AFRICAN DEVELOPMENT BANK

KINGDOM OF MOROCCO

NATIONAL IRRIGATION WATER SAVING PROGRAMME SUPPORT PROGRAMME - PHASE II (PAPNEEI-2)

APPRAISAL REPORT

OSAN/MAFO DEPARTMENTS

November 2016

Translated Document

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Currency Equivalents

[June 2016]

Currency Unit : Moroccan Dirham (MAD)

[UA 1]	=	[MAD 13.6892]
[UA 1]	=	[EUR 1.25774]
[UA 1]	=	[USD 1.40288]
[USD 1]	=	[MAD 9.76000]
[EUR1]	=	[MAD 10.88397]

Fiscal Year

[1 January – 31 December]

Weights and Measures

1 metric tonne	=	2 204 pounds
1 kilogramme (kg)	=	2.200 pounds
1 metre (m)	=	3.28 feet
1 millimetre (mm)	=	0.03937 inch
1 kilometre (km)	=	0.62 mile
1 hectare (ha)	=	2.471 acres (=10 000 m^2)

Acronyms and Abbreviations

ABH	=	Water Basin Agency
ADA	=	Agricultural Development Agency
AfDB	=	African Development Bank
AUEA	=	Agricultural Water Users' Association
AWF	=	African Water Facility
CNCP	=	National Project Coordination Committee
CRCP	=	Regional Project Coordination Committee
DIAEA	=	Directorate of Irrigation and Agricultural Space Development
DSS	=	Directorate of Strategy and Statistics
ECGP	=	Central Project Management Team
EIB	=	European Investment Bank
EIG	=	Economic Interest Group
ERGP	=	Regional Project Management Team
ESMP	=	Environmental and Social Management Plan
FDA		Agricultural Development Fund
GHG	=	Greenhouse Gas
GoM	=	Government of Morocco
GPN	=	General Procurement Notice
IA	=	Irrigation Area
IGF	=	Inspectorate General of Finance
IOM	=	Impact-Oriented Monitoring
IWRM	=	Integrated Water Resource Management
MAPM	=	Ministry of Agriculture and Maritime Fisheries
MDG	=	Millennium Development Goal
MEF	=	Ministry of Economy and Finance
MICTF	=	Middle-Income Countries Trust Fund
ORMVA	=	Regional Agricultural Development Authority
PAPNEEI	=	National Irrigation Water Saving Programme Support Project
PARSIF	=	Financial Stability and Inclusion Strengthening Support Programme
PMF	=	Performance Measurement Framework
PMV	=	Green Morocco Plan
PNEEI	=	National Irrigation Water Saving Programme
PPP	=	Public Private Partnership
UA	=	Unit of Account
USD	=	United States Dollars
WB	=	World Bank

Project Information Sheet

Client Information

BORROWER	:	Kingdom of Morocco (Ministry of Economy and Finance – MEF)
EXECUTING AGENCY	:	Ministry of Agriculture and Maritime Fisheries (MAPM)

Financing Plan

Source of Financing	Amount	Instrument
AfDB	USD 88.057 million (UA 62.7 million)	Loan
Government of Morocco	USD 8.877 million	Treasury/Own Resources
TOTAL COST	USD 96.934 million	

AfDB Key Financing Information

Loan Currency:	United States Dollars (USD)
Loan Type:	Fully Flexible Loan
Tenor:	To be determined (maximum of 25 years)
Grace Period:	To be determined (maximum of 8 years)
Weighted Average Maturity **:	To be determined (based on the amortization profile)
Repayment:	Half-yearly instalments after the expiry of the grace period
Interest Rate:	Base Rate + Financing Margin + Lending Margin + Maturity Bonus. This interest rate should be more than or equal to zero.
Base Rate:	Floating Base Rate (6-month USD LIBOR which resets on 1 February and 1 August, or any other acceptable rate). Floating base rate with a free fixing option
Financing Margin:	Bank financing margin which resets on 1 January and 1 July and applied on 1 February and 1 August with the base rate.
Lending Margin:	80 basis points (0.8%)
Maturity Bonus:	To be determined - 0% if the weighted average maturity <= 12.75 years - 0.10% if 12.75< the weighted average maturity<= 15 - 0.20% if the weighted average maturity>15 years
Front-End Fee:	0.25% of the loan amount payable on or before the date of signature of the Loan Agreement.
Commitment Charge:	0.25% per annum on the undisbursed amount, commencing 60 days following the date of signature of the Loan Agreement and payable on each payment date.
Base Rate Conversion Option*:	Besides the free option to fix the base rate, it is possible for the Borrower to revert to the floating rate or reset all or a portion of the disbursed loan amount. Transaction fees shall be payable.
Cap or Collar Rate Option*:	The Borrower will have the option to cap or collar the base rate for all or a portion of the disbursed loan amount. Transaction fees shall be payable.
Loan Currency Conversion Option*:	The Borrower will have the option to change the Bank lending currency of all or a portion of the loan, whether disbursed or undisbursed. Transaction fees shall be payable.

*Conversion options and related transaction costs shall be governed by the Bank's Conversion Guidelines available on the website here.

**A weighted average maturity calculator is available on the website here.

Timeframe - Main Milestones (expected)

Concept Note Approval	10 October 2016
Loan Negotiations	22 November 2016
Project Approval	12 December 2016
Effectiveness	30 January 2017
Completion	31 December 2022
Last Disbursement	31 December 2023
Last Repayment	31 December 2043

Executive Summary

I. Project Overview

1.1 This project will support the implementation of the National Irrigation Water Saving Programme (PNEEI) whose purpose is to protect water resources and improve the living conditions of rural population through the sustainable management of these resources. PNEEI and the National Water Strategy formulated in 2009 provide support to the Green Morocco Plan (PMV) aimed at making agriculture a national growth engine. This is in line with: (i) the Government's National Sustainable Development Strategy (SNDD 2015-2020); (ii) the Bank's five strategic priorities (High 5s); (iii) the Bank's Ten-Year Strategy (2013-22); (iv) the Bank's Agricultural Strategy, "Feeding Africa" (2016-2025); and (v) Morocco's Country Strategy Paper (CSP 2012-2016). The project will cover two water basins, namely Oum Rbia (basin with high water stress levels) and Loukkos (basin with very high energy cost).

1.2 The project will finance the construction of irrigation infrastructure within the two water basins covering about 26 000 hectares, as well as irrigation water development measures and capacity building activities for the stakeholders involved [executing agencies, Agricultural Water Users' Associations (AUEA), economic interest groups (EIGs), women's associations, etc.]. It will also directly affect 10 250 farms, with a target population of almost 61 500, most of them small farmers (those who have less than 2 hectares, representing 70.2% of all farmers and own less than one third of the total land area (31.5%) considered as the target group prioritized by the Bank. The project, which will cost MAD 946.077 million, equivalent to USD 96.934 million, will be implemented over a 6-year period (2017-2022) and financed by a USD 88.057 million (UA 62.7 million) AfDB loan. The project is a climate change adaptation project par excellence, and is in line with efforts to support transition to green growth (about 64.3 million cubic metres of water will be saved and DH 5 million worth of energy gained annually).

II. Needs Assessment

Morocco is a highly water-stressed country, and it is imperative that it's increasingly scarce water resources be managed as efficiently and as economically as possible, so as to cope with the high energy costs involved in their mobilization. Such management necessarily entails a judicious, positive and sustainable use of *irrigation water* which accounts for more than 80% of mobilized water resources, with losses often exceeding 50% of the quantity of water drawn, particularly in conventional irrigation networks. This explains why Government has given pride of place to the implementation of PNEEI.

III. Bank's Value Added

The Government considers the Bank as a multilateral donor capable of dealing with irrigation-related sector problems, supporting this strategic programme (PNEEI) and attracting other development partners. This project is a continuation of the first phase (PAPNEEI-1) and the reforms initiated by the Green Morocco Plan Support Programme (PAPMV-1 and 2). For the irrigation sub-sector, the Bank has already completed two pilot technical support operations in Morocco, namely: (i) Artificial Ground Water Recharge; and (ii) Irrigation Infrastructure Development. Its participation in PNEEI will enable it to build on the achievements made and invaluable experience gained in the promotion of large-scale innovative localized irrigation to promote a sustainable management of water resources and an efficient irrigation system.

IV. Knowledge Management

The project will modernize irrigation systems and disseminate to its stakeholders the required technical and organizational skills (use of various information systems to be established [GIS, irrigation warning, monitoring/evaluation, etc.], private agricultural advisory services, high value-added cultivation methods, participatory management of ground water, etc.). These interventions will contribute to achieving a two-fold saving (in water and energy) and building the capacity of institutional stakeholders, namely administrative entities (DIAEA, ORMVA and ADA) and beneficiaries' organizations (agricultural water users' associations [AUEAs], agricultural cooperatives, EIGs, etc.).

VII. Results-Based Logical Framework of the PNEEI Support Project – Phase 2 – PAPNEEI-2 (2017-2022)

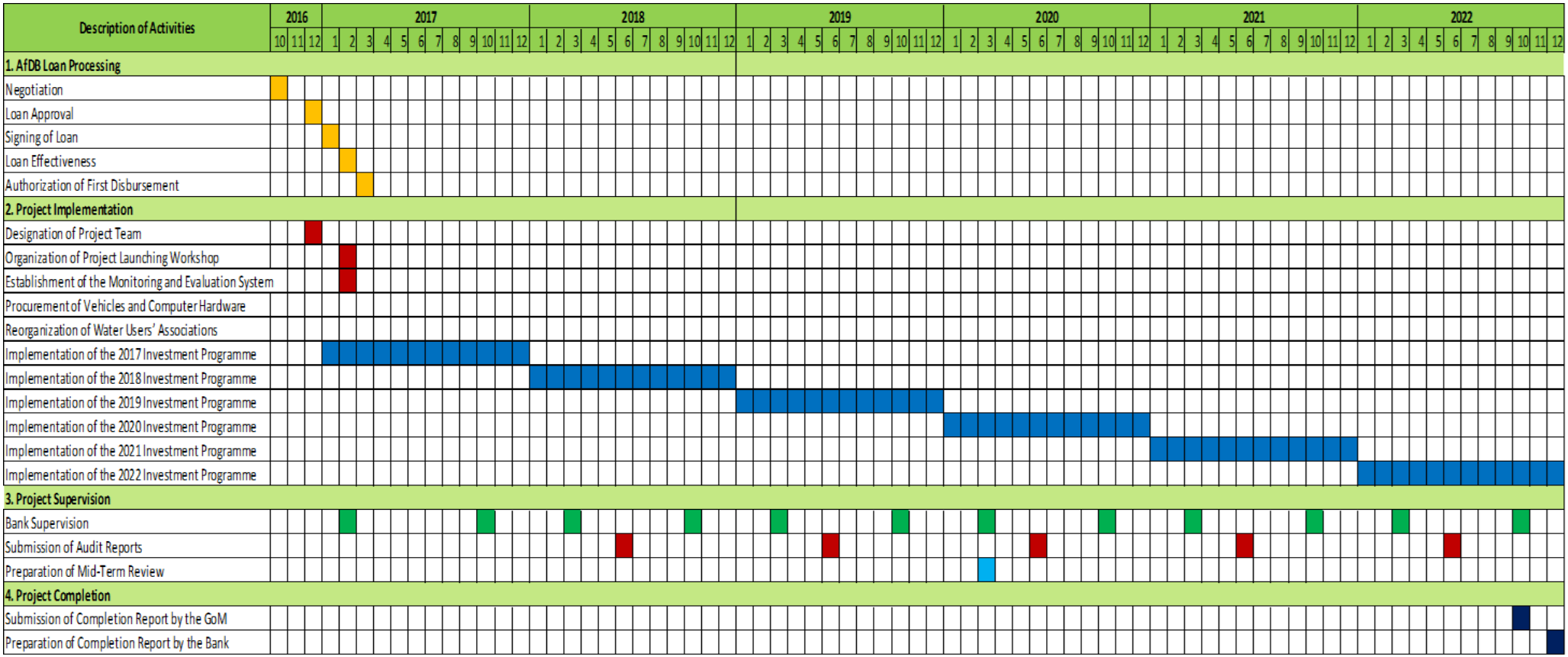
Country and Project Name: Morocco – National Irrigation Water Saving Programme Support Project – Phase Two (PAPNEEI-2)
Project Goal: Contribute to improving the living conditions of rural dwellers through the sustainable management of water resources, improvement of water productivity in irrigation areas (IA).

	RESULTS CHAIN	PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
		Indicators	Baseline Situation	Target		
IMPACT	**1. Impact**: ***Long-term outcomes*** The socio-economic conditions of the rural dwellers are improved through the sustainable management of irrigation water resources	1.1 Improvement of average income/ha 1.2 Improvement of agricultural jobs in the project area 1.3 Improvement of the irrigation water satisfaction rate in the project zone	DH 9 000/ha 0 60% (Doukkala)	Double the average income/ha in 2030 25% in 2030 80% (Doukkala) in 2030	National statistics, surveys among beneficiaries and stakeholders	
OUTCOMES	**2. Outcomes:** ***Medium-term Outcomes*** 2.1 The share of *productive water* is increased. 2.2 Energy saving is increased	2.1 Additional average value of production/m^3 per IA. 2.2 Quantity of pumping energy reduced	- -	Average value will increase by 25% in 2025. The quantity of pumping energy per m^3 reduced by 20% in 2025	National statistics, surveys, statistics by the ABH, ORMVA, ADA, and MAPM	**Risks:** (i) Insufficient inter-departmental coordination capacity at the global level. **Mitigation measures:** (i) Establishment of a Strategic Steering Committee at the national level and an Operational Steering Committee at the regional level.
OUTPUTS	**COMPONENT 1:** *Modernization of Irrigation Water Infrastructure*					
	3. Outputs*: Short-term outcomes* 3.1.1 Irrigation water services are improved and meet users' expectations.	3.1.1 Service interruptions of more than 48 hours during peak periods	3 to 4 in 2016	3.1.1 Reduction to a maximum of 1 in 2022.	Surveys among beneficiaries and stakeholders. Statistics by the ABH, ORMVA, ADA, and MAPM	
	3.1.2 The surface area developed for localized irrigation is increased	3.1.1 Additional acreage converted into localized irrigation (LI)	0	The additional surface area for LI will increase to 18 000 hectares in 2022		
	3.1.2 On-demand irrigated land area during peak periods	3.1.3 Percentage of on-demand irrigated land area during peak periods	0 %	100% in 2022		
	COMPONENT 2: *Development of Irrigation Water*					
	3.2.1 The land area for localized irrigation (LI) is developed.	3.2.1 Land area occupied by high value added crops	10%	Will increase by at least 40% in 2022	National statistics, national statistics, surveys among beneficiaries and stakeholders, statistics by the ABH, ORMVA, ADA, and MAPM	**Risks:** (i) Gap between the conversion of production systems, socio-institutional conversion and the conversion of irrigation techniques. (ii) Incentives for internal facilities funded by FDA. (iii) Low adherence and limited institutional capacity of AUEAs. (iv) Inadequate human and material resources of ORMVAs to enable them to support project implementation (v) Slow pace of disbursement. **Mitigation measures:** (i) Engage technical assistance and develop a concept shared by stakeholders: Road map and agreement to be prepared for development.
		3.2.2 Average yield of main crops	-	Will increase by at least 50% in 2022		
		3.2.3 Number of new aggregation projects	0	At least 3 projects/Offices in 2022.		
		3.2.4 Trend in the land areas placed under aggregation contracts	0	At least 15% of the land areas of IA in 2022.		
	COMPONENT 3: *Institutional Capacity Building*					
	3.3.1 Effective institutional support is provided to various stakeholders	3.3.1 Number of AUEAs upgraded and members trained	0 in 2016	10 AUEAs upgraded and 70 members trained in 2022	Surveys among beneficiaries and stakeholders, statistics by the ABH, ORMVA, ADA, and MAPM	
		3.3.2 Percentage of farmers, some of them women, trained	0 in 2016	50% of farmers, at least 20% of them women, trained in 2022		
		3.3.3 Number of women's cooperatives established and women trained	1 in 2016	4 women's cooperatives established and 200 women trained in 2022		

RESULTS CHAIN	PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES
	Indicators	Baseline Situation	Target		
	3.3.4 Number of young agricultural entrepreneurs installed	0 in 2016	At least 30 young agricultural entrepreneurs, at least 8 of them women, installed in 2022		(ii) Plan to strengthen FDA resources and implementation of planned strategic orientations. (iii) Plan to build the capacity of AUEAs and improve their performance. (iv) Build the human and material capacity of ORMVAs through technical assistance. (v) Improve upstream expenditure (strengthen procurement) and downstream expenditure (plan and monitor disbursements)
	3.3.5 Clients who signed a water supply contract with ORMVA	0% in 2016	At least 70% in 2022		
	3.3.6 Consolidate the groundwater information and monitoring system.	Available at the Loukkos Water Basin Agency (ABHL) level	The groundwater catchment information and monitoring system is functional in 2022.		
	Component 1: Modernization of Irrigation Water Infrastructure Component 2: Development of Irrigation Water Component 3: Institutional Capacity Building Component 4: Project Coordination		**Component 1: USD 68.350 million** **Component 2: USD 12.680 million** **Component 3: USD 8.500 million** **Component 4: USD 7.400 million** **Total: USD 96.934 million**		***Sources of Financing*** **AfDB: USD 88.057 million** **Government: USD 8.877 million** **Total: USD 96.934 million**

'Productive Water' Concept: water initially lost due to inefficient network, recovered and recycled for production

Project Implementation Schedule



REPORT AND RECOMMENDATION OF MANAGEMENT OF THE AFRICAN DEVELOPMENT BANK GROUP TO THE BOARD OF DIRECTORS CONCERNING A PROPOSAL TO GRANT A LOAN TO THE KINGDOM OF MOROCCO FOR THE NATIONAL IRRIGATION WATER SAVING PROGRAMME (PNEEI) SUPPORT PROJECT

Management hereby submits the following report and recommendation concerning a proposal to grant a USD 88.057 million loan to the Kingdom of Morocco to finance the second phase of the National Irrigation Water Saving Programme Support Project (PAPNEEI-2).

I. Strategic Thrust and Rationale

1.1 Project Linkages with Country Strategy and Objectives

1.1.1 The constraining water context due to the sharp decline in water resources (see details in Technical Annexes A.1 and 2)[1] and the risk of intensification of drought periods expose agriculture, which is considered a strategic sector in Morocco[2], to sustainability risks. To deal with this difficult and continuously worsening situation, the economy and water efficiency henceforth constitute an essential thrust of the Green Morocco Plan (PMV) and of the country's new water policy. In this context, the PMV, which is supported by the National Irrigation Water Saving Programme (PNEEI), has prioritized the modernization of irrigation in order to rationalize, save and enhance the efficiency of irrigation water. This strategy also considers the improvement of farm income as a prerequisite for its success. It is based on the improvement of the irrigation water service, strengthening and adaptation of the water saving incentive system financing, improvement of various aspects of downstream agriculture (organization, partnership, cultivation contracts, aggregation, etc.) and development of proximity counselling.

1.1.2 The overall objective of this strategy is to promote the sustainable management of water resources to *support the sustainability of irrigation farming* and *promote value chains to strengthen the country's food security*. In this regard, the Moroccan Government designed PNEEI, which focuses on the following main thrusts (see details in Volume 2 of Annex A1): (i) modernization of irrigation farming through the development of localized irrigation to enhance network efficiency; (ii) massive conversion of conventional irrigation into localized irrigation over a total land area of 550 000 hectares for a cost of EUR 3.5 billion; (iii) development of mobilized water resources; (iv) strengthening of maintenance and rehabilitation to ensure better water supply services and the durability of equipment; (v) implementation of institutional reforms in the irrigation sector to improve its competitiveness; and (vi) the continuation of efforts to promote participatory irrigation management so as to involve and empower users in water resource management and development.

1.1.3 Consequently, the project which aims to modernize and make irrigation profitable (saving water and enhancing the value of a cubic metre of water mobilized) constitutes direct support to PNEEI, hence PMV. It is fully consistent with the objectives of the Green Morocco Plan and the National Water Strategy, which specifically advocate the *efficient management of water demand* as well as the National Sustainable Development Strategy (2015-2020). The project aligns squarely on Morocco's overall reform process. It is also in keeping with the *Abidjan Declaration* (resilient agricultural development in Africa in the face of climate change, FAO, April 2016) and the *Marrakech Declaration* (Adaptation of African Agriculture [AAA], September 2016) to which Morocco is fully committed.

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1 The water resource (WR) potential is estimated at 22 billion m^3/year (of which 18 billion m^3 surface water and 4 billion m^3 groundwater), equivalent to 730 m^3/capita (that is less than the water stress threshold set by the United Nations (1 000 m^3/capita), compared to 2 500 m^3 in 1980 and 1 010 m^3 in 2000. According to projections, the annual per capita availability of WR in 2020 will be 520 m^3.

2 Agriculture employs more than 70% of the population and accounts for 13% to 20% of GDP, depending on the crop year. It provides 80% of employment in rural areas and more than 40% at the national level. More than 80% of water resources are used for agriculture.

1.2 Rationale for Bank Involvement

1.2.1 The project is consistent with the Bank's strategic orientations and its five strategic priorities or High 5s ("Feed Africa" and "Improve the quality of life for the people of Africa") and the objectives of *promoting inclusive and green growth*, strengthening food security and climate change adaptation measures. It plugs seamlessly into: (i) the Bank Group's "Ten-Year Strategy" [2013-2022] (inclusive growth and transition to green growth objectives); (ii) the second pillar of the Bank's Assistance Strategy for Morocco (CSP 2012-2016) on "*Support for the Development of Green Infrastructure*"; (iii) the Bank's Gender Strategy, *Investing in Gender Equality for Africa's Transformation* (2014-2018), particularly Pillar II "Economic Empowerment"; and (iv) the Bank's Agricultural Strategy, Feed Africa [2016-2025]. The implementation of the PNEEI requires substantial investments and high-level technical assistance. Only the major multilateral donors, including the Bank, are considered by Moroccan authorities as catalysts capable of helping them deal with such sector issues and bringing along other financing agencies through their actions. In addition, the Bank has already accumulated a wealth of experience in irrigation in Morocco. Beside financing 7 irrigation operations in the past for UA 157 million and two reform support programmes, the Bank is currently engaged in four agricultural operations totalling nearly UA 141 million, namely the Green Morocco Plan Support Programme (PAPMV-2) [reform support], the National Irrigation Water Saving Programme, Phase I (PAPNEEI-1) [investment loan which will be closed on 31/12/2017] and two recently completed technical support operations, i.e.: (i) irrigation infrastructure development; and (ii) the promotion of young agricultural entrepreneurs financed by MIC Trust Fund, which is ongoing. According to the monthly, 'Flashlight Report', the Bank's portfolio in Morocco was one of the most efficient portfolios in 2015.

1.2.2 Particular attention is paid to maintaining synergy between the three instruments (investment, reform, and technical support) adopted by the Bank in Morocco to support reforms and investments, and enhance their sustainability. With respect to comparative advantages, there are four fundamental arguments in support of the Bank's intervention in this project, namely: (i) the strategic role played by the Bank in infrastructure development in Morocco; (ii) the logical continuation by the project of the first phase (PAPNEEI-1) and the creation of synergy with reform support (PAPMV-1, which has been completed, and PAPMV-2, which is ongoing), contributing to establishing an institutional and regulatory framework for better irrigation water management and development, and technical support operations (development of irrigation infrastructure and promotion of young agricultural entrepreneurs); (iii) the project's contribution to improving food security given the significance of the quality and quantity of the projected increase in agricultural production; and (iv) the project's relevant contribution to efforts to adapt to climate change and support sustainable development goals – SDGs (SDG 1: End poverty in all its forms everywhere, and SDG 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture).

1.2.3 The project will facilitate access to improved irrigation technologies and reflect the principles of inclusive development. It will advocate individualized (rather than collective), on-demand (rather than a water tower), reliable (with an improved water service) and equitable (availability of flow and pressure throughout the entire network) access to water. The first phase (PAPNEEI-1) was implemented with great success. The anchor infrastructure developed in the three Regional Agricultural Development Authorities - ORMVA (Doukkala, Tadla and Loukkos) have helped to create a visible momentum on the ground and to arouse the interest of beneficiaries. PAPNEEI-1 achieved an overall physical implementation rate of more than 80% (17 000 hectares) and an AfDB loan disbursement rate of 70.67%. External facilities (pipelines, pumping stations, filtration plants, and hydrants) are 90% completed and are at the final acceptance stage. Currently, the project is focussing on the development of internal facilities in plots. Water supply to Sector C in Loukkos is operational on a land area of 2 125 hectares, while the rest is in progress. Financially,

the request submitted to the Bank for the disbursement of EUR 11 million is being processed and will increase the disbursement rate to 89%.

1.3 Aid Coordination

The Government, with the support of some bilateral and multilateral donors, ensures the development of the sector. Morocco's key development partners in the water sector are the World Bank (WB), the African Development Bank (AfDB), the European Union (EU), the Arab Fund for Economic and Social Development (AFESD), the Islamic Development Bank (IsDB), and various bilateral donors [the Qatar Development Fund, the Saudi Fund for Development (SFD), the United States, the Japanese International Cooperation Agency (JICA), the French Development Agency (AFD), the German Bank for Reconstruction (KfW/GTZ), the Belgian Cooperation Agency (CTB), etc.). Coordination between the donors is ensured through thematic groups: (i) Agriculture [chaired by the Directorate of Strategy and Statistics (DSS) of the Ministry of Agriculture and Maritime Fisheries (MAPM); and (ii) Water, jointly headed by the EU and AfDB.

	Sector or Sub-sector*	Contribution		
		GDP	Exports	Labour
	[**Irrigation**]	[**8%**]	[**11%**]	[**15%**]
	Stakeholders – Cumulative Public Expenditure on the Green Morocco Plan - PMV (2008 - 2016)			
	Government	**Donors**		*[%]*
UA Mn	**[UA 523.8 Million]**	**[UA 2 095.2 Million]**	*IBRD*	*[18.5%]*
%	**[25 %]**	**[75 %]**	*AfDB*	*[12.8%]*
			Qatar Dev. Fund	*[10.0%]*
			USA	*[9.8%]*
			Saudi Fund	*[6.9%]*
			EU	*[5.6%]*
			AFESD	*[5.1%]*
			JICA	*[5.1%]*
	Aid Coordination Level			
	Existence of thematic working groups			[Yes]
	Existence of overall sector programme			[Yes]
	AfDB's role in aid coordination**			[M]***

*Most appropriate **for this sector or sub-sector

*** L: Leader; M : member (non-leader): None: no role

II. Project Description

2.1 Project Objectives

The purpose of the project is to contribute to improving the living conditions of rural dwellers through the sustainable management of water resources, improvement of water productivity in irrigation areas. The project objective is to ensure the judicious and positive utilization of irrigation water resources against a backdrop of increasing scarcity of these resources and the rising cost of energy used in irrigation.

2.2 Project Components

To achieve its set objectives, the project has a structuring component centred on the modernization of irrigation water infrastructure, representing more than 70% of the total project cost, and two other support components for development of infrastructure[1] and a project coordination component.

[1] The Government ensures the development of internal facilities in plots with Agricultural Development Fund (FDA) resources. This mainly involves: (i) processing ADF files and mobilizing grants; (ii) organizing irrigators and monitoring equipment installers; and (iii) developing internal facilities and equipping plots.

Table 2.2
Project Components

No.	Component Name	Estimated Cost	Component Description
I.	Modernization of Irrigation Water Infrastructure	USD 68.35 Million	▪ Conversion of irrigation networks: construction of 25 758 hectares of localized irrigation infrastructure in two water basins: Oum Rbia and Loukkos. ▪ Support measures: technical monitoring of infrastructure construction works; establishment of irrigation warning systems and remote management; implementation of an ESMP in each Regional Agricultural Development Authority (ORMVA).
II.	Support for the Development of Irrigation Water and the Promotion of Value Chains	USD 12.68 Million	▪ Technical support to farmers for the preparation of individual projects and equipment of their plot with localized irrigation. ▪ Support for agricultural production: provision of technical advice on irrigation and agricultural development; trials and demonstrations of improved irrigation and farming techniques. ▪ Support for the promotion of value chains: support for packaging and marketing (aggregation-PPP process); implementation and monitoring of partnership agreements concluded with aggregators, private operators, etc.
III.	Institutional Capacity Building	USD 8.50 Million	▪ Strengthening administrative entities: DIAEA, ADA and ORMVA; ▪ Strengthening grassroots/beneficiaries' organizations: Agricultural Water Users' Associations (AUEAs), economic interest groups (EIGs), and women's professional organizations and associations; ▪ Assistance to partners: assistance to aggregation/PPP; conduct of training courses; promotion of young entrepreneurs and women's activities; ▪ Establishment of information systems: support for the project monitoring and evaluation system; establishment of an irrigation water saving (IWS) communication plan.
IV.	Project Coordination	USD 7.40 Million	▪ National and regional project coordination; ▪ Management of activities, physical and financial monitoring, and conduct of internal and external audits.

2.2.1 **Modernization of Irrigation Water Infrastructure:** this component consists in *converting* previous sprinkled irrigation areas into localized irrigation areas (modern drip irrigation system) with a view to improving irrigation effectiveness and establishing a high performing on-demand system. These are the so-called external facility works which involve the construction of all infrastructure on property upstream, namely: (i) *water harnessing* at the point of water capture on the canal through the installation of a water-intake structure and the installation or rehabilitation of a pressurization plant, if necessary; (ii) *improvement of water quality* so as to comply with localized irrigation requirements through the installation of a collective seepage plant upstream of the sector; (iii) *distribution of pressurized water* towards *fountains which supply irrigation blocs through the installation or rehabilitation of underground* pipeline networks and the renovation of intake fountains; (iv) *distribution of water* to owners through connection pipes servicing individualized intake structures with pressurized water. In addition, adapting certain water-tower systems to *on-demand distribution* is indispensable for localized irrigation; this also requires changing the control methods for some feeder canals and pumping plants (cf. details in Technical Annex B2). Concurrently, this component provides for the establishment of irrigation warning systems. It is a "decision support system" comprising agro-meteorological instrumentation, which provides the irrigator with information needed for rational watering management (watering schedule, frequency, amounts, etc.). The outcome of this component is about 26 000 hectares of land developed for functional localized irrigation in two strategic water basins (Oum Rbia and Loukkos) from surface water mobilized by dams. This component will be implemented by the Doukkala and Loukkos ORMVAs.

2.2.2 **Support for Irrigation Water Development:** this component is the cornerstone of the project and is directly aligned on the strategic priority of "promoting value chains". It consists in

promoting a "sector approach" to improve the performance of selected irrigation areas and develop infrastructure [*conversion of cultivation methods*] by: (i) supporting farmers to prepare and install localized irrigation equipment on their plots, improve productivity and promote high value-added crops (cash crops, market gardening, arboriculture, red fruits, etc.) through trial and demonstration techniques, technical management of crops under localized irrigation; and (ii) supporting processing and the aggregation process (concept conveyed by PMV) to promote value chains (processing and marketing of products through the conclusion of partnership agreements with private operators managed by the Agricultural Development Agency (ADA) [cf. Annex C6, volume 2]). This component will be implemented by the ORMVAs and ADA.

2.2.3 **Institutional Capacity Building:** this component is essential for sustainable development. It seeks to build the institutional capacity of project stakeholders [DIAEA, ORMVAs, and ADA for administrative entities], especially beneficiaries' organizations [notably AUEAs, women's associations, etc.] so as to make them more active and further empower them for proper participatory irrigation management [*institutional conversion*]. In this regard, PAPNEEI will build the capacity of AUEAs in the Loukkos and Doukkala project impact areas by providing targeted training, rehabilitating the head offices of these associations belonging to ORMVAs and allocated to former, and providing office equipment to ensure the smooth functioning of AUEAs. This component will be implemented by ORMVAs, DIAEA and ADA.

2.2.4 **Project Coordination**: this component consists in strengthening the project management and coordination mechanism, and building the capacity of executing agencies [DIAEA, ORMVAs and ADA].

2.3 Technical Solutions Adopted and Alternatives Explored

2.3.1 PAPNEEI-2 is aligned on the programme-based approach and is a continuation of PAPNEEI-1. Consultation with stakeholders during various preparation missions helped to support the same technical solution adopted by PAPNEEI-1 for converting spray-irrigation areas to localized irrigation areas. This technical solution has the advantage of modernizing existing infrastructure (pumping stations, irrigation network piping, hydrants, etc.) to improve water use, optimize the cost of investments and reduce the cost of energy required for pumping. The project will finance water supply up to plots (farms) with individualized meters to make irrigation water billing more transparent. The installation of individual meters will promote the ownership of hydrants by beneficiaries and the rational use of water, and eventually the signing of water supply contracts between users and ORMVAs. Therefore, PAPNEI-2 will concretize progress towards fostering modernization and innovation in Morocco, and mitigating the effects of climate change.

2.3.2 The technical design of the project took into account: (i) the availability of water resources; (ii) the ownership of technical solutions by irrigators; and (iii) consultation between ORMVAs, users and local elected representatives when selecting proposed irrigation schemes. To promote participatory irrigation management, the project will build the capacity of agricultural water users' associations (AUEAs) to make them favoured partners during the works execution phase. The criteria for selecting the sectors to be converted took into account: (i) the need for at least 70% of farmers to adhere to the new irrigation technique, reflecting the expression of needs at the grassroots level by users themselves (demand-based approach); (ii) the availability of feasibility and implementation studies on the proposed sectors to improve project quality at entry; (iii) the absence of conflict that could jeopardize or call into question the conversion process; and (iv) a rate of return on planned investments of more than 12% to leverage and ensure the sustainability of irrigation schemes.

Table 2.3
Alternative Solutions Explored and Reasons for their Rejection[1]

ALTERNATIVE EXPLORED	BRIEF DESCRIPTION	REASONS FOR REJECTION
Modernization of the method of regulating pumping stations	Spray irrigation sectors (Doukkala and Loukkos) are each serviced by a pumping station which reverses water flow into a raised control reservoir. These installations will be preserved and the control system improved with variable speeds for greater pumping energy efficiency.	Need to reduce investment costs and take into account a transition phase with the co-existence of both irrigation methods.
A single-stage water filtration upstream on the property	Water filtration, which is indispensable in localized irrigation, is conducted upstream on the property within the head unit managed by the farmer. In addition, a second filtration stage is provided for by the collective filtration plant installed at the beginning of the network	High costs for less efficiency in comparison to collective filtration, and the transportation and distribution networks are not protected from sedimentation.
Collective tapping from irrigation blocks comprising several properties	To optimize investment costs, it is necessary to install collective meters for irrigation blocks (comprising several properties) instead of an individual meter per property.	This solution does not make it possible to enhance transparency and fairness in the billing of volumes of irrigation water. The principle of an individual meter per property was adopted.

2.4 Project Type

The peculiarity of this project, which is a sector investment project, lies in the use of a programme-based approach in directing investments in line with a concerted and participatory framework based on eligibility criteria (see details in Technical Annex B.3, volume 2).

2.5 Project Cost and Financing Arrangements

2.5.1 PAPNEEI-2 is consistent with the Government's programme to carry out a massive transformation of conventional irrigation schemes into localized irrigation schemes over a total land area of about 550 000 hectares for a cost amounting to USD 3.9 billion. The total cost of the project (including external and internal facilities) is estimated at USD 179.2 million. The Government will contribute USD 91.2 million, representing about 51% of the total project cost, to finance facilities within plots. The analysis of the counterpart contribution is presented in Technical Annex C.9. The Bank's contribution will be limited to the financing of external facilities[2].

2.5.2 The cost of external facilities under the project will be USD 96.934 million (DH 946,077 million), net of taxes and customs duties. Foreign exchange will represent 52% of the total cost. Customs duties and taxes will be borne by the State. Physical contingencies and price escalation, which will represent 11% of the base cost, were calculated based on the detailed estimates submitted by the Borrower. The AfDB loan will be USD 88.057 million (UA 62.7 million). The summary of the project cost, excluding studies and internal facilities, is presented in Tables 2.4 and 2.5 below.

[1] See details of the alternative solutions explored in Volume 2 in the Technical Annex (Annex B.2).
[2] The external facilities are installations to channel water from the dam to the head of the plot.

Table 2.4
Estimated Project Cost by Component [in DH million and USD million]

COMPONENTS	DH Million			USD Million			% F.E.	% Base Cost
	L.C.	F.E.	Total	L.C.	F.E.	Total		
1. Modernization of Irrigation Water Infrastructure	211.314	389.765	601.079	21.651	39.935	61.586	65	71
2. Support for Irrigation Water Development	68.100	43.400	111.500	6.977	4.446	11.424	39	14
3. Institutional Capacity Building	66.301	10.36	76.661	6.794	1.061	7.855	27	8
4. Project Coordination	65.700	0	65.700	6.731	0	6.731	-	7
BASE COST	**411.414**	**443.525**	**854.940**	**42.153**	**45.443**	**87.596**	**52**	**100**
Physical Contingencies	27.657	35.482	63.139	2.834	3.635	6.469	56	8
Price Escalation	19.788	8.210	27.998	2.027	0.841	2.869	29	3
TOTAL PROJECT COST	**458.860**	**487.217**	**946.077**	**47.014**	**49.920**	**96.934**	**52**	**111**

NB: The exchange rates used are indicated at the beginning of the report [page (i)]

Table 2.5
Sources of Financing [in DH million and USD million]

Sources of Financing	DH Million			USD Million			% Total
	L.C.	F.E.	Total	L.C.	F.E.	Total	
AfDB Loan	372.223	487.217	859.44	38.138	49.92	88.057	90.8
Government of Morocco	86.636	0	86.636	8.877	0	8.877	9.2
Total	**58.860**	**487.217**	**946.077**	**47.014**	**49.92**	**96.934**	**100**

2.5.3 The breakdown of financing by expenditure category and the expenditure schedule by sub-project are presented in Tables 2.6 and 2.7 below.

Table 2.6
Project Cost by Expenditure Category [in DH million and USD million]

EXPENDITURE CATEGORIES	DH Million			USD Million			% F.E.	% Base Cost
	L.C.	F.E.	Total	L.C.	F.E.	Total		
Investment	345.714	443.525	789.240	35.422	45.443	80.865	56	92
Works	110.439	257.692	368.131	11.316	26.403	37.718	70	43
Services	157.621	4.640	162.261	16.150	0.475	16.625	3	19
Goods	77.614	181.194	258.848	7.956	18.565	26.521	70	30
Operating Cost	65.700	0	65.700	6.732	0	6.732	0	8
Base Cost	**411.414**	**443.525**	**854.940**	**42.153**	**45.443**	**87.596**	**52**	**100**
Physical Contingencies	27.657	35.482	63.139	2.834	3.635	6.469	56	8
Price Escalation	19.788	8.210	27.998	2.027	0.841	2.869	29	3
TOTAL PROJECT COST	**458.860**	**487.217**	**946.077**	**47.014**	**49.920**	**96.934**	**52**	**111**

Table 2.7
Expenditure Schedule by Sub-project [amounts in USD million]

SUB-PROJECTS	2017	2018	2019	2020	2021	2022	TOTAL
1. Doukkala Sub-project	5.992	6.832	8.430	6.902	5.732	5.226	39.116
2. Loukkos Sub-project	3.599	9.570	14.892	12.992	8.640	1.093	50.785
3. Central Entities	2.551	0.892	0.964	0.956	0.924	0.746	7.033
TOTAL	**12.143**	**17.294**	**24.285**	**20.851**	**15.296**	**7.065**	**96.934**

2.6 Project Target Area and Beneficiaries

2.6.1 The project impact area covers a total land area of 25 758 hectares, comprising 10 250 farms divided into two water basins, Oum Rbia and Loukkos, as follows: (i) Loukkos: made up of the following six sectors covering a total land area of about 11 946 hectares: Rmel (D1 and D2), Ksar Plain, Basse Colline, Rive Droite (D2 and D4) (5 090 irrigators); and (ii) Doukkala: comprising four sectors covering a total land area of 13 812 hectares: Casier de Zemamra (Z1 and

Z2); Casier El Gharbia (West 2 and South) (5 160 irrigators). For more details see Technical Annex B.4, Volume 2.

2.6.2 Development works in the Doukkala region will mainly focus on grain farming, the cultivation of sugar beet, fodder growing, market gardening and livestock breeding. The main crops cultivated in Loukkos are sugar beet, vegetables, groundnut and grain. In both areas, agro-industrial activities are expanding (sugar mills, flour mills, dairy plants, olive-crushing units, tomato processing units, packaging units, etc.) and professional organizations (dairy cooperatives, red fruits, citrus fruit growers' associations, etc.) are dynamic.

2.6.3 The target group comprises 10 250 farms, i.e. a beneficiary population estimated at 61 500, most of them small farmers. Very small farmers (with less than 2 hectares) represent 70.19% of the beneficiary population and occupy less than one third of the total land area concerned (31.45%), whereas small farmers (with less than 5 hectares) account for 87.88% of the total number of farmers.

Table 2.8
Structure of Farms in the Project Impact Area

Property Class	0-2 ha	2-5 ha	5-10 ha	> 10 ha
Percentage of Land Area (%)	31.45	27.51	21.85	19.20
Percentage of Farmers (%)	70.19	17.69	9.33	2.78

(Sources: ORMVA of Loukkos and Doukkala, 2016).

2.7 Participatory Approach for Project Identification, Design and Implementation

2.7.1 PAPNEEI-2 was designed with the active participation of the stakeholders concerned (government services, professional entities, private operators, beneficiaries, consulting engineers, and development partners). Furthermore, given the transition to *demand management*, the direct and full involvement of water users is essential to ensure more active and responsible participatory irrigation water management as well as promote a partnership approach. The participatory approach was adopted throughout the project design phase, starting with preliminary feasibility studies that included surveys to assess the rate of adherence of beneficiaries to proposed localized irrigation systems – the *minimum rate of 70% being one of the main criteria for the selection of the areas* to be converted. The process is purely participatory since the selection of an irrigation area for conversion requires that at least 70% of farmers accept the implementation of the project. Furthermore, the Bank did not finance the conversion of areas in Moulouya under PAPNEEI-1 due to the non- adherence of farmers and their associations. Like in PAPNEEI-1, AUEAs will be involved in works execution especially with regard to the selection of irrigation equipment.

2.7.2 Various Bank project preparation missions also held many consultation meetings with civil society, professional entities and private operators likely to be involved in the project. In addition, the different activities proposed will be implemented through a participatory approach involving the active participation of AUEAs and other existing institutional stakeholders (particularly regarding internal facilities: design and selection of farm equipment, launching of bid invitations, monitoring of suppliers and contractors, etc.) to improve governance and further empower these associations.

2.8 Bank Group Experience and Lessons Reflected in Project Design

2.8.1 Strategic lessons have been drawn from the ongoing phase of the project (PAPNEEI-1) and the mid-term review that could help to further improve the design and implementation of the second phase (PAPNEEI-2), especially the need to: *(i) upgrade the socio-economic environment before any physical intervention through better targeting, anticipation of the activities of Components 2 and 3, and consolidation of the participatory process; (ii) ensure the prior availability of implementation studies and the finalization of BDs for the first contracts;(iii) ensure*

geographic concentration and an implementation period that is consistent and compatible with all the activities and set objectives; (iv) use advance contracting, appoint a permanent senior procurement officer, group together contracts and prepare an optimized authorization plan; (v) step up communication on irrigation water saving as well as project outcomes and impacts. PAPNEEI-2 also benefited significantly from sector budget support operations (PAPMV-1 completed in July 2014, PAPMV-2 being implemented and PARSIF in terms of access to financing by small farmers) as well as technical support provided or being provided. One of the achievements made in Morocco is the complementarity and synergy established between the three Bank financing instruments (reform support, investment support and technical support).

2.8.2 Based on these elements, project design paid special attention to: (i) the scheduling and immediate initiation of Components 2 and 3; (ii) the consolidation of the participatory process and the contractual empowerment of AUEAs; (iii) concentration on two ORMVAs with a six-year implementation period; (iv) use of the national system and advance contracting; (v) the preparation and implementation of an irrigation water saving communication plan; and (vi) the targeting of loan conditions (cf. para.5.2). All of these initiatives constitute progress made by the Bank and will help the customer to own project activities and outcomes.

2.8.3 An assessment of Bank assistance to Morocco over the period 2004-2014 conducted in 2016 by IDEV (cf. details in Annex B.1) highlighted the important innovative role played by the Bank in technology-intensive projects in highly strategic sectors. The assessment report highlights the need to further sustain some achievements in terms of infrastructure and transition to green growth, sustainably consolidate governance achievements, build institutional capacity and increase private sector support. The report also makes an equally positive observation about Bank contribution to Morocco's transition to green growth. Huge investments in renewable energy and agricultural water, as well as financing for rural development enhancement and the rational management of agricultural water are all concrete examples of Bank commitment to Morocco's transition to green growth.

2.8.4 It will be recalled that the main challenge of the irrigation sub-sector in Morocco concerns: (i) the extension of irrigation to match land areas dominated by dams; and (ii) the cultivation of land areas developed and equipped. As such, land development is a strategic goal, and the project goes beyond any reflection based exclusively on the construction of infrastructure (restricted meaning of 'water saving') and gives pride of place to irrigation water development. To avoid discrepancy between upstream development (carried out by the project) and downstream development (equipping of the plot of land financed with ADF resources), the project lays emphasis on the conditions of adherence by irrigators through financing mechanisms, availability of funds and FDA functionality (cf. para. 4.5, para. 5.2), and the need to support formal agricultural water users' organizations (AUEAs) which are a key factor for the success and sustainability of localized irrigation. Consequently, the active involvement of AUEAs will be particularly encouraged through the systematic use of a participatory approach that includes users (cf. para.2.7 and para. 4.4).

2.9. Key Performance Indicators

The key project implementation indicators are: (i) land areas equipped with localized irrigation or in the process of being equipped; (ii) volume of water saved by each water basin; (iii) average yields obtained in each irrigation area; and (iv) additional agricultural production generated, as well as its additional monetary value per m^3 of irrigation water. The key impact indicators are: (i) increase in agricultural income of irrigators, (ii) project's contribution to improving irrigation water service; and (iii) project's contribution to improving agricultural production and average income/ha in the regions concerned. The key sources of data for monitoring the indicators are DIAEA, ADA and ONC at the central level, and ORMVAs and ABHs at the regional level. These

data sources will be supplemented by field surveys and targeted analyses, with the help of ad hoc technical assistance when necessary. The required data will be collected and processed, and the findings made available through the results-based monitoring/evaluation system, which will be established for the purposes of this project.

III. Project Feasibility

3.1. Economic and Financial Performance

3.1.1 The anchor infrastructure to be built will help to save water, which will be recycled for an estimated production of *64.3 million m³/year* (productive water concept)[1], increase value added of the irrigation areas concerned and generate positive impacts, especially at the social (local job creation, reduction of rural to urban migration, etc.), economic (increased agricultural production, development of irrigation water, strengthening of regional balance, etc.) and environmental level (mitigation of the negative effects of climate change, reduced demand for energy, etc.). The water pumping energy gain in Loukkos (6 sectors) is estimated at more than *DH* 5 *million* annually, resulting from the adaptation of the pumping system to localized irrigation, which is less demanding on pressure and water flow. The main benefits to be generated by the project are assessed through the key indicators below.

Table 3.1
Key Project Economic and Financial Performance Indicators

Indicators	Values		
	Doukkala	Loukkos	Average/Total
Net average income per hectare (DH/ha)	17 738	19 524	18 699
Net average income per farm (DH)	41 646	52 4653	47 464
Value of additional production (DH million)	156.63	259.00	415.63
Development of m^3 of water (DH/m^3)	4.4	4.7	4.5
Productive water savings (million m3)	29.8	34.5	64.3
Additional jobs (DW) created by construction sites[1]	271 848	263 462	535 310
Additional jobs (DW) created/Development[2]	276 615	419 566	696 180

(1) Additional jobs (DW) created by construction sites over the period 2017-2022 (Source: Feasibility and Field Studies, 2016)
(2) Additional jobs (DW) created annually through land development

3.1.2 An economic analysis was conducted based on the base price method and comparison between the "without project" scenario and the "with project" scenario. Economic and financial performance was assessed based on a 30-year duration of investment. Project costs concern investments carried out, including physical contingencies, maintenance and servicing costs, production costs and replacement. The analysis covered 10 sectors: Zemamra Z1, Z2, El Gharbia West and South (Doukkala), and Rmel, Ksar Plain, Basses Collines and Right Bank D1 & D2 (Loukkos). The additional income generated by the various irrigation areas are estimated respectively at DH 17 740/ha (Doukkala) and DH 19 520/ha (Loukkos). This income will directly benefit rural households and contribute to poverty reduction, especially among vulnerable groups (women and youths).

3.1.3 The economic rate of return is presented below. The project's economic benefits will stem from increased agricultural production (at full development, an annual additional production of 33 700 quintal of grains, 24 000 tons of sugar beet, 79 300 tons of fodder, 135 000 tons of market gardening produce, 25 000 tons of citrus fruits, 1 180 tons of meat and 12.2 million litres of milk), improved marketing channels and improved access of production areas to domestic and international markets (aggregation contracts).

Economic Rate of Return (Baseline Scenario): 17.9%	NPV amount: DH 855 Million

[1] Based on the average level of the development of m^3 of water (DH/m^3), the value generated is estimated at DH 289.3 million.

3.1.4 The sensitivity tests conducted show return on project: when investment costs increase by 10%, ERR stands at 16.1%. When production drops by 10%, ERR stands at 13.5%. When investment costs increase by 10% combined with a 10% reduction in production, ERR stands at 12.0%.

3.2. Environmental and Social Impact

Environment

3.2.1 PAPNEEI-2 was classified under Environmental Category 2 in July 2013 according to Bank environmental and social procedures. It is basically a water saving climate change adaptation project and should therefore contribute to: (i) preserving water resources through rational use and reduced water irrigation network losses; (ii) greater development of localized irrigation water; and (iii) reducing pollution through the expected reduction in the use of fertilizers compared with conventional irrigation techniques. The project's negative impacts on the biophysical environment are limited and mainly concern the risk of: (i) soil degradation (salination); (ii) deterioration in surface water quality (organic matters and salination); (ii) ground water pollution (nitrate pollution and salination); and (iv) increased development of aquatic vegetation (filamentous algae). The project has already incorporated sustainable ground water management and soil conservation measures. The mitigation measures proposed in the Environmental and Social Management Plan (ESMP), which was validated by the Bank on 17 March 2014 and posted on the Bank's website on 28 March 2014, will help to reduce the project's negative environmental impacts to an acceptable level. The ESMP summary is presented in Annex B10. The cost of implementing the mitigation measures is included in the project cost.

3.2.2 During the project operation phase, the conversion of the irrigation system into a drip system will be a measure to mitigate the negative impacts generated by the irrigation methods currently used (flow and sprinkle). The other measures proposed in the ESMP include: (i) reducing soil salination through regular soil leaching to reduce the salt and nitrate content of the soil; (ii) stepping up the biological control of filamentous algae development and the periodic dredging of irrigation canals; (iii) raising farmers' awareness of the negative effects of plastic wastes and the search for possibilities of recycling them; (iv) implementing a programme to monitor the control of trends in ground water dynamics and quality, soil physical and chemical quality, and the quality of surface water in the irrigation areas concerned; and (v) rationalizing the use of pesticides and fertilizers as a result of intensive cultivation.

Social Issues

3.2.3 Despite the socio-economic progress[1] achieved, the poverty rate is still high in rural areas (14.5% at the national level), against only 4.8% in urban areas. In rural areas, 80% of poor people generate income from agriculture and women are the most vulnerable. The poverty rate continues to be high in the project impact area (19.5% in Doukkala and 17.6 % in Loukkos). Unemployment is also high in economic regions (16.1 % in Doukkala and 12.6 % in Loukkos) and higher among youths (15-35-year age bracket) and even much higher among higher education graduates (20% in 2014). The project will contribute to improving the living conditions of the populations of ORMVAs in Doukkala and Loukkos by increasing the production and productivity of irrigation areas, the income of rural dwellers and employment opportunities, thus controlling rural exodus. It will consolidate Government's effort to promote small-scale agriculture (Pillar II of PMV) and sustainable employment (reference to the loss of 175 000 agricultural jobs in Morocco in 2016 owing to prolonged drought). Furthermore, the project is expected to contribute to greater social cohesion by reinforcing the organization of agricultural water users' associations (AUEAs) for

[1] The country recorded significant performance with the reduction of the national poverty rate from 15.3% of the population over the 2000-2001 period to 9% in 2007 and 6.2% in 2012 (cf. CSP 2006-2010 Completion Report).

collective infrastructure management (example of facilities within plots), land regularization, increased farmer income from higher yields and marketing/processing of high value-added products, improved farmers' knowledge of irrigation and crop production techniques, hence reduced poverty and migration from rural areas to cities, and improved nutrition through more varied fruit and vegetable production. The project will directly benefit 10 250 farmers.

3.2.4 Socially, the expected negative impacts would affect farmers who are not project beneficiaries and whose competitiveness on the market would be relatively reduced, as well as rural women whose participation in project benefits is hampered by cultural barriers. However, these impacts will be significantly cushioned by the mitigation measures provided for in the ESMP, especially the reinforcement of women's participation in agricultural water users' associations and the proposed enhancement measures that will concern support for and financing of income-generating sub-projects for vulnerable persons comprising women and youths.

Adaptation to Climate Change

3.2.5 Rains are irregular and violent in the PAPNEEI-2 impact area. Annual rainfall varies between 335 mm in the Oum-Rbia water basin and 800 mm in Loukkos. Uncertain rain increasingly weakens production systems, as such deteriorating the living conditions of the population who depend on it. PAPNEEI-2 is a climate change adaptation project given its activities which include conversion to water efficiency, water and soil conservation, diversification of income sources and building of the capacity of water users' associations and farmers. As a result, it is expected to improve the resilience of vulnerable groups, especially women and youths, as well as production systems to climate change. The project will build the climate change adaptation capacity of farmers in the project area by establishing an irrigation warning and GIS decision support system in the ORMVAs concerned.

Gender Issues

3.2.6 Efforts have been made recently in Morocco to promote gender-sensitive human development. The "Ikram" programme on gender equality (2012- 2016) was established after total gender equality was enshrined in the 2011 Constitution. However, there is need for more effort. In rural areas where efforts are required, women are the key development stakeholders (they account for close to 50% of the rural population in Morocco). Agriculture is the main economic activity of rural women, and employs more than 90% of working women. They make up 40% to 50% of the workforce for grain and legume farming, which employs almost 45% of rural women. With respect to industrial crops, sugar cane and beet are the main crops for which women account for almost half the workforce and carry out 65% of works (clearing, planting, fertilization, cutting and up-rooting, etc.). Women make up almost 100% of the workforce for strawberry-related activities. More than 60% of women are involved in stock breeding activities (milking, feeding, watering, etc.)[1]. Besides agricultural activities, rural women are involved in the processing of agricultural products and handicrafts (weaving, napping, etc.), which is of major interest.

3.2.7 Women's participation in agricultural water users' associations (AUEAs) and access to loans and financial services are limited by many socio-economic factors. The Government gives priority to mainstreaming gender into the socio-economic development strategy. In this connection, the project will support women's associations and cooperatives, and generate positive socio-economic impacts in terms of additional jobs created before and after production (development, agro-industrial units, lucrative women's activity sectors, etc.)[2], increased income and active involvement of women in decision-making by scaling up their representation in AUEAs and building their capacity through the training courses and appropriate supervision offered to

[1] Data of the Ministry of Agriculture and Maritime Fisheries (MAPM).

[2] These activities are part and parcel of technical assistance mobilized by the project for the two ORMVAs.

them. The MAPM Gender Unit housed in the Directorate of Education, Training and Research (DEFR) will support the project through specific assistance/mentorship measures for women and guidelines on the strategy for gender mainstreaming into development projects backed by the Bank under PAPMV-2.

Involuntary Resettlement

3.2.8 The project will not involve the displacement of the project area population or their resettlement since it will, in general, concern existing irrigation infrastructure.

IV. Project Implementation

4.1. Implementation Arrangements

4.1.1 The project, which will use the entities put in place during the first phase, will adopt the principle of reinforcing existing permanent entities for implementation of project activities (one of the principles of the Paris Declaration). It will be implemented at the national level by the *Department of Irrigation and Agricultural Space Development (DIAEA),* and at the regional level by the two *Regional Agricultural Development Authorities (ORMVA) concerned (Doukkala and Loukkos).* Agricultural advisory services will be provided by the National Agricultural Advisory Board (ONCA) set up recently (in 2013) and the aggregation process will be managed by the Agricultural Development Agency (ADA). The institutional set-up of Phase I demonstrated its efficiency and the skills of national and regional team members. Consequently, the national and regional teams of Phase I established before project approval will steer the implementation of project activities (in line with Presidential Directive No. DP 02/2015), namely: (i) *the Central Project Management Team (ECGP)* established within DIAEA, with a focal point at ADA, comprising a National Coordinator, a Monitoring/Evaluation Officer, and a Financial Management Officer. This team will be placed under the responsibility of the DIAEA Director designated as Central Project Manager; (ii) *the Regional Project Management Team (ERGP)* set up within the ORMVAs (Loukkos and Doukkala), comprising a Regional Coordinator, a Monitoring/Evaluation Officer, a Procurement Officer and a Financial Management Officer. ERGP will be responsible for managing all project activities at the national level, and will be placed under the responsibility of the ORMVA Director-General designated as Regional Project Manager.

4.1.2 Almost all project activities will be implemented by the various ORMVA services, under DIAEA supervision. Some irrigation water development activities (Component 2) will be implemented by ADA through a concerted work plan prepared jointly by DIAEA, ADA and the ORMVAs. To ensure implementation that is consistent with the other PNEEI support projects (WB and EIB) and on the Bank's proposal, the project will receive guidance from the PNEEI National Coordination Committee chaired by the MAPM Secretary-General and that was established during the first phase (PAPNEEI-1) (synergy to develop achievements, technical assistance interaction, complementarity for the internal plot development sub-components, water development, institutional capacity building, synergy between DIAEA, ADA and other partners, etc.).

Procurement Arrangements (*Procurement of Works, Goods and Services****)***

4.1.3 *Applicable procurement policy and framework:* all Bank-financed procurements of goods, non-intellectual services, works and consultancy services under this project will be in accordance with the Procurement Policy on Bank Group-financed Operations ("AfDB Policy"), October 2015 edition, and with the provisions contained in the financing agreement. Pursuant to AfDB Policy, all procurements will be in accordance with the Borrower's procurement system ("National System") as prescribed by Decree No. 2-12-349 of 20 March 2013 relating to public procurements ("Decree"), and the two procurement regulations of the two Regional Agricultural

Development Authorities in Doukkala and Loukkos of 11 March 2014 (“Regulations”), using national standard bidding documents. However, the selection of the consultant responsible for auditing project procurements on behalf of the Bank will be in accordance with the Bank’s procurement system ("AfDB System").

4.1.4 However, the Bank may request the Borrower to revert to the Bank system if: (i) Morocco’s public procurement legal framework were to change to a system that the Bank deems unsatisfactory; (ii) executing agencies failed to comply with the provisions in force; and (iii) the appropriate risk mitigating measures contained in the risk assessment action plan were not implemented. The use of the National System helps to improve efficiency through the following actions, among others: (i) better ownership of the procurement system to be used by the executing agency (EA); and (ii) absence of *ex ante* control of bidding documents by the Bank.

4.1.5 *Assessment of procurement risks and capacity:* during project preparation, the Bank assessed: (i) national, sector and project risks; and (ii) the capacity of executing agencies. Based on the outcomes of these assessments, it was decided to decide to use the National System subject to compliance with the appropriate risk mitigation measures contained in the risk assessment action plan proposed in Paragraph 8.9 of Annex B.8.

4.1.6 *Special arrangements for use of the National System*

(a) Eligibility waiver: Bank resources to be used to finance project activities come from the AfDB Window. Consequently, AfDB Window eligibility rules are *a priori* applicable. However, after risk and procurement capacity assessment, it was decided that the National System should be used for this project. Considering that public contract eligibility rules under Moroccan law are not the same as those of the AfDB Window, it is necessary to avoid any practical incompatibility. In that connection and to enable the use of the National System, a waiver will be requested from the Bank’s Board of Directors for the non-application, under this project, of the AfDB Window eligibility rule as provided for in Article 17.1.d “Principles of Managing the Agreement Establishing the African Development Bank”, referred to as Rule of Origin. Concerning contracts under this project that use the national system, the eligibility rules are national rules, together with the provisions of Paragraph 5.c of the AfDB Policy. As a result, despite the use of the national system, Bank resources would not be used to finance a contract awarded to a bidder under African Development Bank Group sanctions. In the case where, these provisions notwithstanding, a contract is awarded to a bidder under Bank Group sanctions, such a contract will not be financed with Bank resources. The list of companies under sanctions is available at http://www.afdb.org/debarred.

(b) Other special arrangements proposed: to be able to fulfil its fiduciary obligations under the use of the National System, the Bank agreed with the Borrower on a series of measures whose rationale, objectives and details are presented in Paragraph B.5.7.1 of Annex B.8. These measures include:

1) Introduction of a specialized procurement audit;
2) Involvement of beneficiaries for citizen control[1] through agricultural water users’ associations (AUEAs) ;
3) Follow-up and management of complaints;
4) Provision, by the Borrower, of the names of owners of enterprises to which major contracts are awarded, and the publication, by the Bank, of contracts awarded;

[1] “Citizen control” denotes consultation with the AUEAs and their involvement in the project preparation and implementation process.

5) Control of the reasonableness of prices compared to the Contract Owner's estimates;

6) The e-bid submission platform will not be used due to the current absence of factors that would enable the Bank to determine the platform's security level;

7) Submission of annual reports on the status of project implementation, notably specifying the list of contracts signed and the beneficiary companies, complaints received and how these were addressed.

(c) Advance contracting: considering scheduling constraints resulting from the Borrower's agenda, some procurements may, at its request, be made through advance contracting, in accordance with the provisions of Article 11.2 of AfDB's Policy. The procedures and methods to be used for such advance contracting will be the same as those adopted for the project. A reasoned request stating the procurements concerned, together with a procurement plan, was submitted to and accepted by the Bank.

4.1.7 *Disbursement Arrangements:* Loan resources will be disbursed in accordance with Bank Rules of Procedure. Disbursements will be made using the following three methods: (i) direct payment (for the procurement of goods, works or services directly paid for by the Bank); (ii) reimbursement (consisting in reimbursing to the project authorized expenditures effected and pre-financed by the Government with its resources); and (iii) special account (opened with the Royal General Treasury (TGR) in the name of PAPNEEI-2). More details are provided in Technical Annex B.7. Loan disbursement will involve: (i) the Regional Agricultural Development Authorities; (ii) the DIAEA of the Ministry of Agriculture and Maritime Fisheries (MAPM); (iii) the MAPM Directorate of Finance; (iv) the MEF Directorate of Budget (v); and (VI) the TGR. Given the number of stakeholders involved in the disbursement process, a disbursement focal point will be appointed in the MAPM Directorate of Finance to follow up disbursements from the beginning of the chain to disbursement by the Bank.

4.1.8 *Financial Management*: PAPNEEI-II appraisal is in line with a repetitive project process that goes from Phase I to Phase II. The project's institutional and administrative, financial and accounting arrangements are the same as those of PAPNEEI-I under the technical oversight of the Ministry of Agriculture and Maritime Fisheries (MAPM). Given that the project is decentralized, (i) a Project Central Management Team (ECGP) has been housed in the Department of Irrigation and Agricultural Space Development (DIAEA) whose Director will be the National Project Manager under whom the National Project Coordinator will be placed hierarchically, and (ii) a Regional Project Management Team (ERGP) has been established in each of the two Regional Agricultural Development Authorities (ORMVA) whose Managers will be Regional Project Coordinators. As such, the DIAEA will be responsible for project administrative, financial and accounting management at the national level. The ECGP and the two ERGPs each comprise, among other things, a Financial Management Officer from the Department of Planning and Finance (DPF) in each of the ORMVAs. These financial management officers will be responsible for budget preparation and monitoring, cash flow management (loan fund withdrawals) and applying internal control principles and rules. They will receive support from DF/MAPM at the central level and from DPF/ORMVA at the regional level in accounting and preparing annual financial statements which will be audited in accordance with international auditing standards and Bank project audit TORs. Due to the disbursement method adopted for the project, which was the same for PAPNEEI-I, all financial transactions will be processed within the public expenditure channel through the required stages. The special account, which will receive Bank funds on a reimbursement basis, will be opened at the TGR. Internal control at the ORMVAs and the ADA is undertaken by the internal audit department, a State Controller in charge of *ex ante* control of commitments (procurement) and a Paymaster (TP) responsible for processing (consistency control) and paying expenditure orders issued by the authorizing officers (National Coordinator or Regional Coordinators). The appraisal of PAPNEE II deems the overall fiduciary risk as moderate.

4.1.9 The Bank reviewed the report on the audit of PAPNEEI-I accounts for the 2015 financial year and deemed it satisfactory, with a few remarks and recommendations to the Executing Agency (DIAEA/MAPM) and the IGF. The Bank's opinion on the financial statements is favourable and it has expressed no reservations. Project financial statements will be audited by Morocco's IGF, in accordance with the terms of reference for the audit of Bank-financed projects.

4.2. Monitoring and Evaluation

4.2.1 The project will adopt a results-based approach and impact-oriented monitoring (IOM). In that connection, a performance measurement framework (PMF) was prepared during appraisal in consultation with the central and regional project teams (see details in Annex C.8, volume 2). In line with this PMF, internal monitoring will be conducted by evaluation and monitoring (EM) officers in the central and regional project teams (DIAEA and ORMVA), and will serve as a basis for assessing project performance. Central monitoring will be conducted jointly by the MAPM Directorate of Finance (DF) and the MEF Directorate of Budget (DB).

4.2.2 Bank activities under the project are summarized in the table below. They will be carried out in accordance with the project implementation schedule presented on page *vi*.

Table 4.2
Project Implementation Schedule and Major Phases

Period	Phases	Monitoring Activities/Feedback Loop
October 2016	Implementation of Advance Contracting (AC)	Adoption of National System
December 2016	Project approval	Approval by Bank Board of Directors
January 2017	Signing of Loan Agreement	Letter of Invitation to the Borrower
February 2017	Project launching	Organize launching workshop jointly with the Government (Bank launching mission)
2017 – 2022	Award of contracts for procurement of materials and equipment	Launching of BDs and bid evaluation (ORMVA) Signing of contracts (ORMVA)
	Construction works and services	Execution of works (Enterprises) Works inspection and supervision (ORMVA) Launching of RP and bid evaluation (DIAEA-ORMVA) Signing of TA contracts (DIAEA, ADA and ORMVA) Supervision of project TA (DIAEA, ADA and ORMVA)
2017 - 2022	Project supervision	Loan administration Supervision of project activities (DIAEA-ADA/AfDB) Field supervision (two missions per year)
December 2022	Project completion	Completion Report Preparation Mission by AfDB

4.3. Governance

4.3.1 The Bank's experience in Morocco has shown that the governance practices and control systems put in place are satisfactory overall. Consequently, the Kingdom of Morocco has virtually no governance-related risk. Morocco has implemented an ambitious reform programme to improve public administration and public finance management efficiency. The sustained measures of the Public Administration Reform Support Programme (PARAP 1 to 4) and the Economic and Financial Management Revitalization Support Programme (PARGEF) have helped to enhance the efficiency and reliability of the budgeting and accounting system. The reform of the public procurement system has, among other things, led to the signing of a new decree on the single regulatory framework, consolidation of the transparency mechanism, improvement of guarantees for competitors and redress and claims mechanisms. In addition, appropriate audit provisions will be made in accordance with Bank rules (cf. paragraphs 4.1.8 and 4.1.9).

4.3.2 In addition, the ORMVAs have the status of public administrative enterprises and are subject to ex ante State control as regards commitment and liquidation of expenditure, as well as accounting obligations in accordance with the provisions of Law No. 69-00 on the State financial control of public enterprises and other bodies. The State Controller attends tenders board meetings and the Treasurer Paymaster, as a public accountant, is responsible for ensuring the regularity of expenditure operations. The Regional Agricultural Development Authorities have internal audit and management control services, and their financial statements are audited yearly by external auditors. The ORMVAs have developed an information and management system comprising many applications for managing integrated accounting, internal fees, human resources and collection procedures. These are used in generating budgetary statements (commitments and orders), progress reports and summary statements.

4.4. Sustainability

4.4.1 In view of the top priority given to PMVs and the PNEEI by the Moroccan authorities, significant public expenditure has been earmarked for the construction of these facilities. Consequently, this project could enjoy complete ownership by the Administration, through the Agricultural Development Authorities which have long-standing experience in this domain, as well as undoubtedly adequate counterpart funds. Recurrent (additional) expenditure for the project will be budgeted and taken into account by the MAPM recurrent (regular) budget. At full capacity, this expenditure is estimated at DH 16 million for all the irrigation areas of the two ORMVAs.

4.4.2 Project sustainability inevitably requires the commitment of ORMVAs to operate, manage and maintain the external facilities financed by the project (irrigation networks, pumping stations, filtering plants, etc.). With their experience in the domain, ORMVAs have proven their capacity to manage irrigation areas without any major problems as well as properly maintain external facilities (cf. trends in the budget allocated for maintenance by Authorities in Technical Annex C.5). The maintenance expenses for irrigation materials and equipment within plots will be financed by the irrigators themselves with additional income generated by localized irrigation.

4.5. Risk Management

4.5.1 The main risk factors that could jeopardize project implementation are: (i) weak inter-departmental coordination; (ii) poor articulation and progress of the various types of conversion; (iii) incentives for internal facilities financed by the FDA; (iv) low adherence of agricultural water users' associations (AUEAs); (v) limited human and material resources allocated to the Regional Agricultural Development Authorities; and (vi) slow AfDB loan resource disbursement rate.

4.5.2 The main risk factors and appropriate mitigation measures are summarized in the table below.

Risk Factors Identified	Planned Mitigation Measures
The overall weak inter-departmental coordination capacity and poor strategic management to meet project objectives	This risk can be mitigated by establishing a national strategic steering committee and operational steering committees in the two ORMVAs, with the involvement of associated stakeholders.
The difference in the pace of production systems conversion and socio-institutional conversion vis-à-vis the pace of irrigation techniques conversion during the first years of the project may result in slippages.	To mitigate the second risk, it is necessary under Components 2 and 3 to anticipate the involvement of technical assistance beforehand and develop a concept shared by the stakeholders (Roadmap and agreement to be concluded for the development). ADA will support the project component on the development of the agricultural products of IAs.
Support incentives for internal facilities funded by FDA.	This risk will be mitigated by commitment to further extend FDA support to irrigation (cf. para. 5.2.4). .

The issue of adherence of agricultural water users' associations (AUEAs) due to their weak capacity. Given the important role they play in the operation, the sustainability and development of facilities, as well as in new institutional relations, AUEAs have become key actors to be strengthened and actively involved. The success of facilities development and, by extension, the project's success, is contingent on the performance of AUEAs.	To mitigate this risk, the ORMVAs should build the capacity of AUEAs and provide them with necessary resources. The project is expected to implement an AUEA performance improvement plan and build their capacity, with a view to further empowering them (adoption of a contractual approach).
Human and material resources allocated to the ORMVAs are insufficient; they may not be able to support PAPNEEI-2 implementation. The risk relates to difficulties in project infrastructure construction faced by ORMVA senior officers and infrastructure ownership by users, given the innovations that will be introduced.	To mitigate this risk, the human and material capacity of ORMVAs should be built through technical assistance. The project will build on the solid experience and capacity (works execution and planning, involvement of users, selection of techniques, etc.) acquired during PAPNEEI-I. Farmers will benefit from study trips, training and the technical assistance provided for under this project.
Slow AfDB loan resource disbursement rate	The use of the national procurement system will significantly contribute to procurement commitment and advancement, thus also improving the loan resource disbursement rate. In addition, a disbursement plan will be prepared and monitored to ensure efficient financial management.

4.6. Knowledge Building

The implementation of PAPNEEI-2 will help to build knowledge on new irrigation techniques, collective irrigation conversion, production development, promotion of agricultural sub-sectors and cultivation of high value-added crops, water resources management and saving, and mitigation of the effects of climate change. This will contribute to: (i) the optimal use ground water resources; (ii) the adoption of a participatory water table management approach; (iii) the use of various information systems put in place (GIS, irrigation warning, monitoring and evaluation, etc.); (iv) the design of production development models and the development of value chains in project impact areas; and (v) the promotion of a framework for establishing irrigation water supply contracts between farmers and ORMVAs. The training and information sessions on the provision of support to farmers on irrigation techniques and cropping practices envisaged by the project for beneficiaries and technicians is a privileged knowledge dissemination channel. In addition, AUEA institution building will consolidate the capacity of these associations to serve more efficiently as interface with ORMVAs for the supply of irrigation water and management of irrigation areas. Such knowledge will be systematically collected and recorded in good practice manuals, monitoring and evaluation and supervision mission reports, and periodic reports which will be shared in the MAPM and at the Bank. The key knowledge acquired and lessons learned will also be reflected in the project completion report, incorporated into the Bank's archiving system and posted on MAPM's website to be managed from a relational database. This database will effectively facilitate the management of all the knowledge accumulated on activities, achievements, main outcomes and lessons learned (PAPNEEI-1 & 2).

V. Legal Framework

5.1. Legal Instrument

The legal instrument for PNEEI-2 will be a Loan Agreement between the Kingdom of Morocco and the Bank.

5.2. Conditions for Bank Intervention

5.2.1 Conditions precedent to project presentation to the Board of Directors: project presentation to the Board of Directors shall be subject to the Borrower's fulfilment of the following condition, to the Bank's satisfaction:

- Provide the Bank with evidence of appointing members of the Project Team at the central (Central Coordinator, Monitoring and Evaluation Officer and Financial Management Officer) and regional level (Regional Coordinator, Monitoring and Evaluation Officer, Financial Management Officer and Procurement Officer), as well as the ADA focal point (cf. Para. 4.1.1).

5.2.2 Conditions precedent to effectiveness: loan effectiveness shall be subject to fulfilment of the conditions set forth in Section 12.01 of the General Conditions Applicable to Loan Agreements and Guarantee Agreements.

5.2.3 Conditions precedent to first disbursement of the loan: apart from effectiveness of this Agreement, the first disbursement of loan resources shall be subject to the Borrower's fulfilment of the following condition, to the Bank's satisfaction:

(a) Provide the Bank with evidence of opening a special account bearing the PAPNEEI-2 name at the General Treasury of the Kingdom (TGR), in which the loan resources will be lodged.

5.2.4 Other conditions: in addition, the Borrower shall:

- Submit to the Bank, latest 31 December 2017, a copy of the Order further extending FDA's support to irrigation and an explanatory note on the achievements and prospects of this mechanism, including the trend of incentives over the 2012-2017 period (cf. para. 2.8.2, para. 4.5 and Annex C.2, Volume 2);

- Submit to the Bank, latest 31 December 2017, the Concerted Work Plan prepared jointly by DIAEA and ADA for the development of agricultural products in the Moham irrigation areas (ADA) (cf. para. 2.8.2, para. 4.5 and Annex C.6, Volume 2);

- Submit to the Bank, latest 31 December 2017, the draft irrigation water supply contract (DIAEA) (cf. para 2.8.2, para.4.5 and Annex C.1, Volume 2).

5.2.5 Commitments: the Borrower undertakes to:

- Implement the project and the Environmental and Social Management Plan (ESMP), and have them implemented by its contractors, in accordance with: (a) Bank rules and procedures; (b) national law; and (c) the recommendations, provisions and procedures contained in the ESMP; and

- Submit annual reports to the Bank on the implementation of the ESMP, including, as appropriate, the weaknesses noted and the corrective actions taken or to be taken.

5.3. Compliance with Bank Policies

Pursuant to paragraph 4.1.6, it is recommended that the national procurement system should be adopted, in accordance with the new Bank procurement guidelines.

VI. RECOMMENDATION

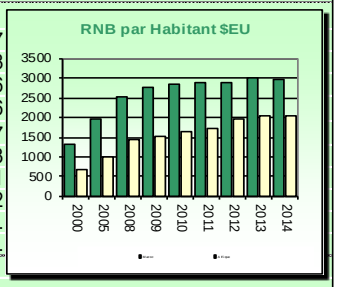
It is recommended that the Board of Directors: (i) exceptionally waive the application of the Rule of Origin provided for under Article 17 (1) (d) of the Agreement Establishing the African Development Bank, and authorize the application of the eligibility rules contained in the national procurement system of the Kingdom of Morocco, as well as the provisions of paragraph 5.3 (c) of the *Procurement Policy on Bank Group-financed Operations*, October 2015 edition; and (ii) approve the granting to the Kingdom of Morocco of an AfDB loan not exceeding **USD 88.057 million** to finance the National Irrigation Water Saving Programme Support Programme, Phase II (PAPNEEI-2) under the conditions set forth in this report.

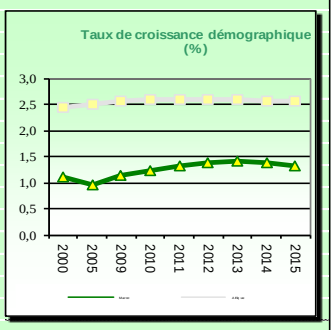
Appendix I: Country Comparative Socio-economic Indicators

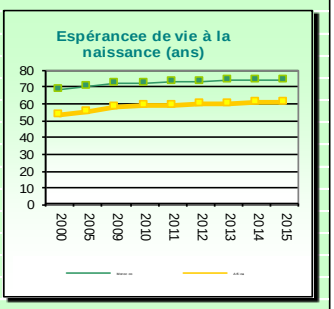
Maroc

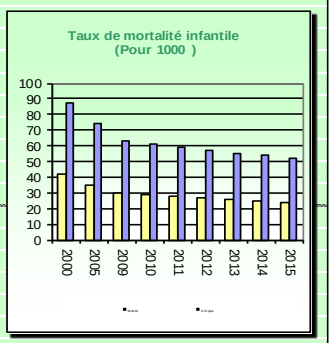
INDICATEURS SOCIO-ECONOMIQUES COMPARATIFS

	Année	Maroc	Afrique	Pays en Dévelop-pement	Pays Déve-loppés
Indicateurs de Base					
Superficie ('000 Km²)	2016	711	30 067	94 638	36 907
Population totale (millions)	2016	34,8	1 214,4	3 010,9	1 407,8
Population urbaine (% of Total)	2016	59,9	40,1	41,6	80,6
Densité de la population (au Km²)	2016	48,9	41,3	67,7	25,6
Revenu national brut (RNB) par Habitant ($ EU)	2014	2 980	2 045	4 226	38 317
Participation de la Population Active *- Total (%)	2016	49,3	65,6	63,9	60,3
Participation de la Population Active **- Femmes (%)	2016	25,5	55,6	49,9	52,1
Valeur de l'Indice sexospécifique de dévelop. humain	2007-2013	0,828	0,801	0,506	0,792
Indice de développement humain (rang sur 187 pays)	2014	126	...	...	...
Population vivant en dessous de 1,90 $ par Jour (%)	2008-2013	*3,1*	42,7	14,9	...
Indicateurs Démographiques					
Taux d'accroissement de la population totale (%)	2016	1,3	2,5	1,9	0,4
Taux d'accroissement de la population urbaine (%)	2016	2,1	3,6	2,9	0,8
Population âgée de moins de 15 ans (%)	2016	27,2	40,9	28,0	17,2
Population âée de 65 ans et plus (%)	2016	6,3	3,5	6,6	16,6
Taux de dépendance (%)	2016	50,3	79,9	52,9	51,2
Rapport de Masculinité (hommes pour 100 femmes)	2016	97,9	100,2	103,0	97,6
Population féminine de 15 à 49 ans (%)	2016	27,0	24,0	25,7	22,8
Espérance de vie à la naissance - ensemble (ans)	2016	74,6	61,5	66,2	79,4
Espérance de vie à la naissance - femmes (ans)	2016	75,6	63,0	68,0	82,4
Taux brut de natalité (pour 1000)	2016	19,9	34,4	27,0	11,6
Taux brut de mortalité (pour 1000)	2016	5,7	9,1	7,9	9,1
Taux de mortalité infantile (pour 1000)	2015	23,7	52,2	35,2	5,8
Taux de mortalité des moins de 5 ans (pour 1000)	2015	27,6	75,5	47,3	6,8
Indice synthétique de fécondité (par femme)	2016	2,5	4,5	3,5	1,8
Taux de mortalité maternelle (pour 100000)	2015	121,0	495,0	238,0	10,0
Femmes utilisant des méthodes contraceptives (%)	2016	68,5	31,0	...	...
Indicateurs de Santé et de Nutrition					
Nombre de médecins (pour 100000 habitants)	2004-2013	62,0	47,9	123,8	292,3
Nombre d'infirmières et sages-femmes (pour 100000 hab	2004-2013	89,0	135,4	220,0	859,8
Naissances assistées par un personnel de santé qualifié	2010-2015	73,6	53,2	68,5	...
Accès à l'eau salubre (% de la population)	2015	85,4	71,6	89,3	99,5
Espérance de vie en bonne santé à la naissance (année	2013	65,1	54,0	57,0	68,0
Accès aux services sanitaires (% de la population)	2015	76,7	39,4	61,2	99,4
Pourcent. d'adultes de 15-49 ans vivant avec le VIH/SIDA	2014	0,1	3,8	...	...
Incidence de la tuberculose (pour 100000)	2014	106,0	245,9	160,0	21,0
Enfants vaccinés contre la tuberculose (%)	2014	99,0	84,1	90,0	...
Enfants vaccinés contre la rougeole (%)	2014	99,0	76,0	83,5	93,7
Insuffisance pondérale des moins de 5 ans (%)	2010-2014	3,1	18,1	16,2	1,1
Apport journalier en calorie par habitant	2011	3 334	2 621	2 335	3 503
Dépenses publiques de santé (en % du PIB)	2013	2,0	2,6	3,0	7,7
Indicateurs d'Education					
Taux brut de scolarisation au (%)					
Primaire - Total	2010-2015	116,1	100,5	104,7	102,4
Primaire - Filles	2010-2015	113,4	97,1	102,9	102,2
Secondaire - Total	2010-2015	69,1	50,9	57,8	105,3
Secondaire - Filles	2010-2015	63,5	48,5	55,7	105,3
Personnel enseignant féminin au primaire (% du total)	2010-2015	55,1	47,6	50,6	82,2
Alphabétisme des adultes - Total (%)	2010-2015	71,7	66,8	70,5	98,6
Alphabétisme des adultes - Hommes (%)	2010-2015	81,9	74,3	77,3	98,9
Alphabétisme des adultes - Femmes (%)	2010-2015	62,0	59,4	64,0	98,4
Dépenses d'éducation en % du PIB	2010-2014	5,3	5,0	4,2	4,8
Indicateurs d'Environnement					
Terres arables (en % de la superficie totale)	2013	18,0	8,6	11,9	9,4
Terres agricoles (% superficie des terres)	2013	68,1	43,2	43,4	30,0
Forêts (en % pourcentage de la superficie totale)	2013	12,7	23,3	28,0	34,5
Emissions du CO2 par habitant (tonnes métriques)	2012	1,2	1,1	3,0	11,6









Source : Base des données du Département des Statistiques de la BAD; *dernière mise à jour:* *Aout 2016*

Banque Mondiale WDI*; ONUSIDA; UNSD; OMS, UNICEF, PNUD, Rapports nationaux.*

*Notes: n.a. Non Applicable ; ... : Données non disponibles. * Participation à la population active, total (% de la population totale âgée de 15+)*

*** Participation à la population active, femmes (% de la population féminine âgée de 15+)*

Appendix II: Table of AfDB Portfolio in Morocco (Situation as at end-September 2016)

21/09/2016

MOROCCO - PORTFOLIO OF ONGOING OPERATIONS

Green Flags	Orange Flags	Red Flags	Our Portfolio	Average Ag	Overall Disbursement	Risk	Disbursement Since 01/01/2016 (in EUR)	Projects Managed by MAFO 73%
81%	0%	19%	2.55/3	3.5	52.58%	0%	361 000 000,00	

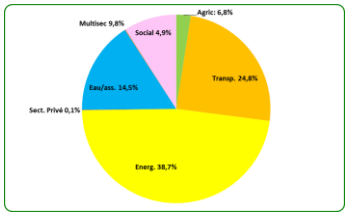
Flag	Monitoring Indicator	Project Name	Approval Date	Date de signature	Effectiveness Date	Closing Date	Average Project Age (year)	Effectiveness Deadline (month)	Loan Currency	Amount Approved		Cumulative Disbursement in Loan Currency by Project/in EUR by Sector	Cancellation in Loan Currency	Balance to be Disbursed in 2016 (EUR)	Amount not Disbursed in Loan Currency by Project/in EUR by Sector	Cumulative Didbursement Rate (en %)		Deadline Next Disbursement DP02/2015	Share in the Portfolio
										in Unit of Account	in Loan Currency (total by sect. in EUR)					Current	Project 2016		
		AGRICULTURAL SECTOR					**3,9**	**4,5**		**135 713 666**	**172 390 000**	**107 173 833**			**65 216 167**	**62,2%**	**99,8%**		**#NOM?**
1		Nat. Irrig. Water Saving Supp. Project (PAPNEI)	14-déc.-09	04-mars-10	2-Jul-10	30-Nov-17	6,8	6,7	EUR	44 679 184	53 590 000	37 873 833		10 000 000,00	15 716 167	70,7%	97,0%	31/11/2016	
2		PAPMV II (PBO)	14-oct.-15	15-déc.-15	22-déc.-15	30-juin-17	0,9	2,3	USD	91 034 482	132 000 000	77 000 000		55 000 000,00	55 000 000	58,3%	100,0%	N.A.	
3		Project to Develop Agricultural Products through Biotechnologies – Brazilian Fiduciary Fund	20-déc.-12			30-avr.-15	3,8		USD		150 000	37 263			112 737	24,8%		Beyond Deadline	
		TRANSPORT SECTOR					**6,6**	**5,7**		**620 210 098**	**753 930 000**	**265 629 744**	**127 436 639**		**256 801 465**	**42,4%**	**56,2%**		**24,8%**
4		3rd Airport Project	16-avr.-09	8-mai-09	22-oct.-09	31-déc.-16	7,4	6,3	EUR	200 093 377	240 000 000	56 893 163	127 436 639	14 000 000,00	55 670 198	50,5%	100,0%	01/12/2016	
5		Tanger-Marrakech Rail Capacity Enhancement Project	17-déc.-10	17-mars-11	30-Jun-11	30-nov.-18	5,8	6,5	EUR	250 116 721	300 000 000	186 847 211		30 000 000,00	113 152 789	62,3%	82,0%	01/12/2016	
6		Tanger–Casablanca–Marrakech Rail Link Reinforcement	27-janv.-16	8-avr.-16	7-Jun-16	31-déc.-20		4,4	USD	81 040 000	112 300 000	24 321 522		13 000 000,00	87 978 478	21,7%		09/01/2017	
7		Nador West Med Port Complex Construction Project	16-sept.-15	9-mars-16	1-Jun-16	31-déc.-22		8,6	EUR	88 960 000	112 860 000	0		10 000 000,00	112 860 000	0,0%	18,0%	30/06/2016	
		ENERGY SECTOR					**3,7**	**3,7**		**844 829 014**	**1 046 420 000**	**543 663 047**	**68 000 000**		**434 756 953**	**55,6%**	**61,6%**		**38,7%**
8		Elect. Transp. and Distrib. Network Develop. Prog. (PDRTRE)	02-déc.-09	11-déc.-09	29-Apr-10	31-déc.-17	6,8	4,9	EUR	91 559 394	109 820 000	60 709 764			49 110 236	55,3%	64,0%	06/03/2017	
9		Ouarzazate Solar Power Plant Project	16-mai-12	19-nov.-12	19-nov.-12	31-déc.-16	4,3	6,2	EUR	140 065 364	168 000 000	100 000 000	68 000 000		0	100,0%	100,0%		
		Ouarzazate Solar Power Plant Project (CTF)	16-mai-12	19-nov.-12	19-nov.-12	31-déc.-16	4,3	6,2	USD	65 461 734	100 000 000	100 000 000			0	100,0%	100,0%		
10		Ouarzazate NOORo School Complex II	03-déc.-14	19-déc.-14	19-déc.-14	31-déc.-19	1,8	0,5	EUR	61 138 189	72 000 000	37 361 607			34 638 393	51,9%	50,0%	05/11/2016	
		Ouarzazate NOORo School Complex II (CTF)	03-déc.-14	19-déc.-14	19-déc.-14	31-déc.-19	1,8	0,5	USD	47 369 288	69 000 000	69 000 000			0	100,0%	100,0%		
		Ouarzazate School Complex III	03-déc.-14	19-déc.-14	19-déc.-14	31-déc.-19	1,8	0,5	EUR	23 775 962	28 000 000	16 670 425			11 329 575	59,5%	50,0%		
		Ouarzazate NOORo School Complex III (CTF)	03-déc.-14	19-déc.-14	19-déc.-14	31-déc.-19	1,8	0,5	USD	34 325 571	50 000 000	50 000 000			0	100,0%	100,0%		
11		PERG	13-juin-12	19-déc.-12	19-déc.-12	31-déc.-17	4,3	6,3	EUR	112 552 525	135 000 000	104 746 558			30 253 442	77,6%	95,0%	30/02/2017	
		AL KOUDIA AL BAIDA Wind Park	13-juin-12	19-déc.-12	19-déc.-12	31-déc.-17	4,3	6,3	EUR	41 686 120	50 000 000	16 395 298			33 604 702	32,8%	54,0%		
		M'Dez El Menzel Hydro Complex	13-juin-12	19-déc.-12	19-déc.-12	31-déc.-17	4,3	6,3	EUR	61 695 458	74 000 000				74 000 000	0,0%	0,0%		
		Tanger Wind Par 2	13-juin-12	19-déc.-12	19-déc.-12	31-déc.-17	4,3	6,3	EUR	33 348 896	40 000 000				40 000 000	0,0%	20,0%		
		Abdel Moumen Step	13-juin-12	19-déc.-12	19-déc.-12	31-déc.-17	4,3	6,3	EUR	50 023 344	60 000 000				60 000 000	0,0%	0,0%		
		AL KOUDIA AL BAIDA Wind Park (FTP)	13-juin-12	19-déc.-12	19-déc.-12	31-déc.-17	4,3	6,3	USD	22 256 990	34 000 000	11 865 994			22 134 006	1,2%	46,0%		
		M'Dez El Menzel Hydro Complex (FTP)	13-juin-12	19-déc.-12	19-déc.-12	31-déc.-17	4,3	6,3	USD	19 638 520	30 000 000				30 000 000	0,0%	0,0%		
		Tanger Wind Park 2 (FTP)	13-juin-12	19-déc.-12	19-déc.-12	31-déc.-17	4,3	6,3	USD	20 293 138	31 000 000				31 000 000	0,0%	20,0%		
		Abdel Moumen Step (FTP)	13-juin-12	19-déc.-12	19-déc.-12	31-déc.-17	4,3	6,3	USD	19 638 520	30 000 000				30 000 000	0,0%	0,0%		

		SOCIAL SECTOR					**3,0**	**4,1**		**96 553 400**	**122 991 750**	**70 629 747**			**52 497 002**	**57,4%**	**0,7%**		**4,9%**
12		Health Map Information System - MIC GRANT	30-juil.-13	30-dec-13	30-déc.-13	31-dec-16	3,1	5,1	UA	380 800	380 800	227 362			153 438	59,7%	60,0%		
13		Study to Identify the Skills Needs of the Construction and Civil Engineering (BTP) Sector - TFT	29-avr.-13			31-déc.-16			EUR		344 200	344 200			0	100,0%	100,0%		
14		Support for Dialogue with Civil Society-TFT	29-avr.-13			31-déc.-16			EUR		335 200	335 200			0	100,0%	100,0%		
15		Support for the Establishment of a Vocational Training Quality Assessment System- TFT	31-janv.-13			31-déc.-16			EUR		140 400	64 882			75 518	46,2%			
16		Production of a Training Kit for Women in Elected Offices- TFT	11-sept.-13			30-juin-17			EUR		170 705	0			170 705	0,0%	0,0%		
17		Digital University UIR- MIC GRANT	10-oct.-13	27-fev-14	27-févr.-14	31-dec-17	2,9	4,7	UA	774 600	774 600	531 220		243 379,00	243 379	68,6%	100,0%	20/08/2016	
18		Establishment of a National Mechanism for Support for the Employability of Young University Graduates- TFT	30-déc.-13			31-déc.-16			EUR		260 000	260 000			0	100,0%	100,0%		
19		**Social Security (PAGPS)**	22-juin-16	24-juin-16	28-juin-16	31-déc.-17		0,2	USD	95 000 000	134 500 000	77 400 000			57 250 000	57,5%		06/01/2017	
20		Support to UEFM-MIC Grant	29-janv.-16	28-avr.-16	28-avr.-16	31-déc.-17		3,0	UA	398 000	398 000	17 215			380 785	4,3%			
		WATER AND SANITATION SECTOR					**5,1**	**4,8**		**360 250 734**	**454 829 000**	**110 403 195**	**88 524 000**		**166 236 805**	**30,1%**	**0,0%**		**14,5%**
21		**Eleventh Rabat-Casa DWSS Project**	12-mai-10	19-août-10	13-janv.-11	31-déc.-17	6,4	8,2	EUR	135 321 483	162 310 000	50 488 636	69 120 000	8,000,000	42 701 364	54,2%		11/01/2017	
		Eleventh Rabat-Casa DWSS Project	12-mai-10	19-août-10	13-janv.-11	31-déc.-17	6,4	8,2	USD	36 043 231	55 060 000	29 823 539	21 560 000		3 676 461	89,0%			
22		**Twelfth Marrakech DWS Project**	7-nov.-12	19-déc.-12	19-déc.-12	31-déc.-18	3,9	1,4	EUR	101 206 800	120 000 000	20 449 573		8,000,000	99 550 427	17,0%		29/12/2016	
		Twelfth Marrakech DWS Project	7-nov.-12	19-déc.-12	19-déc.-12	31-déc.-18	3,9	1,4	USD	24 017 070	37 000 000	14 026 445			22 973 555	37,9%		02/12/2016	
23		**Water Quality and Performance Improvement Project (13th DWS)**	8-juin-16						EUR	63 083 500	88 850 000								
24		Sub-contracting of DWS Network Management in Rural Areas - AWF Grant	15-avr.-16	07-juin-16					EUR	578 650	815 000								
		MULTISECTOR					**3,9**	**2,7**		**196 743 086**	**248 340 293**	**243 778 968**			**1 786 825**	**98,2%**	**29,3%**		**9,8%**
25		Support for the Modernization of the Public Debt Managemnt Organizational Framework (MOCOGEDE) **- MIC Grant**	27-févr.-13	31-mai-13	31-mai-13	31-déc.-17	3,6	3,1	UA	536 976	536 976	79 705			457 271	14,8%	30,0%		
26		Study on Growth and Employment in Morocco - **MIC Grant**	27-juin-12	7-sept.-12	7-sept.-12	31-déc.-16	4,2	2,4	UA	587 200	587 200	587 200			0	100,0%	100,0%		
27		Support Project for the Preparation of the Moroccan Monetary and Financial Code **- MIC Grant**	20-sept.-12	19-déc.-12	19-déc.-12	29-déc.-17	4,0	3,0	UA	489 258	489 258	312 422			176 836	63,9%	60,0%		
28		**PARSIF**	13-juil.-16	14-juil.-16	16-août-16	31-déc.-18		1,1	USD	112 235 852	157 000 000	157 000 000			0	100,0%	100,0%		
29		**PACEM**	8-juil.-15	28-juil.-15	12-oct.-15	31-déc.-16	1,2	3,2	USD	79 875 000	112 500 000	112 500 000			0	100,0%	100,0%		
30		DTFE Strategic Study MIC Grant	21-mai-15	28-juil.-15	28-juil.-15	31-déc.-17	1,3	2,3	UA	797 600	797 600								
31		Support to the Office of the Head of Government - MIC Grant	14-juil.-15	28-juil.-15	28-juil.-15	31-déc.-17	1,2	0,5	UA	799 200	799 200	3 847			795 353	0,5%		26/01/2017	
32		Maroc Export MIC Grant	2-juil.-16	2-juil.-16	2-juil.-16	31-déc.-18	0,2	0,0	UA	630 000	630 000								
33		TA to the Audit Bench - MIC Grant	25-nov.-15	7-juin-16	19-août-16	31-déc.-18	0,8	8,9	UA	792 000	792 000				792 000	0,0%	?	**Beyond Dealine**	
		PRIVATE SECTOR					**6,6**	**5,1**		**13 479 000**	**15 000 000**	**8 400 000**			**6 600 000**	**56,0%**			**0,6%**
34		**Argan Fund for Infrastructure Development**	17-févr.-10	21-juil.-10	21-juil.-10	31-déc.-18	6,6	5,1	EUR	13 479 000	15 000 000	8 400 000			6 600 000	56,0%			
		REGIONAL																	
35		UMA Institutional Support Phase II -MIC Grant	8-mai-15	2-juil.-15	2-juil.-15	31-déc.-17	1,4	1,8	UA	495 365	495 365	81 105		160000 USD	414 259	16,4%		31/03/2016	
TOTAL																		0	

Summary:

Portfolio Amount	Total	%
In Unit of Account	**2 027 943 475**	**100,0%**
Loans (17 projects)	2 023 179 841	99,8%
Grants (18 projects)	4 763 634	0,2%
In EUR	**2 529 940 404**	

	CURRENT
Total Amount of Disbursements in EUR	**1 349 678 532**
Loans	1 347 685 976
Grants	1 992 556
Overall Disbursement Rate	**53,35%**
Loans	53,39%
Grants	36,56%
Average Amount per Loan (in UA)	**168 598 320**
Average Effectiveness Deadline (month)	**4,4**
Loans	4,3
Grants	3,0
Average Portfolio Age (year)	**3,5**
Loans	4,3
Grants	2,7



Note: the gray-shaded areas correspond to operation(ψ): Project not yet effective and, consequently, not included in the determination of overall portfolio disbursement rate.
* MIC: Middle Income Country ** AWF: African Water Facility *** Relative Age (ratio < or = 1): Age of the project since its effectiveness in relation to the period between effectiveness date and closing date as projected in the project appraisal.

Appendix III: Major Related Projects Financed by the Bank and the Country's Other Development Partners

1. List of Major Projects Financed by the Bank and the Country's Other Development Partners in the Irrigation Sub-Sector

Project Name	Co-financier	Implementation Period	Loan Amount
Development of Phase of the Moyen Sebou and Inaouen Aval Area	AFD	2010-2016	EUR 40.5 million
Project to Develop Production Sub-sectors in the Taza Mountain Area	IFAD	2011-2018	EUR 17.4 million
Project to Develop an Irrigation Scheme in the Dar Khrofa Irrigation Area	Saudi Fund	2012-2017	USD 144 million
National Irrigation Water Saving Programme Support Project	EIB	2012-2017	EUR 43 million
Project for Mini- and Medium Hydraulics (PMH III) in the Souss-Massa Region	KfW	2012-2018	EUR 9.28 million
Projects to Support the PEI, Agropoles and Pillar 2 of PMV	Kuwaiti Fund	2013-2016	USD 126 million
Project to Develop an Irrigation Scheme in the Ksob Area	KfW	2013-2016	EUR 11 million
Desalination of Chtouka Ait Baha Sea Water	AFESD	2014-2019	DK 50 million
Development of the Olive Sector	IsDB	2014-2019	USD 79 million
Rural Development Programme for Mountain Areas, Phase I-Sefrou Azilal	IFAD	2014-2020	EUR 35 million
Green Morocco Plan Support Programme (PAPMV2)	AfDB	2015-2016	USD 132 million
Green Morocco Plan Support Programme (PAPMV2)	JICA	2015-2016	USD 132 million
National Irrigation Water Saving Programme Support Project (PAPNEEI-1)	AfDB	2010 - 2017	USD 54 million
Project to Modernize Irrigation Farming in the Oum R'bia Basin	IBRD	2010 -2016	USD 52 million
Large-scale Irrigation Modernization Project (PMGI)	IBRD	2015 -2022	USD 150 million
Project to Safeguard the Saiss Plain	Saudi Fund	2016-2020	USD 80 million
Project to Safeguard the Saiss Plain	EBRD	2016-2020	EUR 120 million
Rural Development Programme for Mountain Areas - Phase II	IFAD	2016-2021	EUR 42 million

2. The table below presents the distribution of key donor operations to support the Green Morocco Plan in Morocco over the period 2008 – 2016 (in DH million).

Green Morocco Plan Financing (2008 – 2016)

(in MAD million)

			(in DH million)	
Sources of Financing	**Completed Operations**	**Ongoing Operations**	**Overall Financing**	**%**
Multinational Financing				
WB	3 300	1 993	5 293	18.55%
AfDB	1 167	2 501	3 668	12.8%
EU	770	836	1 606	5.6%
EIB		468	468	1.6%
IFAD	305	1 037	1 342	4.7%
GEF	41	89	130	0.5%
EBRD		1 308	1 308	4.6%
IsDB		672	672	2.3%
AFESD		1 450	1 450	5.1%
Total Multinational Financing	**5 583**	**10 354**	**15 938**	**55.6%**
Bilateral Financing				
JICA	50	1 416	1 466	5.1%
KfW		323	323	1.1%
Saudi Fund		1 985	1 985	6.9%
Kuwaiti Fund		1 075	1 075	3.7%
Qatari Fund		2 873	2 873	10.0%
USA	2 800		2 800	9.8%
Belgian Cooperation	56	355	411	1.4%
AFD/FFEM		1 011	1 011	3.5%
Hassan II Fund	800		800	2.8%
Total Bilateral Financing	**3 706**	**9 038**	**12 774**	**44.0%**
Total	**9 289**	**19 392**	**28 681**	**100%**