



# **POLYCENTRIC GOVERNANCE MODEL FOR TRANSFORMATIVE ADAPTATION IN MOROCCO**

## **INSTITUTIONAL MAPPING**

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## 1. Introduction

Morocco has initiated the process of adaptation to climate change to alleviate the effects of the water resources scarcity resulting from the succession of years of drought. This adaptation is part of the operationalization of the National Strategy for Sustainable Development, which requires consistency between policies, programs and sectoral plans, including those relating to food and agriculture. For this sector, one of the key objectives is to ensure an effective and sustainable management of water resources as it is imperative for the development of the living standard of farmers and their households. At the institutional side and given the vital, socio-economic and environmental interest of the water sector, it has been necessary to implement the following reforms since 1995:

- Application of 10–95 Water Law,
- Revision of this law and the promulgation of 36–15 Water Law,
- Creation of the Hydraulic Basin Agencies (WBH) to manage water resources at hydraulic basins,
- Review of agricultural water pricing,
- Creation of the Interministerial Water Commission.

All of these reforms have led to a soaring awareness on the part of administrative officials and specialists in the water sector of the fact that the sustainability of water resources is above all a concern relating to

governance, as [El Badraoui & Oubalkace \(2006\)](#)<sup>1</sup> have already underlined. Certainly the technical aspects and user awareness of adaptation measures are of paramount importance, but at the same time, the analysis of the institutional aspects of the governance of this adaptation is necessary to understand the possible failures in decision-making.

The mapping of these institutional aspects is part of the study commissioned by IWMI on the multi-scale and polycentric governance (MPG) of adaptation to climate change in Morocco for its ClimBer research project. The objective of this report is to present the main institutions involved in transformative options for adaptation to climate change in the country (See Report 1 on the mapping of these options). Its structure begins by presenting the legal framework of water policy in Morocco (Section 1). The following section provides an overview of the strategic policy framework. The last section reports the main institutional aspects of climate change adaptation options in the agricultural sector.

## 2. Legal framework of water policy in Morocco

In 1995, Morocco drew up the “10-95 Water Law” which aims at preserving of water resources in terms of quantity and quality as well. The fundamental principles of this law are mainly:

- Public ownership of water,
- Adoption of the user-pays and polluter-pays principle,
- Uniqueness of water management,
- Recognition of the social, economic and environmental value of water,
- Solidarity between users, between sectors and between regions, and
- Consultation in water management.

As part of the process of strengthening this legal framework, Morocco has adjusted its legislative arsenal relating to the development and protection of water resources by adopting the 36-15 Water Law. The revised law brings several substantial adjustments since, first of all, it enshrines the fundamental principles on which water management is based, namely general ownership of water, the right of all citizens to access

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<sup>1</sup> El Badraoui My H. & M. Oubalkace (2006), Réorientation de la Politique Nationale de l’Eau : Vers une gestion intégrée, décentralisée et participative privilégiant la préservation quantitative et qualitative et la gestion intégrée de l’offre – demande en eau. Ministère de l’Aménagement du Territoire, de l’Eau et de l’Environnement.

to water, the right to a healthy environment, water management in accordance with good governance practices, integrated and decentralized management of water resources, protection of the natural environment and the development of sustainable management.

In addition, the new law provides for several provisions aimed at improving the quality of the regulations governing the sector through the strengthening of the legal framework relating to the recovery of rainwater and wastewater, the establishment of a legal framework of the sea water desalination, the establishment of mechanisms for the protection and preservation of water resources, and the improvement of conditions aimed at protecting against extreme phenomena linked to climate change. Finally, this law also brings other novelties, mainly the creation of Advisory Councils at the level of the hydraulic basins, which are responsible for studying and expressing their opinions on the action plan for the integrated management of water resources.

### 3. Overview of the water strategic framework

After its political independence, Morocco undertook considerable efforts to consolidate water supply, notably through the construction of dams and the extension of hydro-agricultural networks. Significant results have thus been recorded, which led to an irrigated area of around 1.6 million hectares. On the other hand, the demand for drinking water only began to receive all the importance it deserves in the mid-1990s with the promulgation of the 10-95 Water Law. This law allowed, among other things, the creation of Hydraulic Basin Agencies (ABH) and the introduction of financial mechanisms for the protection and preservation of water resources to consolidate the integrated, participatory and decentralized management of water resources.

Since then, and in an effort to consolidate the achievements, the National Water Strategy (SNE) was launched in 2009. With the aim of implementing the orientations of this strategy, the National Water Plan Water 2030 (PNE) was set up to ensure efficient and sustainable management of water resources ([Ministry of Water, 2015](#))<sup>2</sup>. In this context, many programs were to achieve the objective of extending irrigated areas and improving access to drinking water, particularly in rural areas. The pursued policy has enabled the country to have nearly 1.6 million hectares of irrigated area. At the same time, the rate of access to

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<sup>2</sup> Ministère Délégué Auprès du Ministre de l'Énergie, des Mines, de l'Eau et de l'Environnement (2015), Projet de Performance, Année Budgétaire 2016.

drinking water in rural areas has progressed remarkably, going from 14% in 1994 to 97% currently ([Kingdom of Morocco, 2020](#))<sup>3</sup>.

The new National Water Plan (2020-2050) aims to set strategic guidelines for water management by adopting a participatory approach of all the actors involved in the water sector while taking the climate change into account. Within the framework of this plan, the water supply will be reinforced in particular through the continuation of the policy of large and small dams, the development of the desalination of sea water by using renewable energies and the reduction of the rate of siltation of dams by 20% through the development of hydraulic basins ([Ministry of Equipment and Water, 2022](#))<sup>4</sup>.

Address recently the House of Representatives, the Minister of Equipment and Water emphasized the fragility of certain water supply systems due to the succession of years of drought which has become recurrent over the past decade in Morocco. This situation has led to the development of the National Program for the Supply of Drinking Water and Irrigation Water (2020-2027). With a total cost of 115.4 billion dirhams, this national program aims to guarantee drinking water security through the improvement of water supply, demand management and water recovery, particularly in the agricultural sector, reduce the impact of climate change and strengthen the supply of drinking water in rural areas ([Ministry of Equipment, Transport, Logistics and Water, 2020](#))<sup>5</sup>.

In this legislative and strategic framework and taking into account the problems of water scarcity which have become recurrent, the question of the governance of this resource is acute. The solution should be based on participatory, cross-sectoral and cross-disciplinary approaches to develop the tools of '*societal management of water*' capable of strengthening resilience of sectors using water ([Tazi Sadeq, 2021](#))<sup>6</sup>. As a result, institutional mechanisms should be effective to achieve this resilience, particularly in the agricultural sector, one of the key pillars of economic growth in Morocco.

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<sup>3</sup> Royaume du Maroc (2020), l'examen national volontaire de la mise en œuvre des ODD.

<sup>4</sup> Ministère de l'Équipement et de l'Eau (2022), Enjeux et perspectives de la politique de l'eau au Maroc, thème d'une journée d'étude à la Chambre des Représentants.

<http://81.192.10.228/enjeux-et-perspectives-de-la-politique-de-leau-au-maroc-theme-dune-journee-detude-a-la-chambre-des-representants/>

<sup>5</sup> <http://www.equipement.gov.ma>

<sup>6</sup> Tazi Sadeq H. (2021), Quelle Gouvernance de l'Eau dans un Contexte de Rareté. La revue de l'Institut Veolia – Facts Reports No 22 - Eau, Déchets, Energie : Quel Avenir pour les Services Essentiels en Afrique ?

## 4. Institutional mapping of the main Transformative Adaptation Options

According to [Arrifi \(2010\)](#)<sup>7</sup>, to promote economy and valorization of water in agriculture, institutional, technical, tariff and educational measures have been taken by the State. They include:

- Improving the operational efficiency of the Regional Offices for Agricultural Development (ORMVA) through the establishment of a computerized system for programming, management and maintenance of irrigation systems,
- Modernization of irrigation networks, whether in large hydraulic perimeters or in those of Small and Medium Hydraulic (PMH) with the aim of controlling water loss,
- Strengthening the institutional framework of irrigation water through the creation of Associations of Agricultural Water Users (AUEA) within the framework of Law No. 02-84 and its promulgation in 1990 in the objective of their involvement in the participatory management of this resource,
- Revision of the tariff for irrigation water in large hydraulic perimeters in 1997, taking into account the payment capacities of farms with increases capped at 0.08 dh/m<sup>3</sup>,
- Strengthening of incentive measures for the introduction of modern irrigation techniques through project cost subsidy rates that have increased from 17% in 1996 to 80% or 100% currently, which was at the origin extension of drip irrigated areas.

Certainly, the objective set by the country to irrigate one million hectares in 2000 was achieved in 1997 and the current area reaches 1.6 million hectares. On the other hand, in recent years the situation has become more worrying and the pressure on water resources is becoming increasingly strong due to the phenomenon of recurrent droughts. To alleviate this pressure, it has become necessary to take adaptation and resilience measures capable of strengthening agricultural activity despite the difficult climatic conditions. We report below the institutional mapping of the adaptation options to climate change identified in the first report in accordance with the terms of reference of the IWMI study, namely i) Water

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<sup>7</sup> Arrifi E. (2010), L'économie et la valorisation de l'eau en irrigation au Maroc : Un défi pour la durabilité de l'agriculture irriguée. HTE no 146 Juin 2010.

saving programs, ii) Adoption of resilient cropping systems and iii) Improvement of the investment climate in agriculture.

#### *4.1 Water saving institutions*

The water sector is marked by fragmentation which makes it very dependent on governance at several scales. Indeed, this sector involves several institutional actors (ministerial departments, local authorities, public establishments, professional organizations, etc.) and other non-institutional actors (unorganized farmers, private operators, households, etc.). The public actors operate at different scales, central, regional and local, with varying degrees of deconcentration and decentralization of administration. Increasingly complex powers are allocated to deconcentrated institutions (Hydraulic Basin Agencies (ABH), Regional Directorates of Agriculture (DRA), Regional Offices for Agricultural Development (ORMVA) and the National Office of Electricity and Water (ONEE)) and decentralized ones (12 regions of the country, provinces and prefectures, municipalities) with considerable financial resources, which generates interdependencies that must be coordinated effectively.

We take these considerations into account to address the institutional mapping of the MPG of programs aimed at saving irrigation water, notably the Program for Saving Water in Irrigation (PNEEI), the Program for Irrigation Extension (PEI) and the Public-Private Partnership in irrigation (PPP). We emphasize that the adoption of the drip irrigation system is central to all these programs.

##### 4.1.1 Central scale

The actors of coordination and strategic orientation of the water sector at the central scale are:

- **The Higher Council for Water and Climate (CSEC)** which establishes guidelines and monitors the application of its recommendations through broad consultation and therefore the support of all stakeholders in the water sector. Half of the CSEC is made up of representatives of the State and public establishments involved in the water sector to produce drinking water, irrigation water and hydroelectricity. The other half is made up of representatives of water users, prefectural or provincial assemblies, higher education and scientific research establishments, national engineering and professional associations,
- **The Interministerial Water Commission** acts as a permanent secretariat responsible for preparing CSEC sessions and monitoring the implementation of its recommendations.
- **The Ministry of Equipment and Water, General Directorate of Hydraulics**, whose missions are research and evaluation of surface and underground water resources, water planning and



management, control and protection of the quality of water resources, study of hydraulic structures, construction, maintenance and operation of hydraulic structures and research and development in the climate and water domains,

- **The Ministry of Agriculture, Maritime Fisheries, Rural Development and Water and Forests, Department of Agriculture**, whose missions in the water area concern in particular the development and implementation of the government policy regarding the agricultural development and taking the necessary steps to rationalize the use of water resources for irrigation. In addition, this department oversees the coordination and partnership with international organizations (World Bank, African Development Bank, etc.) with regard to hydro-agricultural developments in the perimeters of large hydraulics and small and medium hydraulics (PMH).
- Other institutional actors associated with water and irrigation policy, in particular:
  - The Ministry of Interior
  - The Ministry of Economy & Finance
  - The Ministry of Energetic Transition & Sustainable Development
  - The Ministry of High Education, Scientific Research & Innovation
  - The Ministry of Justice

Table 1 reports the main contributions of the different institutional bodies related to irrigation water policy at the central level. These contributions relate to planning, inventory and control of resources, financing, irrigation, maintenance of infrastructure and research.

Table1:

Ministry of	Contribution domain					
	1	2	3	4	5	6
Agriculture, Sea Fisheries, Rural Development & Forests	X	X	X	X	X	X
Equipment & Water	X	X	X	X	X	X
Interior	X		X			
Economy & Finance	X		X			
Energetic Transition & Sustainable Development	X	X	X		X	X
High Education, Scientific Research & Innovation						X
Justice		X				
1 Planification			3 Funding		5 Infrastructure Maintenance	
2 Water resources inventory & control			4 Irrigation		6 Research	

This table shows that in addition to the need for internal governance for every institution (horizontal reading), it is also essential to ensure consistency of the contributions of the different institutions (vertical reading) in order to get the government intervention successful in programs for the efficient management of irrigation water.

#### 4.1.2 Regional and local scales

We recall that the scarcity and limitation of water resources is a structural climatic factor in Morocco. The diversified water needs concern in particular irrigation in agriculture, drinking water, tourism and industry, which requires an overall management of these resources in an equitable manner.

For the governance of irrigation water at the regional level, the State intervenes through its external administrative services (regional, provincial or prefectural delegations) and public structures in service under the ministerial departments linked to water policy as is the case with ABHs and ORMVAs. In this scheme, the 36-15 Water Law provides for integrated, deconcentrated, decentralized and participatory management of water resources.

ABHs are responsible for coordinating the sectoral water policy at the regional level. Each ABH (9 in total in Morocco) establishes its Master Plan for the Integrated Development of Water Resources (PDAIRE) taking into consideration the strategic orientations and prescriptions of the National Water Plan. The PDAIRE therefore serves as a framework for the management of water resources at the scale of the hydraulic basin. According to 36-15 Law, the Plan allows in particular to assess *"the quantitative and qualitative evolution of water resources and aquatic ecosystems"*, on the one hand, and *"the current and future water demands of the various user sectors in a context of water scarcity and management of water demand"*, on the other hand.

Therefore, the PDAIRE requires the implementation of efficient approaches for the sustainable exploitation of water resources. At the same time, the National Irrigation Water Saving Program (PNEEI) of the Ministry of Agriculture is based on the adoption of resource-saving systems and therefore makes it possible to ensure a certain convergence with the objectives of the PDAIREs.

The main players in irrigation water management at the regional level are therefore the Regional Directorate of Agriculture under the Ministry of Agriculture and the Hydraulic Basin Agency under the Ministry of Equipment and 'Water. The convergence of their instruments linked to the objectives of efficient water management depends on the production areas either based on groundwater abstraction or using water irrigation from dams located in the concerned region.

To better illustrate the institutional mapping of the connection between the PNEEI and the PDAIRE at the regional level, we take the case of the Souss – Massa Region. Orientation of the agricultural sector towards greater sustainability is one of the main objectives of the Development Program for this region. To manage the water resource shortage crisis, a framework agreement was signed in 2007 between the stakeholders, leading to the settlement of a groundwater contract for the region.

### ***The case of Souss Massa groundwater***

The Souss Massa region is the first among the other regions of the Kingdom in which the aquifer contract was implemented ([ABH du Souss Massa, 2010](#))<sup>8</sup>. This contract is intended as a tool for multi-stakeholder dialogue to formally obtain the commitments of partners for the sustainable management of water resources in the region (See Box below for the partners list and their contribution). It therefore acts as the ideal framework for the governance of these resources. Being based on an operational approach to the various partners intervention, the effectiveness of this contract is considered much more important than that of the prefectural and provincial water commissions provided for by the Water Law.

The groundwater contract was drawn up with the help of Agrotech Souss Massa. This association created in 2006 on the initiative of the Regional Council of Souss Massa is a Cluster or competitiveness pole. Its main mission is to *"bring together the forces of economic operators, elected officials and public and private institutions linked to agriculture in order to revitalize the sector, strengthen cooperation between the various partners, pool their means and resources and create innovation"* ([Agrotech, 2022](#))<sup>9</sup>. From the start of its activity, Agrotech has worked to solve the problem of water shortages and to develop local products. The initial question was how to sustain agriculture in the region at a time when water resources began to run out in the main production area of early export vegetables in Morocco. The action of the region's officials has given great importance to the organization of irrigation water users with the creation of more than 200 Associations of Agricultural Water Users (AUEA) and their federation as well both in the public domain (water from dams) and in the private domain (water from oases, individuals, etc.). It has also undertaken training programs for users in the field of technical management of irrigation.

The Groundwater Committee oversees the conditions for sustainable management of the region's water resources. The debates focus on the mobilization of additional resources, through a program of large and

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<sup>8</sup> Agence du Bassin Hydraulique de Souss Massa (2022), <http://www.abhsm.ma/index.php/parteneriat/contrat-de-nappe>

<sup>9</sup> Agrotech (2022), <http://agrotech2.agrotech.ma/presentation/>

small dams. They also relate to the development of irrigation water saving, by analyzing the conditions for the generalization of drip irrigation and by relying on a network of agro-meteorological stations to advise farmers. on how much water to use in their fields. They also relate to the issue of limiting the extension of irrigated areas by abstraction from the water table and the conditions for applying the provisions of the water policy in the region.

### Souss Massa Groundwater contract

#### " Objective :

- Limitation of pumping and extension of irrigated perimeters
- Use of water-saving techniques for irrigation
- Strengthening of the control system
- Participatory groundwater management

#### Institutional partners

- Souss Massa Draa Regional Council
- Financing structures
  - Crédit Agricole du Maroc
  - Igrane Fund
  - Sindibad Fund
  - Office Cherifien des Phosphates (OCP)
- Professional organizations
  - Regional Chambers of Agriculture
  - Moroccan Association of Producers and Exporters of Fruits and Vegetables (APEFEL)
  - Association of Moroccan Citrus Producers (ASPAM)
  - Association of Vegetables Exporters (ASPEM)
- Administrative departments
  - Souss Massa Hydraulic Basin Agency
  - Regional Office for Agricultural Development of Souss Massa (ORMVA SM)
  - Regional Office for Agricultural Development of Ouarzazate (ORMVAO)
  - Regional Directorate of Water and Forests
- Research and Training Institutes
  - Hassan II Agronomic and Veterinary Institute, Agadir Horticultural Complex
  - Regional Center for Agronomic Research, Agadir
  - Ibn Zohr University, Agadir
  - Mohamed V University, Rabat
- Beneficiaries
  - Farmers in the Souss Massa Region
  - Farmer cooperatives and groups »

Source: ABH Souss-Massa (2022)

### ***The Case of Souss Massa surface***

For surface water stored in dams, the basic principle remains the management of shortages given the multiple uses of water (Agriculture, Industry, Tourism, etc.). Every year, in June, the Water Committee chaired by the Wali of the Region holds its first meeting, attended by the managers of the ORMVA Souss Massa, ABH Souss Massa, the Agadir Autonomous Multiservice Authority (RAMSA) and the National Office for Electricity and Drinking Water (ONEE) and in which the ABH plays an arbitration role. Depending on the situation of the water reserves in the dams, if signs of insufficiency are declared, there is a need for an agreement on the sharing of the resource between the drinking water needs (including for touristic infrastructure) which must be fully satisfied, on the one hand, and irrigation water, on the other. In all cases, ONEE must ensure that it maintains water availability equivalent to the demand for two years of drinking water consumption. On the other hand, if the availabilities are not binding, the sharing of water then obeys the provisions appearing in the PDAIRE.

## ***4.2 Adoption of resilient cropping systems***

### **4.2.1 Institutional evolution of cropping pattern in irrigated areas**

Before the implementation of structural adjustment programs in Agriculture between 1985 and 1992, crop patterns were under State control in irrigated areas covered by ORMVAs. Indeed, the Code of Agricultural Investments was established in 1969 to serve as a legislative framework for agricultural development in these areas in parallel with the “dams policy”. In particular, it describes the conditions that each farmer in the large hydraulic perimeters must respect in terms of the use of his/her land. These conditions take into account the vocation of the soil and the imperatives of agricultural production aimed in particular at the food self-sufficiency of the country. They are based on mandatory cropping systems including in particular an agro-industrial crop sole (sugar beet, sugar cane, sunflower, cotton, etc.), a fodder sole (alfalfa, bersim, etc.), an arboreal sole (citrus, olive, etc.) and a cereal sole. Each farmer was thus obliged to respect the rotation dictated by the ORMVA for the area of his farm. In return, the ORMVA ensured, among other things, the supply of irrigation water to the farmer according to the quantities available at the dams located in its area of action.

The liberalization of rotations started in 1987 was accompanied by a liberalization of the demand for water by the producers. According to the areas of action of the ORMVAs, growing interest has been given to other water-consuming crops such as fodder maize in Doukkala to improve milk production, vegetable crops in Souss-Massa or even strawberries in Loukkous and Gharb as part of the promotion of agricultural exports.

After the liberalization of rotations, the changes in the cropping systems of the irrigated perimeters managed by the ORMVAs aggravated the imbalance between water supply and demand. This imbalance manifested itself in the form of an induction of increasingly increasing needs to be satisfied in irrigation water in climatic conditions more and more marked by drought.

Since the launch of the Green Plan Morocco in 2008, *“the Value Chain approach has been retained as a fundamental strategic choice for the purpose of developing high-performance and integrated agriculture”* (Ministry of Agriculture, 2020)<sup>10</sup>. The main aim is to improve the Moroccan agriculture competitiveness by strengthening of value chains inter-professions that involve farmers’ organizations as well as value chains downward organizations.

Up to now 20 inter-professions have been created (Cereals, sugar, oilseeds, citrus, olive, fruit crops, early vegetables, date, rice, organic, saffron, rose, argan, seeds, milk, red meat, poultry, camel, honey, agro-industry). Every value-chain, has signed with the government representatives, in particular the Ministry of Agriculture and the Ministry of Finance, a program-contract specifying the commitments of each party towards the objectives to be reached at different timelines. These objectives include expected evolution of planting acreage, production and productivity, water-saving systems, trade balance evolution and value chain employment (Ministry of Agriculture, 2015)<sup>11</sup>. For every program-contract, the commitments of all parties are regularly assessed by the monitoring committee and the steering committee.

As already indicated in the report on adaptive options to climate change (Report 1), we recall that with the objective of converting cereal areas into more resilient crop areas, the cereal program contract signed under the Morocco Green Plan predicted a reduction in area of 20% between 2009 and 2020 with 5.25 million ha and 4.2 million ha respectively. On the other hand, the projections of the area of the olive tree show an evolution of 79.4% from 680,000 ha in 2009 to 1,220,000 ha in 2020.

#### 4.2.2 Institutional framework of land public-private partnership

This partnership concerns the leasing of agricultural land for a period ranging from 17 to 40 years to national or foreign investors. The allocation of these lands is decided through call for tenders launched by the Agency for Agricultural Development (Ministry of Agriculture, Maritime Fisheries, Rural Development

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<sup>10</sup> Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests (2020). Green Morocco Plan: Review and Impacts 2008 – 2018.

<sup>11</sup> Ministère de l’Agriculture et de la Pêche Maritime (2015), Contrats programmes pour le développement des filières de production.

and Water and Forests) in collaboration with the Directorate of State Domains (Ministry of Economy and Finance), the Directorate of Rural Affairs (Ministry of the Interior) and the Directorate of Habous (Ministry of Habous and Islamic Affairs), under the supervision an Interministerial Commission composed of (ADA, 2022)<sup>12</sup>:

- The Agency for Agricultural Development,
- The Directorate of Rural Affairs (Ministry of the Interior),
- The Department of State Domains (Ministry of Economy and Finance), and
- The Moroccan Agency for the Development of Investments and Exports (Ministry in charge of Investment, Convergence and Evaluation of Public Policies).

The technical data for each land is available at ADA. The evaluation of the applications presented by the investors applying for rental is based in particular on their business plan, paying particular attention to the financial package, the planned efforts in terms of the efficient use of water resources and the creation of employment. Practically, for any new tree plantation, investors adopt the drip irrigation system because of its water saving advantages but also to take advantage of the subsidies granted to farmers under the Agricultural Development Fund.

#### 4.2.3 No-tillage technology in rainfed areas

We listed the agronomic and economic benefits of no-tillage technique in the first report of this mission. In the different regions of its adoption by farmers as a resilient technique, the provincial departments of agriculture play the role of coordinating this activity in consultation with the different partners involved, in particular the *Office Chérifien des Phosphates* (OCP) through its “*Al Moutmir*” program as well as the regional and provincial representations of the National Institute of Agronomic Research (INRA) and the National Office of Agricultural Counseling (ONCA). It should be noted that, as part of its contribution to the promotion of direct seeding on a national scale, this program intends to expand its offer for this technique to 25,000 hectares for the 2022 – 2023 agricultural campaign (h24Info, 2022)<sup>13</sup>.

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<sup>12</sup> Agence pour le Développement Agricole (2022), <https://www.ada.gov.ma/fr/cadre-general-ppp>

<sup>13</sup> H24 Info (2022), Programme Al Moutmir: l’offre se renforce et s’étend.



To illustrate the institutional partnership around the direct seeding operation, we take the case of the province of Khouribga.

Khouribga province is one of the five provinces that form Beni Mellal – Khenifra Region. The province of Khouribga extends over an area of 4,250 square kilometers, which is equivalent to 15% of the area of the Beni Mellal-Khenifra region and 0.6% of the national territory. The average annual rainfall varies between 300 mm and 450 mm. The useful agricultural area reaches 214,000 ha, or 50.40% of the total area of the province. The rainfed areas extend over 211,000 ha, or 98.6% of the useful agricultural area. Cereals annually cover nearly 80% of the useful agricultural area, i.e. between 165,000 and 170,000 ha.

No-tillage technology has been in use for years in this province, thanks to the concerted efforts of many national institutions and partners, from the Ministry of Agriculture and the National Institute for Agricultural Research in Settat. The area under direct seeding of cereals has recorded a remarkable evolution, increasing from 40 ha in 2012 to 4,743 ha in 2022, i.e. an increasing average annual rate of 61.2% (Table 2).

**Table2** : Evolution of No-tillage acreage in Khouribga Province

Year	Hectares
2012	40
2013	60
2014	120
2015	200
2016	200
2017	260
2018	290
2019	921
2020	1960
2021	2800
2022	4743

Source : DPA Khouribga

The institutional partners involved in direct seeding and their contributions across the province are (DPA Khouribga, 2022):

- The Regional Directorate of Agriculture of Béni Mellal – Khénifra and the Provincial Directorate of Agriculture of Khouribga for the technical supervision and the preparation of administrative files in order to benefit from the subsidy relating to the purchase of seeders used for direct seeding,
- The National Institute of Agronomic Research for the production of technological packages,
- The National Agricultural Council Office for technical support to farmers,
- The "Al Moutmir" program of the Office Chérifien des Phosphates (OCP) for the technical support to producers through field demonstration sessions,
- The Regional Chamber of Agriculture of Béni Mellal – Khénifra for the contribution in terms of the acquisition of direct seeders,
- Provincial and local authorities for administrative support, and
- Farmers who have adopted the direct seeding technique.

We recall here that with direct seeding, the productivity of cereals can increase by 30 to 50% rate compared to conventional seeding.

### *4.3 Institutional investment climate*

In relation to adaptation to climate change, financing and insurance conditions of agricultural activity are the two main variables to be taken into consideration in the agricultural investment climate. At the institutional level, these conditions involve the central, regional and local representations of the Ministry of Agriculture, the bank 'Crédit Agricole du Maroc' and the insurance company 'Mutuelle Agricole Marocaine d'Assurance (MAMDA)' in addition to farmers.

To facilitate the access of small and medium-sized farms to credit and to the financing of productive assets and infrastructures, the bank 'Crédit Agricole du Maroc' created its subsidiary called "Société de financement pour le développement agricole", which later became '*Tamwil Al-Fallah*'<sup>14</sup>. The main objective of this company is to set up an institutional system to support the strategy and programs of the public authorities in terms of support for small and medium-sized farmers, while respecting the prudential rules governing banking activity. With an initial share capital of 100 million dirhams, *Tamwil Al Fallah* was to finance by 2023, approximately 450,000 small and medium-sized farmers whose activities are included in the framework of the orientations of the Green Morocco Plan, such is the case of the adoption of the drip irrigation system.

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<sup>14</sup> Meaning 'Farmer's finance'

In addition, the government has carried out a review of all subsidies and investment premiums granted to farmers under the Agricultural Development Fund. These texts target aid to be granted for agricultural equipment, irrigation (up to 100% subsidy for small farmers, cooperatives, producers organized in an aggregation project), alternative crops to cereals such as olive trees, development of products and professional support. The process for granting aid and subsidies follows an exchange protocol between the Ministry of Agriculture and Crédit Agricole du Maroc.

To simplify the administrative procedures for granting aid and subsidies to farmers, the Ministry of Agriculture has created "*One-stop Offices*" and their branches at the level of the provincial agricultural directorates for rainfed areas and the ORMVAs for irrigated areas. A digital application entitled '*Agricultural Aid and Bonuses System (SABA)*' is also available on the website of the same ministry.

With regard to climate multi-risk insurance, the insurance system commits the farmer and MAMDA. Two insurance products are offered by MAMDA. The first deals with the climate multi-risk insurance for cereal crops (soft wheat, durum wheat, barley and maize), legumes (broad beans, lentils, peas, chickpeas and beans) and oilseeds (rapeseed and sunflower) and covers the risks of drought, hail, frost, high winds, sandstorms and excess water. The second product concerns the multi-risk climate guarantee for fruit growing (apple, pear, quince, apricot, plum, peach, nectarine, cherry, citrus, olive, almond, pomegranate and fig trees) against the risks of hail, frost, high winds, eastern hot winds (Chergui), high temperatures and excess water.

Here again, the farmer can benefit from subsidies on his/her contributions to the MAMDA which vary between 57.3 and 90% for cereals, legumes and oilseed crops and 50 to 70% for arboriculture. The State contribution is paid from the FDA's own resources, via the Natural Disaster Fund, to the MAMDA account (Ministry of Agriculture, 2018)<sup>15</sup>.

## 5. References

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<sup>15</sup> Ministère de l'Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts (2018). Guide de l'Investisseur dans le Secteur Agricole au Maroc. Agence pour le Développement Agricole Avril 2018.