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IMPLEMENTATION COMPLETION AND RESULTS REPORT

LOAN-79210/ TF-97703

ON A

LOAN

IN THE AMOUNT OF US\$36.1 Million

AND

GLOBAL ENVIRONMENTAL FACILITY GRANT

IN THE AMOUNT OF US\$9.73 Million

TO THE

GOVERNMENT OF TUNISIA

FOR THE

Tunisia Second Natural Resources Management Project
June 26, 2018

Agriculture Global Practice
Middle East And North Africa Region

CURRENCY EQUIVALENTS

Exchange Rate Effective Jun 1, 2018

Currency Unit = Dinar (TND)

TND2.60711 = US\$1

US\$0.70642 = SDR1

FISCAL YEAR

July 1 - June 30

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ABBREVIATIONS AND ACRONYMS

AC	Annual Contract
ADG	Agricultural Development Group
CCU	Central Coordination Unit
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
EDC	Extended Development Committee
EIRR	Economic Internal Rate of Return
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GEO	Global Environment Objective
GoT	Government of Tunisia
IBRD	International Bank for Reconstruction and Development
ICARDA	International Center for Agricultural research in the Dry Areas
ICR	Implementation Completion and Results Report
IEG	Independent Evaluation Group
IGA	Income Generating Activity
IPA	Integrated Participatory Approach
ISR	Implementation Status and Results Report
MAWRF	Ministry of Agriculture, Water Resources and Fisheries
MESD	Ministry of Environment and Sustainable Development
M&E	Monitoring and Evaluation
NPV	Net Present Value
NRMP	Natural Resource Management Project
OP/BP	Operational Procedure/Bank Procedure
PAD	Project Appraisal Document
PDO	Project Development Objective
PDP	Participatory Development Plan
PNO	Northwest Mountainous and Forested Areas Development Project (<i>Projet de développement des zones montagneuses et forestières du Nord-Ouest</i>)
PPAR	Project Performance Assessment Report
RADC	Regional Agricultural Development Commissariats
RCU	Regional Coordination Unit
SCD	Systematic Country Diagnostic
SDR	Special Drawing Rights
TND	Tunisian Dinar
US Dollar	United States Dollar

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**DATA SHEET****BASIC INFORMATION****Product Information**

Project ID	Project Name
P086660	Tunisia Second Natural Resources Management Project
Country	Financing Instrument
Tunisia	Investment Project Financing
Original EA Category	Revised EA Category
Partial Assessment (B)	

Related Projects

Relationship	Project	Approval	Product Line
Supplement	P112568-TUN GEF Second Natural Resources Management	17-Jun-2010	Global Environment Project

Organizations

Borrower	Implementing Agency
GOVERNMENT OF TUNISIA	Ministry of Agriculture

Project Development Objective (PDO)**Original PDO**

The Project Development Objective is to improve the living conditions of rural communities in the project areas in terms of access to basic infrastructure and services, sustainable income increase, and improved natural resource management practices by fostering an integrated approach to community-based development.

Revised PDO

The revised Project Development Objective and Global Environmental Objective is to improve access to basic infrastructure and production means, and to improve management of natural resources, using a participatory approach in the project area.



FINANCING

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
World Bank Financing			
P086660 TF-93089	999,710	23,509	23,509
P086660 IBRD-79210	36,100,000	36,100,000	33,012,640
P112568 TF-97703	9,730,000	9,730,000	9,437,210
Total	46,829,710	45,853,509	42,473,359
Non-World Bank Financing			
Borrower	9,820,000	0	0
Local Communities	7,430,000	0	3,100,000
Total	17,250,000	0	3,100,000
Total Project Cost	64,079,710	45,853,509	45,573,358

KEY DATES

Project	Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
P086660	17-Jun-2010	19-Feb-2011	13-Dec-2013	31-Dec-2015	26-Dec-2017
P112568	17-Jun-2010	19-Feb-2011	13-Dec-2013	31-Dec-2015	26-Dec-2017

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US\$M)	Key Revisions
05-Feb-2013	2.02	Change in Project Development Objectives Change in Results Framework Change in Components and Cost Change in Financing Plan
27-Nov-2015	12.02	Change in Loan Closing Date(s)
29-Dec-2016	22.90	Change in Loan Closing Date(s) Reallocation between Disbursement Categories
10-Feb-2017	22.86	Change in Results Framework Other Change(s)



KEY RATINGS

Outcome	Bank Performance	M&E Quality
Moderately Satisfactory	Moderately Satisfactory	Modest

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US\$M)
01	30-Jun-2011	Satisfactory	Satisfactory	2.09
02	01-Jan-2012	Moderately Satisfactory	Moderately Unsatisfactory	2.09
03	29-Sep-2012	Unsatisfactory	Unsatisfactory	2.09
04	17-May-2013	Unsatisfactory	Unsatisfactory	2.35
05	09-Aug-2013	Unsatisfactory	Unsatisfactory	2.35
06	22-Feb-2014	Moderately Unsatisfactory	Moderately Satisfactory	4.23
07	04-Jun-2014	Moderately Satisfactory	Moderately Satisfactory	4.23
08	25-Nov-2014	Moderately Satisfactory	Moderately Satisfactory	6.87
09	16-Jun-2015	Moderately Unsatisfactory	Moderately Unsatisfactory	9.18
10	30-Nov-2015	Moderately Unsatisfactory	Moderately Unsatisfactory	12.11
11	31-May-2016	Moderately Satisfactory	Moderately Satisfactory	18.74
12	28-Dec-2016	Moderately Satisfactory	Satisfactory	22.99
13	22-Jun-2017	Moderately Satisfactory	Satisfactory	26.55



SECTORS AND THEMES

Sectors

Major Sector/Sector (%)

Agriculture, Fishing and Forestry 100

Crops 9

Irrigation and Drainage 41

Public Administration - Agriculture, Fishing & Forestry 21

Forestry 9

Other Agriculture, Fishing and Forestry 20

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3) (%)

Finance 0

Finance for Development 9

Agriculture Finance 9

Urban and Rural Development 0

Rural Development 58

Rural Markets 9

Rural Infrastructure and service delivery 48

Land Administration and Management 1

Environment and Natural Resource Management 0

Climate change 16

Mitigation 16

Water Resource Management 17

Water Institutions, Policies and Reform 17

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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. The 2nd Natural Resource Management Project (NRMP2, or hereafter the “the Project”) was prepared at the end of a decade which, despite impressive economic growth¹, continued to be marked by significant inequality and income disparities between developed urban areas and the mostly agricultural rural space². At the turn of the decade, growth was tapering off due to the global financial crisis of 2008, affecting the country’s living conditions and established welfare norms, with the rural space suffering disproportionately more malaise. Natural factors affecting the agricultural sector, such as a demonstrably more arid and unstable climate, coupled with deficient practices for management of natural resources, primordially land and water, were also playing a substantive role in economically depressing the rural areas, and maintaining rural poverty at levels higher than national ones³. The country context was also characterized by a rigid administration, geared towards ensuring the security and stability of an autocratic regime, and largely unsympathetic to free enterprise and private initiative. All these forces led to a rural exodus⁴, which at times boiled over into local turmoil and eventually played an important part in kick-starting the revolution that led to a regime change and the adoption of a new constitution.

2. Recognizing the high salience of agriculture, rural development and natural resource management, Tunisia had maintained a constant policy dialogue with the World Bank (hereafter “Bank”) and secured Bank support in the development of the National Agricultural Strategy and the Five-Year Development Plan for 2010-2014. The Bank’s rural portfolio had previously supported the Government’s efforts with a suite of operations such as the Natural Resource Management Project (NRMP), and the Northwest Mountainous and Forested Areas Development Project 2 and 3 (PNO). In this context, and based on the implementation experience and results of the NRMP, the Government of Tunisia and the Bank agreed on the preparation of NRMP2.

3. The Project has built on the design and implementation experience of NRMP which closed in 2004⁵. The NRMP’s Learning Implementation Completion Report noted the positive externalities of improved farm management practices, income generating activities and improved natural resource management on local socio-economic conditions. Complementary investments in the construction of rural feeder roads, water access and harvesting points and basin management infrastructure also had produced socio-economic benefits. The integration of local stakeholders in the design of local community Participatory Development Plans (PDPs) through an Integrated Participatory Approach (IPA) was instrumental in building the capacity of local partners and stakeholders, community groups, and the Regional Agricultural Development Commissariats (RADCs) involved in implementation.

4. The Project’s geographic focus was the same as NRMP’s – the Governorates of Jendouba, Kasserine and Medenine - each representative of different agri-ecological zones: the humid and naturally diverse North (Jendouba),

¹ Tunisia was the fastest growing non-oil producing economy on the African continent in the decade ending in 2010.

² In 2007, the agricultural sector accounted for 10 percent of GDP (17 percent with agri-industry), a share that had been decreasing continuously over the past 20 years, but that employed more than a quarter of labor force. Agricultural growth, although at a sizeable 4.5 percent in 2007, was noticeably below its potential for pro-poor growth. (PAD)

³ In 2007, poverty remained predominantly a rural phenomenon. The country’s overall poverty level had gradually declined from 4.2 percent in 2004 to 3.8 percent in 2007, but government data estimated that rural poverty was twice that of the national level.

⁴ The rural population had declined from 45 percent of the total population in 1986 to 34 percent in 2007.

⁵ NRMP2 was regarded as the 2nd phase of NRMP, despite a nearly 6-year gap between the two projects.



the dry and agri-pastoral Center (Kasserine), and the predominantly arid pastoral South (Medenine). These regions were originally selected based on criteria encompassing high poverty levels, vulnerability to land degradation/desertification, and increased drought risk. They were lagging in socio-economic development compared to other parts of the country (particularly the coastal areas) and were characterized by similar socio-economic and local infrastructure challenges. Subsistence farming remained to be the predominant farming system (i.e. low agricultural productivity and limited value addition)⁶. Smallholder farmers had limited technical and managerial capacity, were poorly organized to access input and output markets efficiently, and they had traditionally been excluded from the local development planning processes. Limited economic opportunities, combined with land fragmentation and natural resource degradation, have led many farmers to overexploit their land, trapping them in a vicious cycle of low productivity, degradation of natural resources and encroachment on forestry and pasture habitats⁷.

5. In addition to its focus on scaling up successful NRMP activities (e.g. conservation of natural resources, improving farming practices and increasing income opportunities), the Project added important new activities aiming to support national-level actions on promoting treated wastewater reuse in agriculture, place a stronger focus on adaptation to climate change, and enhance the overall environmental dimension of local development (funded by the Global Environment Facility (GEF)). The Project continued to rely for delivery of its interventions on the IPA and the PDPs as the main planning and budgeting tool. The RADCs, representing the Ministry of Agriculture, Water Resources, and Fisheries (MAWRF) at the governorate level, played the central role in engaging local communities in developing PDPs, as well as Annual Contracts (ACs) for implementation of project activities. The Project also relied heavily on the support of multiple technical institutions, such as the General Department of Financing of Investments and Professional Organizations of MAWRF, the Agricultural Land Agency, the Agency for Agricultural Extension and Training, the Office of Livestock and Pasture, and the General Department of Environment and Quality of Life of the Ministry of Environment and Sustainable Development (MESD).

6. The Project aimed to benefit low-income small farmers, women, and the youth, as well as poor and socially vulnerable households prone to rural out-migration. In these areas, agricultural and forest-related activities rarely allow for full-time employment and/or sustainable and long-term incomes. Farmers are confronted with limited investment opportunities, limited growth and diversification of crops, as well as limited exposure to knowledge and know-how. Target beneficiaries would generally have a limited asset base (including lack of land ownership), poor access to finance/credit and poor entrepreneurial skills. To ensure precision of beneficiary targeting (both individuals and households), the PDP preparation process was delegated to communities, maximizing the use of local knowledge and social capital.

Theory of Change (Results Chain)

7. A plausible inference of the Project's theory of change at appraisal is that the implementation of a large range of socio-economic development and conservationist activities would have improved living conditions in rural areas, increase rural incomes, and prevent natural resource degradation and enhance climate change resilience of agro-pastoral ecosystems. To this end, the Project's implied results chain was based on the idea of achieving these high-level outcomes through improved access to basic infrastructure and services, increased incomes, and improved protection and management of natural resources, all with the active and meaningful participation of local communities in planning and decision making. In relation to GEF funding, the implied results chain presumed that sustainable land management and water conservation practices would reduce erosion, land degradation and run-off, thus ensuring

⁶ Out of approximately 154,000 households in the three regions, around 115,000 were in farming.

⁷ Source: NRMP PAD; NRMP2 PAD; Tunisia Agriculture Policy Review (2006)



higher levels of environmental rehabilitation and protection of local and regional ecosystems (the Mediterranean Sea agenda)⁸.

8. The presumed theory of change at the time of appraisal fitted well with the Country Partnership Strategy's⁹ (CPS) Strategic Objective 1 "Growth, Competitiveness, and Employment" which supported agriculture and rural development, and Strategic Objective 2 "Sustainable Development and Climate Change" which supported measures to strengthen management of natural resources and of the impacts of climate change. It was also aligned with Tunisia's Five-Year Development Plan for 2010-2014, which proposed a comprehensive development approach that guaranteed sustainable growth and a balance among economic, social, and environmental priorities through the integration of environment into development programs and rationalizing natural resources exploitation.

Project Development Objectives (PDOs)

9. The Project Development Objective (PDO) as stated in the Legal Agreement was *to improve living conditions for rural communities in the project area inter alia by fostering increased access to basic infrastructure and services, sustainable increase of income, improved natural resource management practices and promotion of an integrated approach to community-based development among various stakeholders*. The PDO as stated in the Project Appraisal Document (PAD) had a slightly different semantic formulation, but not one of material difference.

10. The Global Environmental Objective (GEO) was not stated in the Legal Agreement. The GEO in the PAD was *to reduce the threat of land degradation and climate change to vulnerable agricultural production systems in the target areas, while developing options to address land-based pollution affecting the Mediterranean Sea*.

Key Expected Outcomes and Outcome Indicators

11. As captured in the PDO and GEO, the key expected outcomes revolved around: (i) improvements in living conditions via increased access to basic infrastructure and services, increased incomes; improved natural resource management practices and increased application of the IPA; and (ii) mitigation of threats stemming from land degradation and climate change vulnerabilities via options aimed at reducing pollution to the Mediterranean Sea. As defined in the PAD, the achievement of these outcomes was to be measured through the following outcome indicators:

- a) Percentage of rural *Imadas*¹⁰ targeted with improved access to basic infrastructure and services;
- b) Percentage of Income-Generating Activities (IGAs) introduced generating positive income flow for the beneficiaries;
- c) Percentage of rural *Imadas* which have a PDP validated by the Regional Council implemented through ACs;
- d) Percentage of ACs that include investments in sustainable land management measures, including climate change adaptation measures.

⁸ See Annex 1 for a diagrammed presentation of the Project's Results Chain.

⁹ Country Partnership Strategy for the Republic of Tunisia for the Period FY10-13, November 13, 2009, World Bank, Maghreb Country Management Unit, Middle East and North Africa Region, Report No. 50223-TUN

¹⁰ An *Imada* is the smallest territorial-administrative entity in Tunisia



Components

12. **Component 1 – Support to Participatory Development Plan Investments (IBRD US\$29.87 million, GEF US\$6.16 million).** This component was designed to support priority investments in target areas. At appraisal, the component was structured on the following thematic sub-components: (a) improving water access and water management; (b) constructing and rehabilitating rural feeder roads; and (c) developing sustainable agricultural production systems. In the latter case, in addition to investments, funding was also allocated for agricultural advice and support aimed at improvements in agricultural, pastoral and sylvo-pastoral production practices, proliferation of climate-resilient farming, diversification of rural economic activities, and mainstreaming of soil and water conservation. GEF resources were targeting: (a) exploiting non-wood forestry products, (b) applying water and land conservation techniques, (c) mainstreaming organic and climate resilient farming, (d) providing related training on sustainable land management practices, and (e) promoting activities aimed at preventing further land degradation caused by intensified farming and eco-system encroachment.

13. **Component 2 – Support to the Development of Treated Wastewater Use for Agriculture (GEF US\$2.05 million).** The objective of this component was to support the National Program for Wastewater Reuse through the transfer of treated wastewater from the Greater Tunis area towards the interior of the country (south of the Tunisian Dorsal) where demand for water is high. Treated wastewater would help increase yields on agricultural land, reduce fluctuations in agricultural production, and enhance adaptation to climate variability and change. GEF funding supported activities which would have directly reduced land-based pollution to the Mediterranean Sea.

14. **Component 3 - Institutional Strengthening and Awareness Raising (IBRD US\$6.14 million, GEF US\$1.52 million).** The objective of this component was to support the mainstreaming of the IPA in the three Governorates of Jendouba, Kasserine, and Medenine. Capacity building and institutional strengthening was targeting Agricultural Development Groups (ADGs) and Expanded Development Committees (EDCs) at the *Imada* level; RADCs and the Regional Coordination Units (RDCs) at the regional level; and the staff of MESD, MAWRF and the Central Coordination Unit (CCU) staff at the national levels. The component was also designed to (a) support the implementation of a monitoring and evaluation system for project activities and for safeguards and (b) build awareness of sustainable land management and environmental issues. GEF funding would finance the communication and awareness campaign on environmental issues (sustainable land management, wastewater reuse, adaptation to climate change, sustainable management of natural resources, etc).

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

15. **1st Project Restructuring.** The Project's PDO and GEO were revised only once during the lifetime of the project through a Level 1 Restructuring approved on February 5, 2013. The PDO and GEO were combined and reformulated to read as follows: *improve access to basic infrastructure and production means, and to improve management of natural resources, using a participatory approach in the project area.*

16. Under "improve access to basic infrastructure" the Project focused on financing primarily rehabilitation/construction of rural feeder roads and access to water activities; under "improve access to production means" the Project focused on financing technical assistance and investments for access to irrigation and income generating activities; and under "improve management of natural resources" the Project focused on financing technical



assistance and investments in sustainable land management, land consolidation, and improvements of pastures and local forests.

Revised PDO Indicators

17. The Results Framework was modified to ensure full alignment and consistency with the revised PDO and new component structure. Additional indicators were introduced, while some were eliminated to simplify monitoring of results. Also, certain indicators were reformulated to clarify definitions and account for changes in institutional responsibility for reporting. Finally, core indicators were introduced to improve monitoring of corporate mandates (e.g. gender). Target values had been set or re-set to reflect revised indicators, implementation progress and revised projections on achieving the PDO/GEO. The revised PDO/GEO Indicators were¹¹:

- (a) Beneficiaries having improved access to basic infrastructure;
- (b) Beneficiaries having access to improved production means;
- (c) Area of land protected (through improved management of natural resources);
- (d) Direct project beneficiaries (including women).

Revised Components

18. The main change in relation to project components was the cancellation of the original Component 2: Support for the Development of Treated Wastewater Use for Agriculture (3 percent of the appraised project cost). The cancellation of the component resulted in (i) a modification of the project description, (ii) the renumbering of Component 3 to Component 2, and (iii) the reallocation of corresponding GEF resources to Component 1 to increase support for eligible activities.

Other Changes

19. **Institutional Arrangements.** The elimination of Component 2 led to the exclusion of the National Sanitation Utility from the implementation hierarchy of the Project. Furthermore, the role of MESD was reduced to the implementation of activities under the new Sub-component 2.3: Environmental Knowledge Management. At the local and regional levels, the Local Development Councils and Regional Development Councils ceased to exist after the revolution, and their role for the validation of the PDPs and ACs was transferred to the RADCs.

20. **Project Financing.** Project costs and financing plan had undergone substantive changes following a request from the Government of Tunisia to increase the financing percentages of projects supported by the Bank in the post-revolution Tunisia to 100%¹². As a result, project costs were reduced by nearly US\$5.5 million on account of the Government's assumed initial contribution (see details in Table 1 below).

¹¹ Measurements of the use of the participatory approaches, embedded in the original and revised PDO, has been shifted to intermediate outcome indicators.

¹² This was primarily relevant to one project-supported category – works, which was initially financed at 70% with loan and grant proceeds.



Table 1: Original and Revised Project Cost Allocations

Project Costs (US\$ million) Components	Initially Allocated	Revised
1. Financing for Execution of Investments Selected under the PDP Framework	47.91	47.53
2. Development and Promotion of Use of Treated Wastewater in Agriculture	2.06	-
3. Institutional Strengthening and Sensitization to Environmental Issues and IPA Methodology	9.59	6.12
Total baseline cost	59.56	53.65
Physical Contingencies	2.40	2.37
Price Contingencies	5.61	6.97
Total Project Costs	67.57	62.99
Interest during construction	0	0
Front-end Fee	0.09	0.09
Total Financing Required	67.66	63.08

Source: NRMP2 PAD; NRMP Restructuring Paper (2013)

21. **2nd Project Restructuring.** Following a request from the Government of Tunisia in 2015 for the extension of the Project's closing date, the Bank processed a Level 2 Restructuring to extend the closing date from December 31, 2015 to December 30, 2016. It is to be noted that the request from the Government was for an 18-month extension and not the more limited 12-month one as was decided by the Bank. The restructuring was approved on November 27, 2015.

22. **3rd and 4th Project Restructurings.** Following a request from the Government of Tunisia in 2016 for the extension of the Project's closing date, the Bank processed a Level 2 Restructuring to reallocate proceeds among categories and extend the Project's closing date to December 26, 2017. As part of the 4th restructuring, value adjustments were made to several indicator targets to adjust for realism and meaningfulness, and to increase the financing percentages for "works" under the GEF grant. The restructurings were approved on December 29, 2016 and February 10, 2017, respectively.

Rationale for Changes and Their Implication on the Original Theory of Change

23. The rationale for the 1st Project Restructuring was dictated by several endogenous and exogenous factors. The endogenous factors stemmed primarily from the need to streamline the original design to make implementation more efficient. The exogenous factors almost exclusively related to the aftermath of the revolutionary events of 2011, which brought about significant socio-economic, fiscal and institutional turmoil hampering project implementation (see Box 1 below). The unstable post-revolutionary environment, when popular expectations for quick and tangible changes in living conditions were running high, put pressure on the Government to pragmatically re-tool and re-focus the Project to deliver results faster.



24. More than a year and a half after project effectiveness, implementation was essentially at a standstill. Disbursements were non-existent (outside the original withdrawal into the designated accounts of six percent of the IBRD Loan and nine percent of the GEF Grant) and results/achievements were minuscule and well-below expected targets. Some of the key factors that contributed to this included: (i) the civil and institutional disturbances following the revolution, (ii) the weakening or dissolution of several local and regional institutional stakeholders, (iii) challenges in maintaining trust with and involving the local population in the participatory process, (iv) security concerns in the field for the staff of the MAWRP, combined with their lack of experience in dealing with social tensions and conflicts, and (iv) the complexity of the project design and the need for adjustments to the post-revolution environment and government priorities. The following are the key aspects at the core of the 1st Restructuring:

- a. Opting for a single PDO/GEO was aimed at reflecting the fully blended nature of the Project between IBRD and GEF resources;
- b. The reformulation of the original PDO/GEO was aimed to enhance realism of and alignment with the proposed design simplifications;
- c. Modifications in the Results Framework (indicators and target values) were warranted by the revisions of the PDO/GEO, the adjustments in design, the simplification and improvements in meaningfulness of indicators, and the introduction of “core indicators”;
- d. The cancellation of Component 2 was dictated by changes in country priorities brought about by the revolution of 2011. Additionally, a series of technical, environmental and institutional challenges in the targeted pilot sites (including security of personnel on the ground) had made implementation of the component impossible in the remaining implementation period.
- e. The rationale for the adjustments in Project’s institutional arrangements was dictated by changes in the component structure, but more importantly by the elimination of several layers of local and regional institutions.
- f. The rationale for the increase in the percentage of Bank financing was brought about by the country’s extremely difficult fiscal situation in the post-revolution environment.

Box 1: The “Jasmine Revolution”

A popular uprising engulfed Tunisia in the months of December 2010 and January 2011. Named by the international media as the “Jasmine Revolution”, it encompassed massive protests against corruption, poverty and political repression, and it successfully forced the President Zine al-Abidine Ben Ali out of office in January 2011. Unrest began after Mohammed Bouazizi (an unemployed 26-year-old vendor who supported his family by selling fruits from a street cart) set himself on fire to protest repeated demands for bribes from local authorities. His plight came to symbolize the injustice and economic hardship afflicting the masses under the Ben Ali regime, and inspired overwhelming street protests throughout the country. The Tunisian Government’s response to the protests was violent with dozens of protesters killed in clashes with police. Clashes between police and protesters continued and spread to the capital, where the government deployed troops struggled to control the unrest. Attempted concessions and calls for calm by the President were not successful and protesters continued to clash with security forces, leading to the introduction of a state of emergency on January 14, 2011. Eventually Ben Ali stepped down and departed from the country. An interim unity government, incorporating opposition political figures, was put in place on January 17, 2011. The interim government announced profound political reforms, lifting Ben Ali’s ban on opposition political parties and granting amnesty to all political prisoners. In February 2011 the unity government officially suspended all activities by the former ruling party setting the stage for a new political era. The post-revolutionary period was universally characterized by a struggle by the authorities in instilling competent and stable governance at both central and local levels.

25. The rationale for the 2nd Restructuring stemmed solely from the need for additional time to overcome the delays incurred in the first 2 years of implementation.



26. The rationale for the 3rd and 4th Restructurings derived from the fact that the Project had registered significant savings from the depreciation of the Tunisian Dinar (TND) against the US Dollar (the currency of the IBRD loan and GEF Grant). The implementation dynamic had allowed the Project to achieve its targets by the scheduled closing date of December 30, 2016 with significantly less funds than initially anticipated. The GoT and the Bank agreed that the undisbursed balance should be used to scale up the activities of the Project to the benefit of vulnerable communities, leading to another closing date extension of just under 12 months. Adjustments were also made to indicator values to reflect the additional implementation period and to correct a few target values for realism and meaningfulness.

27. Only the 1st Restructuring had the potential to impact the Project's original theory of change. This report argues that the restructuring resulted in minor modifications to the implied theory of change and results chain. The changes to the PDO led to a refocusing from the original aspirations of *"improved living conditions, sustainable increase of income and improved natural resource management practices"* to the more measurable, attributable and salient outcomes of *"access to basic infrastructure, income generating activities and improved natural resource management"*. However, it is plausible to assume that the "access" outcomes, in concert with the continued focus on applying participatory approaches to identifying local development priorities, would contribute in the long-run to improving living conditions, increasing rural incomes, preventing resource degradation and increasing climate change resilience (as illustrated by the post-restructuring theory of change diagram in Annex 1).

28. Other adjustments in design did not materially impact the theory of change. These changes were mostly operational in nature, resulting from post-revolution conditions, and were aimed at improving implementation progress and aligning the Project with the country's emerging priorities. Even the elimination of Component 2 cannot be considered a major shift in the scope of the originally expected outcomes, as the funds were reallocated for activities that compensated for its elimination. For example, the reallocated funds were used to meet rural infrastructure needs, including irrigation and conservation of water resources.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

29. In its Strategic Orientations for 2016–2020, the GoT unequivocally stated its objective of bringing about a renewed social contract, where the state would be expected to ensure inclusion and equal opportunity for all its citizens. The document has three pillars that are directly relevant to NRMP2: (i) pillar 1 focuses on improved governance and structural reforms; (ii) pillar 4 aims to tackle regional disparities and support the ambitions of lagging regions by building economic infrastructure and supporting entrepreneurship; and (iii) pillar 5 aims to promote green growth and ensure the sound utilization of natural resources, with an emphasis on rationalizing water and energy consumption, while promoting modern agricultural systems that guarantee food security¹³.

30. The Project is also strongly salient in the context of the Bank's 2015 Systematic Country Diagnostic (SCD) and the FY16-20 Country Partnership Framework (CPF). The SCD highlights the need to promote inclusive growth through policies aimed at addressing spatial inequalities in relation to access to basic services and infrastructure, and to eliminate

¹³ The cost of degradation of the environment has been estimated to be 2.1% of GDP per year, and the cost of reduced water resources to be 0.6% of GDP per year.



institutional failures that generate unequal opportunities. It emphasizes the importance of increasing access to quality basic services in lagging areas (notably water, health, and education) to improve people's employment opportunities and quality of life. These aspects are ultimately expected to contribute to sustainable long-term economic growth. Furthermore, the CPF emphasizes the need for a greater focus on community engagement of those left behind, especially the youth and women living in lagging regions. Pillar 2 of the CPF focuses on reducing disparities in regional development (mostly between coastal and internal lagging regions) in terms of economic opportunities and living standards, in both the disadvantaged neighborhoods of Tunisia's rapidly growing cities and the country's deprived rural areas. Pillar 3 emphasizes the need for enhancing social inclusion and directing the Bank's assistance to particularly vulnerable segments of society, with the aim of building greater citizen trust and promoting skills development, transparency, and accountability. The CPF also supports the development of territorial planning approaches aligned with Tunisia's plans to decentralize economic and investment decision-making to local governments using, where possible, participatory development approaches. These efforts have been comprehensively supported by the NRMP2's focus on mainstreaming IPA. Finally, the CPF includes the cross-cutting theme of supporting the GoT in restoring the country's natural resource endowment and addressing climate change vulnerabilities by supporting adaptation and mitigation efforts.

31. The relevance of both the original and revised PDOs/GEOs is rated *High*, as they remain highly relevant to and fully aligned with the development strategies of the Government of Tunisia (GoT) and the Bank's strategic pillars for support. Furthermore, the Project's 1st Restructuring has attempted to capture the right level of ambition for the revised PDO/GEO and the desired outcomes, given the extremely difficult political economy context, which required, foremost, delivery of fast and tangible results to respond to the population's heightened expectations after the revolution. The revisions did not, in this sense, affect the level of relevance of the Project's PDO and its activities.

B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Each Objective/Outcome

32. The attempted split calculation of efficacy rates produced the conclusion that implementation results before the 1st Restructuring have a non-significant degree of meaningfulness for the overall measure of efficacy. This is due to the previously highlighted low disbursements and little progress. Hence, the overall efficacy analysis is based solely on implementation results in the post-restructuring phase.

33. The use of PDPs as the main tool for engaging local communities clearly represents an institutional development outcome that merits its own analysis. The Project empowered participating communities to make their own decisions on development priorities, beneficiary targeting and selection, either through formally established ADGs or informal EDCs. The RADCs made consistent efforts to support the ADGs to ensure proper implementation of PDPs (including annual contracts used to track execution rates). To this end, the Project contributed to the functionality of 64 ADGs/EDCs compared to the target of 51, the signing and execution of 201 annual plans and/or contracts compared to a target of 132, and finally an 84 percent rate of execution of these plans compared to a target of 90 percent. These are solid results in a country which is struggling to tackle the multitude of the governance challenges, and the still elusive goal of increased social cohesiveness and trust in government institutions.

34. **Improved access to basic infrastructure.** The prioritization of local-economic vulnerabilities and needs through PDPs resulted in the bulk of the Project's resources being directed towards this PDO outcome. The typology of infrastructure which had either been constructed or rehabilitated consisted of investments in rural feeder roads (210



kilometers covering around 8 percent of the population in target areas), and various investments in potable and domestic-use water supply (1,339 water supply points). The final tally of beneficiaries with improved access to these types of infrastructure was just above 76,000 beneficiaries, which represented around 12,700 households (on average 6 persons per household), of which more than 50 percent were women. This represents 150 percent of the target value (revised in 2017 from 21,000 to 50,000).

35. **Improved access to production means.** Activities aimed at supporting this PDO outcome included a wide range of tools which were made available to the most vulnerable beneficiaries as per the PDPs. The Project supported 3,691 income-generating activities (animal husbandry, horticulture, gardening, green houses), agricultural extension and technical consultations, construction and rehabilitation of small-scale irrigation schemes¹⁴, and water collection points, including pluvial cisterns, for use in irrigation of crops and animal husbandry. The final tally of beneficiaries is 19,700, which represents 109 percent of the target value (revised in 2017 from 17,500 to 18,000).

36. **Improved access to natural resource management.** The activities aimed at achieving this PDO outcome encompassed investments in sustainable land management (including construction of dry-stone gabions and catchments), land re-parceling and consolidation, investments in improvements of pastures and local forests, conservation of deteriorated pasture tracks, etc. At the end of the Project, approximately 33,600 hectares were covered by natural resource management investments and practices. This represents 168 percent of the target value of 20,000 hectares. The target was revised down from 34,000 hectares, but even compared to the original number, this outcome indicator is practically achieved at 100 percent.

37. Several other conclusions about the longer-term effects/impact of the Project can be derived from a few thematic studies carried out towards the end of implementation and are discussed below. These studies include quantitative and qualitative assessments based on self-reported observations by beneficiaries (albeit carried out on a small sample size and mostly illustrative in nature).

38. **Improving living conditions.** NRMP2 beneficiaries reported in 2016 that rehabilitation of feeder roads brought about improvements in access to medical services, schools and other public services outside community boundaries. This statement is supported by measurements of corresponding increases in public transportation of up to 300 percent (traffic by public vehicles). Providing access to water has resulted in a reduction in the average distance travelled to fetch water from 3.0 to 0.5 kilometers and reduced the amount of time women and children spent supplying the household with water by an estimated three hours per day. There is an extensive literature on the immediate and long term economic benefits of access to improved water supply and therefore no data was collected on health and hygiene in the target areas. Benefits include reduced health related costs, time saved due to less illness, and ultimately higher productivity and school attendance¹⁵.

39. **Increasing rural incomes.** Incomes have increased both from savings related to improved access to infrastructure, as well as improvements to farm systems and implementation of IGAs. For example, spending on transportation has been reduced by one TND per person/hour of trip, while farmers experience savings of approximately 75 TND per hectare because of improved access to input/output markets (trip duration reduced by 2 hours)¹⁶. The cost of a cubic meter of water to the consumer was reduced from 5 to 0.8 TND. Regarding farm systems,

¹⁴ Project facilitated access to both surface and ground water irrigations systems. For ground water systems proper analyses of water table levels had been carried out.

¹⁵ Evaluation of the Costs and Benefits of Water and Sanitation Improvements at the Global Level; Guy Hutton and Laurence Haller; Water, Sanitation and Health Protection of the Human Environment; World Health Organization; Geneva 2004.

¹⁶ These findings are corroborated by comparable analysis from other countries. For instance, a 2003 study in Peru shows that rural road



the Project's investments in irrigation schemes stimulated diversification into high-value arboriculture, such as pomegranate and olive trees, with estimates indicating a likely doubling of incomes for beneficiaries. Land consolidation activities have increased the value of land by up to 150 percent, providing equity and potential incremental resale profits to farmers, and a reduction of mechanization costs by up to 25% due to improved contiguity, shape and slope orientation of land plots. Finally, the IGAs have exhibited an average net income of some 1,300 TND per year (454 TND for poultry, 2,267 TND for greenhouses, 3,000 TND for beekeeping, and 1,000 TND for lamb rearing).

40. **Preventing resource degradation and increasing resilience to climate change.** There is less data on the impact of the Project's extensive water and soil conservation activities. However, with large areas under improved soil and water conservation techniques, and covered by run-off and anti-erosion protection infrastructure, positive impacts on farm and pasture land productivity, and an increased degree of protection of farms and infrastructure against adverse weather events, can be plausibly assumed from literature¹⁷. The climate resilience angle has been thoroughly covered through the water and soil conservation activities, as well as the Project's focus on increasing access to irrigation services and implementation of climate-smart IGAs. The importance of climate resilience of rural livelihoods and farm systems is particularly visible at a time when Tunisia is suffering from a severe drought which has spanned two cropping seasons (2015 through 2017). The Project brought nearly 5,500 hectares of small-holder plots under irrigation coverage (on- and off-farm systems), and the IGAs have been an essential tool in ensuring diversification of agricultural activities away from climate-risky field crop cultivation, to sustainable animal husbandry, climate-resistant arboriculture, and protected agriculture (e.g. the proliferation of 150 green houses in Medenine, one of the most water-stressed regions of Tunisia).

Justification of Overall Efficacy Rating

41. Following the 1st Restructuring, project results indicate a robust level of achievement of the revised outcomes and efficacy is rated *Substantial*. It must be noted that the Project suffered certain difficulties in setting reasonable targets after the 1st Restructuring. It was difficult to estimate targets precisely when investments were based on demand-driven activities. This established the rationale for the "adjustments-for-realism" of the target values done in the 4th Restructuring. These adjustments were made based on observations of demand patterns in nearly four years of implementation and as such were likely the better (if not best) estimates of target values. Against these updated targets, the Project clearly and meaningfully demonstrates robust levels of efficacy (see Annex 1) and attribution.

C. EFFICIENCY

Assessment of Efficiency and Rating

42. At appraisal the Project's Economic Internal Rate of Return (EIRR) was estimated at 16 percent over 20 years (no Net Present Value (NPV) calculation was presented in the PAD)¹⁸. The model and assumptions utilized for calculating benefits were limited only to calculation of benefits expected from increased agricultural and fodder production. IGAs were excluded from the economic analysis and presented as illustrations only (no financial analysis

rehabilitation allowed beneficiaries to get over US\$120 increase in annual per capita income (statistically significant and amounting to more than 35% of the control households' average income).

¹⁷ Soil and water conservation in semi-arid areas; Norman W. Hudson (Silsoe Associates); Soil Resources, Management and Conservation Service; Land and Water Development Division; Food and Agriculture Organization, 1987

¹⁸ The economic analysis was not updated at the time of the 1st Restructuring.



was presented either). These factors rendered the PAD economic model meaningless for purposes of the *ex-post* analysis, as using the same methodology would not allow to account for benefits from rural infrastructure, IGAs, and soil and water conservation activities.

43. At closing, lack of robust quantitative and project-specific impact data for the Economic Internal Rate of Return (EIRR) calculation dictated the use of proxies and a model that relied on the Project's largest sub-components: rural roads and IGAs. The analysis included the Project's costs reported by the CCU, with all component investment costs included in the analysis. Proxy-based estimates of benefit streams have been used to derive comparisons with costs. Benefit streams comprised results from a rural roads model (the largest sub-component of the Project by cost), as well as the budgets of the Project's most representative IGAs. The base-case Economic Internal Rate of Return (EIRR) is estimated at 17% over twenty years. The total amount of value creation that corresponds to the investment has been estimated at \$US17.0 million (TND 39.5 million) over twenty years. The EIRR and NPV estimates are considered lower bound as they do not include the benefits resulting from improvements in natural resource management, water supply, conservation of water resources and protection of infrastructure, for which positive economic externalities can be assumed.

44. In terms of unit costs, NRMP2 activities have been implemented efficiently, well-within comparable cost ranges for similar types of activities across Tunisia¹⁹. Some activities, such as drilling of wells and road rehabilitation with paving, incurred higher than initially anticipated costs due to unforeseen factors (e.g., depth of water sources and topography, respectively). Nevertheless, these higher costs are being offset by lower annual maintenance costs (e.g., reduced siltation for wells and deterioration for roads). Also, the higher than anticipated cost of tree plantations is more a result of underestimation of costs, due to difficult terrain and intricacies and unpredictability of domestic production of saplings, rather than evidence of inefficiencies (unit costs for this type of support do not deviate from domestic averages).

45. Implementation delays in the first two years resulted in certain expenditures, mostly financial/commitment fees, which had a limited negative impact on administrative efficiency. Outside of this, the initial implementation delays have been off-set by the extension of the closing date by nearly 24 months. With close support and proactive supervision from the Bank, most of the implementation inefficiencies were mitigated, and all planned activities were completed without additional administrative costs and well-within projected budgets.

46. Efficiency is rated as *Modest* due to methodological and project-specific impact data constraints in estimating more robustly the Project's EIRR.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

47. Based on the narrative and the ensuing ratings for relevance, efficacy and efficiency the Project is rated *Moderately Satisfactory*.

¹⁹ When compared to the Bank's recently closed PNO4 which was present with similar support options in 7 regions of Tunisia.



E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Gender

48. The Project made significant strides to ensure specific targeting of women, achieving a rate of 38 percent inclusion of women. Fifty percent of the direct local beneficiaries of local roads improvements are women. It is estimated that their job mobility has increased due to improved access to fields and olive orchards. Approximately 2,000 women have benefited from financial and technical support under the IGAs (out of approximately 3,000), allowing them to acquire assets and knowledge for economic self-sufficiency. Another 2,000 women have benefited from professional and technical formation efforts. Finally, nearly 3,000 women have benefited from improved access to water, significantly alleviating household burdens, and freeing up time for nurturing and educating children.

49. The team witnessed other positive externalities, such as the ability of young women to continue education after the Project had provided water supply and sanitation facilities to schools. Other numerous positive examples relate to young women who lacked jobs and were being supported by parents in multi-children households. They have received support from the Project for starting their own business and were able to become economically independent. In general, the Project's IGAs have benefitted many inspiring young, degree-holding professionals which have trouble finding jobs, and that's a dimension which merits separate mention.

Institutional Strengthening

50. The Project had a significant institutional development dimension and reached nearly 6,000 individuals with capacity enhancement activities. The universe of beneficiaries included key institutions such as the MAWRF, MESD, RADCs (including teams of animators), RCUs, ADGs, EDCs, but most importantly farmers and rural entrepreneurs.

Poverty Reduction and Shared Prosperity

51. The Project has had a positive impact on the livelihoods of nearly 120,000 rural inhabitants through better road connectivity, improved water supply, access to irrigation, IGAs, land consolidation and improved management of resources. By design, the Project targeted some of the lagging regions of the country with highest poverty rates, attempting to address economic disparities and close the gap with the more affluent coastal regions.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

52. The Project was prepared as a follow-up operation to NRMP²⁰, with clear elements of continuity in design and mix of activities, institutional and implementation approaches, and the overarching theme of engaging communities through the IPA using PDPs and ACs. In theory, the NRMP was a solid platform to build upon, and the Project's initial design clearly set out to capitalize on the previous experience. However, the six-year gap between the two projects had a negative influence on implementation. While NRMP had made important strides in building the capacity of participating partners and stakeholders (all the way from MAWRF to the RADCs and participating communities/groups), by the time NRMP2 came about this capacity had eroded. The GoT failed to make IPA a mainstream approach in its

²⁰ In fact, the two NRM Projects were initially envisaged as a two-phase program.



regional/local development programs, and the participating RADCs had reverted to their usual and established operational practices. Participating ADGs failed to become part of a regional financing effort that would have continued receiving structured support for the implementation of PDPs, and many of them have ceased to operate and/or dissolved. The original design did not properly acknowledge this new reality and the risks it carried.

B. KEY FACTORS DURING IMPLEMENTATION

53. The Project became effective at a time of extreme social and political turbulence (events described above), with profound impacts on the country's rural population. The Government's ability to ensure basic rule of law, at least temporarily, and the effective provision of public services was diminished. The tectonic shifts in the country's political economy, governance, socio-economic development priorities, and worsening security situation, brought implementation to a standstill in the early stages. Many of the Project's regional and local partners and stakeholders either became non-functional or ceased to exist altogether. Recruiting, assigning and retaining staff to work on the Project in the three regions was nearly impossible due to lack of stable governance in the post-revolution period.

54. Another issue outside government control was the lack of local contractors for small-volume works, particularly for construction/reconstruction of remote feeder roads and other civil works. Due to the high regionalization and fragmentation of the Project's interventions, it has been a challenge to contract adequately qualified (technically and financially) private sector suppliers, thus causing disruptions and delays in the Project's implementation schedule. Eventually, this was overcome through aggregation of civil works packages, which led to a proper supply response from the private sector.

55. At the same time, while coordination, engagement and commitment of the key Tunisian implementation stakeholders was not in question, there were several factors under the control of public institutions which affected implementation:

a. Human resource and organizational capacity of the RADCs has remained highly unstable. Systemic issues with mobilization, recruitment and retainment of qualified staff were sorted out only in the 3rd-4th year of implementation (2 years after the 1st Restructuring). In the case of the Jendouba, remedial human resource and organizational measures were still required in the last year of implementation. In the end, despite last-ditch efforts, the region was not able to capitalize on the funding available due to the extension of the Project's closing date through the 3rd Restructuring.

b. Fiduciary aspects related to procurement (from TORs to award), contract management and settlements have remained a constant point of pressure. While procurement and contract management matters were eventually sorted out, the issues related to the settlements for works and goods delivered have persisted well into the post-closing phase, requiring a maximum allowable two-month extension of the grace period for disbursements/payments.²¹ These delays have occurred along the entire chain of actions/decisions necessary to effect payments on time, but the two key elements were: (i) the systemic delays in the final acceptance/certification of works by specialized domestic authorities such as regional road, power and water companies; and (ii) the inability of local contractors to secure warranty bonds to have final payments authorized and released in a timely manner. This issue has the potential to worsen the already precarious

²¹ At the time of writing of this report, it is not clear if the issue of final payments to be made under the Project will be resolved fully.



financial position of the participating provincial governments, should they have to settle remaining outstanding amounts out of their own budgets.

56. Another issue which affected the cadence of implementation towards closing, was the manner in which the extension of the Project's closing dates was handled. The Bank should have attempted to avoid two back-to-back closing date extensions (a year apart), and instead undertake just one extension of 18 months (or more)²², as requested by the Government of Tunisia in 2015.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

57. There were two aspects which had an impact on the Project's M&E system. The first was the complexity of the original design and excessive layering of objectives, which led to a lengthy and a poorly flowing Results Framework. Despite the Bank team's stated efforts to improve the M&E system, in line with the recommendations of the NRMP Implementation Completion and Results Report (ICR), the final construct turned out to be complex and cumbersome, and set on monitoring implementation/output variables and not impact variables. A second aspect related to overconfidence in the ability of implementing partners, both central and regional, to understand, internalize and sustain the project's M&E efforts.²³ The simplifications to the Results Framework introduced through the 1st Restructuring have ensured that monitoring processes became more effective. Still, no impact variables were introduced for monitoring and evaluation, leaving the system focused primarily on measurements of physical achievements, and, as mentioned earlier, preventing a more robust assessment of the Project's efficiency.

M&E Implementation

58. The RADCs through the RCUs and the CCU have made significant efforts in collecting and systematizing implementation monitoring data throughout the life-cycle of the Project. This allowed for efficient corrective action, including identifying solutions to problems with contractors and alerting the higher-level decision makers.

59. Despite not having impact variables integrated into the design, following the recommendations of a Project Performance Assessment Report (PPAR)²⁴, several thematic studies were carried out in 2016-2017 and yielded some information on impact. The GoT's final evaluation report of NRMP2 included a few basic elements of evaluation, further informing the discussion on impacts of increased access to infrastructure and production means. These evaluations relied primarily on representative beneficiary surveys and interviews. Unfortunately, the Project did not produce strong analyses on the impact of natural resource management activities, especially considering the availability of co-financing from the GEF, to allow for more site-specific conclusions on soil conservation, avoided losses due to increased protection from anti run-off measure, pasture biodiversity improvements, etc.

²² The decision on not extending the project by 18 months was made by the CMU and was essentially out of control of the Bank project team.

²³ The M&E system was de-centralized to the RADCs for collection of information and funneled to a central database with the CCU that aggregated data and monitored implementation progress.

²⁴ The Independent Evaluation Group carried out a PPAR for NRMP and PNO3 in 2013.



M&E Utilization

60. At the time of this report's writing, there is scant evidence of broad and specific utilization of data, information and knowledge generated by the Project. Hopefully, future policies and programs will benefit from NRMP2's M&E lessons as the country continues its course towards eliminating regional economic and social disparities. The emergence of democratically elected local power bodies (local elections were held of May 6-8, 2018) is likely to provide an impetus for a more systemic integration of the IPA and PDPs into local development programs, rendering the information and knowledge generated through NRMP2 M&E, as well as its thematic studies, highly salient and useful. However, one extremely positive development was the fact the NRMP2 M&E system was formally adopted by the MAWRF to be replicated for various other projects under its implementation.

Justification of Overall Rating of Quality of M&E

61. The overall rating for M&E is *Modest* mainly because of the insufficient focus of impact variables. The monitoring systems delivered well in line with the design (including the re-design after the 1st Restructuring), but a greater focus on impact evaluation aspects should have been embedded in the system to allow for better interpretation of results in terms of effects/impacts.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

62. The Project was at the forefront of piloting the use of 'borrower systems' for environmental and social safeguards under OP 4.00. It triggered OP/BP 4.01 on Environmental Assessment, OP/BP 4.36 on Forests, and OP/BP 4.12 on Involuntary Resettlement. No major or pervasive environmental safeguards issues were flagged during implementation, though it took a constant capacity building and supervision effort in support of the RADCs staff for screening subproject activities and properly reporting on compliance and application of mitigation measures. Through its participatory approach, the Project was compliant with the social safeguards requirements, especially regarding gender and youth inclusion, and citizen engagement. The acquisition of land for project activities was done on a voluntary basis, as part of the IPA, and conformed with the requirements of OP 4.12, and with those of national legislation, in all three governorates of Jendouba, Kasserine and Medenine. Delays were, however, observed in registering land transfers. This issue was resolved before closing, with all land transfers officially recorded. No conflicts related to land issues were registered, while for other types of conflicts/complaints the Project had a well-structured and logical conflict-resolution mechanism, which proved effective as per the final social safeguards assessment.

63. The assessment on fiduciary requirements is less unequivocal. Application of procurement procedures was relatively satisfactory throughout implementation, although contract management issues have persisted till the end. The financial management arrangements, including staffing, accounting, reporting, budgeting, internal controls, flow of funds, and audit arrangements, were reviewed regularly and provided accurate financial information and reasonable assurance that project funds were being used for the purpose intended. Some delays were observed in the submission of financial reports, but these were progressively addressed and all reports were completed on time in the last year of project execution. Only a small amount (US\$7,000) was found as an ineligible expenditure under the GEF Grant (mis-attribution to category) by the external auditor and was regularized on time by the CCU.

64. As mentioned earlier, one glaring issue related to fiduciary compliance, which required heavy last-minute corrective efforts and interventions related to final settlements. Project implementation entities were not able to ensure



timely settlement of all outstanding payments for the goods and works delivered under the Project. This is clearly a major drawback in the Project's financial/contract management set up, which has the potential to cause serious financial and reputational problems to the GoT beyond project closing.

C. BANK PERFORMANCE

Quality at Entry

65. NRMP2 was designed as a follow-up project to NRMP and has largely taken up the same thematic directions, objectives, and core activities and approaches to implementation. The general elements of the design were all meaningful in the Tunisian context, and the addition of the GEF resources provided an opportunity for scaling up much-needed natural resource conservation and environmental activities. To this end, there were no glaring drawbacks in terms of project conceptualization, perhaps except for the lack of a deeper focus on access to finance and markets in the context of IGAs.

66. However, there were several important aspects that affected the quality at entry and which subsequently led to the Project's 1st Restructuring. In reference to the original design, the Restructuring Paper cited the need for simplification of activities, approach, methodology and operational procedures to facilitate and accelerate implementation. All these desiderata stemmed from an original design which was too vague and loosely structured and in some instances resembled a menu of options and not a meaningful construct broken down into logically flowing components, sub-components and/or activities. The original Component 2 seemingly lacked an organic integration into the Project's concept (eventually cancelled), and the GEF-mandated activities were diluted into a multitude of efforts. The design lacked an adequate recognition of the potential risks for implementation, as well as a frank assessment of the readiness/realism for successful implementation. The original Results Framework was ineffectual in capturing the Project's implied theory of change. Finally, the *ex-ante* economic analysis model lacked coverage of several essential activities.

Quality of Supervision

67. The Project benefited from sound implementation support. Bank teams have sought proactively to bring about corrective measures through multiple restructurings to allow for a more effective implementation and maximize results to the benefit of disadvantaged Tunisian communities. The effort that has been put in place to turn the Project around before and after the 1st Restructuring has been particularly intense, especially when viewed in the extremely challenging post-revolutionary context. The Project was turned around from the brink of cancellation to a relative success through an incessant focus on supporting the GoT in addressing the gamut of issues which were stifling implementation. The subsequent restructurings have also been carried in an expedient and qualitative manner to respond to the needs on the ground and GoT's interest in expanding results.

68. NRMP2 was supervised jointly and in a programmatic way with PNO4, which had similar objectives and approaches to implementation. Bank teams were properly staffed to ensure sound technical supervision and, when necessary, relied on FAO and outside consulting expertise. Implementation support visits were undertaken at least twice a year and provided sound technical support summarized in detailed Aide-Mémoires. Fiduciary and safeguards support was provided from the Country Office, offering the opportunity for frequent interactions, which was appreciated by the CCU and the RADCs (e.g., the issue of payments).



Justification of Overall Rating of Bank Performance

69. The overall Bank performance is rated *Moderately Satisfactory*. The rating is based on the consideration that the quality and intensity of the Bank's supervision effort outweigh the shortcomings in quality at entry.

D. RISK TO DEVELOPMENT OUTCOME

70. The main risks to development outcome are related to the future of various institutions supported by the Project, and the sustainability of investments and the economic activities initiated with the Project's support. The institutional aspects are both macro and micro in nature. The macro aspects relate to the overall governance environment in the country. As established by the recently completed CPF PLR, governance issues remain extremely salient in the Tunisian context, exacerbated by an extremely challenging fiscal position of the Government. It remains an open question to what extent and how adequately the Tunisian institutions in charge of the local infrastructure created by the Project can manage it effectively to ensure its long-term functionality and viability. In terms of micro issues, questions continue to persist about the ability of the regional authorities, RADCs, specialized technical entities (such as the Office of Pastures and Animal Husbandry), and ADGs to sustain the Project's local development achievements. While the Project covered all the bases in ensuring that all stakeholders have a solid technical platform to build upon, the absence of a formalized and institutionalized application of the IPA, as well as persistent uncertainty regarding the status of the GDAs, puts the Project's development outcomes at risk. In the absence of a clear prospect for a follow-up operation and of an exit-strategy by MAWRF to conserve project achievements, the development momentum could fizzle out.

71. Another factor augmenting risks to outcome is the fact that a significant part of the IGAs have been implemented towards the end of the Project and not enough support has been provided to ensure that these essential activities are robust enough to stand on their own. As these small businesses carry on, or perhaps attempt to grow, questions about access to finance and markets continue to persist.

V. LESSONS AND RECOMMENDATIONS

72. ***There should be an institutionally-mandated process for reassessing projects in rapidly deteriorating conflict and fragile environments.*** In situations of sudden conflict and fragility of governance it is imperative that mandatory assessments be carried out to review projects for continued relevance of the PDO and theory of change, activities and budgets, adequacy of implementation and institutional arrangements, M&E and data collection arrangements, etc. These reviews should determine the necessity for and scale of changes required to reset projects on the course of successful implementation (or alternatively cancellation).

73. ***Additional efforts to achieve formalization of participating grass-roots institutions should be considered at project design.*** Lack of a formal development mandate for ADGs, and the less formally organized community organizations, has been a persistent issue over the span of NRMP and NRMP2 (as well as other similar projects), causing uncertainty over the sustainability of results over time. Clearly, these entities can play an important role in the implementation of regional/local development programs. Conferring such a mandate would serve as an impetus for their institutional development. A more empowering status would likely expand much-needed uniformity in internal organization decision-making, democratization and legitimacy of management, and ensure that all segments of the population have access to inclusive representation. The issue of gender is also of salience in this respect, as despite the Project's success in targeting women, their participation in grassroots organizations continued to remain limited at around 20%. Perhaps a clear development mandate could bring about clear minimum criteria for rates of participation



by women to ensure that their voices are heard and help them take a more active leadership role in community life. While investment operations are not the preferred vehicle for promoting deep policy and institutional reforms, perhaps more concerted efforts, short of conditions of effectiveness and/or disbursement, should be made to support government efforts to put in place the necessary legislation/regulations for formalizing a development mandate for the ADGs.

74. *GEF funded natural resource management projects should strive for better measurement of impacts.* A lot can be said about the complexity, or perhaps even the feasibility, of measuring impacts more acutely and precisely under such projects. Indeed, often a “benefits-transfer” represents the most feasible approach towards evaluating implicit impacts, both on natural resources and economic and social externalities. Nevertheless, it is important to better understand the effectiveness and efficiency of natural resource management activities, particularly as they relate to GEF’s global mandates. A good example is the case of land consolidation activities where preliminary assessments indicate a significant increase in the profitability of farms whose land was consolidated. Increased valorization of land holdings, particularly in conjuncture with the resulting access to feeder roads, has also been observed. But these observations should be scaled up to more representative samples to avoid small-sample biases and generate information that could be useful for policy formulation in Tunisia where land fragmentation is a major impediment in farm productivity and one of the principal causes of erosion and run-off. Another clear example relates to resource conservation activities. While again, the “benefits-transfer” approach is fully feasible for assuming positive impacts, more effort should be put in place to measure actual improvements in soil quality, water table levels, stabilization rates of degrading land, etc. Impact studies could be done on a limited number of measurable/quantifiable variables with the aim of obtaining “localized” conclusions on the technical effectiveness of support measures for future policy/program formulation.

75. *Effective promotion of income-generating projects requires more than start-up support.* A deeper focus on access to finance and markets should be an indispensable element of implementing IGAs. While providing training, technical support and assets to IGA beneficiaries is an essential first phase, lack of access to finance and markets as they grow dampens their growth prospects and affects sustainability. While there are no easy solutions, developing appropriate agri-finance instruments and addressing constraints for access should be part of the design of projects such as NRMP2. It is equally important to work with farmers on linkages to markets as part of developing the business concept of an IGA. To this end, income-generating activities could benefit from specific market studies, which would guide beneficiaries in their attempt to link up with aggregators and value chains.

76. *NRMP2 has spearheaded implementation initiatives which could contribute to the country’s on-going decentralization efforts.* The experience of NRMP2 in promoting participatory development initiatives is not unique, but it is highly specific and has a potentially huge relevance going forward. The NRMP2 relied on using existing systems in the MAWRF (primarily RADCs) and could serve as a precursor for a wider involvement of RADCs (outside the three Governorates) in community development. There’s a clear argument to be made for putting in place policies and funding²⁵ on developing RADCs into regional centers of excellence for rural development. This could become particularly relevant under the up-coming decentralization reforms, as regional and local authorities throughout Tunisia receive more decision-making power in determining priorities and allocating funds.

77. *NRMP2’s experience in applying the integrated participatory approach for local development should be thoroughly considered in future operations.* The wealth of experience in applying the IPA in the current Tunisian context should be thoroughly considered in the implementation of new and up-coming operations such as the Integrated Land

²⁵ The GoT would need to ensure that the RADCs are properly funded and staffed to attain this objective.



Management Project and the Irrigated Agriculture Intensification Project. Both projects have the IPA as part of their implementation construct and it would be highly advisable that links between proponents of these two projects be established with NRMP2 stakeholders. In the context of worsening climate conditions in resource-starved areas, where conflicts of interest are likely to increase over the use of water, pasture and forest resources, the IPA experience from PGRN2 could help stave off potential disagreements and social conflict.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Improve access to basic infrastructure.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Beneficiaries having improved access to basic infrastructures	Number	0.00	21000.00	50000.00	76181.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017

Comments (achievements against targets):

Objective/Outcome: Improved access to production means.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Beneficiaries having access to improved production means	Number	0.00	17500.00	18000.00	19780.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017

Comments (achievements against targets):

Objective/Outcome: Improve management of natural resources.



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Area of land protected	Hectare(Ha)	0.00	34300.00	20000.00	33602.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017
Comments (achievements against targets):					

Unlinked Indicators

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Direct project beneficiaries	Number	0.00	100000.00	105000.00	118999.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017
Female beneficiaries	Percentage	0.00	20.00	20.00	33.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017
Comments (achievements against targets):					

A.2 Intermediate Results Indicators

Component: Support to Participatory Development Plan Investments.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
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Signed ACs	Number	0.00	132.00	132.00	191.00
		04-Mar-2011	31-Dec-2015	31-Dec-2016	26-Dec-2017
Comments (achievements against targets):					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Area provided with new/improved irrigation or drainage services	Hectare(Ha)	0.00	600.00	3500.00	5554.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017
Area provided with new irrigation or drainage services	Hectare(Ha)	0.00	1500.00	1500.00	2000.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017
Comments (achievements against targets):					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Rural roads built or rehabilitated	Kilometers	0.00	90.00	150.00	210.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017
Comments (achievements against targets):					

Indicator Name	Unit of	Baseline	Original Target	Formally Revised	Actual Achieved at
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	Measure			Target	Completion
Improved community water points constructed or rehabilitated under the project	Number	0.00	400.00	900.00	1339.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017

Comments (achievements against targets):

Component: Institutional Strengthening and Awareness Raising.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Operational EDCI	Number	0.00	51.00	51.00	64.00
		04-Mar-2011	31-Dec-2015	31-Dec-2016	26-Dec-2017

Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Implementation rate of ACs	Percentage	0.00	90.00	90.00	84.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017

Comments (achievements against targets):

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised	Actual Achieved at Completion
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				Target	
Persons trained	Number	0.00	640.00	5200.00	5885.00
		04-Mar-2011	31-Dec-2015	26-Dec-2017	26-Dec-2017
Comments (achievements against targets):					



B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: Improve access to basic infrastructure

Outcome Indicators	People with improved access to basic infrastructures: 76,180 people against a target of 50,000, representing 10.4% of the population of the targeted <i>Imadas</i> . Stats:						
	Gouvernorat	Total Popu.	Nb secteurs	SAU (ha)	Nb habitants	Nb Agriculteurs	Nb ménages
	Jendouba	401,477	24	109,000	210,000	36,000	50,000
	Kasserine	439,243	25	330,000	230,000	40,000	44,000
	Médenine	479,520	15	205,000	293,000	39,000	60,000
	Total	1,320,240	64	644,000	733,000	115,000	154,000
	Source: Institut National de la Statistique (INS), 2014 Census and <i>Actualisation de l'évaluation des résultats et bénéfices socioéconomiques du projet PGRN II – MBM Consulting - 2017</i>						
	Poverty level:						
	Governorates	Poverty	Extreme Poverty	Unemployment rate			
				2007	2014		
	Jendouba	22.4%	3.6%	20%	26%		
	Kasserine	32.8%	10%	18%	23%		
	Médenine	21.7%	4.7%	13%	15%		
	Source: MDICI, INS 2014						
Intermediate Results Indicators	<p>➤ PDPs and CPs: 64 <i>Imadas</i> covered (Jendouba: 24, Kasserine: 25 and Médenine: 15), covering 55% of the population of the 3 Governorates; 64 PDPs developed and 201 CPs prepared (against a target of 132), 84% of investments planned in CPs have been executed against a target of 90%</p>						
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	<p>➤ Rural roads: 210km rehabilitated or newly constructed against a target of 150km, for a total cost of TND39.6M, benefiting to 52,500 people;</p> <p>➤ Water: 1,339 water points created or rehabilitated against a target of 900; TNN19.6M invested benefiting to</p>						



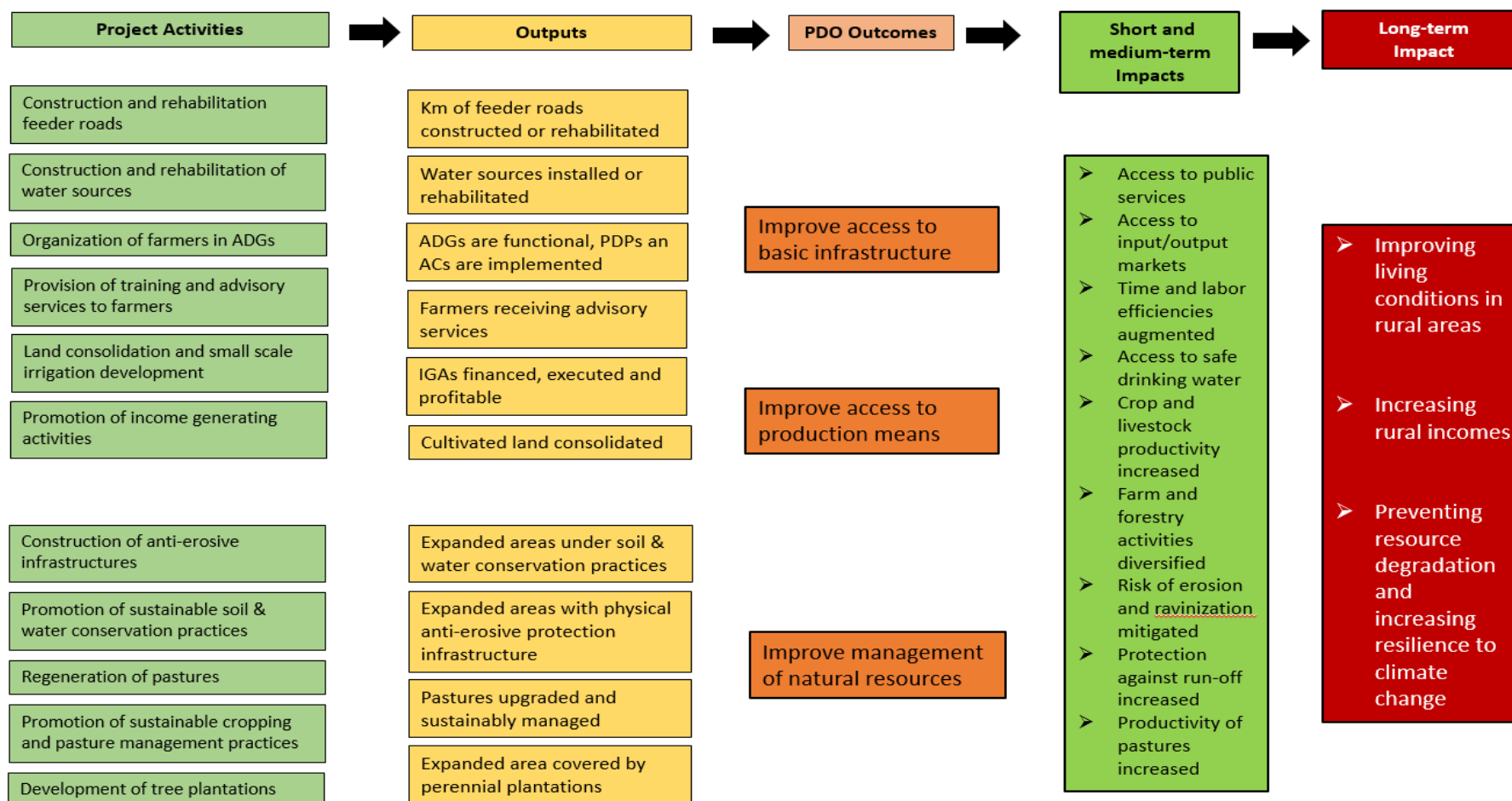
	<p>21,800 people; Water cost reduced to TND0.8 per cubic meter from TND5 and 3 hours saved per day for women to collect water.</p> <ul style="list-style-type: none"> ➤ Rain water collectors in Médenine help 1,200 small farmers preserve Olive tree plantations from drought; TND250 per hectare saved on additional irrigation costs; TND1,500 per hectare of extra earnings on plantation. ➤ Training: 5,880 people trained or having benefited from awareness raising sessions against a target of 5,100
Objective/Outcome 2: Improve access to production means	
Outcome Indicators	People with improved production means: 19,700 people against a target of 18,000
Intermediate Results Indicators	
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	<ul style="list-style-type: none"> ➤ GDAs: 64 GDAs operational against a target of 51 ➤ Small Scale Irrigation: TND14.4M invested; 5,554ha of irrigated land developed or rehabilitated against a target of 3,500ha; representing a 30% increase of irrigated areas in the Project targeted <i>Imadas</i>; benefiting to 1,553 farmers; led to diversification from rain-fed wheat production to higher value-added crops and plantations; margin per hectare has increased to TND15,000 from TND8,000 (consultant's estimate). ➤ Land consolidation: 15,243ha consolidated against a target of 9,000ha, benefitting to 11,334 smallholder farmers, for a total cost of TND1.8M; Case study (Sidi Meskin Irrigation scheme in Jendouba): around 1,500ha consolidated, 205 farmers benefitting and 38 farmers left their land, 4.2 plots after consolidation against 8.5 plots before, and average size per plot increasing 1.79ha from 0.74ha; 50% of beneficiaries have invested in wells for irrigation and diversified to higher value crops, average investment: TND5,000 per ha, average income increased from TND1,000 per ha to 7,500 per ha; for farms still growing wheat, production costs reduced by 25% (mainly for combine harvester utilization) ➤ IGAs: 3,691 income generating activities supported by the project; sheep fattening: 38%, beekeeping: 28% and poultry: 27%; and others (greenhouses, rabbit, etc.): 7%; TND14.6 million invested; distribution of 113 improved breeds of small ruminants; 4,474 beneficiaries received technical advice on investment projects, 1,402 beneficiaries trained in livestock production, and more than 1,000 livestock producers received regular technical and management advice covering more than 3,000 heads of large and small ruminants. Beneficiary satisfaction survey: more than 50% of IGA beneficiaries declared having recorded a 20% increase of their incomes with a significant impact food consumption and self-sufficiency (34.5%), education (9%), household assets (7.5%); average IGA net earnings: TND1,300 per year, ranging from TND450 for poultry and



	TND1,000 for beekeeping to TND2,270 for greenhouse and TND3,000 for sheep fattening.
Objective/Outcome 3: Improve management of natural resources	
Outcome Indicators	Areas of protected land: 33,578ha against a target of 20,000ha
Intermediate Results Indicators	
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	<ul style="list-style-type: none"> ➤ Plantations: 36,000 trees planted; 5,200ha of Olive trees and 221.5ha of fruit trees; 3,157ha of improved pastures and 40ha of forestry access rehabilitated. ➤ Anti-erosive infrastructure: 67,370 cubic meters of gabions in Kasserine and Jendouba and 14 aquifer recharge units in Médenine; 1,050ha of Olive terraces and 90ha of basin plantations; restoration of 3,000 cubic meters of gabions and consolidation of 1,000ha ➤ Investment: TND14.5M



C. PROJECT RESULTS CHAIN (restructured PDO)





ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Lucie H. G. Tran	Task Team Leader(s)
Fatou Fall	Social Development Specialist
Philippe Marin	Water and Sanitation Specialist
Salim Benouniche	Procurement Speiclist
Anas Abou El Mikias	Financial Management Specialist
Song Li	Environment Specialist
Jean-Charles de Daruvar	Counsel
Jean-Marc Bission	Team Member (FAO)
Supervision/ICR	
Anatol Gobjila, Olivier Durand	Task Team Leader(s)
Blandine Marie Wu Chebili	Procurement Specialist
Mehdi El Batti	Financial Management Specialist
Daniel P. Gerber	Team Member
Garry Charlier	Team Member
Alexandra Sokolova	Team Member (FAO)
Antoine V. Lema	Social Safeguards Specialist
Abderrahmane Ben Boubaker	Team Member
Mohamed Adnene Bezzaouia	Environmental Safeguards Specialist

B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
Preparation		
FY05	.545	1,795.19
FY06	1.762	10,465.06



FY07	16.945	92,799.11
FY08	14.072	100,147.58
FY09	14.848	188,196.01
FY10	35.151	291,333.09
FY11	0	-1,538.50
Total	83.32	683,197.54
Supervision/ICR		
FY11	15.401	79,626.64
FY12	17.463	103,007.82
FY13	26.294	152,888.84
FY14	21.033	101,678.75
FY15	11.562	135,818.08
FY16	14.867	118,410.97
FY17	13.892	77,795.44
FY18	16.414	73,571.14
Total	136.93	842,797.68



ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US\$M)	Actual at Project Closing (US\$M)	Percentage of Approval
1. Support to Participatory Development Plan (PDP) Investments	35.97	39.90	111
2. Institutional Strengthening and Awareness Raising	7.66	2.55	33
3. Support to the Development of Treated Wastewater Use for Agriculture*	2.05	0.00	0
Total	45.68	42.45	N/A

Component costs are presented only for IBRD/GEF resources to maintain clarity and meaningfulness. The initial estimates for counterpart funding had been nullified when the Project moved towards 100% disbursement percentages for eligible expenditures. Beneficiary contributions have also come in lower than estimated at only US\$3.1 against an initial estimate of approximately US\$7.0 million. The denomination of components costs in US\$ relies on pro-rated estimates between amounts disbursed in US\$ and total expenditures incurred in TND over the past 7 years. For purposes of this calculation, recurrent costs have been attributed to Component.



ANNEX 4. EFFICIENCY ANALYSIS

I. PROJECT RETURNS ANALYSIS

1. The analysis included the Project's costs reported by the CCU of MAWRF, with all component investment costs included in the analysis. Proxy-based estimates of benefit streams have been used to derive comparisons with costs. Benefit streams comprised results from a rural roads model (the largest sub-component of the Project by cost), as well as the budgets of the Project's most representative IGAs. The base-case EIRR is estimated at 17% over twenty years. The total amount of value creation that corresponds to the investment has been estimated at \$US17.0 million (TND 39.5 million) over twenty years. The EIRR and NPV estimates could be considered as very conservative given that the calculations do not include natural resource management, water supply and conservation, and agroforestry activities, for which positive economic externalities can be safely assumed.

II. FINANCIAL ANALYSIS

2. **Ex-ante.** The ex-ante financial analysis examined the financial viability of (i) presumed main crops targeted by the project, and (ii) two types of Income Generating Activities - lamb fattening and carpet making. It also assessed potential increases in profitability and incomes because of project interventions. The analysis compared two scenarios: "future without project" and "future with project". The ex-ante analysis did not include an overall financial rate of return.

3. **Ex-post.** The Bank team was unable to obtain systematic documentation on the impact and resulting outcomes of the agriculture production activities that were financed under the project. There is information available on (i) changes in cropping patterns with the introduction of irrigated crops (watermelon, pepper, potatoes, etc.); (ii) expansion of irrigated areas; and (iii) increases in yields.

(i) **Agricultural crop production.** At the end of the Project, there was no NRMP 2 - specific data collected to estimate the Project's impact on agricultural production. A recent analysis of the crop production based on crop budgets prepared for PNO4²⁶, shows incremental net benefits per hectare ranging between 50 TND for leguminous species, 100 TND for wheat and 260 TND for olives, which demonstrate that project activities have been financially profitable for the project beneficiaries. Furthermore, the same analysis shows an increase in yields varying between +25 percent for wheat, and +27 percent for olives and + 13 percent for fodder crops.

(ii) **IGAs.** The ex-ante analysis of the IGAs considered two types of activities: (a) lamb fattening, and (b) carpet making. An assessment conducted at the end of the project²⁷ shows that sheep fattening, beekeeping and poultry were the most demanded activities (38, 28 and 27 percent, respectively). Cost-benefit analysis conducted on a sample of beneficiaries, shows incremental net benefits of about 2,900 TND for beekeeping, 400 TND for poultry and 920 TND for sheep fattening. Some 3,500 IGAs were supported by the Project. An analysis²⁸ conducted at the end of the Project in Medenine (concentrating 2/3 of the IGAs) shows that about 10 percent of the

²⁶ Information collected by Odesypano (2017)

²⁷ Actualisation de l'évaluation des résultats et bénéfices socio-economiques du PGRN II

²⁸ Evaluation des activités génératrices de revenus réalisés dans le cadre du PGRN II Medenine (décembre 2017)



IGAs were abandoned, while 60 percent of the IGAs' beneficiaries reinvested their benefits in expansion or intensification of their activities.

III. ECONOMIC ANALYSIS

4. **Ex-ante.** At appraisal, an EIRR for the project was calculated considering benefits expected to accrue through increased agriculture and fodder production within the project area. There was no estimation of the benefits from soil conservation works, rural infrastructure and income generating activities. Calculations of the benefits for each crop were based on the areas covered by the project based on the number of sown hectares. Project benefits were assumed to essentially consist of increases in additional agricultural production in project areas, through the improvement of cropping practices and the introduction of crops with a higher added value. Furthermore, given the various land uses in different agro-ecological sectors, technical packages were assumed to be extended to producers through advisory services, to maximize the use of cropping patterns and improve producer know-how. The EIRR was estimated at 16 percent over 20 years.

5. **Ex-post.** At project completion, the recalculation of the EIRR was not re-calculated using the same methodology as at appraisal stage due to reasons of inconsistency between activities at design and implementation stages. The design-stage methodology would not allow to account for the benefits from activities such as rural infrastructure and income generating activities, the two most important categories of costs after the restructuring. As mentioned in the first section, the ex-post analysis was based on a proxy-based analytical model for rural roads and IGAs. In addition to the calculation of the ex-post EIRR and NPV, this report attempted to present an economic analysis per type of investment – using available qualitative and quantitative data collected by the Project, as well as the extensive literature, to provide a better idea on the type and magnitude of benefits.

6. **Rural roads.** Anecdotal evidence from stakeholder interviews report²⁹ that the construction of rural roads increased access to health facilities and markets, saved time dedicated to travel and helped create new jobs by facilitating beneficiaries' access to neighboring regions where labor opportunities existed³⁰, but there is no additional quantitative evidence to substantiate these claims. Some of the Project beneficiaries interviewed reported two to four months of additional work time – or 1,000 TND (about US\$400US) per family and per year. Furthermore, available literature presents data that could be used as proxy to estimate an economic impact of rural roads. Economic analysis of the road improvement component conducted for the ICR of the Rural Roads Project in Tunisia³¹ reports an average EIRR of 32 percent³², while a forest access and intra-communal road model³³ developed for the purpose of the Integrated Landscape Management Project yields an EIRR of 14 percent. In terms of income increase, the analysis conducted for rural road rehabilitation in Peru shows a US\$120 increase in annual per capita income³⁴.

²⁹ Rapport de fin d'exécution et de résultats, DGFIOP (December 2017)

³⁰ Some of the beneficiaries interviewed report two to four months of additional work – or 1000 dinars per family and per year.

³¹ Rural Roads Project, World bank (2003)

³² Calculated for 69 rural roads

³³ The model illustrates how better access would increase the volume of NWFP production collected and transported within the road area, reduce the transport cost and increase time savings for the village population. In this model, the 10-km road serves three forest villages connecting them to a nearest town.

³⁴ Escobar, Javier, and Carmen Ponce. 2003. "The Benefits of Rural Roads: Enhancing Income Opportunities for the Rural Poor." GRADE Group for the Analysis of Development (Ed.): Lima (*Documento de Trabajo* 40-I).



7. Based on available information the team developed a rural road analytical model. In this model, the 210 kilometers of road built under the project serves about 10,620 households. Potential benefits are assumed to accrue from: a) time saved (valued at the economic cost of unskilled agricultural labor), b) return to productive use (arboriculture) of previously unused agricultural land (because of improved access, it has been reported that about 5 hectares of agricultural land per each kilometer of rehabilitated road has been returned to productive use), and c) increased job opportunities for women and vulnerable groups. Based on the above-presented parameters, the base EIRR for this model is 28%, well-above the opportunity cost of capital.

8. **Improved access to water and cisterns for rain water collection.** Data reported in the GoT's project completion report for rural infrastructure improvements show 1,312 cisterns constructed over the project investment period. With the investment cost of about 4,500 TND/cistern and water capacity of about 30m³, the cisterns benefited some 1,312 households (and served about 1,400ha of agricultural land). The investment generated benefits in terms of time saved for fetching water (1h/day/household), water costs reduced (250 TND/household/year), and agricultural capital (mainly olive plantations) preserved due to more reliable irrigation. The report mentions that the income of farmers from such preserved olive plantations could be estimated at 1,500 TND per year. However, no control groups were established to determine the extent to which this was due to project activities. Calculations done using available data show an economic incremental net benefit of about 2,700 TND/cistern/year.

9. **Sustainable Land Management, including dry-stone thresholds and gabions.** The Project reported that about 11,815 hectares were treated with dry-stone thresholds and gabions. Overall, targets for soil and water conservation works on both public and beneficiary lands were met or exceeded. The GoT's project completion report³⁵ states that the SLM works have had various impacts such as: (i) reduced losses of agricultural/farm land due to soil erosion; (ii) protection of houses located near wadis; (iii) groundwater recharge; (iv) flood protection of a downstream town (Medenine); (v) reduced sedimentation. However, no assessment has been made to quantify actual impacts of these interventions on erosion, soil fertility, groundwater recharge, or dam siltation. The project reporting on SLM achievements ex-post has been based on qualitative evidence from interviews and field visits of the selected sites.

10. In the absence of site-specific data, available literature provides proxy measures on results and impacts in similar contexts. Past analysis conducted by the World Bank³⁶ evaluates benefits of the dry-stone thresholds in terms of their effect of avoiding the loss of useful land within the watershed. The area of 1 hectare corrected consists of treating about 300 m of gullies by dry stone thresholds with 10 thresholds of 3 m³ or 30 m³ / hectare. Sedimentation upstream provides a favourable soil for revegetation of the ravines. The economic benefits from such works have been estimated through avoided losses of agricultural land. Cereals cultivated further from the gullies have been used as proxy to value economic benefits. An economic analysis conducted in the Barbara watershed shows an economic benefit of 900 TND/hectare. Furthermore, this analysis suggests that the social profitability of the investment will rely on the choice of crop and agricultural practices within the areas close to gullies and reservoirs. In terms of flood control impact, evaluation of the Sfax Flood Protection Project funded by the

³⁵ "Actualisation de l'évaluation des résultats et bénéfices socio-économiques du PGRN II" (décembre 2017)

³⁶ "Towards a sustainable management of forest and rangeland ecosystems in Tunisia" (2015)



World Bank³⁷ presented significant benefits from flood control investments. Municipal sources estimated the savings in averted damage at US\$2.5 million a year (excluding the considerable economic losses averted in property, personal belongings, and foregone production).

11. Rangelands improvement. Under this sub-component, the Project's interventions consisted of improvements of existing degraded rangelands in areas with high foraging needs. Using data from the World Bank study "Towards a sustainable management of forest and rangeland ecosystems in Tunisia" as a proxy for the economic value of the increased forage production³⁸ estimated benefits from this type of intervention is at 164 TD/hectare, which in the context of NRMP2 would amount to 392,616TD for project-covered 2,394 hectares of rangelands.

12. Agroforestry activities. Trees plantations (mainly olive, but also fig, almond and pomegranate trees) covered about 5,327 hectares or 65 percent of what was initially planned, due to weak capacities of domestic sapling production. Furthermore, the project reported an underestimation of unit costs for threes plantation, with actual costs being nearly double of the initially expected costs. At this stage, the activity has not reached its full development, therefore there was no attempt to quantify incremental agricultural production and benefits. Using data from the recently formulated Integrated Landscapes Management in Lagging Regions Project (targeting rural communities in the North West and Center West regions of Tunisia), as a proxy to estimate a potential increase in agricultural production, an additional production would be about 9,600 tons per year at full development, with the gross value of the additional production of TND13.4 million per year.

13. Land consolidation activities. These activities have been conducted on 15,243 hectares, thus exceeding the initial target of 9,000 hectares. Land consolidation involved redistribution of land ownership so that individual farmers own fewer, larger, more compact and more contiguous land parcels. The key benefits expected from this activity are as follows: improved agriculture development, improvement of livelihoods, access to credits and subsidies, farmers' encouragement to use new and better technologies and market access improvement, increased investment in agriculture, increased value of land. Interviews with beneficiaries and field visits conducted by the Project evaluation team provided evidence of increased value of consolidate land parcels in Kasserine and Jendouba (from 1,000 to 4,000 TND, and from 10,000 to 20,000, respectively). Furthermore, in both governorates the Project reported increased private investments on consolidated land (forage and tree plantation). This confirms the belief that land becomes the property of the one who first brings it into cultivation. Often, cultivation of trees is a synonym to land ownership confirmation. A recent study conducted in Medenine by IRA (l'Institut des Regions Arides de Medenine) and ICARDA on impact of land policies on production systems shows a significant impact of land fragmentation on crop yields. Farms with one plot have the highest olive oil and cereal yield, and these yields decreased significantly³⁹ when the number of plots by farm increase⁴⁰.

³⁷ "Reducing Flood Hazards and Traffic Congestion in Tunisia". World Bank Operations Evaluation Department. 1998

³⁸ "Towards a sustainable management of forest and rangeland ecosystems in Tunisia". World Bank. 2015.

³⁹ Decrease from 82.5 litter/ha (1-plot farm) to 28 litter/hectares (5 and plus plots).

⁴⁰ "Assessing impacts of land policies on the production systems and livelihoods in the South-East of Tunisia". IRA and ICARDA. 2014



ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

Comments from the Ministry of Agriculture, Water Resources and Fisheries, General Department of Financing of Investments and Professional Organizations. (official letter attached below)

1. The overall evaluation of the project deserves to be more positive, considering the context at its inception and during implementation. The Project's initial objective was to promote the participatory approach in the work of the CARs, institutions whose functioning was significantly affected by the post-revolutionary context (especially since the CARs manage not only NRMP2 but other programs with different approaches).
2. The rating for the M & E system warrants a high appreciation, since it has allowed to generate all necessary information for the monitoring of achievements, financial monitoring and the monitoring of all indicators included in the results framework. As a matter of fact, the NRMP2 system was officially adopted by the Government of Tunisia for replication in other projects.



REPUBLIQUE TUNISIENNE
MINISTÈRE DE L'AGRICULTURE
DES RESSOURCES HYDRAULIQUES
ET DE LA PÊCHE
DG/FIOP/UCC PGRN2



A
Monsieur Anatol Gobjila
Chargé du PGRN2 à la Banque Mondiale

Objet : Projet de gestion des ressources naturelles phase 2 : Commentaires sur le rapport d'évaluation de la banque Mondiale

Référence : Votre email du 1^{er} Juin 2018

Suite à votre email cité en référence relatif au rapport d'évaluation préparé par la Banque Mondiale concernant le projet de gestion des ressources naturelles phase 2 (PGRN2), j'ai l'honneur de vous part de ce qui :

- L'évaluation globale du Projet mériterait d'être plus positive, compte tenu du contexte de sa conception et de sa mise en œuvre. Le projet avait pour objectif initial de promouvoir la pratique de l'approche participative au sein des CRDA, structures dont le fonctionnement a été largement affecté par le contexte post-révolution (sachant que les CRDA gèrent en plus du PGRN2 d'autres programmes ayant des approches différentes).
- La notation du Système de suivi évaluation mérite d'être mieux appréciée du fait qu'il a permis de générer toutes les informations nécessaires pour le suivi des réalisations et le suivi financier ainsi que le suivi des indicateurs retenus dans le cadre des résultats. Par ailleurs, le système du PGRN2 a été officiellement adopté par le gouvernement pour être répliqué aux autres projets (INJEZ).

Il est à noter que les commentaires sur ledit rapport vous ont été communiqué antérieurement par email (le 08 Juin 2018).

Veuillez, agréer, mes salutations les plus distinguées.

Le Directeur Général
du Financement des
Investissements et des
Organisations Professionnelles
Abderrouf LAAJIMI

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ANNEX 6. SUPPORTING DOCUMENTS (IF ANY)

- Letters to Government
- Aide-Mémoires
- ISRs
- Project Appraisal Document – Report No:52965-TN
- Project Paper – Report No:73112-TN
- Project Paper – Report No: RES26853
- Project Paper – Report No: RES20200
- Project Paper – Report No: RES25308
- Loan Agreement – Loan Number 7291-TN
- NRMP ICR – Report No:30963
- Commentaires de l’UCC concernant le Rapport d’Evaluation des Performances du PGRN2
- Project Performance Assessment Report – Report No:82308-TN
- Actualisation d’évaluation des résultats e bénéfices socioéconomiques du PGRN2, Décembre 2018
- Rapport de fin d’exécution et de résultats du PGRN2, Décembre 2018
- Évaluation des activités génératrices de revenus réalisées dans le cadre du PGRN II (Médenine), Décembre 2017
- Évaluation des réalisations de gestion des ressources naturelles et d’infrastructures rurales dans le cadre du PGRN2 (Medenine, Kasserine, Jendouba), Décembre 2017
- Évaluation de la perception des bénéficiaires et parties prenantes institutionnelles sur la pratique de l’approche participative intégrée dans le PGRN2, Décembre 2017
- Évaluation des Activités de Renforcement des Capacités dans le cadre du PGRN II, Février 2018