

FOREST MANAGEMENT FACING THE CHALLENGE OF POVERTY AND RURAL DEVELOPMENT (CASE OF THE CENTRAL PLATEAU REGION OF MOROCCO)

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ABSTRACT

In Morocco, wooded areas including esparto sheets extend over 9 million hectares, or 12% of the national territory. These spaces occupy an important place on the environmental, socio-economic and cultural level. The implementation of an integrated rural development policy for forest and peri-forest areas, which are particularly poor, with fragile economies and ecology, aims to gradually identify rural poverty and reduce it, the dependence of rural populations on natural resources. Moreover, and with a view to combating desertification, the efforts to be undertaken consist in strengthening local self-development capacities and setting up incentive mechanisms for investment, access to technical progress and credits for a better development of the agricultural and forestry sectors and the promotion of income-generating activities.

This work uses survey data from forest areas in the central plateau region of Morocco. Its objective is to study the impact of the living conditions of households living near these areas. A first approach to the structure of the active population (over 20 to under 55) revealed the predominance of income from logging over other sources of income, and also the contribution of this activity to improvement of living conditions for loggers.

The percentile and poverty index methods were used to understand the incidence, depth and severity of poverty among loggers logging these forest areas. It shows that the incidence of poverty (25.2%) of loggers is higher than that obtained at the national level (8.4%), and consequently the average severity of poverty in these forest areas observed is higher than that observed at the national level.

Introduction

More than 25% of the world's population, or about 1.6 billion, depend on forest resources for their livelihood, and nearly 1.2 billion of them live in extreme poverty (World Bank, 2001). These people lack basic necessities that ensure a decent standard of living: sufficient and nutritious food, adequate shelter, access to health services, sources of energy, safe drinking water, education and an environment. healthy (FAO, 2007). Sustainable management is essential for the conservation and development of forests worldwide (UN, 2010).

Morocco, like most countries around the Mediterranean where climatic conditions are difficult, has invested heavily in reforestation to meet the growing demand for forest products (FAO, 2010). In addition, following the evolution of demographic structures, resorting to reforestation of better adapted and more productive species is one of the obvious solutions for improving the standard of living of local residents.

The problems and issues related to the sustainable development of forest and peri-forest areas require deep reflection on the vectors of change that can improve the living conditions of forest populations, and thereby influence the trend of degradation and lead to the conservation and sustainable management of natural resources.

This descriptive study of logging activities in the central plateau region of Morocco , based on the analysis and exploitation of data from numerous socio - economic surveys, so we carried out a survey of heads of households in the plateau region. central such as: age, sex, family situation, number of children, income, activities.....

It made it possible to understand the correlation between the exploitation of the forest and poverty through an analysis of the available data of the different components of the zones in question, by evaluating the current situation to improve their poverty index.

I. Study area, materials and methods

1. Study area

The study area is the central plateau of Morocco which extends from the coast of Rabat to the Atlas chain, region of Boulemane (Figure 1). It extends between longitudes 6°49 W and 4°43 W and latitudes 34°00 N and 33°22 N.

The central plateau or the plateau of Oulémas is located in its entirety, in the central Meseta, (Termier, 1936; Beaudet, 1969). It is presented as a vast quadrilateral of which Rabat, Azrou , Kasba Tadla and Casablanca mark the summits. It is limited to the east by the Middle Atlas and to the west by the coastal Meseta.

Thanks to its geographical location, the study area shows a landscape diversity (plateaus, valleys, mountains...), it extends over two completely different areas Meseti and Atlasique.

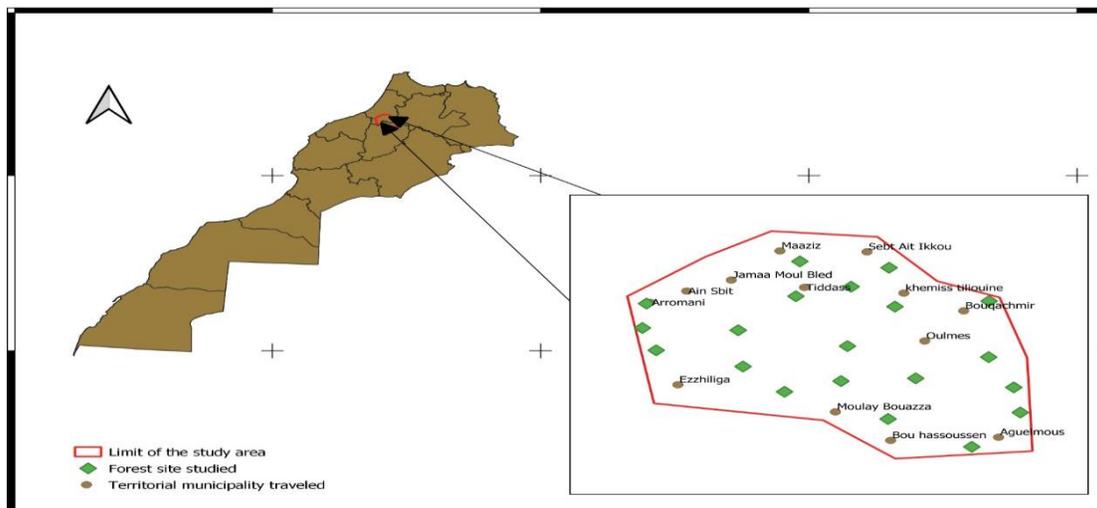


Figure 1: Location of the study area

2. Materials and methods

This work is part of the socio-economic study of the central plateau. Thus, this zone is formed by a set of plates and landings at different levels.

and also to develop a questionnaire whose different questions have been adapted to the specificities of this area.

This survey also made it possible to structure the information sought in the detailed survey sheets using questions more suited to the local context.

It made it possible to collect the basic data essential to the study:

- The occupation of the rural space: the habitat, the water points, the main soils and routes.
- The basic infrastructure,
- Activities practiced continuously or/and occasionally,
- The characteristics of the population: age, household size, etc.
- The data collected was entered into Excel and analyzed using SPSS statistical software.

II. Approach and Multidimensional Poverty Index (MPI)

The multidimensional approach to poverty goes beyond the traditional analysis of poverty (one-dimensional analysis) which assumes that only income is a good predictor of the poor or non-poor status of the individual. The interest of the multidimensional approach is growing, since it captures several deprivations listed in different dimensions. Recently Alkire (2010), for his work within the Oxford Poverty and HumanDevelopment Initiative, identified other aspects of deprivation which are: job quality, humiliation, physical security and psychological well-being. . The Multidimensional Poverty Index is calculated according to the following formula:

$$IPM = H * A$$

H: percentage of people who are poor

A: designates the intensity of this poverty (i.e. the percentage of MPI indicators that are concerned on average, measures the relative gap between the median standard of living of the poor population and the poverty line, is 19.7% in 2020).

A person living in multidimensional poverty lives with at least 33% of the indicators reflecting acute deprivation in the areas of health, education and standard of living.

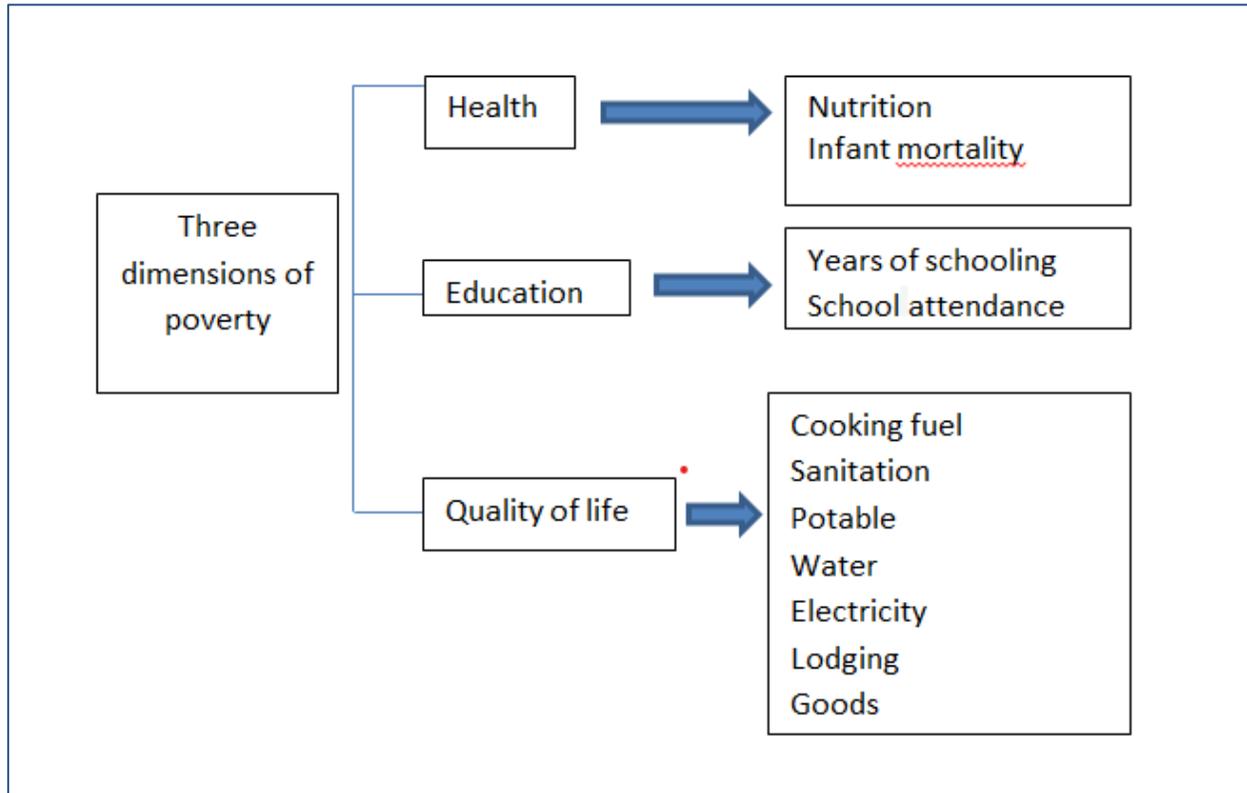


Figure 2: Structure of the Global Multidimensional Poverty Index (HCP , 2010)

The standard of living, and therefore poverty, can be represented by a unidimensional indicator (income, for example) or by a multidimensional approach (income, state of health, family situation, etc.) (Figure 2). In the first case, poverty is defined by low income and the standard of living falls within the space of economic well-being, a narrower concept than that of well-being. In the second case, where other indicators are added to income to define poverty, it comes close to well-being.

multidimensional poverty , several socio-cultural dimensions refer to the living conditions of the household as a whole. Poverty in this case would be, by convention, the state where the basic dimensions that constitute the socio-cultural needs (education, health and standard of living) of a household are at such a level of dissatisfaction that they are considered as a deprivation suffered by the latter (Cheli , and Lemmi , 1995) .

III. Results

III.1. Statistical sources and information on loggers

The statistical data used in this study come from large surveys that we have developed and carried out with the technical assistance of the Laboratory Productions Végétales, Animales et Agro-industrie. These surveys covered the villages located in the central

plateau of Morocco. The size of the population targeted by these surveys is 500 respondents (heads of household).

III.2. Characteristics of the study population

1. Age

The population studied comprises 90% men and 10% women. The age of this population varies between 20 and 55 years. 1.1% are between 20 and 29 years old, and 19.1% between 30 and 39 years old, while the majority (79.7%) are over 40 years old (Figure 3).

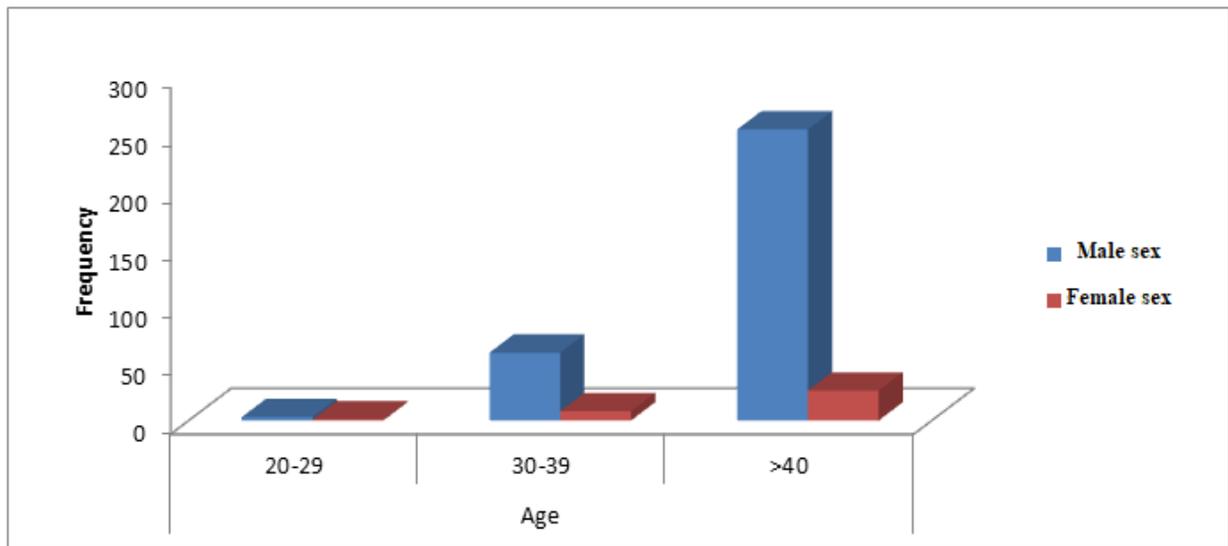


Figure 3: Age of the population surveyed

The women heads of household of this population represent 10% of which 35% are divorced or widowed. The study of the structure of the population, according to age and sex revealed that the proportions of the two sexes are different. The age of this predominantly male population (90%) varies between 20 and 55 years. This agrees with the results of the General Population and Housing Censuses (RGPH, 2004) which show that this category represents 59.5% of the national population. The latter in theoretical working age (15 to 60 years) is much higher than the inactive one according to the surveys carried out in the study areas, which represents a significant labor potential to be exploited.

2. Household size

The increase in the size of households living in the household can be explained by family solidarity; even married brothers remain grouped in the same household with parents and grandparents.

At the level of the population studied, primary outbreaks represent (99.1%) and secondary outbreaks represent (0.9%). The following table represents the distribution of the number of families by household (Table 1).

Table 1: Total number in each household of the study population

Number	Frequency	Percentage
One	104	14.85
Of them	243	34.71
Three	211	30.14
Four	136	19.42
Five	6	0.85
total	700	100

34.71 % of the families surveyed having two children also 30.14 % having three children against 0.85 % of the population studied having five children.

III.3. Socio-economic situation of the population

Douars equipped with infrastructure have a direct impact on education and literacy indicators. Indeed, the proximity of basic educational establishments as well as accessibility to community facilities (electricity and paved road) are all factors that influence the ability of the rural population to integrate effectively into the education system and access the economic network. surrounding regions (Direction de la Statistique , 2012).

1. Education

The literacy rate goes from 33.1% to 35.4% in douars with only a primary school, 40.4% in douars served by a road, and 43.8% in electrified douars. The level of literacy is much higher in the douars equipped with several social facilities.

In the study area, school children represent 88.3% against 11.7% not attending school who live in douars deprived of educational establishments.

The study carried out shows that 50% having left school in rural areas. These pupils do not leave school for reasons related to remoteness or their low intellectual levels, but rather for reasons related to the economic and intellectual situation of their families. In fact, 80% of parents justified this by the family's need for labor and their low income, compared to 20% of parents who justified it by reasons of remoteness.

Improving the economic conditions of the population can encourage heads of households to invest in the education of their children and seek more alternative sources of employment (Pichon, 1997).

2. Economic activity

The souk demonstrates to the highest degree certain criteria of urbanity: social heterogeneity, concentration and differentiation of activities. In this sense, it has often

been perceived both as the public space par excellence of traditional Arab cities and the place where social and economic difference was managed in its various ethnic, confessional and other actualizations (Direction de la Statistique, 2012).

All the douars surveyed have common souks to sell and buy products. The souk is a space, a system of specific commercial and social practices, a neutral, non-communal meeting place, a place of negotiation of differences in the “modesty of communities, a public space par excellence which can function, almost indifferently under the vaults medieval and in modern.

3. Infrastructure of the study areas

- **Roads**

Rural tracks or country roads play a very important role in socio-economic life because they allow: the evacuation of agricultural products and the transport of means of production for agriculture and the collection of crops. They also promote contacts of all kinds necessary for the social and economic progress of populations (markets, visits, dissemination of new ideas, dissemination of new technologies, etc.), access to public services such as health and education.

In the study area, access to these rural territories is marked by a weak road network. (Table 2).

Table 2: Distribution of tracks and roads

Douar track		
	Frequency	Percentage
Yes	339	96.9
No	11	3.1
Total	350	100
Douar road		
	Frequency	Percentage
Yes	279	79.7
No	71	20.3
Total	350	100

- **Water sources**

According to the surveys carried out, 42.6% of the population of the rural communes of the study area benefit from the public network of drinking water distribution services, on the other hand 57.4% only use water from wells.

- **Sanitary services**

CSR2 for 25,000 inhabitants).

Table 3: Health dispensary present in the study area

Region	Health circular	Commune	Category	Environment
Rabat-Sale-Kenitra	Ait -Mimoune	Ait -Mimoune	CSR-2	Rural
	Ameur Ait Zekri	Khemis Sidi Yahya	CSR-2	Rural
	Brachoua	Brachoua	CSR-2	Rural
	Ezzhiliga	Ezzhiliga	CSR-2	Rural
	HadLaghoualem	Laghoualem	CSR-2	Rural
	Maaziz	Maaziz	CSR-2	Rural
	Mssaghra -Ait Yadine	Ait Yadine	CSR-2	Rural
	My DrissAghbal - JemaatMoulBlad	JemaatMoulBlad	CSR-2	Rural
	Oulmes	Oulmes	CSR-2	Rural
	Sidi Allal Bahraoui	Sidi Allal EI Bahraoui	CSR-2	Urban
	Sfassif Ait Siberne	Sfassif	CSR-2	Rural
	Sidi Abderrazak	Sidi Abderrazak	CSR-2	Rural
	Tiddas	Tiddas	CSR-2	Rural

III.3. One-Dimensional Poverty

The one-dimensional approach requires defining the nature of the single monetary indicator of the standard of living. Two natural candidates stand out here: income and expenses. Total expenditure is often used as an indicator of poverty, as it better captures the concept of an individual's permanent income (Mouloungui , 2014) .

Between 2007 and 2014, Moroccan households spent an average of 15,876 Dhs per year and per head, or nearly 1,323 Dhs per month and per head. Compared to data from the 2000/2001 household consumption and expenditure survey (Figure 4), the average annual expenditure per person (DAMP) experienced an average annual increase of 5.2% in current dirhams. Deflated by the cost of living index, the average annual expenditure per person recorded an average annual increase in real terms of around 3.2%, between 2007 and 2014. This evolution remains the largest since 1985. Indeed, between 1985 and 2001, consumer spending in real terms recorded only an average annual increase of around 1.1%.

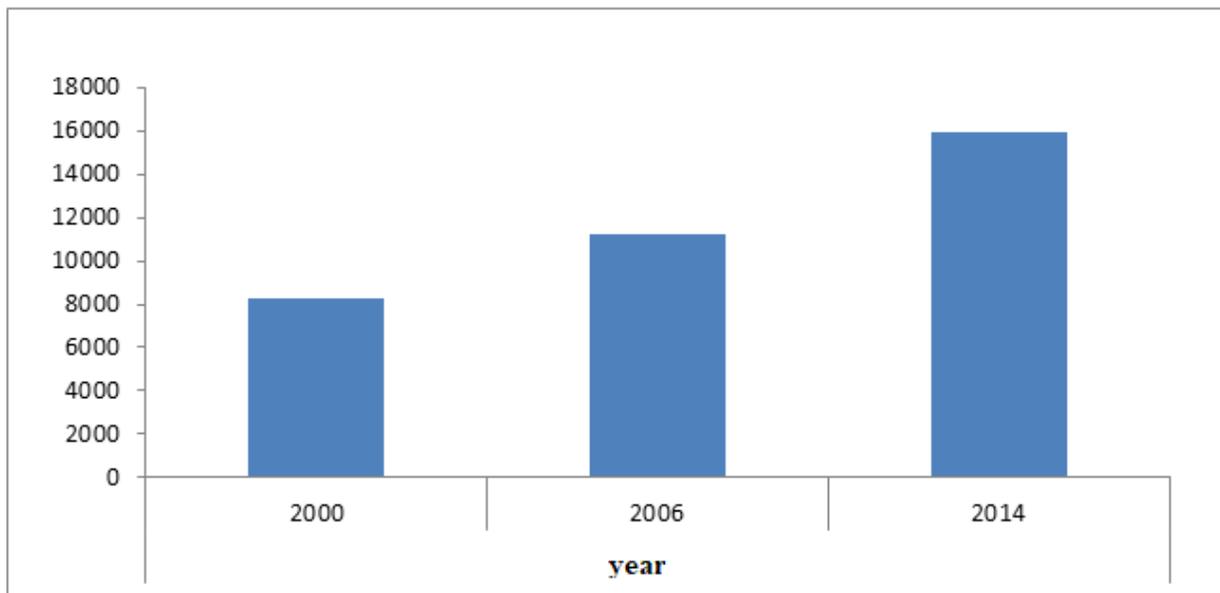


Figure 4: Average annual expenditure per person (APR)

Consumption expenditure is also characterized by strong inequalities between classes of standard of living. Thus, the least affluent 10% of the population spend only 2964 Dhs per year and per capita, while the 10% most affluent spend 37199 Dhs per year and per capita, i.e. an inter-decile ratio of the order of 12.512. Depending on the area of residence, the inter-decile ratio is more accentuated in urban areas (12.3) than in rural areas (8.2). In other words, although rural areas have low standards of living, they are characterized by low inequalities in consumption expenditures compared to urban areas.

III.4. Multidimensional Poverty Index

At the national level, the overall number of the population in a situation of multidimensional poverty fell from 7.5 million individuals in 2004 to 2.8 million individuals in 2014, with a decrease of 9.4% per year (HCP, 2014).

The multidimensional poverty index thus fell from 25% to 8.2% between the two periods at the national level, from 9.1% to 2% in urban areas, and from 44.6% to 17.7% in rural environment. Multidimensional poverty therefore remains mainly a rural phenomenon. In 2014, 85.4% of multidimensionally poor people lived in rural areas compared to 80% in 2014 (HCP, 2014) .

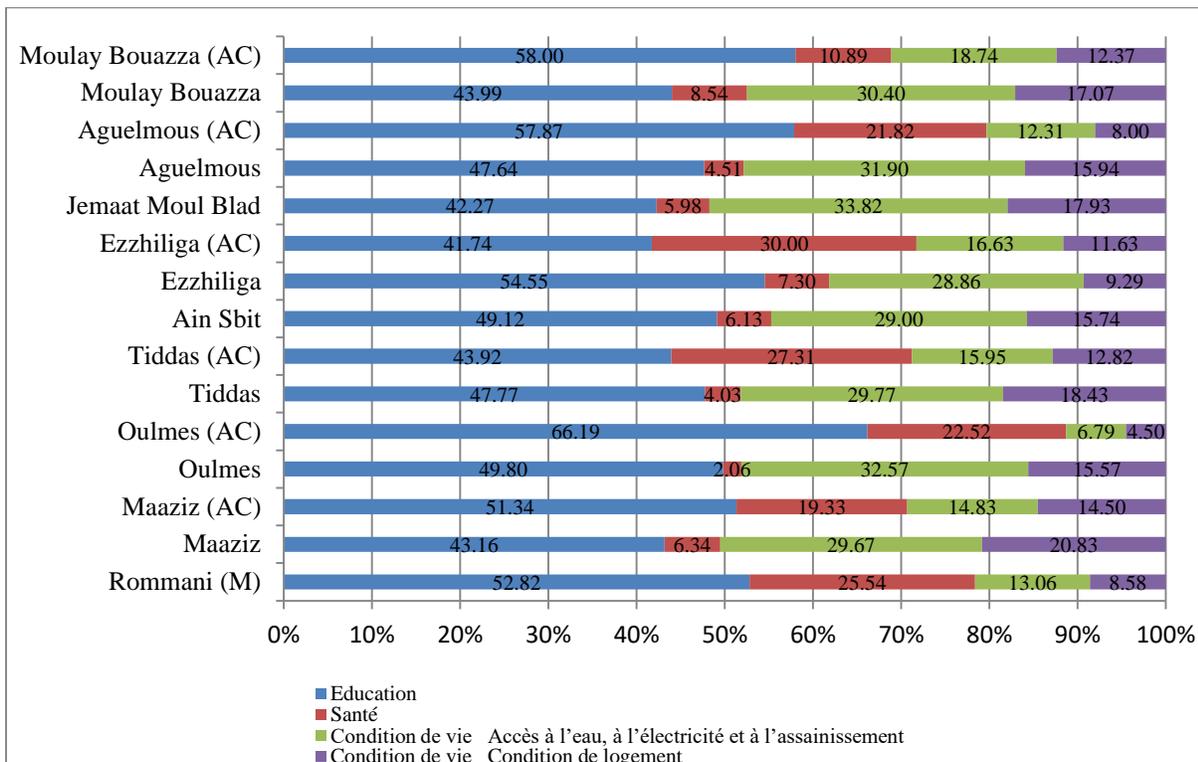


Figure 5: Breakdown of multidimensional poverty by source of deprivation (in %)

In rural areas , between 58% (Moulay Bouazza AC) and 66.19% (Oulmès) of multidimensional poverty is due to deficiencies in terms of education. The lowest deprivation in terms of health is recorded in Oulmès and Tiddas (2% and 4%) and the highest reached 30% in Ezzhayliga (AC) .

So rural poverty is mainly explained by deprivation in terms of education (50.01 %), access to basic social infrastructure (22.25%) and housing conditions (13.55%). This coincides perfectly with the study carried out at the national level, whose deficits in terms of education represent more than half (55.3%) of multidimensional poverty according to the HCP (2014) .

In Morocco, the ranking of regions according to the incidence of multidimensional poverty indicates that half of the regions have a poverty rate higher than the national average (8.2%). The poorest region is Béni Mellal- Khénifra (13.4%), followed by Marrakech-Safi (11.3%), Drâa -Tafilalet (10%), Fès- Meknes (9.6%), L'oriental (9.5%) and Tangier-Tetouan-Al Hoceima (9.5%). Conversely, the least poor regions, marked by an incidence

lower than the national average, are Laâyoune-Sakia Al Hamra (1.7%), Dakhla-Oued Eddahab (3.8%), Casablanca-Settat (4.1%), Rabat-Salé-Kenitra (6.1%), Guelmim - Oued-Noun (6.2%) and Souss-Massa (7.2%) (HCP: 2014) .).

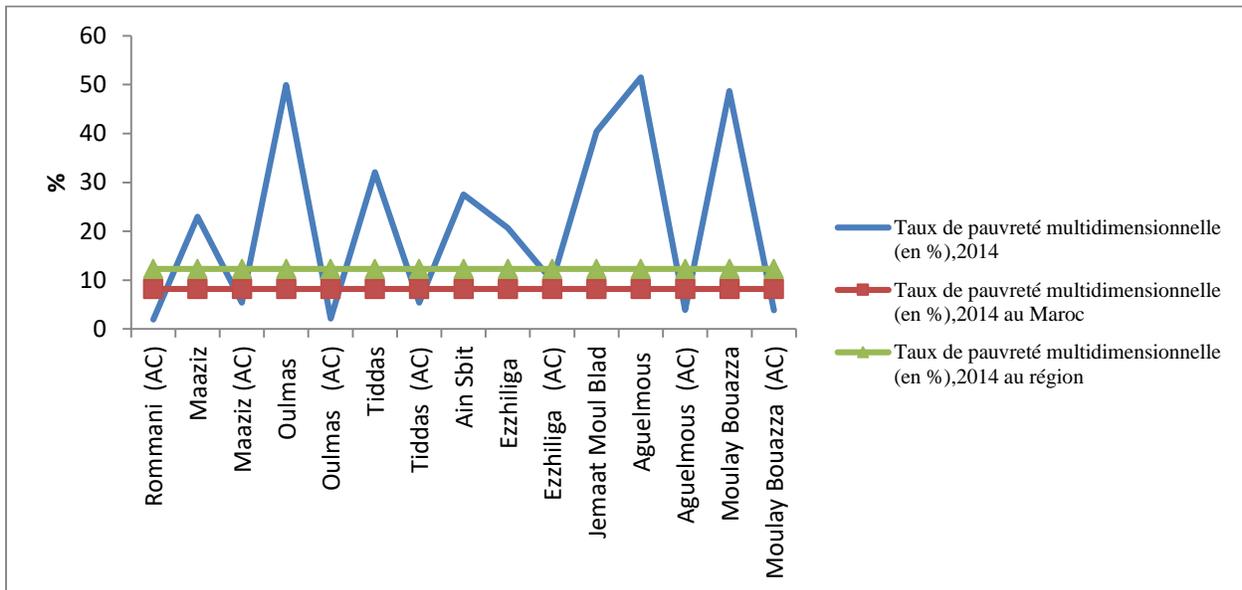


Figure 6: Multidimensional poverty rate in the study area

In the study area, the downward trend in poverty in 2014 is highly variable by location. The IPM is above 50% in the communes of Aglmouss and Moulay Bouazza . It is between 8% and 50% in Maaziz , Oulmès , Tidass , Ain Sbit , and Jemaat Moulblad (Figure 6).

This fluctuation is mainly due to the absence of economic activities for the head of household in the region, the population density, the fragility of infrastructure, land tenure, education household heads, per capita income, length of residence, migration and energy prices as factors that force the population to use the natural resources of forests and mainly wood for heating and cooking. cooking (Munasinghe , 1993; Godoy et al ., 1997, Pfaff , 1999; Pichon, 1999; Uitamo , 1999),

About 1.5 billion people living in developing countries depend on firewood (Tucker 1999).

Conclusion

The forest management approach remains the instrument for the sustainable management of forest ecosystems by taking into account all the components related to the forest sector and its environment. The efforts to be undertaken consist in building local self-development capacities and setting up incentive mechanisms for investment, access to technical progress and credit for better development of the agricultural and forestry sectors and the promotion of income-generating activities.

The age of the population varies between 20 and over 40 years. Furthermore, the literacy rate is 43.8%.

2nd level dispensaries are close to the douars studied. This study region has a higher multidimensional poverty rate.

REFERENCES

1. Alkire , S., & Foster, J. (2007). Counting and Multidimensional Poverty Measurement. OPHI Working Paper 7, Oxford: Oxford University.
2. World Bank, 2001. World Development Report 2000/2001: Fighting Poverty. OXFORD (United Kingdom) oxford University press A.
3. Beyhum N. and David J.-C., 1996, "Public and commercial spaces in Aleppo and Beirut", *Les Annales de la recherche urbaine*, n° 57-58, 190-205.
4. Beyhum N. and David J.-C., 1997, "From the souk to the square, from the city dweller to the citizen. Public Spaces in Arab Cities of the Middle East", *Social Sciences and Urban Phenomena in the Arab World, Casablanca, Ibn Saoud Foundation*, 193-202.
5. Cheli , B. Lemmi , A. 1995, "A total fuzzy and relative approach to the multidimensional analysis of poverty", *Economic Notes Monte dei Paschi di Siena*, No. 1, Vol. 24, p. 115-134.
6. FAO. 2007. Prospective study of the forestry sector in Africa: Central Africa sub-regional report. Arusha (United Republic of Tanzania), February 18-22, 2007.
7. Godoy, R.; O'Neill, K.; Groff, S.; Kostishack , P.; Cubas , A.; Demmer , J.; McSweeney , K.; Overman , J.; Wilkie, D.; Brokaw, N.; Martinez, M. 1997. Household determinants of deforestation by Ameridians in Honduras. *World Development* 25, 977-987.
8. Mouloungui, A., 2014 "Governance of forest resources in Gabon: actors and issues", Theses.fr, ID: 10670/1.bkio18. Doctoral School of Human and Social Sciences (Orléans) .
9. Munasinghe, M., 1993. Environmental economics and biodiversity management in developing countries. *Ambio* , Vol 22, 126-135.
10. UN, 2006. United Nations Declaration on the Rights of Indigenous Peoples. In Anonymous UN, <http://www.un.org/esa/socdev/unpfii/fr/drip.html> .
11. Pfaff, ASP, 1999. What drives deforestation in the Brazilian Amazon? *Journal of Environmental Economics and Management*, 37, 26-43.
12. Pfaff, ASP, 1999. What drives deforestation in the Brazilian Amazon? *Journal of Environmental Economics and Management* 37, 26–43.
13. Pichon, FJ, 1999. Settler households and land-use patterns in the Amazon frontier: farm- level evidence from Ecuador. *World Development* 25, 67-91.
14. Pichon, Francisco J, 1997. " Colonist Land-Allocation Decisions, Land Use, and Deforestation in the Ecuadorian Amazon Frontier," *Economic Development and Cultural Change, University of Chicago Press*, vol. 45(4), pp. 707-744, July.
15. Repetto, R., & Gilles, M. (1998). *Public Policies and the Misuse of Forest Resources*. Cambridge: Cambridge University Press.
16. Tucker, M., 1999. Can solar cooking save the forest? *Ecological Economics* 31, 77-89.
17. Ultimo, E., 1999. Modeling deforestation caused by the expansion of subsistence farming in the Philippines. *Journal of Forest Economics* 5, 99-122.
18. Wickramasinghe, A., 1994. *Deforestation, Women and Forestry: The Case of Sri Lanka*. Institute for Development Research. International Books, Amsterdam.
19. Statistics Department: 2012 ENVM 2020/2021: vol. 1: summary report. CERED: Socio-demographic profile of Morocco.