Loan Balance in project books with Amounts Disbursed by the Bank and; (viii) detailed notes to the accounts. In addition, the project shall be required to submit Interim Financial Reports (IFR) within 30 working days after the close of each quarter. EPAPD would recruit external auditors on terms and conditions satisfactory to the Bank, to audit the project's annual financial statements, and submit the audit report within six months of the end of the year being audited. The External Auditor to be recruited shall serve for not more than three years throughout the life time of the project.

4.1.8 **Internal Audit:** The EPADP has a functional Internal Audit which reports directly to the Minister of Water and Irrigation. However, the periodicity of the Internal Audit should be increased to meet the volume of transactions of the project considering that contracts will be executed and supervised at the District levels with cash payments through the District accounts.

4.1.9 **Disbursement Arrangements:** The disbursement of resources for both recurrent and capital/investment expenditures will be made in tranches based on the Annual Work Programme to be agreed with and approved by the Bank. This will be effected using the Special Account Method. However, all the payments relating to Capital/Investment expenditure will only be paid after the related contracts have been entered in SAP or any other accounting system of the Bank that may be introduced from time to time and approved by relevant officers of the Bank as provided for by the Bank's Delegation of Authority Matrix. For the Special Account, the GoE will open a foreign currency denominated Special Account in which funds released from the loan will be deposited for payments of all categories subject to the review and approval of the Bank. However, to ensure easy tracking of Bank financing for the project, the Special Account which will be opened at the Central Bank of Egypt will be operated in a foreign currency denominated account to be agreed by both parties. The Special Account will disburse only towards meeting eligible expenditures for the project as provided for in the Bank's eligibility rules.

4.2 Monitoring

4.2.1 The EPADP Monitoring and Evaluation unit has a very detailed and current database on the key indicators of: (i) soil salinity; (ii) water table; and (iii) crop yields in selected sites of the five agricultural regions. However, a baseline survey will be conducted in each command area and associated communities at project start-up to assess the physical and socio-economic baseline status of the project area and to measure the additional selected project indicators. The baseline will include sex-disaggregated data and be based on gender analysis. The project will incorporate gender sensitive results-based indicators and target values. The project will also conduct at its onset, a start-up workshop, with the aim of sensitizing and training National and Regional PCU staff, implementing partners and project beneficiaries on the project objectives and scope and review the Results Based Logical Framework.

4.2.2 Through EPADP's Monitoring and Evaluation (M&E) department, the Project will provide: (i) timely and accurate information on project implementation progress and constant feedback for decision making and addressing potential plan deviations and problems during implementation; and (ii) the basis for assessing the achievements of the project as per the Results Based Logical Framework. EPADP's M&E experts would be responsible for planning, monitoring and evaluating key project results in the project areas. These experts will also support farmer awareness and knowledge exchange, train selected persons in Operation and Maintenance, prepare progress reports and implement studies as required.

Timeframe	Milestone	Monitoring process / feedback loop
Year 1	Baseline study	PCU and Regions to monitor
Year 1 – 6	Implementation	Beneficiaries, Regions, EPADP, MWRI & PCU
Year 1 – 6	Oversight	Steering Committee (MOF, MWRI, MIC, EPADP)
Year 1 – 6	Audit Reports	Annually by PCU
Year 3	Mid-Term Review	Bank and PCU to monitor
Year 6	Impact Study	PCU and Regions
Year 6	Project Completion Report	EPADP, MWRI and PCU to monitor; Bank to participate

4.3 Governance

4.3.1 The 2014 Presidential elections paved the way for Egypt's restored stability following three years of difficult political transition. Following the one-year term of President Morsi, who was removed from office in July 2013, the new constitution was ratified in January 2014 and presidential elections were organized in May 2014 paving the way for Egypt's economic rebound and stability. The electoral constituencies' law was approved in December 2014 and constituted the final legal step before the next parliamentary elections. The forth-coming elections will represent the final milestone of the political roadmap set forth in July 2013. Meanwhile, the GoE has been deploying efforts to restore security and implement critical policy reforms. This should further consolidate political stability. Egypt's political outlook remains, however, dependent on the government's capacity to address the demands of the 2011 revolution for social justice and an open and accountable society, as well as its capacity to safeguard public security and press on with reform efforts.

4.4 Sustainability

4.4.1 Irrigation and drainage are critical for the agriculture sector in Egypt and as such, the government places a high priority on the sector. In addition to Government support for the sector, there are several other development partners intervening in the sector such as the World Bank, KfW, EU, IsDB, etc. All of these development partners provide support to EPADP.

4.4.2 The Government has also instituted a programme for cost recovery which has worked successfully over the years. Egyptian law (Law No. 12 of 1984) requires full recovery, from farmers, of the field drainage investment costs without interest, over a 20-year period, commencing one year following installation completion. Cost is computed as the sum of the installation contract value, the cost of the pipes supplied by EPADP, farmers' compensation for crops destroyed during installation and an administrative charge of ten percent of the installation contract, all on a per feddan basis. This programme ensures sustainability of the drainage investments.

4.4.3 In addition, one of the planned project activities includes training for Collectors Users Associations (CUAs) on Operation and Maintenance of the drainage system. This places ownership for maintaining the drains on the farmers and is therefore more sustainable.

4.5 Risk management

4.5.1 *Climate Change*: Adverse climatic conditions on environment and agricultural production in Egypt.
Mitigation: The Government has developed environmental mitigation measures and commissioned various climate and environmental technical studies to inform decisions in the sector.

4.5.2 *Project Cost Overruns*: Project cost overruns due to the rise in the cost of materials due to rising costs of raw materials may lead to cost increases.
Mitigation: Efficient procurement timing to address the increases, as well as adequate price contingencies for the unavoidable increases will mitigate the risk.

4.5.3 *Pollution:* Abuse of open drains for dumping of wastewaters, municipal solid wastes and other pollutants.
Mitigation: Effective measures will be put in place to sustain drainage water quality for reuse through enforcement of environmental protection laws and regulations and promoting public awareness of wastewater pollution in agricultural drains through CUAs. Reuse of drainage water should be integrated in irrigation management both at the farm level and the main system level.

4.5.4 *Delay in providing counterpart funding:* The GoE will be providing significant financing for infrastructure activities. Delays in provision of these resources could result in implementation delays.
Mitigation: Close follow up with the borrower will be made during implementation to ensure timely allocation and availability of counterpart funding.

4.6. Knowledge building

4.6.1 The knowledge gained through the implementation of several projects and studies in the sector in Egypt has been duly applied in designing this project. In the same pattern, the knowledge that will be generated by this Project will be instrumental in designing and managing subsequent phases of the National Drainage Programme in the future. The results from the proposed studies and other surveys, including the socio-economic impact study will inform the stakeholders on how to put the acquired knowledge attributes into practical use for better results-oriented achievements and sustained benefit flows.

4.6.2 At the project level, the project implementation review, quarterly progress reports, audit, sector M&E and completion reports will also provide information on various aspects of the project for further diagnosis. The knowledge obtained will be shared within the Bank and with other development partners as well as with RMCs.

V LEGAL INSTRUMENTS AND AUTHORITY

5.1 Legal instrument

The Project will be financed by an ADB loan.

5.2 Conditions associated with Bank's intervention

5.2.1 Conditions Precedent to Entry into Force of the Loan Agreement: The entry into force of the Loan Agreement shall be subject to the fulfilment by the Borrower of the provisions of Section 12.01 of the General Conditions Applicable to Loans and Guarantee Agreements of the ADB.

5.2.2 Conditions Precedent to First Disbursement of the Loan: The first disbursement of the loan shall be subject to Borrower having opened a Special Account at the Central Bank of Egypt as required by the Loan Agreement.

5.2.4 Other Conditions: The borrower shall cause the Executing Agency to: (a) implement the project in compliance with national legislations and in accordance with the Environmental and Social Management Framework (ESMF) and submit to the Bank on an annual basis an acceptable Environmental and Social Monitoring Report; (b) submit to the Bank on annual basis an update on the implementation of the project; and (c) designate staff for Project Coordination with acceptable composition and qualifications. The borrower shall establish a Project Steering Committee, and shall notify the Bank of its functions and composition.

5.3 Compliance with Bank Policies

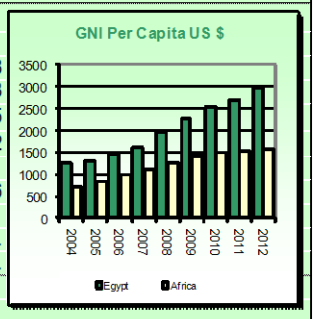
( ) This project complies with all applicable Bank policies.
( ) The project complies with all other applicable Bank policies

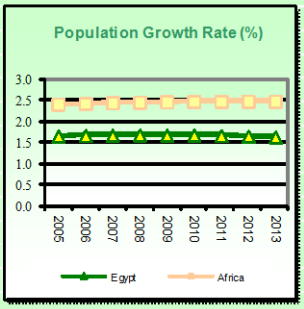
VI. RECOMMENDATION

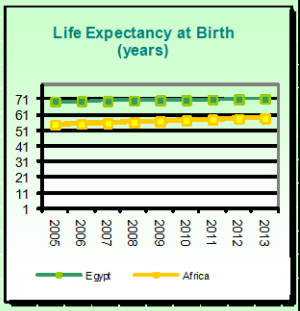
Management recommends that the Board of Directors of the Bank approve the proposed ADB loan of Euros 50.20 million to the Arab Republic of Egypt for the purposes and subject to the conditions stipulated in this report.

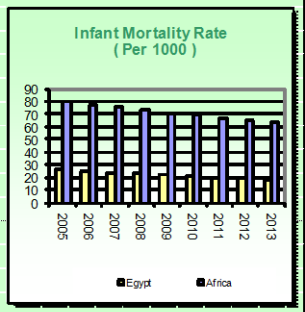
Appendix I. Egypt's Socio-Economic Indicators

	Year	Egypt	Africa	Develo-ping Countries	Develo-ped Countries
Basic Indicators					
Area ('000 Km²)	2011	1,001	30,323	98,458	35,811
Total Population (millions)	2013	82.1	1,109.0	5,909.3	1,252.8
Urban Population (% of Total)	2013	43.8	40.2	47.7	78.3
Population Density (per Km²)	2013	82.4	46.9	70.7	23.5
GNI per Capita (US $)	2012	2 980	1 719	3 815	38 412
Labor Force Participation - Total (%)	2012-2013	34.8	37.4	67.9	72.1
Labor Force Participation - Female (%)	2012-2013	24.7	42.5	38.6	44.6
Gender -Related Development Index Value	2007-2011	0.634	0.502	0.694	0.911
Human Develop. Index (Rank among 187 countries	2012	112	...	...	...
Popul. Living Below $ 1.25 a Day (% of Populatio	2008-2011	1.7	40.0	20.6	...
Demographic Indicators					
Population Growth Rate - Total (%)	2013	1.6	2.5	1.3	0.3
Population Growth Rate - Urban (%)	2013	2.0	3.4	2.5	0.6
Population < 15 years (%)	2013	31.1	40.9	28.3	16.4
Population >= 65 years (%)	2013	5.8	3.5	6.1	16.8
Dependency Ratio (%)	2013	57.0	77.9	52.4	49.9
Sex Ratio (per 100 female)	2013	100.9	100.0	103.3	94.4
Female Population 15-49 years (% of total populatic	2013	25.6	24.0	53.1	45.2
Life Expectancy at Birth - Total (years)	2013	71.2	59.2	68.4	77.8
Life Expectancy at Birth - Female (years)	2013	73.6	60.3	70.3	81.2
Crude Birth Rate (per 1,000)	2013	23.2	34.8	21.2	11.2
Crude Death Rate (per 1,000)	2013	6.5	10.4	7.6	10.4
Infant Mortality Rate (per 1,000)	2013	18.5	61.9	39.8	5.5
Child Mortality Rate (per 1,000)	2013	23.6	97.4	56.3	6.6
Total Fertility Rate (per woman)	2013	2.8	4.6	2.6	1.7
Maternal Mortality Rate (per 100,000)	2010	66.0	415.3	240.0	16.0
Women Using Contraception (%)	2013	62.7	34.9	62.6	71.3
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2004-2011	283.0	47.1	117.8	297.8
Nurses (per 100,000 people)*	2004-2011	352.0	132.6	202.7	842.7
Births attended by Trained Health Personnel (%)	2006-2011	78.9	52.6	66.3	...
Access to Safe Water (% of Population)	2012	99.3	68.8	87.2	99.2
Access to Health Services (% of Population)	2001	99.5	65.2	80.0	100.0
Access to Sanitation (% of Population)	2012	95.9	39.4	56.9	96.2
Percent. of Adults (aged 15-49) Living with HIV/AID	2012	0.1	3.9	1.2	...
Incidence of Tuberculosis (per 100,000)	2012	17.0	223.6	144.0	23.0
Child Immunization Against Tuberculosis (%)	2012	95.0	83.0	81.5	96.1
Child Immunization Against Measles (%)	2012	93.0	74.0	83.0	94.3
Underweight Children (% of children under 5 years	2005-2012	6.8	19.7	17.0	1.4
Daily Calorie Supply per Capita	2009	3 349	2 481	2 675	3 285
Public Expenditure on Health (as % of GDP)	2011-2012	2.0	2.9	3.0	7.5
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2012	113.4	101.9	109.4	100.9
Primary School - Female	2012	111.1	97.9	107.6	100.6
Secondary School - Total	2012	86.3	47.4	69.1	100.2
Secondary School - Female	2012	85.5	44.0	67.8	99.7
Primary School Female Teaching Staff (% of Total)	2010-2012	52.9	46.6	58.0	84.3
Adult literacy Rate - Total (%)	2012	73.9	62.0	80.3	99.2
Adult literacy Rate - Male (%)	2012	81.7	70.7	85.9	99.3
Adult literacy Rate - Female (%)	2012	65.8	53.7	74.9	99.0
Percentage of GDP Spent on Education	2008-2012	3.8	5.3	4.3	5.5
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2011	2.9	7.6	10.7	10.8
Annual Rate of Deforestation (%)	2000-2009	-3.4	0.6	0.4	-0.2
Forest (As % of Land Area)	2011	0.1	23.0	28.2	35.0
Per Capita CO2 Emissions (metric tons)	2010	2.5	1.2	3.0	11.6









Sources: AfDB Statistics Department Databases; *last update :* *May 2014*
United Nations Population Division, World Population Prospects: The 2012 Revision;
World Bank: World Development Indicators; UNAIDS; UNSD; WHO, UNICEF, WRI, UNDP; Country Reports.
For any given interval, the value refers to the most recent year available during the period
Note : n.a. : Not Applicable ; ... : Data ***Not Available.***

Appendix II: AfDB Portfolio in Egypt (March 2015)

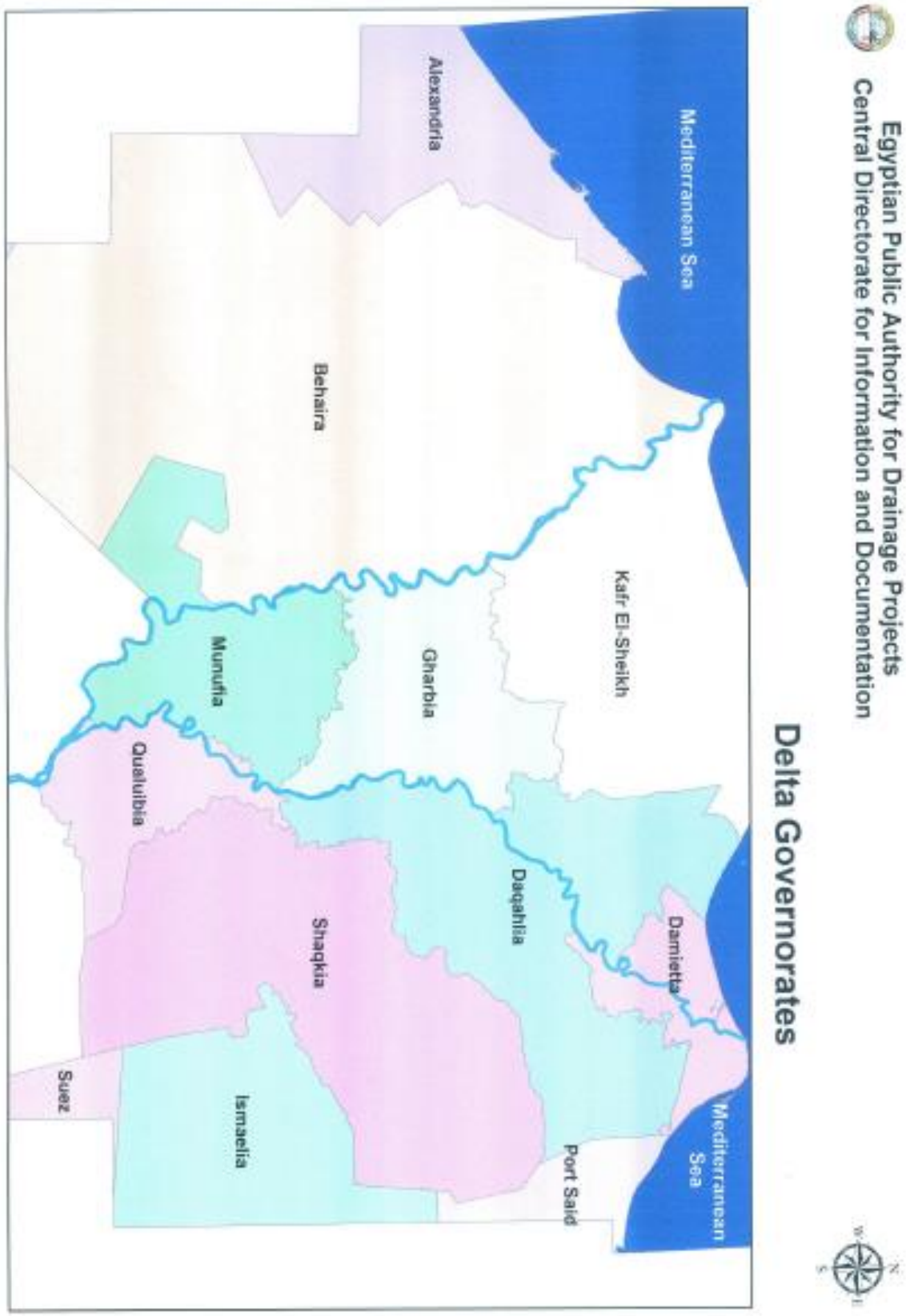
Project	Source	Approval	Age (month)	Closing Date	Amount	Disbursed
Suez Thermal Power Plant	ADB-L	15-Dec-10	26	31-Dec-16	349.6	32.9%
Ain Sokhna Thermal Power	ADB-L	22-Dec-08	63	30-Jun-15	286.1	70.6%
Abu Qir 1300 MW Steam Power	ADB-L	14-Nov-07	75	30-June-15	212.8	93%
Study on Integration of Wind Energy	MIC TAF	16-May-11	21	31-Dec-15	0.49	18.4%
Study on Improvement of Power Efficiency	MIC TAF	16-May-11	19	31-Dec-15	0.49	8.2%
CTF Project Preparation Grant for Kom-Ombo	CTF	29-Nov-11	20	31-Dec-14	0.65	33.8%
CTF Project Preparation Grant for Suez Gulf Wind	CTF	29-Nov-11	27	31-Dec-14	0.64	34.4%
Egyptian Refining Company	ADB Priv	17-Mar-10	30	15-May-16	129.44	53.3%
Egyptian Refining Company sub convention loan	ADB Priv	17-Mar-10	30	15-May-16	16.18	100.0%
Sub-Total – Power (8)					**996.39**	**60.3%**
RIEEP-Rural Income and Economic Enhancement	ADB-L	13-Jan-10	50	31-Dec-15	44.5	100%
RIEEP	FAPA	5-Feb-10	47	31-Dec-15	0.6	52%
RIEEP	MIC TAF	13-Jan-10	57	31-Dec-15	0.6	33.3%
Social Audit to improve governance in social	TFT	28-Jun-13			0.12	0.0%
Support to Parliament: Building Capacity &	MENA TF	11-Jun-14		30-Sep-17	1.91	0.0%
Sub-Total – Social (5)					**47.73**	**94.3%**
MSE Support Project Loan (2nd LOC to NBE)	ADB-L	12-Oct-05	73	31-Dec-12	127.1	100.0%
Sub-Total - Finance (1)					**127.1**	**100.0%**
Gabel El-Asfar Wastewater Treatment Plant	ADB-L	7-Oct-09	66	31-Dec-15	46.90	24.1%
Study Nubaria and Ismailia Canals Rehab	AWF	18-Oct-07	73	31-Dec-14	1.70	82.4%
Monitoring of Water MDG in N. Africa	AWF	27-Apr-10	46	31-Dec-14	1.70	100.0%
Transaction Advisory Services for PPP of Helwan Wastewater Treatment Plant	MIC TAF	31-Oct-11		30-Jun-15	0.6	29.0%
Sub-Total – Water & Sanitation (4)					**50.90**	**28.6%**
Statistical Bldg Programme (SCB II)	MIC TAF	20-May-11	24	30-Jun-15	0.6	100%
Franchising Sector Support Program	ADB-L	25-Feb-09	54	31-Dec-15	25.4	20.9%
Franchising Sector Support Program	FAPA	13-Apr-09	56	31-Dec-14	0.59	100.0%
Industrial Waste Management & SME	MENA TF	20-Feb-13		30-Mar-16	1.29	12.4%
Support to Micro, Small & Medium Enterprises	MENA TF	20-Feb-13		30-Sep-16	1.29	20.2%
Transaction Advisory services for NAVISAT	IPPF	4-Mar-13		30-Jun-15	0.98	10.2%
Effective & transparent delivery of justice	MENA TF	11-Jun-14		31-Aug-17	1.57	0.0%
Egypt International Economic Conference	MIC TAF	19 Nov 14		30 Dec 15	0.39	0
Sub-Total – Multi Sector (8)					**31.72**	**21.8%**
Masterplan for Rehabil Struct Nile	MIC TAF	10-Nov-09	42	31-Dec-15	0.6	50.0%
Masterplan for Rehabil Struct Nile	AWF	3-Nov-09	42	31-Dec-15	1.2	70.0%
Sub-Total – Agriculture & Irrigation (2)					**1.8**	**63.3%**
Windsor Garden City Hotel, Hurghada	ADB Priv	21-May-97	176	31-Dec-01	9.1	100.0%
Sub-Total – Industry (1)					**9.1**	**100.0%**
SUBTOTAL: 29					**1,265.31**	**63.6%**

Appendix III. Key related projects financed by the Bank and other development partners in the country

Donor	Project Name	Project Description	Finance (m USD)
AFD	Egyptian Farm-Level Irrigation Project (2012-2019)	The project objective is to modernize the field irrigation in the areas surrounding El-Mahmoudia, Menoufia and Meet Yazid in the Nile Delta area. The development goal of the Project is to increase profit from agriculture and improve shares to secure high quality water to around 140,000 small farmers for irrigating 200,000 Feddans.	45.9
WB			100
KFW	National Drainage Project II (2000-2015)	The project aims at increasing agricultural productivity through drainage improvement, thus raising rural incomes based on the diversified and sustainable production resulting from appropriate uses of land and water resources.	50 m. Euros
WB			80
KfW	Assiut Barrage and Hydro Power Plant (2006-2017)	The construction of the new Assiut barrage inclusive of a hydropower plant and supplementary investment measures as well as the necessary consulting services. The project aims to secure irrigation for agricultural surfaces of 690,000 ha, and to generate electricity in an environmentally friendly manner from a renewable resource	312.6 million Euros & 155 million Euros by GoE
KfW	Rehabilitation of Pumping Stations I+II (1999-2016)	The projects concern the complete rehabilitation or new construction of pumping stations for irrigation and drainage. The aim of the projects is to contribute to securing or raising agricultural outputs and incomes of farmers in the command areas of the pumping stations. (Delta and Upper Egypt)	54.71 million Euros
KfW	Integrated Irrigation Improvement and Management Project (IIIMP) (2006-2015)	The Project aims at assisting MWRI in improving the management of irrigation and drainage to increase the efficiency of irrigated agriculture water use and services.	65.8 m. Euros
WB			120
KfW	Naga Hammadi Barrage and Hydro Power Plant (1998-2014)	The old Naga Hammadi barrage was replaced through the construction of a new barrage including a Hydro Power Plant. The project aimed at securing irrigation of an agricultural area of approx. 286,000 ha and contributing to the efficient and environmentally sound generation of electrical energy of up to 462 Gwh/a.	127.82 million Euros
EIB			76.4 m. Euros
KfW	Irrigation Improvement Project 2 (IIP2) (2005-2014)	The irrigation improvement of agriculture lands	28.4 m. Euros
IFAD	Upper Egypt Rural Development Project (2007-2016)	The project works on poverty reduction and raising the standard of living in the governorates of Assuit and Qena. It enables targeted groups, small holders, women and unemployed youth, in rural areas to obtain soft loans, find sustainable job opportunities and increase their incomes through;	15.5

		developing small enterprises and small financing; raising the efficiency of small enterprises for better production, competitiveness and marketing and enhancing water management to save water to the maximum.	
IFAD	Old Lands Field Irrigation Development Project (2010-2018)	It aims at raising the standard of living of the poor in rural areas in the project's targeted governorates (Assuit- Qena- Souhag- Kafr El-Sheikh- Beheira	47
IFAD	West Noubaria Rural Development Project (2003-2014)	The project is helping for supporting adoption of better on-farm water management practices; encouraging development of small and medium enterprises in agricultural production and marketing; providing marketing and extension information and supporting development of a viable financial system.	54.8
IsDB	National Drainage Project III (2013-2018)	The project aims at increasing agricultural productivity through drainage improvement, thus raising rural incomes based on the diversified and sustainable production resulting from appropriate uses of land and water resources.	32.3
Kuwait Fund for Arab Economic Development	Development of 400,000 Feddan in North Sinai (2001-2017)	provision of 14 pumps west of Suez canal; construction of Sheikh Jaber Alsabah canal (175 km); construction of irrigation and drainage networks for 400,000 feddans; construction of 7 main and 8 secondary irrigation pumping stations, and 4 main drainage pumping stations.	NA
The OPEC Fund for International Development (OFID)	Irrigation Development on Bohia Canal Phase II (2011-2014)	The project aims at Increasing the irrigation efficiency of approximately 12,000 Feddans in the project area (Bohia in Daqahlia and Sharkia governorates). Modernizing irrigation infrastructure in addition to training and on-site demonstrations to over 600 engineers and 1,500 farmers	15
UAE	The Southern Valley (Toshka) Development Project (2001-2015)	The construction of branch No. 3 of El-Sheikh Zayid Canal, Toshka Development Project.	100

Appendix IV. Map of the Project Area



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Central Directorate for Information and Documentation