PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE

Report No.: PIDA22127

Project Name	MA-Large Scale Irrigation Modernization Project (P150930)
Region	MIDDLE EAST AND NORTH AFRICA
Country	Morocco
Sector(s)	Agricultural extension and research (3%), Irrigation and drainage (80%), Public administration- Agriculture, fishing and forestry (17%)
Theme(s)	Rural services and infrastructure (67%), Water resource management (33%)
Lending Instrument	Investment Project Financing
Project ID	P150930
Borrower(s)	Kingdom of Morocco
Implementing Agency	DIAEA
Environmental Category	B-Partial Assessment
Date PID Prepared/Updated	25-Mar-2015
Date PID Approved/Disclosed	26-Mar-2015
Estimated Date of Appraisal Completion	03-Apr-2015
Estimated Date of Board Approval	27-May-2015
Appraisal Review Decision (from Decision Note)	Appraisal was carried out from March 17 to 25.

I. Project Context

Country Context

Morocco has been on a steady path of growth in the past decades, which has proved relatively resilient in the face of the recent global economic slowdown. Growth averaged 4.8 percent over 2001-12 compared to 2.8 percent in the 1990s, the Gross Domestic Product (GDP) per capita doubled from 2001 to 2012 reaching US$2,951, unemployment declined from 13.6 percent in 2000 to 9 percent in 2012, and absolute poverty decreased from 15.3 percent in 2001 to 8.8 percent in 2008.

The Arab Spring that has swept the Middle East and North Africa (MENA) region in early 2011 spurred a peaceful political transformation in Morocco. Morocco had engaged on a wide-ranging reform program, with the adoption of a new constitution through a popular referendum on July 1, 2011. The new constitution lays the foundation for extended regionalization as a democratic and decentralized system of governance. It also contributes to improving the status of women through the adoption of the principle of gender equality and through provisions on increasing the

participation of women in decision-making bodies. In November 2011, parliamentary elections followed the promulgation of the constitution, leading to the formation of a four-party coalition government that has embraced the constitution's principles and called for more social solidarity and inclusion.

Inequality, poverty, and vulnerability remain important challenges in Morocco. A quarter of the population is still economically vulnerable (near-poverty). There are persistent disparities as 70 percent of poverty is still rural, and most development indicators in rural areas lag behind urban areas, largely as a result of difficult geography, deteriorating infrastructure, poor access to basic services, and limited capital investments to improve labor value added and hence returns to self-employment and contract labor. Ten percent of Morocco’s 13.4 million rural residents lived below the poverty line in 2011. Rural poverty exacerbates gender disparity with relatively higher illiteracy and primary school dropout rates for rural women, and higher infant and maternal mortality.

Morocco has engaged in a dynamic process towards strengthening economic opportunities and social inclusion. Several high profile development programs (e.g. the second phase of the National Human Development Initiative, INDH) and new sectoral strategies in the areas of education, employment, and youth have been initiated. Nonetheless, additional efforts are needed to support the country-led reforms. The movements associated with the political transition and constitutional changes generate pressure on the Moroccan State for credible and faster reforms, notably in the areas of job creation and improvement of the quality of public services delivered.

Sectoral and institutional Context

Agriculture is central to Morocco’s economy, as evidenced by the strong correlation among GDP and agriculture GDP. Over the last agricultural campaign, thanks to favorable weather, the sector represented 15.6 percent of GDP, contributing the most to the country’s overall growth. The 20 percent increase in agricultural production allowed Morocco’s GDP to jump from 2.7 percent in 2012 to 4.4 percent in 2013. The agricultural sector represents a critical element in the country’s demographic and socio-economic situation, generating 40 percent of the jobs nationwide, mostly in rural areas where the majority of the poor live. The sector is largely composed of small farmers mostly dedicated to low-value agriculture, but also counts a limited group of dynamic and well performing large farmers with state-of-the-art technologies and well integrated into the national and international markets. The sector exhibits great gender disparities. Women’s work is typically unpaid (in 2003-04, 58 percent of cases; in 2008, 91 percent), or it is seasonal and unstable when remunerated (59 percent of cases in 2003-04; 84 percent in 2008).

Irrigation increases both the level and stability of incomes in rural areas. Despite representing only 16 percent of the cultivated land, irrigated agriculture contributes to about half of the agriculture GDP, 75 percent of agricultural exports, and 15 percent of overall merchandise exports. The country has 1.46 million ha of permanently irrigated land, 682,600 ha of which are part of nine Large Scale Irrigation (LSI) perimeters operated by nine public agricultural development agencies (ORMVA). ORMVAs are autonomous agencies under the supervision of the Ministry of Agriculture and Maritime Fisheries (MAPM), with the responsibility of constructing new irrigation schemes, rehabilitating and modernizing existing ones, ensuring Operation and Maintenance (O&M) of irrigation and drainage facilities, and providing extension services to farmers. The remaining area is shared between small and medium scale traditional irrigation schemes managed by Water Users Associations (WUA, 334,000 ha) and private irrigation (441,000 ha). Morocco is

among the first countries with experience in irrigation Public-Private Partnership (PPP). In 2004, it launched the first successful irrigation PPP in the world, in the citrus production perimeter of Guerdane. Other PPP are at various stages of preparation (Azemmour Bir Jdid, Dar Khrofa, Chtouka).

The ability of irrigated agriculture to continue to drive shared prosperity in Morocco is threatened by increasing water scarcity. Reduced rainfall, increased rainfall variability, reduced run off, groundwater depletion, and degradation of water resources have reached alarming levels. Annual renewable water resources total 22 billion m3, corresponding to 730 m3/inhabitant, which is below the United Nations' threshold for indicating water stress (1,000 m3/inhabitant). The water deficit is estimated at around 2 billion m3. Climate change is expected to worsen this situation. Impacts of climate change are already visible in Morocco: the proportion of dry years increased by four times and surface water availability decreased by 35 percent between the period 1947-1976 and 1977-2006. Water scarcity impacts irrigated agriculture in different ways:

- In private irrigation, which largely relies on groundwater, reduced and more variable rainfall translates into groundwater overexploitation. The majority of the wells are neither registered nor monitored, and improvement in water pumping technologies and butane subsidy facilitate overextraction. Decreasing groundwater levels have a specific equity dimension, impacting at first smallholders with less capacity for drilling and pumping deeper.
- In LSI perimeters, which rely on surface water, water scarcity translates into reduced volumes allocated to farmers and limits summer crops production. While agriculture remains the primary user of surface water, accounting for about 85 percent of the withdrawals, severe restrictions in irrigation have been common in the last 15 years. LSI perimeters in the Oum er Rbia river basin received, on average, only 60 percent of the water volumes they were designed for. These volumes were consistently lower than the water allocation stated in the Regional Masterplans for Integrated Water Resources Management (PDAIRE). Wherever possible, farmers in LSI perimeters have been making up for this shortfall by complementing water allocated by the ORMVAs with groundwater, bearing the extra pumping costs and further aggravating groundwater depletion.

Farmers in LSI perimeters face structural constraints that limit the productive use of the scarce water resource. These include among others: collective water management, rigid water distribution rules, frequent shut-downs, unequal access to water, and land tenure issues. All of these constraints lock farmers in LSI perimeters into a low-risk and low return equilibrium in which they carry out low input, extensive farming focused on low value crops, and avoid more capital intensive strategies which allow for high value products and higher returns but bear higher risks in case of water deficiencies.

LSI perimeters suffer from aging irrigation networks and poor Operation and Maintenance (O&M). The ORMVAs have limited budget to improve this situation. Recovery rates in Morocco are amongst the best in MENA, varying between 68 and 100 percent, with an average of 76 percent (2010). In some LSI perimeters, water tariffs are insufficient to cover the operation and maintenance (O&M) costs, and even more so the amortization costs, translating into the need for subsidies from the Government. Tariffs in LSI perimeters vary between 0.27 and 0.77DH/m3 depending on the perimeters and the associated energy bill, compared to 1.30 to 1.80DH/m3 in perimeters managed through PPP. While there was an increase in O&M budget since 2009 (average 2001-08: Tadla DH14.6 M, Doukkala: DH18.6 M; average 2009-13: Tadla DH31.1 M, Doukkala DH36.8 M), the allocation remains insufficient to meet the needs. Cost recovery rates in Morocco are amongst the highest in MENA, varying between, 68 and 100 percent, with an average of 76

percent (2010). While the recovery of water bills should be improved in the LSI perimeters were the most important arrears are generated, this increase would not be sufficient to meet the financial needs of the ORMVAs. Consequently, a plan to increase water tariffs in LSI perimeters was laid out in 2011, but it sparked protests by farmers, which led the Government of Morocco (GoM) to postpone the measure. A political economy analysis of the irrigation sector reform, revealed that there is typically no capacity to pay problem, and that the main reason for farmers' opposition was the lack of direct improvements in service quality associated with tariff increase.

The GoM is putting in place incentives, investments, and institutional reforms to ensure greater returns at the farm and overall economy levels in light of increasingly restricted water resource. This is done through two synergic strategies:

- The Morocco Green Plan (PMV) aims to double the agriculture sector's value-added and create 1.5 million jobs by 2020, thus transforming the sector into a stable source of growth, competitiveness, and broad-based economic development. In addition to its transversal institutional and policy reforms, the PMV comprises two Pillars reflecting the dualistic nature of Moroccan agriculture: Pillar I targets commercial farmers and their integration into the national and international markets, while Pillar II targets small farmers mainly in marginal areas. Under both pillars, technology and organizational support is provided to implement an agri-food chain approach linking farmers to market. The Agricultural Development Fund (FDA), the GoM's principal agricultural subsidy instrument, has been reformed and support measures aligned with the strategic directions of the PMV. Since PMV's launch in 2008, production has increased by 45 percent, agricultural exports have risen by 18 percent, and 77,000 permanent jobs have been created.
- The National Plan for Saving Water in Irrigation (PNEEI) promotes more productive water use by introducing efficient irrigation technologies (mainly drip irrigation) on 555,000 ha of the country's irrigated land by 2020, of which 335,000 ha in private farms and 220,000 ha in LSI perimeters. This process is supported though the FDA, with up to 100 percent subsidy for the adoption of drip and microsprinkler irrigation, and up to 70 percent subsidy for sprinkler irrigation. Since PNEEI's launch in 2008, the adoption of drip irrigation has been proceeding at a fast pace in privately developed irrigation areas, with over 200,000 ha completed (60 percent of the 2020 target). In LSI perimeters, conversion is ongoing on 57,000 ha only, due to the need for prior investments in the irrigation networks. The figure is expected to increase steadily in the coming future, considering that pre-feasibility studies in LSI perimeters have been completed for 100,000 ha. While impacts remain to be observed, field experiments in Tadla demonstrated that agricultural water productivity (defined as value of produce per unit of water used) could be doubled by switching from the traditional surface irrigation to improved water management under drip irrigation.

The Large Scale Irrigation Modernization project is fully aligned with the comprehensive reform process of Morocco. The project supports the ORMVAs of Tadla, Haouz, Doukkala and Gharb in providing farmers located in the LSI perimeters with an improved water service. This means individual access (rather than collective), on-demand (rather than on rotation), reliable (with faster re-establishment of the service in case of shut-downs), and equitable (in terms of flow and pressure across the irrigation network). Targeted farmers will be freed up of some structural constraints and have the opportunity to improve their farming choices, adopting improved irrigation technologies (mainly drip irrigation), which are more efficient in the use of the scarce water resource and better suited for high-value crops.

II. Proposed Development Objectives

The project development objectives are: (i) for targeted ORMVAs, to provide an improved water service to farmers, and (ii) for targeted farmers, to have better access to improved irrigation technologies.

III. Project Description

Component Name

Component 1: Improving the irrigation network infrastructure

Comments (optional)

Component 1 will construct pressurized irrigation networks to replace existing gravity networks and renovate existing pressurized irrigation networks. Under adequate management, the networks' design will allow providing farmers with an improved water service, in line with the technical requirements of improved irrigation technologies. Activities include: (i) studies; (ii) technical assistance to monitor construction works; (iii) upgrading irrigation canals and constructing reservoirs; (iv) constructing feeder pipes and rehabilitating pumping stations; (v) constructing filtration stations; (vi) constructing distribution piped networks, or rehabilitating and extending existing distribution piped networks; and (vii) installing outlets and associated devices.

Component Name

Component 2: Supporting farmers' access to improved irrigation technologies

Comments (optional)

Component 2 will strengthen farmers' knowledge of and access to improved irrigation technologies, to allow them taking advantage of the improved water service provided by the ORMVAs. Farmers will become familiar with the advantages of the improved irrigation technologies, and will have easier access to financing opportunities to adopt them. Once the improved irrigation technologies is in place, farmers will receive irrigation advisory services, and their capacity to access, use, and maintain the irrigation systems will be strengthened. i Farmers will also develop better knowledge of their groundwater, where appropriate.

Component Name

Component 3: Supporting implementing agencies' management of the irrigation network, and implementation of the project

Comments (optional)

Component 3 will strengthen the institutional capacity of the ORMVAs in operating and maintaining the irrigation networks, to ensure that new and improved networks are managed so to provide farmers with an improved water service, in line with the technical requirements of improved irrigation technologies. Component 3 will also support implementing the project. Component 3 activities will include: (i) technical assistance to improve O&M of the irrigation network; (ii) training, technical assistance, computer equipment, and associated tools for project management; and (iii) implementation of the EMP; (iv) provision of equipment and infrastructure rehabilitation for DIAEA and ORMVAs.

IV. Financing *(in USD Million)*

Total Project Cost:	150.00	Total Bank Financing:	150.00
Financing Gap:	0.00		

For Loans/Credits/Others	**Amount**
Borrower	0.00

International Bank for Reconstruction and Development	150.00
Total	150.00

V. Implementation

The project will have five implementation entities. The ORMVAs of Tadla, Haouz, Doukkala, and Gharb will implement most of the activities. The Department of Irrigation and Rural Infrastructure (DIAEA) of the MAPM will implement one activity under Component 3 and will be responsible for overall project coordination, management, and reporting.

The DIAEA and the ORMVAs are both experienced in managing World Bank-funded projects, the Oum er Rbia basin irrigated agriculture modernization project (PROMER, 2010-2016) being the most recent. Each ORMVA targeted by the project manages a LSI perimeter covering about 100,000 ha. They have good technical and managerial capacity to implement large irrigation development and modernization projects. Training and technical assistance will be provided as needed.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	×	
Natural Habitats OP/BP 4.04		×
Forests OP/BP 4.36		×
Pest Management OP 4.09		×
Physical Cultural Resources OP/BP 4.11		×
Indigenous Peoples OP/BP 4.10		×
Involuntary Resettlement OP/BP 4.12	×	
Safety of Dams OP/BP 4.37	×	
Projects on International Waterways OP/BP 7.50		×
Projects in Disputed Areas OP/BP 7.60		×

Comments (optional)

VII. Contact point

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