

# Chapter 3

## The Challenges of Sustainable Agricultural Development in Southern and Eastern Mediterranean Countries: The Case of Morocco

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### 3.1 Introduction

This chapter aims to contribute to setting out the problem of sustainable development in Morocco. It focuses on rural development in order to help overcome the main constraints and cope with the precariousness and poverty conditions, food insecurity, and natural resource management in rural areas.

Indeed, despite significant efforts that have been implemented by successive governments, the rural population remains on the sidelines of significant progress that Morocco has known since its political independence. It is still marked by poverty which seems to be a rural phenomenon since two-thirds of the poor live in rural areas. This precariousness is accentuated by the shortage of infrastructure and basic social services, on one hand, and the problem of natural resource management, on the other hand, which negatively affects the well-being and food security of this population.

According to these facts, this chapter will try to analyze the main issues regarding rural development in Morocco by starting with a report on the poverty issue. Then, socio-demographic and migration trends followed by education and health concerns will be addressed using the most recent official data. The next section will stress the food security and the last will point out the problem of natural resources, especially land and water, as they determine the sustainability of rural development.

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## 3.2 The Rural Poverty Issue

Rural development in Morocco continues to be a foreground question due to its socio-economic importance for the country. As for the 2020 rural development strategy kicked off in 2000, government action showed a political will to boost rural development through mobilization of human and financial greater means to achieve targeted goals.

Today, the standard of living of a significant part of the population, whatever the applied method of calculation, is below or just above the poverty line and it is characterized by precariousness or great vulnerability. However, according to the usual indicators for measuring income poverty, human development and human poverty, the general trend of the evolution of poverty was rather down but remains at relatively high levels especially in rural areas.

### 3.2.1 *Evolution of the Poverty and Vulnerability Indicators*

Like many developing countries, Morocco does not escape the scourge of poverty. On the basis of the well-known poverty indicators, the population living below the poverty line was estimated in 2007 at 8.9 %, that is to say 2.77 million inhabitants (Table 3.1).<sup>1</sup> But this national figure hides inequalities, because poverty still remains a rural phenomenon. Indeed, as many as 14.5 % of the rural population lives below the poverty line against 4.8 % in urban areas, that is to say nearly 66 % of the total poor population of Morocco. As we can see below, the resources available to the rural populations are used in priority to cover food expenditure.

According to official figures, the poverty rate was reduced by more than 7 % points, falling from 16.3 to 9 % between 1998 and 2007 for the whole country. This reduction was in fact more pronounced in rural areas than in urban areas with respectively 9.7 and 4.7 points. It means that nearly 2.8 million people lived below the poverty line in 2007. However, we note that between 2001 and 2007, nearly 1.7 million people have been elevated out of the poverty line and 1.2 million have escaped vulnerability (MEF 2009).

Nevertheless, the vulnerability indicator remains high in 2007 with slightly more than 26.5 % for the whole country, 17.5 % in urban areas and 38.1 % in rural areas (HCP 2008).<sup>2</sup> Thus, the lower rate of poverty in its various forms is needed to continue a sustained growth rate, creating jobs and strengthening mechanisms of social equity. In this context, the Millennium Development Goal for poverty and hunger aims at reducing the incidence of poverty by half by 2015 in Morocco.

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<sup>1</sup>These are the most recent official data from the High Directorate of Planning (2008).

<sup>2</sup>It is recalled here that the members of a household are called vulnerable if the annual per capita expenditure of the household is between the poverty line and 50 % value above this threshold (depending on the place of residence).

**Table 3.1** Poverty rates in Morocco (numbers in thousands, rates in %)

	1998–99		2000–01		2006–07	
	Size	%	Size	%	Size	%
Urban	1439	9.5	1235	7.6	829	4.8
Rural	3085	24.2	3225	25.1	1945	14.5
Total	4534	16.3	4461	15.3	2773	9.0

Source HCP (2008)

But such an objective faces two major challenges. The first challenge is to sustain significant improvements that have been registered in terms of hunger and poverty relief since 1990 as food poverty has been cut by 80.4 %, absolute poverty by 71.2 % and relative poverty by 58.1 %. The second challenge is to face rigidity of social inequalities. Indeed, in Morocco poverty is mainly more sensitive to the distribution of income than to economic growth. Social inequality was just stabilized during the year 2000, after an upward trend along the 1990s.

Meanwhile, Morocco tried to constitute a pragmatic federator space to increase coordination, convergence and synergy of the various stakeholders that are implied in human development. These actors are in particular government agencies, the civil society, the private sector and international cooperation. With this intention the Ministry for Social Development, the Family and Solidarity worked out, with the technical support of the UNDP, and in dialogue with all partners, a National Strategic Framework of Reduction of Poverty which fits completely within the vision of the Human Development National Initiative (HCP 2009). However, efforts are still needed to improve the situation, especially in the rural areas, and that is the main objective of a series of rural development programs that have been triggered since the beginning of the last decade.

### 3.2.2 Rural Development Programs

The negative impact of structural adjustment policies on the social sectors has forced the government to implement a social policy to fight poverty and regional inequalities, especially between urban and rural areas. The social development strategy adopted by the government in 1993 is the basic reference for these programs that have been designed, among others, to improve access of the poor population to basic social services, in particular drinking water, sanitation and health services, to increase enrollment rates in basic education, to develop social housing programs, increase employment opportunities and reinforce social assistance and protection, by appropriate targeting of vulnerable groups.

Regarding rural development during the two last decades, the evolution of the development policy records the installation of programs supported by the public authority's intervention. These programs include the new generation of the integrated development projects in rain-fed areas, the 2020 Rural Development Strategy, the National Initiative for Human Development (*Initiative Nationale de*

*Développement Humain, INDH*) and very recently the launching of the Moroccan Green Plan strategy (*Stratégie du Plan Maroc Vert, PMV*).

### 3.2.2.1 Integrated Rural Development Projects in Rain-Fed Areas<sup>3</sup>

These projects have been implemented in rural areas which did not profit from significant public investments in the past. They are governed by the 33–94 Act that determines the basis of the development strategy of the rain-fed areas, and are in conformity with the objectives of the Rural Development strategy of the World Bank, also known as the ‘*Reaching the Rural Poor*’ strategy. Activities of the DRI—MVB projects started in 2004 for an execution period of 6 years with a strategic context that stresses the following pillars (World Bank 2003):

- Promotion of human development and inclusion policy of the vulnerable populations in the underprivileged and marginal areas;
- Reinforcement of the economic growth conditions and development of the private sector, and
- Improvement of the governorship and management of development actions.

In parallel, on the agricultural professional side, the Moroccan Confederation for Agriculture and Rural Development (Comader) was born in 2006 to play the role of development partner of the government. This confederation involves about thirty agricultural professional organizations and aims to set effective coordination between them and policy makers in terms of agricultural and rural development.

### 3.2.2.2 The 2020 Rural Development Strategy

This strategy, launched in 2000, considers that rural development is necessary for the valorization of the potential of the rural environment, including that of the agricultural production, the natural resources and the population, through the following basic principles (Ministry of Agriculture 2000):

- Human development is the finality of rural development,
- Equity and solidarity are regarded as the basis of social equilibrium,
- Research of economic efficiency is a value to be shared by all.

The policies adopted by the strategy tend to increase employment and incomes in agriculture, create and diversify para-agricultural activities and protect the environment against degradation through revegetalization of natural spaces and control of the renewal of the water resources. Other actions are also being undertaken regarding the improvement of the education and professional training of rural men and women, improvement of the related services of health, drinking water,

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<sup>3</sup>Referred to as ‘Projets de développement rural intégré–Mise en valeur bour (DRI-MVB)’.

electricity and transport, as well as the correction of regional imbalances regarding infrastructure, trade and territorial planning.

### 3.2.2.3 The National Initiative for Human Development

The National Initiative for Human Development has acted nationwide by Royal Decree since May 2005. Its main goals are explored in ‘improving the Human Development Index through poverty alleviation in the poorest communities’ (INDH 2005).

In this context, the NIHR contributes with the programs which already operated for poverty combat, including projects for integrated rural development. Moreover, its objectives are fully consistent with those of the International Alliance against Hunger implemented by FAO with a budget of 10 billion dirham<sup>4</sup> for the period of 2006–2010. Such a promising plan has been conducted through four priority programs:

- The program to combat rural poverty,
- The program to combat social exclusion in urban areas;
- The program against mobility, and
- The cross-cutting program.

Regarding the first program, the NHRI targeted 360 rural communities with an average population of 10,300 persons per municipality and a budget of 2.5 billion dirham. One of its main activities is boosting the local economy through Income-Generating Activities (IGA). The link with food security is directly due to the income effect on the consumption levels. In late May 2013, almost 29,000 projects have been launched for the benefit of as many as 7 million citizens with an investment of 7 billion dirham (INDH 2013).

### 3.2.2.4 Green Morocco Plan

The Green Morocco Plan (GMP) is the instrument for implementing a new agricultural development strategy which aims to enable the agricultural sector to have a better appreciation of its potential to meet new socio-economic challenges. For success implementation, the philosophy of GMP is based on the strategic foundations that govern its design and implementation, namely (Hajjaji 2009):

- Its role as a tool for economic growth in the next 10–15 years,
- The use of aggregation as a tool that will encourage the philosophy of the value chain, starting with production, then commercial and industrial activities,
- Encouragement of private and public investments in an annual goal of 10 billion dirham for the targeted projects,

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<sup>4</sup>1 Moroccan Dirham is roughly equivalent to 0.09 Euro.

- The adoption of the contractual approach between various operators of agricultural sectors including the State,
- Natural resource conservation for sustainable agriculture through the preparation of special programs with the Global Environment Fund (GEF) and the Hassan II Fund for Economic and Social Development,
- Modification of the sectoral framework concerns regarding land policy, water policy, tax policy and the operation of the domestic market.

For its implementation, the GMP has launched a device that causes radical changes which are realized through:

- The development of regional farm plans (RFPs) and the creation of regional agriculture directorates (RAD),
- The restructuring and strengthening of the functions of chambers of agriculture,
- The restructuring of the Central Services at the Ministry of Agriculture via the promising comprehensive renovation of existing management partners and the creation of new directions for focused duties,
- The creation of a Food Safety Office,
- The creation of the Agricultural Development Agency as a tool for the implementation of GMP,
- Wrapping up of program contracts with practitioners to ensure a better co-pilot of the main agricultural sectors.

Thus, the GMP provides the implementation of 1500 projects for the entire investment estimated at 147 billion dirham in 10 years. All of these projects would benefit all farmers in the country through two pillars located at the center of its strategic vision. The first pillar is represented via modern agriculture, with high value added practiced by the farms in irrigated areas and areas with favorable rainfall (560,000 farms). The second pillar is agriculture solidarity which is located in mountain areas, oases and unfavorable rainfall areas (840,000 farms).

The socio-economic challenges of GMP are numerous and interrelated. Certainly, this plan creates enormous expectations regarding the creation of employment, the promotion of investment in agriculture and improving the incomes of rural communities. Its relationship with food security is available through its objective to reduce the rate of poverty especially in rural areas, improving the purchasing power of consumers and increasing the availability and quality of food consumed at affordable prices. The last point is important for the recent crises in the international market which are interpreted in the booming of essential commodities prices.

Thus, awareness has been expressed by both government and practitioners in the interests of national production to fulfill the country's needs. In this context, the government signed with the practitioners special program contracts regarding practically all key commodities. The production objectives of major sectors as they occur in the contracts in question are reported in Table 3.2. For the grain sector, the program contract is securing an output of 70 million quintals in an area of 4.2 million hectares in 2020, which would directly yield an average of nearly

**Table 3.2** Production projection under program contracts

	Total production		Evolution %	Horizon	Investment billion DH
	2008/2009	Future			
Cereals (million qx)	50.0	70.0	40.00	2020	29.0
Sugar (1000 T)	466.0	675.0	44.85	2013	3.6
Red meat (1000 T)	386.0	450.0	16.58	2014	6.0
Meat poultry (1000 T)	370.0	500.0	35.14	2013	4.5
Eggs (billion units)	3.3	5.0	51.52	2013	
Milk (billion liters)	1.7	3.0	76.47	2014	12.0
Olive (million T)	0.7	2.5	257.14	2020	29.5
Horticulture (million T)	1.7	3.5	105.88	2020	21.0

Source Agence de Développement Agricole (2009)

17 quintals/ha instead of 10–15 quintals/ha at present. The expected economic results should increase production value by 20 billion dirham and reduce imports by 15–20 %.

For the red meat sector, the program contract addresses an increase of production by 16.6 % from around 386,000 to 450,000 T in 2014. Thus, consumption per person would pass from 11.7 to 13.4 kg respectively and can reach 15 kg in 2020. These quantities are still relatively low compared to developed countries (35 kg per person as an average).

Regarding the dairy sector, the objective of the contract program aims to align its productive performance on the international standards. Thus, milk production should increase from 1.7 billion liters in 2008 to 3 billion liters in 2014 and completely cover the country's demand. Consumption per person would then reach 350–400 g per day, which corresponds to the nutritional standards recommended internationally. In addition to improving productivity, expansion of artificial insemination and implementation of prophylactic measures, the practitioners are committed to improving the quality of milk to meet the standards required along the dairy industry. The required amount of investment to achieve these objectives is about 12 billion dirham of which the bulk (93 %) will be funded by the inter-profession.

For the sugar sector, the objective is to increase production by 44.85 % from 466,000 T in the present to 675,000 T in 2013. The amount of planned investment is about 3.6 billion dirham and the expected impact on the coverage needs should change from 43 to 55 % during the period in question.

Concerning the poultry sector, a program contract with a budget of 4.5 billion dirham will be implemented to enhance production of meat and eggs by 35.14 and 51.52 % respectively in 2013. The level of consumption would then increase from 12.1 to 14.7 kg/person/year for meat and 110 to 147 units for eggs, an increase of 21.5 and 33.64 % respectively.

For olive oil, the objective is to increase agricultural production by 2.57 times to reach 2.5 million tons in 2020. The planned investment program for olive oil

amounts to 29.5 billion dirham from which nearly 74 % will be financed by the private sector. Consumption of olive oil and table olives could reach an average of 2–4 kg/person/year and 3–5 kg/person/year respectively. Achieving these objectives will require the production of 14 million seedlings per year for the implementation of the provided planting programs.

Concerning vegetable production, the contract program aims to increase production by 106 % from 1.7 to 3.5 million tons in 2020. The investment plans to reach 21 billion dirham of which 90.5 % will be funded by the practitioner.

In addition, the GMP has also paid special attention to the selected seeds including those of cereals, legumes, fodder, sugar beet, sugar cane, potatoes, corn, sunflower, rice, rapeseed and vegetable crops. The planned investment for this sector is about 725 million dirham from 25 projects to be completed in 2020.

All measures to accompany the program contracts will be managed by the Agricultural Development Agency.

### 3.3 Socio-Demographic Trends and Migration

#### 3.3.1 Evolution of the Rural Population

According to the last general census of the population conducted in Morocco in 2004, Morocco's population has reached 29.840 million inhabitants. The rural population accounted for roughly 45 % against 55 % for urban. In 2012, the total population was estimated to almost 32.6 million with 58.8 % urban and 41.2 % rural (Table 3.3).

The rural population was estimated at 8.2 million in 1960 and almost 9.8 million in 1970. It increased from 11.4 million in 1980 to 12.7 million in 1994 and then to 13.4 million in 2004. The average annual increase of this population has registered a significant reduction since it dropped from 1.7 % during 1960–1970 to 0.3 % for the decade 2000–2010.

Under the effect of the natural increase and migration from rural areas, the country has seen an upward trend of urbanization contributing to a considerable

**Table 3.3** Evolution of the Moroccan population

Year	Total (×1000)	Urban %	Rural %
1960	11,635	29.18	70.82
1970	14,952	34.58	65.42
1980	19,380	41.11	58.89
1990	24,167	48.65	51.35
2000	28,466	54.24	45.76
2004	29,840	55.07	44.93
2010	31,894	57.84	42.16
2012	32,597	58.77	41.23

Source HCP (2004) census and later estimates



increase in the demand for jobs in urban areas. Indeed, according to the HCP data, the phenomenon of urbanization registered is still high, with an increase of 1.8 % in 2012. It would be the same until 2020 while the rural population could depict negative scores for the first time since its evolution rate may pass from 0 to -0.1 % for the same period.

### 3.3.2 Migration

Regarding migration, there is very little data for regional figures other than those related to the evolution of the population. But we know that rural-urban migration has been one of the most important escape routes for the surplus agricultural labor. Between 1994 and 2004, the HCP estimated that the urban net migration (that is, urban immigration less urban emigration) reached on average 100,000 persons a year. In 2009–10, this number was 127,000 persons. This wave of migration, which began from the 1970s, is associated with rapid mechanization of agricultural systems and seeking better living standards. Most migrants are looking for higher incomes, better access to education and health and improved prospects for their children.

Turning to international migration, the United Nations Population Division uses the net migration rate to indicate the contribution of migration to the overall level of population change in a country. That is, the total number of immigrants less the annual number of emigrants, including both citizens and non-citizens, over a five-year period. The data to calculate official migration estimates come from a variety of sources, including border statistics, administrative records, surveys, and censuses. For Morocco, the international net migration rate was -3.77 % in 2010, meaning that there was a small excess of people leaving Morocco for foreign countries.

### 3.3.3 Employment

In Morocco, agriculture is the biggest employer of the active population with a 40.3 % occupation rate in 2012. It is followed by services (38.7 %) and then manufacturing (20.8 %). As expected from these figures, employment in rural areas is dominated by agriculture with a rate of 76.4 %, showing that relatively weak diversification of sector activities remains notable in rural areas (Table 3.4).

**Table 3.4** Employment by sector 2012 (%)

Sector	Urban	Rural	Total
Agriculture	5.0	76.4	40.3
Manufacturing	30.9	10.5	20.8
Services	63.9	13.1	38.7

Source HCP (2013)

Between 2000 and 2011, the volume of employment increased by nearly 1,787,000 (or a 162,000 annual average), with quasi-stagnation in the structure of employment by gender. In 2011 the national unemployment rate was 8.9 %. This indicator has strong differences between youths and adults and between urban and rural areas, to the detriment of young and urban people. Indeed, for the same year, the urban unemployment was 13.4 % against 3.9 % in rural areas.

Moreover, unlike developed countries and some emerging countries such as China, the rural non-farm activities (tourism, crafts, public and private services, food industry, and other industries) still represent a very small part of the income and employment of the rural population in Morocco. In 2011, industry and construction accounted for only 4.3 and 4.5 % in rural employment respectively (against 9.3 and 22.5 % in urban) and services 11 % (against 63 % in urban).

### ***3.3.4 Public Education and Health Concerns***

According to the latest official data, the literacy rate in Morocco was 60.3 % in 2009 (Table 3.5). This score is significantly hampered by women's illiteracy rate which is evaluated at 50.8 % (28.2 % for men) for the same year. It is also negatively affected by the rural illiteracy rate which was 55.6 % (28.4 % in urban areas). Indeed, in Morocco, rural areas are generally more affected by illiteracy than urban areas and this figure mainly stands for girls. The main cause is an early dropout for economic or cultural reasons, especially in rural areas where lack of transportation services and residences for students is not helping.

Despite these gloomy figures, between 1999 and 2009, the literacy rate recorded a gain of 13.5 % points in rural areas (from 30.9 to 44.4 %), against 6.9 points in urban areas (64.7 to 71.6 %) (Fig. 3.1). The number of primary schools increased from 3.9 million students during the school year 2009/10 to 4,000,000 students in 2010/11. The public sector alone provides 88.2 % of primary schooling and 47.9 % of enrollment in primary schools are in rural areas (Fig. 3.2).

Furthermore, almost 4 million students were enrolled during the 2010/11 school year. College secondary education received nearly 1.46 million students, 44 % of which are girls. The share of this sector in rural areas is continuing albeit a slow rise. Indeed, it was 25.3 % at the end of the school year 2010/2011 against 24.9 % during the previous school year.

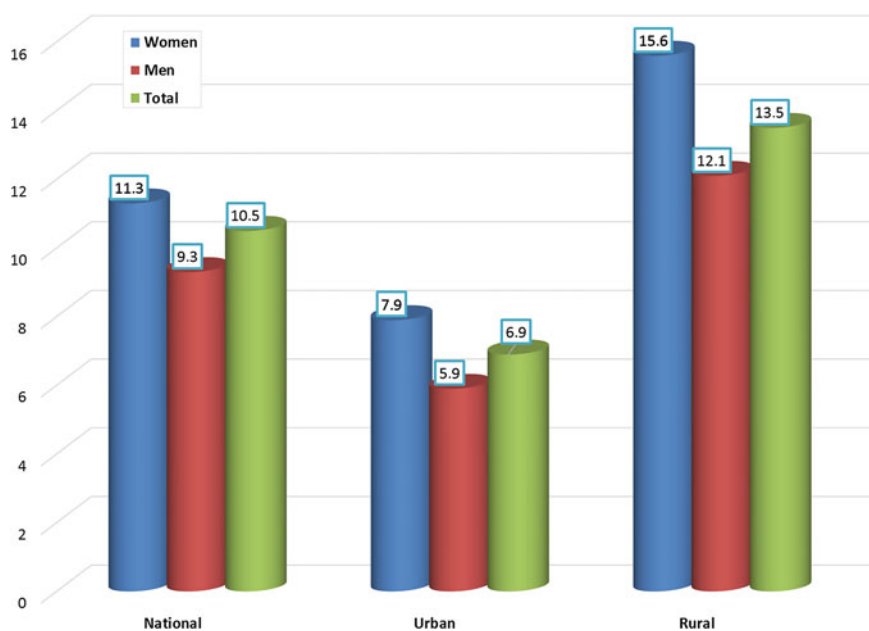
Net enrollment in college has nearly tripled in twenty years from 17.5 % in 1990–91 to 28.2 % in 2000–01 and to 51.0 % in 2010–2011. This was mainly due to the progress made for rural girls who have seen their rate passing from 1.1 to 5.9 and 21.3 % during the same period.

Regarding health indicators, official data from the HCP report that average life expectancy at birth was 74.8 years in 2012. However, a significant difference is to be underlined between urban and rural areas where this indicator is 77.3 and 71.7 years respectively. Moreover, infant mortality rate was 30.2 % in 2010. It is much higher than that of the Mediterranean developed countries which displays

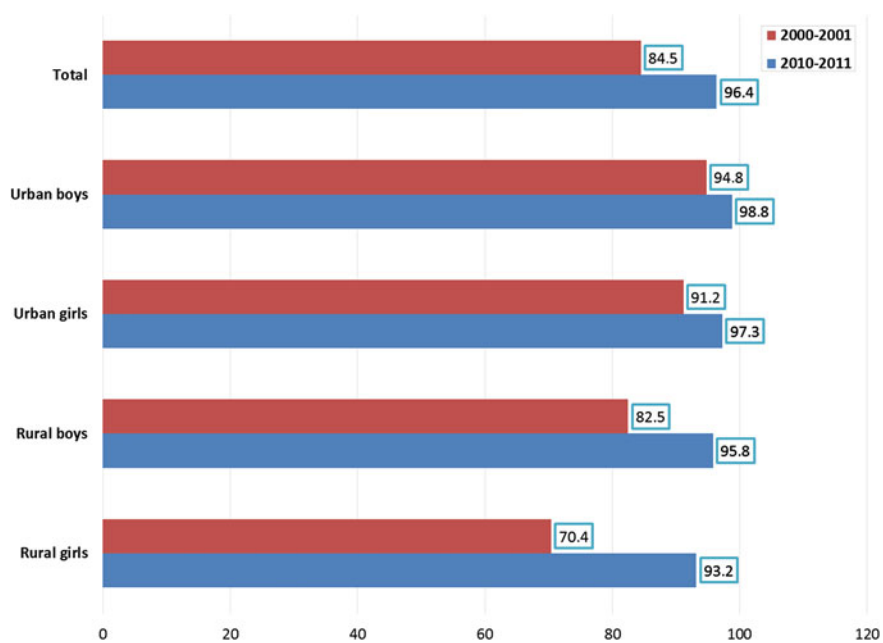
**Table 3.5** Evolution of budget coefficients of household consumption

Level	Survey year	Food	Clothing	Housing and energy	Household equipment	Hygiene and medical care	Transport and communic.	Education culture and recreation	Other goods and services
Urban	1970/71	44.7	9.3	18.5	4.6	5.1	7.5	4.0	6.3
	1984/85	43.1	7.4	22.8	5.0	5.4	5.9	4.3	6.1
	2000/01	37.9	5	22.6	3.8	8.3	8.2	4.3	5.9
	2006/07	36.8	3.5	21.1	3.7	7.6	12.8	5.2	6.0
Rural	1970/71	63.5	11.6	11.4	3.9	3.1	2.8	0.9	2.8
	1984/85	56.5	7.1	16.2	5.5	3.5	4.3	2.0	4.9
	2000/01	49.9	4.3	21.0	4.0	5.6	5.6	1.8	5.1
	2006/07	49.3	3.1	18.2	3.6	6.3	9.1	2.5	5.6
Total	1970/71	54.0	10.4	15.0	4.3	3.1	5.2	2.5	4.5
	1984/85	48.6	7.3	21.1	5.2	4.6	5.2	3.4	5.8
	2000/01	41.3	4.8	22.1	3.8	7.6	7.5	3.6	9.3
	2006/07	40.6	3.3	20.3	3.6	7.2	11.7	4.4	5.9

*Source* Haut-Commissariat au Plan (2009)



**Fig. 3.1** Gain in literacy between 1999 and 2009 by sex and place of residence (in % points). *Source* HCP (2012)



**Fig. 3.2** Net enrollment ratio in primary education (6–11 years) by sex. *Source* Ministry of National Education (2013)

a score of 3–4 %, but lower than that of the majority of developing countries. Here again, the rural rate overcomes the urban rate by 10,000 points (respectively 35.3 and 25.3 ‰). This worsens the whole problem of childhood in rural areas because the maternal mortality indicators in these areas are 148 for 100,000 live births (73 in urban areas and 112 at the national level). This situation has to be improved, starting among others, by increasing the physician density indicator which is up to 7 doctors per 10,000 persons only.

## 3.4 Food Security

### 3.4.1 *Income and Living Standards*

The most recent survey on income and living standards of households was conducted by the High Planning Directorate (HCP) in 2006–2007. It shows the valuation of income per capita at constant prices, with an annual increase of 3.6 % between 2001 and 2008 on average. In nominal terms, the average annual income per capita reached 23,889 dirham in 2008 against 15,798 in 2001.

On the other hand, the average income per month for Moroccan households is about 5300 dirham against 6100 dirham in urban areas and 3900 dirham in rural areas. Nearly 20 % of households have a monthly income of less than 1930 dirham and 80 % less than 6650 dirham. Household income is generated largely by labour wage and the independent non-agricultural activities (around 73 %). In rural areas, 41 % of income comes from farming activities.

Regarding the entire household income, the survey results show that 20 % of households with the highest incomes share 52.6 % of the entire income. In comparison, 20 % of those with the lowest income share 5.4 % of the entire income.

Based on the annual average expenditure per household (AAEH) as an indicator of living standards, the survey results show a significant improvement between 2001 and 2007. Indeed, during this period the AAEP increased at a rate estimated at 2.7 % from 49,333 dirham in 2001 to 57,925 dirham in 2007 (Fig. 3.3). In urban areas, the rate reached 2.1 % (58,900–66,723 dirham respectively) against 4.1 % in rural areas (from 33,994 to 43,334 dirham).

Concerning the Annual Average Expenditure per Person (AAEP), it increased from 8280 dirham in 2001 to 11,233 dirham in 2007; the average will increase to 5.2 % per year (Fig. 3.4). The improvement has benefited urban areas with 4.5 % on average (10,642–13,895 dirham, in 2001–2007 respectively) rather than rural areas with 6.5 % (from 5288 to 7777 dirham).

The overall improvement in living standards has been observed at the national level in both urban and rural areas and the impact has experienced a remarkable reduction in the poverty rate between 2001 and 2007.

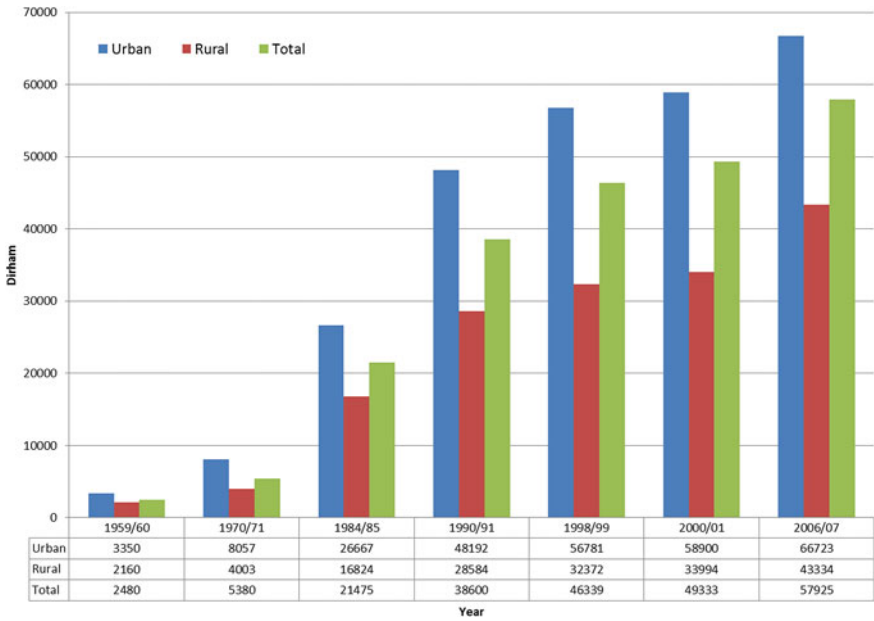


Fig. 3.3 Evolution of average annual expense by household (AAEH). Source HCP (2008)

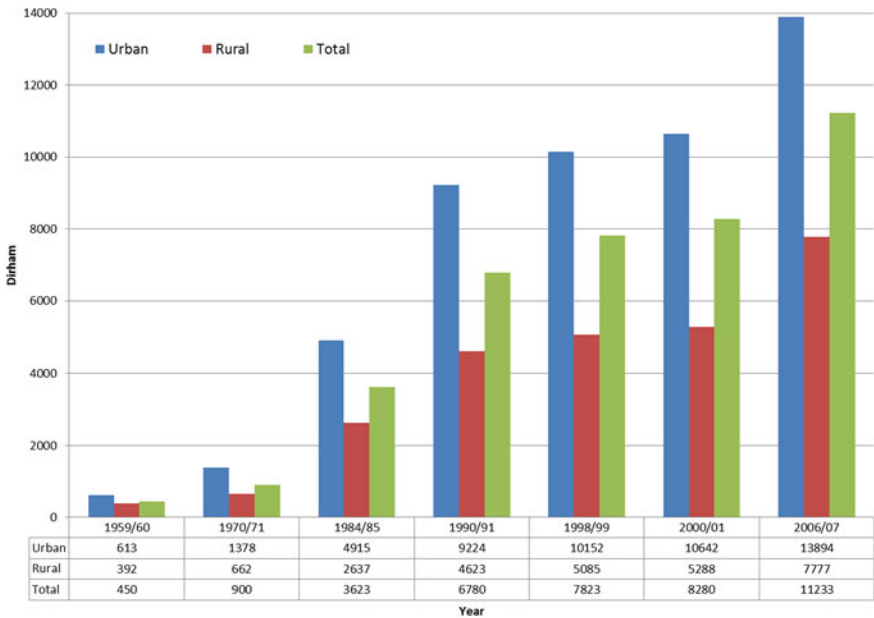


Fig. 3.4 Evolution of average annual expense by person (AAEP). Source HCP (2008)

### **3.4.2 Food Expenditure**

Household consumption in Morocco is dominated by ‘food’ and ‘housing and energy’. The latest survey results on the living standards of households show that the budget coefficients of these two positions are 40.6 and 20.3 % respectively at the national level in 2007 (Table 3.5). They are followed by those of ‘transport and communication’ (11.7 %) and ‘hygiene and medical care’ (7.2 %).

The analysis of the total budget coefficients evolution reveals that following the improvement of living standards of households, the weight of food has declined relatively modestly from 41.3 to 40.6 % between 2001 and 2007. A slightly larger decrease is recorded for some items including ‘other goods and services’ with a coefficient that dropped from 9.3 to 5.9 %, ‘housing and energy’ (22.1–20.3 %) and ‘clothing’ (from 4.8 to 3.3 %). In contrast, ‘transport and communications’ bounded to the third largest item of expenditure after ‘food and clothing’, with an increase of 112 %. The same is shown for ‘education expenditure, culture and leisure’ which grew over 63 % between 2001 and 2007. Overall, the same behaviour is found in both urban and rural areas with relatively higher changes for ‘food’, ‘transport and communication’ in urban areas and ‘housing and energy’ in rural areas.

On the other hand, the budget shares of meat and poultry, fish, dairy, eggs, fruits and vegetables showed a remarkable increase during the above period, while fat products show a relative stagnation. Thus, in general, the pattern of food consumption is moving increasingly towards a formula of “less grain and sugar” to “more animal products, fruits and vegetables”. Such a formula is bound to increase with improvements in household incomes and the growing influence of Northern models on the consumer, especially in urban areas.

The rate of inflation linked to food is higher than for non-food products. Positively, based on the Cost of Living Index (CLI), measured by the High Planning Commission, food prices rose to 118.5 % in 2012, compared to levels recorded in 2006 (base year). This increase is well above the prices of non-food products which showed a rate of 105.4 % over the same year.

## **3.5 Natural Resource Constraints**

Access to resources constitutes a key issue in understanding the dynamics of agriculture, in terms of the role of farming in the fight against rural poverty, the capacity of the sector to modernise, or the linkages between agricultural activity and natural resource conservation. Although farming requires access to several resources (capital, labour, knowledge), we underline that for Morocco, the key issues are mostly related to land and water resources. Such issues have been pointed out in several government reports and projects of working documents. Moreover, the way land and water resources combine also determine the capacity of holdings to access to credit sources or to the introduction of technical change.

### 3.5.1 Land Resources

According to the results of the latest general census of agriculture (*Recensement Général de l'Agriculture*) undertaken in 1996, Moroccan agriculture is practiced in 1,496,349 farms covering a total Utile Agricultural Area (UAA) of 8.7 million hectares. Units of less than 5 ha represent 71 % of the total number and occupy only about 24 % of the total UAA. Those who occupy the largest part of the area (43.2 %) have a size lying between 5 and 20 ha and account for 25 % of the total. The large estates (>100 ha) accumulate 8.7 % of the UAA even if their number is limited to 3182 farms, which is an average of 238.65 ha UAA per unit. This imbalance in the structure of agricultural land in Morocco is a serious handicap to the development of effective land tenure.

Besides, land tenure in Morocco shows that the property status is 76 % of the total UAA. The remaining area is allocated to the collective land (17.7 %), *Guich* land ceded to the tribes who used to fight in favor of Moroccan Sultans (2.8 %), *Habous* which is the land of religious brotherhoods (0.6 %) and land that belongs to the state (3.1 %) (Ministry of Agriculture 2007). Apart from the property status, the common factor in other statutes is that the beneficiaries are just profiting from the usufruct right. Therefore, those land statutes raise serious problems that limit the investment incentives to improve production systems within farms that are mostly of small acreage because of heritage considerations.

On the other hand, the development of agricultural land is intended to improve efficiency of agriculture both in irrigated and rain-fed areas. For irrigated areas, the Ministry of Agriculture has maintained and strengthened its efforts to extend and rehabilitate irrigation schemes. In 2009, these efforts were realized through the start or completion of works on more than 140,000 ha.

Similarly, the rehabilitation has involved areas that are part of integrated development projects focused on small and medium irrigation (*Développement Rural Intégré sur la petite et moyenne hydraulique, DRI-PMH*). In this regard, the rehabilitation of perimeters located in the provinces of Khénifra, Azilal and Haouz has exceeded 11,100 ha, set within an integrated development approach targeting the local population.

To overcome such constraints, successive governments have responded by implementing sector programs that aim to improve the performance of farms, particularly through the launch in 2000 of the Rural Development Strategy 2020 reported above. Since then, structural policies related to agriculture and food sectors continue their focus on investment incentives in primary production as well as in the processing and marketing steps. Such a policy choice has been strengthened during the last three years in the public goal of modernizing production systems capable of competing with foreign markets. The measures taken in this regard are largely funded by the state budget. The actions are increasingly conducted within the framework of integrated projects that are developed on the basis of a partnership management. In addition to investment incentives, they concern the development of agricultural land and land tenure.



### **3.5.2 Water Resources**

The rainfall contribution to water resources in Morocco is estimated to be about 150 billion m<sup>3</sup>. The useful rain accounts for only 20 %, that is to say 30 billion m<sup>3</sup>. If we deduce the evaporation losses and the uncontrollable flow towards the sea, the mobilizable hydraulic potential is estimated at 20 billion m<sup>3</sup> including 16 billion m<sup>3</sup> of surface water and 4 billion m<sup>3</sup> coming from subterranean water (Laouina 2006).

Since the end of the 1960s, significant efforts have been taken by successive governments to develop irrigation in order to satisfy food sufficiency, improve the living conditions of the rural populations and contribute to the development of agricultural exports. Such efforts include the construction of 130 large dams with a capacity of nearly 17.5 billion m<sup>3</sup> and the completion of 13 water transfer structures with a total length of nearly 785 km. Also, hydro-agricultural works including authorized well digging and farm equipment for drip irrigation benefit from a significant subsidy that could reach 100 %. On the institutional framework, Morocco has set the 10–95 Act which has consolidated the integrated, participative and decentralized water resource management through the establishment of water basin agencies and the introduction of financial mechanisms to protect and safeguard water resources by implementing a “user-pays” and “polluter-pays” system (Ziyad 2013).

These efforts allowed the installation of a total irrigated area of nearly 1.5 million ha of which 67 % are equipped by the state. This surface accounts currently for about 16 % of the useful agricultural surface of the country. They also have made it possible to allow 100 % generalized and secure access to drinking water in urban areas and 92 % in rural areas.

Nevertheless, water resources face major constraints that are mainly linked to the uneven importance of annual rainfall, the overexploitation of groundwater in some rain-fed areas, the increasing demand for drinkable water in expanding cities and the soil erosion and siltation of dams.

## **3.6 Concluding Remarks**

Despite the whole efforts undertaken since its political independence to improve the standards of well-being of the population, Morocco still faces serious problems of poverty, especially in rural areas. Women’s conditions are also of great concern as they need to be among the top development priorities. The challenge now is to comply with the Millennium Development Goals in terms of poverty alleviation and improvement of living standards. Women’s illiteracy is also a key scourge that must be wiped out. To succeed in the whole mission, authorities may improve public and private intervention through a better coordination of all institutions that are involved in this issue. For this, relevant socio-economic regional data are needed to point out the real development constraints and solutions on a separate scale for urban and rural areas.

Regarding natural resources, namely land and water, the management of their structural issues has to adopt participative and comprehensive approaches with farmers. Any ‘punishing’ or coercive government intervention should best be avoided to prevent negative reactions because the issue of natural resources needs the commitment of all stakeholders (as in the cases of water pumping and exploitation of forests). Among the solutions, the government would have to keep encouraging and promoting land expansion through land improvement (e.g. stone removal). Improvements of production systems are also of great interest and justify the implementation of research studies which could investigate the feasibility of designing specific and relevant regional agricultural policies. Such policies would pay attention to production systems with a high role in food security for small farmers (in the case of cereals and small livestock) on the one hand, and encourage high value-added crops in irrigated areas, on the other hand. To help all farmers benefit from such policies, there is the need for better inclusion of competitive small farms to the market through better management of structural constraints (land fragmentation, illiteracy and financial issues), alleviation of market transaction costs and reinforcement of professional organizations.

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