

Frontiers in Science and Engineering International Journal

Edited by The Hassan II Academy of Science and Technology of Morocco

Strategic Studies and Economic Development

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Acknowledgments

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INTRODUCTION

This special issue dedicated to human and social sciences presents the results of recent researches dealing with topical themes that enable us to better understand Moroccan society and its relation to its resources. To this end four sub-themes are covered: the process of tourism development in rural areas, the issue of land management, the decentralization/regionalization tandem and the new migratory function of Morocco, which is becoming an immigration country.

The contribution on tourism deals with “Local initiatives, public policies and the development of tourism in rural Morocco during the last 15 years.”

Based on several case studies the paper hypothesizes that the success of a rural tourism project is bound to the degree of its appropriation by local people. This prompts two questions: (i) What are the relationships and the articulations between top-down and bottom-up initiatives? (ii) Is this tourism venture conducted according to a territorial logic, are all the stakeholders equally involved in planning, developing and commercial activities across the rural tourism continuum? These case studies are representative of the national context in terms of actors’ involvement, project planning, partnership, stakeholders, and relationships between initiatives at the regional level. In addition, the provisional conclusions drawn from this can be used to follow further developments of this activity.

The article on “Management of gullied areas in semi-arid Atlantic plateaus of Morocco” presents an evaluation of the SLM (sustainable land management) technique, to assess its effect in term of soil protection and vegetation restoration. The monitoring concerns several parameters: the covering of the herbaceous vegetation, its biomass and the floristic biodiversity, the fodder production, the soil surface in terms of moisture, resistance to penetration, cohesion, rate of pebbles and of the encrusted parts. In addition, observations on the gullies transversal profile and on the steepness of the banks are made.

The contribution on “Decentralization and Regional Economic Performance in Morocco” examines an important although poorly investigated issue in developing countries: the impact of decentralization on economic and social disparities across regions. It focuses on Morocco, uses different econometric methods and available data. Constraints on the latter allow considering the impacts of only two indicators of fiscal decentralization (i.e. regional current resources and regional investment resources) on three indicators of regional economic performance (i.e. unemployment rate, manufacturing value added and employment).

Lastly, the paper on “Sub-Saharan migrants in Fes: A presence on the margins of an evolving city” starts from the observation that, in recent years, the city of Fez has become a major destination of Sub-Saharan migrants. It postulates that this is not linked to endogenous dynamics, but rather to a symbolic representation of a city that had its economic and cultural glory in the past. Sub-Saharan migrants have mixed with students or pilgrims whose presence in Fez has become familiar, contributing to the consecration of an existing ‘otherness’ and for which the host society has developed ways of coping with. While neither assimilation nor integration are planned and while the society has not overcome the problem of coping with ‘others’, the host society, in all its various layers, offers slots that allow settling and, in some cases, even social promotion. The aim of this paper is to analyze the role played by Fez in attracting flows of African migrants, as well as to see how far it can exceed its symbolic function in order to respond positively to people’s expectations regarding employment and social and cultural integration.

Guest Editor : Prof. Mohamed Berriane

Decentralization and Regional Economic Performance in Morocco¹

Lahcen ACHY² and Khalid SEKKAT³

September 2014

Abstract:

The paper examines an important, although poorly investigated, issue in developing countries; that is the impact of decentralization on economic and social disparities across regions. It focuses on Morocco, uses different econometric methods and available data. Constraints on the latter allow considering the impacts of only two indicators of fiscal decentralization (i.e. regional current resources and regional investment resources) on three indicators of regional economic performance (i.e. unemployment rate, manufacturing value added and employment). We found evidence that regional current resources contribute to improving regional economic performance but not regional investment resources. One reason of the contrast might be that local councils are unable to use the whole amount of investment resources they get.

Running head: Decentralization and regional performance in Morocco

¹ This paper draws on the findings of a wider regional project headed by the authors and funded by the FEMISE. We thank the FEMISE for financial support and participants to the Workshop on Decentralization and Economic Outcomes in Developing Countries, Marrakech 25 November 2012 for very useful comments.

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1. Introduction

Decentralization is a highly debated topic all around the world. Briefly defined, decentralization refers to the transfer of some strands of the central government competences to local or regional public bodies. It can be political, fiscal or administrative. The legal framework of decentralization does not assign it the task of economic development in all countries. However, the change in the social and political environment that should come with decentralization is expected to improve economic and social outcomes. In particular, the reductions in regional inequalities which characterize many developing countries constitute an important target for decentralization.

Over the last two decades, decentralization has been at the center stage of policy experiments in many developing and transition countries of Latin America, Africa and Asia. In the two largest countries of the world, China and India, decentralization has been considered as the major institutional framework in the context of their impressive industrial growth. International institutions such as the World Bank have put decentralization at the heart of their reforms agenda (4).

In Morocco, the idea of decentralization goes back to the 1960s. National governments have made attempts to assign certain management and decision-making functions to the local level. A decentralization law was adopted in 1973, and two constitutional reforms were introduced in 1986 and 1992. These reforms increased the mandate of local governments and other sub-national authorities. However, the limited transfer of fiscal competencies disabled the autonomy local authorities. In 1999, the adoption of the 'new concept of authority' offered local authorities more financial resources and a broader mandate. In 2002, the Municipal Charter enlarged the responsibilities of the local institutions (20).

The literature on the relationship between decentralization and regional performance tends to generate mixed results. At the theoretical level, the expected reduction effects of decentralization on regional inequalities draw on the information advantage that the local government can have over the central government. The latter is often blamed for being too far from the realities of people. Transferring various forms of authority and functions to sub-national units of government for timely adaptation to locally specific conditions is perceived to be an effective solution. Moreover, local governments may have more incentives to effectively work for the local well-being because of political considerations. They are accountable to the local electorate while the wider constituencies of the central government may dilute specific local issues. There are however, arguments against decentralization. When

tastes (preferences of people) are not heterogeneous and there are spillovers across jurisdictions, a central government providing a common level of public goods and services for all localities is more efficient. With spillovers, decentralization might lead to under-provision of local public goods because local decision makers do not take into account the effects of their decisions on other localities. At the empirical level, (16) showed that a high degree of decentralization is correlated with low regional disparities while (14) found that in China decentralization has increased regional inequality and (2) found the reverse in the U.S. Overall, the evidence is mixed, which means that the outcome is an empirical question and it depends on the country under consideration.

Despite the importance of regional disparities in different economic and social areas, there are few studies that investigate their roots systematically. This is mainly due to poor availability of regional data. The present paper seeks to fill this gap. It is the outcome of a larger research project that attempts to understand the specific nature of “State” and “Sub-state” relationships in the Mediterranean countries and its role in driving spatial, economic and social disparities. The project to our best knowledge is the first attempt to assess the specific impact of decentralization on economic and social outcomes in the south Mediterranean countries.

The paper focuses on Morocco and it is structured in six sections. The next section highlights the relation of our analysis with the literature on decentralization and regional development. Section 3 briefly presents the issue of regional disparities in Morocco. Section 4 discusses the framework of decentralization in the country. Section 5 constitutes the core of the paper. This section presents the findings of the econometric investigation of the relationship between proxies of regional performance and decentralization indicators. More precisely, this section examines whether fiscal decentralization has helped in reducing inter-regional differences in unemployment rates, industrial value added and employment. The exercise remains however, a preliminary analytical attempt to understand the channels through which financial decentralization proxies are interacting with socio-economic indicators. Data availability constraints have limited the extent to which a more ambitious econometric exercise could be conducted. Section 6 concludes the paper.

2. Relation to the literature

Decentralization refers to different dimension with different meanings. Political scientists are more interested in the political decentralization of government systems, economists in fiscal decentralization and administrative scientists in the decentralization of administrative

structures. Political decentralization refers to some degree of transfer of the decision-making power to local officials who are elected by the local population. Political decentralization requires often constitutional reforms, development of pluralistic parties, and strengthening of legislatures and public participation in budgeting. Financial decentralization, on the other hand, means that local bodies have the authority to make significant decisions regarding spending and taxation. To this end, there must be some degree of local authority to determine the level and the nature of local expenditure (spending autonomy), service delivery and some ability to impose fees and taxes to finance those services without central interference (revenue collection autonomy). Finally, the administrative decentralization (also deconcentration) involves shifting decision-making powers from central government officials to officials located outside the capital city.

The decentralization rationale is built on the assumption that sub-national authorities can be better in the provision of local public goods as they are better informed about local needs (17). Greater efficiency in the provision of public goods, in turn, can promote regional growth (18). Decentralization can also offer sub-national authorities the opportunity to pursue economic development policies in line with their strengths (natural resources, human capital, strategic location etc.) instead of implementing uniform central state policies. Transforming a highly centralized government into one that fosters decentralized economic activities can help creating thriving markets (13). Centralization can in contrast prevent the convergence process among different regions (3). Recently, however, some studies started to cast doubt on the decentralization-related efficiency gains in developing countries. The findings by (19) show that decentralization can lead to less coordination and more administrative costs. Decentralization might also increase corruption and cronyism and undermine potential efficiency gains (3).

Theoretical analyses based on neoclassical growth framework, new growth theory, or economic geography found that convergence processes across regions are driven by factors such as migration, trade flows and knowledge spillover and externalities (16).

Empirical literature on the relationship between decentralization and indicators of regional performance is scarce and tends to generate inconclusive findings. Existing research can be divided into three categories: single-country case studies, cross-country studies of developed countries, and few cross-country studies using data of both high and low developed countries. For 17 OECD countries over the period 1980-2001, (16) showed that a high degree of decentralization is correlated with low regional disparities. Single-country studies such as (14) for China, (15) for South Korea, (5) for Colombia, and (2) for the United States provide

inconclusive findings. In the Chinese case, decentralization has increased regional inequality, and a similar result emerges from the Colombian departments. In South Korea the effect is ambiguous, but in the U.S., decentralization has decreased regional inequalities. Thus, country-level evidence is mixed, which means that decentralization is not necessarily a recipe for less regional disparities.

3. Regional disparities in Morocco

During the past two decades, official statistics indicate that regional inequalities have exacerbated. The gap in poverty rates between urban and rural areas as well as within the urban population itself widened. The same pattern characterizes other economic and social indicators such as access to housing, basic services and labor opportunities with heterogeneous unemployment rates. The High Commissariat of planning revealed for 2012 an unemployment rate that ranges between a minimum of 6 percent in Marrakech region and a maximum of nearly 16 percent in the oriental region. During that year the national unemployment rate stood at 9 percent (9).

Regional disparities, although to a large extent explained by different regional initial conditions and unequal natural endowments; can be exacerbated by public policies. For instance, the central government transfers that should create some solidarity among sub-national territories can play as “un-equalizing” factor and instead of improving living standards in the poorest regions; they contribute to more disparities and territorial exclusion.

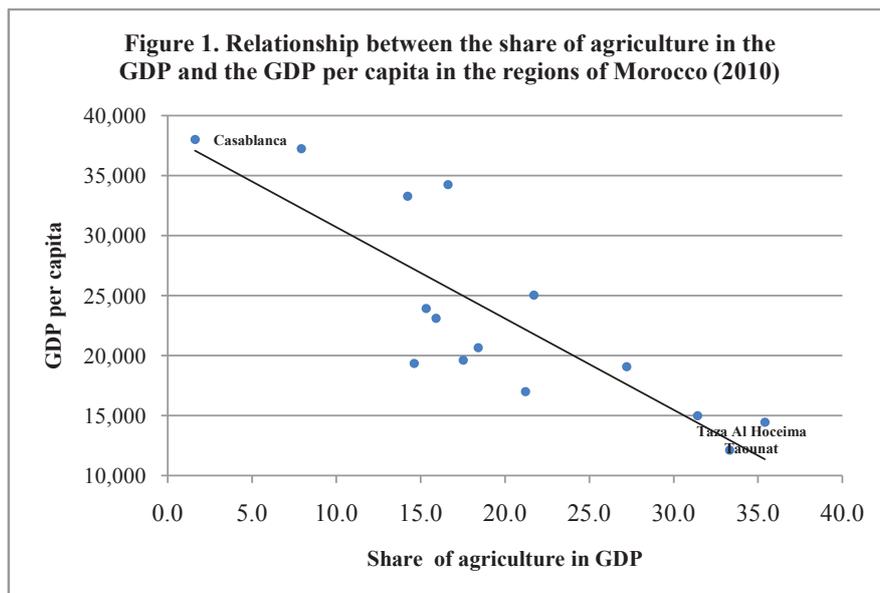
Table 1: Basic regional indicators in Morocco (2010)

Regions	Share in total population (%)	Area square Km	Area in %	GDP %	GDP per capita in Moroccan Dirham	Regional GDP to national GDP
Chaouia Ourdigha	5,5	16846	2,4	7,5	33309	139
Doukala Abda	6,6	13285	1,9	6,8	25051	105
Fes Boulmane	5,3	20007	2,8	4,4	19357	81
Gharb Chrarda Bni Hsen	6,2	7969	1,1	4,1	15001	63
Grand Casablanca	12,2	1026	0,1	19,2	38016	159
Marrakech Tensift Al Houaz	10,4	31882	4,5	8,9	20677	86
Meknes Tafilalet	7,2	54586	7,7	5,5	19088	80
Oriental	6,4	80579	11,3	5,1	19644	82
Rabat-Salé-Zemmour-Zaer	7,9	10225	1,4	12,6	37256	156
Souss Massa Daraa	10,4	79029	11,1	7,7	17015	71
South (3 regions)	2,7	340337	47,9	4,3	34263	143
Tadla Azilal	4,9	17210	2,4	2,8	14464	60
Tanger Tetouan	8,3	13712	1,9	8	23124	97
Taza Al Hoceima Taounate	6,1	24157	3,4	3	12124	51
Total	100	710850	100	100	23955	100

Source: Authors' calculations based on data from High commissariat for Planning.

In Morocco during 2010 seven regions, out of 16, have a GDP per capita lower than the national average, extend over one third of the national territory and include around 40 percent of the population of Morocco. The total GDP of these regions represents only 27 percent of that of the country (See Table 1). In contrast, the Grand Casablanca, which is the economic capital of Morocco, contributes to the national GDP by 19.2 percent with a share in population of 12.2 percent and just 0.1 percent of the territory of Morocco. The GDP per capita in the Grand Casablanca amounts 38016 Moroccan Dirham which is 60 percent above the national average and three times higher than GDP per capita in the “Taza Al Hoceima Taounate” (The poorest region of Morocco) and more than twice GDP per capita in three other regions.

The sectoral composition of GDP is a key factor underlying the regional heterogeneity. Poor regions (those with the lowest GDP per capita) tend to have a higher contribution of agriculture and vice versa. The share of agriculture in the GDP represents 35 and 33 percent in the two poorest regions. Conversely, the share of agriculture accounts for no more than 1.6 percent in the richest region of Grand Casablanca (See Figure 1).



Source: (10)

4. The decentralization framework in Morocco

Like other Southern Mediterranean countries, Morocco has a more centralized state when compared to other emerging and developing countries. Historical but chiefly political factors explain this situation. The country inherited a strongly centralized system of taxation and public administration from the European colonizers, mainly France. Over the last three decades, some progress has been made towards more decentralized forms of government. The process evolved in connection with the broad political context and has been subjected to forward and backward moves in some cases.

The country is a unitary state but has multiple layers in the sub-national administration. The first tier of sub-national administration is made by 16 economic regions. The second tier is made by 62 provinces and 13 prefectures and the third tier is represented by the “communes” that can be either urban or rural. There are 221 and 1282 communes respectively. These entities are managed by a mix of “elected” and “appointed” bodies. The decentralization framework can be characterized as follows:

Decentralization with State Control: The central government dominates over the sub-national levels and “appointed” bodies tend to play a much more decisive role compared to elected members. The Governor of the province or prefecture (PP) is both the representative of state in his territory (head of the territorial administration) and the head of the executive of the PP council. As such the governor can order payments from the budget of the PP. The Communal Council, whose members are elected by the population, have legal competence in a large

number of areas, ranging from urban and land-use planning, sanitation, and the environment to economic and social development. The council is in charge of the local road network, water distribution, solid waste collection, public transportation, and local health care offices. However, security services (law and order) and education are run by the central state.

Limited financial strength of local administration: The share of local administration spending in GDP is estimated to almost 4 percent in Morocco. On the other hand, the share of local public expenditure in the national public expenditure hovers around 12 percent. Such level is roughly comparable to the average ratio of developing countries (14 percent), below that of transition countries (26 percent) and well below developed countries (32 percent). Such limited resources of local administration disable decentralization from achieving regional development. More important however, is the issue of the composition of local spending. The largest part takes the form of “compulsory spending” such as the payment of wages. On average, sub-national entities in Morocco allocate 57 percent of their current spending to pay their personnel and 38 percent on other current spending items such as fuel, water, electricity, telecommunication and transport.

Weak local revenues and limited fiscal decentralization: Decentralization also requires that local bodies have authority to make significant decisions regarding taxation and revenue collection. To this end, there must be some degree of local authority to impose fees and taxes to support local services without central interference. The local layers in Morocco have limited ability to mobilize their own financial resources. This share of the resources received by local administration which can qualify as local own source revenue is estimated to 24 percent in Morocco. The rest is made by sovereign revenues collected by the state on behalf of local authorities (roughly 19 percent in Morocco) or by central-state transfers.

Excessive dependence on the transfers of the central government's: In addition to fiscal revenues collected by local authorities in their respective jurisdictions by their own means or through the central-state services, the central government usually transfers additional resources to them. The first purpose of such transfers is to close the gap between the costs of the locally assigned functions and the amount of potential revenues that local administration can mobilize. The second purpose is to reduce disparities among the local authorities in terms of mobilizing resources. An equalization formula is often used so that territories with poor revenue basis have access to resources that ensure a decent level of services compared to richer territories. The central-government transfers raise two issues: first their size and second the rationale underlying the “equalization formula”. Regarding the first issue, in Morocco, transfers from the central government represent 57 percent of total local revenues. Regarding,

the issue of the formula and criteria used to allocate transfers among different territories, the state transfers each year **30 percent of the Value Added Tax (VAT)** revenues to local entities. The total amount of transferred VAT is shared as follows: 60 percent for communes (32 percent for urban communes and 28 percent for rural communes), 22 percent for provinces and prefectures, and the remaining 18 percent allocated to three different uses: 10 percent for “common expenses⁴”, 3 percent for “transferred expenses⁵” and 5 percent for unexpected expenses.

The VAT transferred to communes is shared among the communes according to the following three criteria: a) **An unconditional amount** (similar for all communes) that guarantees for all communes regardless of their size and their fiscal-wealth a minimal lump sum; b) **Fiscal potential**, which is inversely related to the own revenues of the commune collected by the state to ensure some fiscal equalization among communes ; c) **Fiscal effort**, which is directly related to the local revenues of the commune’s collected on their own, to reward those entities that actively mobilize revenues. The respective weight of each criterion differs between urban and rural communes as shown in Table 2.

Table 2: Formula for the central government transfers

Criteria	Urban communes	Rural communes
Unconditional amount	15%	30%
Fiscal potential	70%	55%
Fiscal Effort	15%	15%
Total	100%	100%

Source: Direction Générale des Collectivités Locales (DGCL), Morocco

The VAT transferred to provinces and prefectures is based on the following criteria: a) (1/6) of the amount is **unconditional** and therefore similar for all, b) (4/6) of the amount depends on the **population size**, and c) the remaining (1/6) relates to **the size** of province or prefecture. As far as “regions” are concerned, they receive from the state **1 percent of corporate taxes** and **1 percent of income taxes** collected in the country. The total amount of these transfers is shared among the 16 regions based three criteria: 50 percent unconditional, 37.5 percent based on population size and 12.5 percent based on the size of the territory of the region.

Decentralization of human resources: Human resources, made of elected and appointed staff represent a key ingredient in the success of any decentralization policy. Any transfer of “functions” or “missions” from the central state to sub-national territories is doomed to fail if

⁴ Common to several territories

⁵ Projects or expenses initiated by the state and that require contribution from local entities

not supported by adequate human resources that would be in charge of these missions. There are in Morocco 27 743 members of communal councils elected directly by the population for six years⁶. Both females and youth are underrepresented in local councils since only 12 percent of the members are female and 16 percent are under 35 years. Out of 1503 local councils, only 12 are led by females (less than 1 percent) among which 10 heading a rural council. One fifth of the members are illiterate and another quarter of them have only primary education. Finally, members of local councils are from a diverse set of professional backgrounds: 25 percent of them are farmers, 18 percent wage-earners, 11 percent operate in commercial activities, 9 percent are teachers and 8 percent are civil servants. Interestingly, 6 percent of the members have no professional occupation (1600 members). Appointed staff of the local councils, on the other hand, amounts to more than 150 000 people and represents the equivalent of 25 percent of the total number of civil servants. Roughly 6 out of 10 among them are employed by urban communes and one quarter by rural communes. Staff of Provinces and prefectures account for 15 percent while they are just less than one percent in regions. In Morocco, no single political party dominated local politics. Yet, the high number of parties and election mode adopted has led in many cases to a severe fragmentation of local councils with fragile and unstable alliances. Regarding qualification of the staff of the local entities, most of them are ill-equipped and fail to perform their tasks adequately. The share of executives among them represents 11 percent; middle management 20 percent, 22 percent is made by employees and 47 percent by unskilled labor. The wages paid by local councils to their staffs are significantly lower than those prevailing in the central government. This situation has led to frequent labor strikes in local entities, with harmful effects on the population and regular provision of services.

5. Econometric Investigation

As indicated in the introduction, there are few empirical studies that investigate systematically the relationship between regional disparities and decentralization. To our best knowledge, the present paper is the first attempt to address such issue for a Southern Mediterranean country. The main reason for the limited number of such studies is the poor availability of regional data.

This section offers an econometric analysis of the relationship between proxies of regional performance and decentralization indicators in Morocco. Because of the data availability

⁶ The latest local elections took place in 2009.

constraints, the analysis should be seen as a preliminary analytical attempt to understand such a relationship.

More precisely, we examine whether financial decentralization has helped reducing inter regional differences in economic performance in Morocco. Given data availability, we use two indicators of fiscal decentralization: regional current resources and regional investment resources. Both indicators are budgeted resources for current and capital spending, respectively at the regional level. The data, provided by the Ministry of Finance, are annual and cover 14 Moroccan regions over the period 2005-2009⁷. The indicators have been converted as follows: We used the consumer price index as a deflator and take the indicators in per capita term to take account of the size of the region.

Ideally, regional performance should be captured by regional GDP per employee or regional GDP per capita. However, apart from some sparse estimates, there are no accurate data on these indicators. The data on poverty rates could have been another good indicator since it is now available at very detailed spatial level. The issue is that it has no time dimension, which is a serious limit in our case. Given these constraints, we use three indicators of regional economic performance: Unemployment rate, manufacturing value added and employment. We follow the relevant literature (see (11) for a recent application) in estimating the following equation:

$$\Delta Y_{it} = \alpha_0 + \alpha_1 * Y_{it-1} + \alpha_2 * Decentra_{it} + \alpha_3 * X_{it} + \mu_{it}, \quad (1)$$

where

ΔY_{it}	is the change in the indicator of economic performance in region i at time t
Y_{it-1}	is the level of the indicator of economic performance in region i at time $t-1$
$Decentra_{it}$	is the indicator of financial decentralization in region i at time t
X_{it}	stands for control variables
μ_{it}	is the error term
$\alpha_0, \alpha_1, \alpha_2, \alpha_3$	are parameters

The lagged value of the performance indicator, Y_{it-1} , captures the possible conditional convergence in performance; α_1 is expected to be negative. If the indicator of economic performance is the unemployment α_2 is expected to be negative. In contrast, with the value added and employment as indicators of economic performance α_2 is expected to be positive. The equation can be augmented with additional variables (X_{it}) to control for other determinants of regional performance. The choice of such additional variables is very complicated not only for data availability reasons but also on economic grounds (8).

⁷ The three Saharan regions are merged in a single region (The South).

Economists suggest that one focuses on a core set of explanatory variables that have been shown to be consistently associated with the phenomenon under study and evaluate the importance of the variable of interest (here decentralization) conditional in inclusion of the core set (21). In what follows, we will add to equation (1) the growth of real national GDP to control for economy wide shocks.

Similar equations to equation (1) have been generally estimated using a simple OLS on the time average of the variables for each country (i.e. the well-known Barro's regression). However, this has the inconvenience of not using the information contained in the time dimension of the sample. The panel data framework allows taking account of such information in the form of "fixed effects" or "random effects" (12). However, in dealing with the impact of economic decentralization another econometric issue was raised; namely potential endogeneity. The literature adopts, in general, the GMM as the estimation method. The approach uses lagged values of regressors as instruments for the right-hand-side variables and also introduces lagged endogenous (left-hand-side) variables as regressors. In this section we will use four different methods (OLS, Fixed effects, Random effects and GMM).

5.1. Unemployment rate

This section focuses on the impact of decentralization on regional unemployment rates. The latter are measured at the regional level without distinction between sectors (i.e. agriculture, industry and services). It would have been preferable to use an unemployment rate pertaining to the industry only. This would have avoided biasing the results due to the fact that some regions are more dependent on the agriculture than others and, hence, more sensitive to the weather conditions. However, such data are not available. As explained above, we will use four different estimation methods: OLS, Fixed effects, Random effects and GMM. In order to choose between the results of the different methods, we use three specification tests. Broadly explained, the first test concerns the validity of fixed effects estimation against the OLS. If the P-value of the fixed effects test is below the chosen critical level (i.e. 10%, 5% and 1%), the OLS results should be disregarded in favor of fixed effects estimation. The second test pertains to the validity of random effects estimation against the fixed effects. If the P-value of the random effects test is below the chosen critical level, the random effects results should be disregarded in favor of fixed effects estimation. Finally, the third test is the over-identifying restrictions test. The GMM estimation method has dealt with the endogeneity issue if the P-value is above the chosen critical level.

Table 3: Estimation results

Dependent variables: Change in regional unemployment rate between 2005 and 2009

Variable	Estimation Method			
	OLS	Fixed effects	Random effects	GMM
Regional Current Resources				
Unemployment rate in t-1	-0.108 (1.790)*	-0.598 (5.003)***	-0.148 (2.690)***	-0.197 (3.597)***
Real Regional Current Resources in log	-0.001 (0.485)	-0.007 (1.098)	-0.001 (0.326)	-0.004 (1.735)*
Growth of real national GDP	-0.251 (2.608)***	-0.033 (0.257)	-0.247 (2.770)***	-0.120 (1.244)
Number of observations	56	56	56	56
Adjusted R-squared	0.25	0.44	0.25	0.38
Fixed effects test – P Value		0.02**		
Random effects test – P Value			0.00***	
Test of overidentifying restrictions - P value				0.49
Regional Investment Resources				
Unemployment rate in t-1	-0.114 (1.833)*	-0.597 (5.047)***	-0.173 (2.936)***	-0.192 (3.363)***
Real Regional Investment Resources in log	-0.001 (0.28)	0.007 (1.300)	0.001 (0.401)	-0.003 (1.289)
Growth of real national GDP	-0.270 (3.33)***	-0.059 (0.597)	-0.240 (2.599)***	-0.173 (1.923)*
Number of observations	56	56	56	56
Adjusted R-squared	0.25	0.44	0.23	0.35
Fixed effects test – P Value		0.02**		
Random effects test – P Value			0.00***	
Test of overidentifying restrictions - P value				0.59

t-statistics are heteroskedastic-consistent and displayed in parentheses under the coefficient estimates. *, **, *** denote an estimate significantly different from zero at the 10%, 5% or 1% levels, respectively.

The estimation results are presented in Table 3. The first panel gives the results when the amount of the regional current resources is used as an indicator of decentralization while the second panel gives the results when the amount of the regional investment resources is used. The results in both panels suggest that OLS estimation should be disregarded in favor of the fixed effects which should also be preferred to the random effects. Also, in both panels the test of the over-identifying restrictions show that GMM has dealt with the endogeneity issue. We will therefore focus on the fixed effects and the GMM results. The results of both methods should be taken as complementary rather than substitutes. While the GMM avoids

the bias in the estimation due to the potential endogeneity, it may provide less efficient estimates than the fixed effects.

Starting with the results in the first panel, the overall quality of the fit is good especially that the dependent variable is in the first difference with both estimation methods. The coefficients of the lagged unemployment rate are always significant and negative suggesting a conditional convergence of unemployment rates across regions. The coefficients of the growth of real national GDP are not significant. Finally, the coefficient of the indicator of economic decentralization is significant and negative when the GMM results are considered but not with fixed effects. Overall, unemployment rates seem to converge across Moroccan regions and economic decentralization seems to affect such rates.

As far as the results of the second panel are concerned, the overall quality of the fit is the best with the fixed effects method. The coefficients of the lagged unemployment rate are always significant and negative confirming the existence of a conditional convergence. The coefficient of the growth of real national GDP is not significant with the fixed effects method. Finally, the coefficients of the indicators of economic decentralization are never significant suggesting that decentralization as proxied by regional investment resources does not affect regional unemployment rates.

The results show a contrast between an unemployment reducing effect across regions of the current resources and a non-effect of the investment resources. One reason might be that local councils are unable to use the whole amount of investment resources they get. Indeed, (1) showed that by the end of 2009, local councils had accumulated a surplus of more than \$2 billion, which is the equivalent of 44 percent of their collective annual budgets (See Table 4). A lack of technical and managerial capabilities seems to explain such substantial underutilization of local financial resources.

Table 4: Selected Indicators of Local Councils' Budgets (billion DH)

Item	Amount
Available resources	43.7
Budgeted total spending	36.7
Actual total spending	24.5
Budgeted investment	19.6
Actual investment	9.5
Total surplus	19.2
Share of total surplus in the budget	44%

Source: Ministry of Finance, *Monthly Bulletin of Local Finance*, December 2009.

5.2. Manufacturing Value Added

The second indicator of regional performance we are focusing on is the value added. We use the value added pertaining to the industry at the regional level. As explained above, this allows avoiding bias in the results due to the fact that some regions are more dependent on agriculture than others. The value added series have been converted to real values using the consumer price index as a deflator and have been taken in per capita term to take account of the size of the region.

Looking at Table 5 and focusing on the results with current resources as a proxy of decentralization, the tests imply favoring the estimates of the fixed effects and the GMM methods. However, the overall quality of the fit is much better with the fixed effects method. As explained above, the correction of the bias with the GMM comes at the expenses of efficiency of the estimates. The coefficient of the lagged level of value added is significant and negative with the fixed effects method suggesting the existence of a conditional convergence across regions. The coefficients of the growth of real national GDP are never significant. Overall, there is again evidence of an impact of current resources on the growth of the industrial value added at the regional level.

Turning to the results of the second panel, the overall quality of the fit is again the best with the fixed effects method. The coefficients of the lagged unemployment rate are significant and negative confirming the existence of a conditional convergence. The coefficients of the growth of real national GDP are never significant. Finally, the coefficients of the indicators of economic decentralization are never significant suggesting that decentralization as proxied by regional investment resources does not affect regional industrial value added.

Table 5: Estimation results

Change in the log of regional real manufacturing value added between 2005 and 2009

Variable	Estimation Method			
	OLS	Fixed effects	Random effects	GMM
Regional Current Resources				
Real Manufacturing Value Added in log in t-1	-0.039 (0.937)	-0.833 (3.598)***	-0.132 (2.641)***	-0.035 (0.866)
Real Regional Current Resources in log	0.061 (1.293)	0.505 (3.039)***	0.14 (2.655)***	0.142 (0.981)
Growth of real national GDP	-3.404 (0.735)	-0.489 (0.183)	-3.186 (1.059)	-4.634 (1.164)
Number of observations	56	56	56	56
Adjusted R-squared	0.04	0.42	0.08	0.05
Fixed effects test – P Value		0.00***		
Random effects test – P Value			0.00***	
Test of overidentifying restrictions - P value				0.40
Regional Investment Resources				
Real Manufacturing Value Added in log in t-1	-0.040 (0.834)	-0.780 (3.315)***	-0.092 (1.855)*	-0.044 (0.918)
Real Regional Investment Resources in log	0.06 (1.095)	0.014 (0.087)	0.1 (1.905)*	0.107 (0.921)
Growth of real national GDP	-2.963 (0.653)	1.420 (0.443)	-2.533 (0.761)	-2.987 (0.911)
Number of observations	56	56	56	56
Adjusted R-squared	0.03	0.30	0.09	0.03
Fixed effects test – P Value		0.01***		
Random effects test – P Value			0.00***	
Test of overidentifying restrictions - P value				0.97

t-statistics are heteroskedastic-consistent and displayed in parentheses under the coefficient estimates. *, **, *** denote an estimate significantly different from zero at the 10%, 5% or 1% levels, respectively.

5.3. Manufacturing Employment

The third indicator of regional performance we consider is employment. For the reason explained above, we focus on the industry and take the series in per capita term.

The estimation results are presented in the two panels in Table 6. The first panel gives the results when the amount of the current resources is used as an indicator of decentralization while the second panel gives the results when the amount of the investment resources is used.

The results in both panels suggest that OLS estimation should be disregarded in favor of the

fixed effects which should also be preferred to the random effects. Also, in both panels the test is the over-identifying restrictions show that GMM has dealt with the endogeneity issue. We will therefore focus on the fixed effects and the GMM results. The overall quality of the fit is better with the fixed effects method. In the first panel, the coefficients of the lagged employment levels are always significant and negative suggesting a conditional convergence on employment rate across regions. The coefficient of the growth of real national GDP is never significant. Finally, coefficients of the indicator of economic decentralization are significant and positive with both the fixed effects and the GMM methods. Overall, employment seems to converge across Moroccan regions and economic decentralization seems to affect it. As far as the second panel is concerned, the results do not lend any support to an effect of regional investment resources on the employment.

Table 6: Estimation results

Change in the log of regional manufacturing employment between 2005 and 2009

Variable	Estimation Method			
	OLS	Fixed effects	Random effects	GMM
Regional Current Resources				
Manufacturing Employment in log in t-1	-0.027 (3.133)***	-0.500 (3.051)***	-0.034 (2.313)***	-0.027 (3.556)***
Real Regional Current Resources in log	0.010 (0.831)	0.088 (2.136)**	0.016 (1.136)	0.114 (3.904)***
Growth of real national GDP	0.206 (0.275)	-0.983 (1.268)	0.116 (0.200)	-1.417 (1.622)
Number of observations	56	56	56	56
Adjusted R-squared	0.10	0.32	0.09	0.15
Fixed effects test – P Value		0.02**		
Random effects test – P Value			0.00***	
Test of overidentifying restrictions - P value				0.11
Regional Investment Resources				
Manufacturing Employment in log in t-1	-0.024 (2.404)***	-0.468 (3.024)***	-0.023 (1.560)	-0.021 (2.251)***
Real Regional Investment Resources in log	0.005 (0.417)	-0.046 (0.807)	0.003 (0.218)	-0.007 (0.263)
Growth of real national GDP	0.383 (0.618)	-0.257 (0.335)	0.366 (0.629)	-0.489 (0.626)
Number of observations	56	56	56	56
Adjusted R-squared	0.09	0.27	0.09	0.04
Fixed effects test – P Value		0.04**		
Random effects test – P Value			0.00***	
Test of overidentifying restrictions - P value				0.22

t-statistics are heteroskedastic-consistent and displayed in parentheses under the coefficient estimates. *, **, *** denote an estimate significantly different from zero at the 10%, 5% or 1% levels, respectively.

6. Conclusions and Policy implications

From a political point of view, decentralization opens opportunities for local population to be involved in local decision making process and empower them to make their local elected representatives accountable. From an economic perspective, economists emphasize allocative gains of decentralization in the provision of public goods and services. In principle, local governments are close to people and know popular preferences reasonably better than the central government. They should be able to provide public services that match local preferences. Therefore, decentralization offers sub-national authorities the opportunity to pursue economic and social policies in line with their specific conditions instead of implementing uniform central state policies.

Decentralization is not a panacea however, it needs to be properly implemented and monitored. It can lead to coordination issues, increase administrative costs or suffer from the poor quality of local bureaucrats and the representatives of the people. Decentralization without appropriate safeguards also runs the risk of expanding corruption and cronyism and undermines potential efficiency gains.

Empirically, the project to our knowledge, is the first attempt in the Southern Mediterranean countries to assess the specific impact of decentralization on economic and social outcomes. Data availability constrained the extent to which a more ambitious econometric exercise could be conducted. The paper offers an opportunity to raise awareness of policymakers on the fundamental role of detailed and accurate data on regional and local economic, social and financial indicators. At this stage and unsurprisingly, the key conclusion of our econometric exercise is that the pattern of decentralization as it stands today in Morocco could have an effect on regional economic performance.

More broadly, the paper provides policymakers with elements for possible strategies in the area of decentralization and regional development. Such issues are high on the agenda for policymakers in the Southern Mediterranean countries. The Arab Spring has liberated the voices of the people including in remote areas that used to be forgotten or marginalized in national politics. The emerging political debate in the transition towards democracy in the Southern Mediterranean and on the “advanced” form of regionalization” in Morocco should lead to a new era in the relationships between centre and sub-national territories. Further research needs to be conducted in order to determine the right mix between providing incentives from better service delivery through political and fiscal decentralizations while at the same time ensuring that the principle of national solidarity plays its role via central state transfers to adjust the regional disparities.

Appendix A: Descriptive statistics

A.1: Univariate statistics

	Mean	Std Dev	Minimum	Maximum
Change in regional unemployment	-0,005	0,015	-0,054	0,024
Change in the log of regional real manufacturing value added	0,049	0,298	-0,860	1,231
Change in the log of regional manufacturing employment	0,008	0,085	-0,241	0,220
Unemployment rate in t-1	0,103	0,049	0,043	0,216
Real Manufacturing Value Added in log in t-1	0,103	1,652	-2,536	4,761
Manufacturing Employment in log in t-1	-4,548	1,565	-6,564	-0,013
Real Regional Current Resources in log	3,797	1,595	2,664	9,467
Real Regional Investment Resources in log	4,462	1,568	3,040	9,998
Growth of real national GDP	0,051	0,017	0,027	0,075

A.2: Correlation Matrix

	1	2	3	4	5	6	7	8
1 Change in regional unemployment	1,000							
2 Change in the log of regional real manufacturing value added	-0,060	1,000						
3 Change in the log of regional manufacturing employment	-0,016	0,154	1,000					
4 Unemployment rate in t-1	-0,442	0,132	-0,097	1,000				
5 Real Manufacturing Value Added in log in t-1	-0,424	0,020	-0,262	0,666	1,000			
6 Manufacturing Employment in log in t-1	-0,383	0,080	-0,359	0,590	0,949	1,000		
7 Real Regional Current Resources in log	-0,355	0,117	-0,200	0,570	0,736	0,775	1,000	
8 Real Regional Investment Resources in log	-0,264	0,166	-0,264	0,628	0,777	0,802	0,934	1,000
9 Growth of real national GDP	-0,342	-0,249	0,070	0,098	0,012	-0,003	0,144	-0,108

References

- (1) Achy L. Morocco's Experience with Poverty Reduction: Lessons for the Arab World. Carnegie Endowment for International Peace. 2010. http://carnegieendowment.org/files/morocco_poverty1.pdf
- (2) Akai N and Hosio M. Fiscal Decentralization, Commitment and Regional Inequality: Evidence from State-level Cross-sectional Data for the United States. *Journal of Income Distribution*. 2009; 18(1): 113-129.
- (3) Baldwin R and Krugman P. Centralization or Decentralization? What Is Better for Economic Growth?. 2004; Discussion Papers of DIW Berlin 224
- (4) Bardhan P. Decentralization of Governance and Development. *Journal of Economic Perspectives*. 2002; 16(4): 185-205.
- (5) Bonet J. Fiscal decentralization and regional income disparities from the Colombian Experience. *The Annals of Regional Science*. 2006; 40 (3) : 661-676.
- (6) Direction Générale des collectivités Locales. Ratios financiers (1998/1999). 2002. Rabat, Morocco.
- (7) Direction Générale des collectivités Locales. Décentralisation en Chiffres. 2009. Rabat, Morocco.
- (8) Durlauf S, Johnson P and Temple J. Growth econometrics. in Ph Aghion and Durlauf S (Eds.), *Handbook of Economic Growth*. Amsterdam. 2005. 555–677.
- (9) Haut Commissariat au Plan. *Activité, Emploi et Chômage*. 2012. Rabat, Morocco.
- (10) Haut Commissariat au Plan. *Les comptes régionaux : Produit Intérieur Brut et Dépenses de Consommation des ménages*. 2010. Rabat, Morocco.
- (11) Higgins MJ, Levy D and Young AT. Growth and Convergence across the United States: Evidence from County-Level Data. *Review of Economics and Statistics*. 2006; 88(4): 671–681.
- (12) Islam N. Growth empirics: a panel data approach. *Quarterly Journal of Economics*. 1995: 1127–1170.
- (13) Jin H, Qian Y, and Weingast BR. Regional decentralization and fiscal incentives: Federalism, Chinese style. *Journal of Public Economics*, 2005; 89(9): 1719 - 1742.
- (14) Kanbur R, Zhang X. Fifty Years of Regional Inequality in China: A Journey Through Central Planning, Reform and Openness. *Review of Development Economics*. 2005; 9(1): 87-106.

- (15) Kim E, Hong SW and Ha SJ. Impacts of national development and decentralization policies on regional income disparity in Korea. *The Annals of Regional Science*, 2003; 37(1): 79-91.
- (16) Lessmann C. Fiscal Decentralization and Regional Disparity: A Panel Data Approach for OECD Countries. 2006. Ifo working papers 25.
- (17) Oates WE. *Fiscal Federalism*. 1972. New York: Harcourt Brace Jovanovich
- (18) Oates WE. Fiscal Decentralization and Economic Development. *National Tax Journal*. 1993; 46: 237-243.
- (19) Tanzi. Fiscal Federalism and Decentralization: A Review of Some Efficiency and macroeconomic Aspects. *Annual World Bank Conference on Development Economics 1995*. 1996; 295-317.
- (20) van Ewijk E. Between local governments and communities: Knowledge exchange. *Europe*. 2013; 74, 285.
- (21) Woo J. Why do more polarized countries run more pro-cyclical fiscal policy?. *Review of Economics and Statistics*. 2009; 91 (4): 850–870.

Local initiatives, public policies and the development of tourism in the rural Morocco: A 15 year perspective on development initiatives in rural tourism

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Abstract

There are demands and potentials for a promising development of rural tourism in Morocco, but due to a lack of organisation up until 2000, the offer has remained limited. A tourist boom is currently underway countrywide, with numerous projects developed rather anarchically and involving a multitude of actors with a focus on heritage and local products.

This tourism is generating great hopes as a tool to increase cash income, particularly in marginalised areas. The development of rural tourism requires a territorial approach. Based on several case studies we hypothesise that the success of a rural tourism project is bound to the degree of appropriation by local people. It prompts two questions: (i) what are the relationships and the articulations between top-down and bottom-up initiatives? (ii) Is this tourism venture conducted according to a territorial logic: are all the stakeholders equally involved in planning, developing and commercial activities across the rural tourism continuum? These case studies are representative of the national context in terms of actors' involvement, project planning, partnership, stakeholders, and relationships between initiatives at the regional level. In addition, the provisional conclusions drawn from this can be used to follow further development of this activity.

Keywords: governance, heritage, rural tourism, government policy, Morocco, local products, local identities

Introduction

There is no doubt that Morocco has a great potential for commercialization of rural tourism products. With appropriate development and promotion, this potential could be used to put Morocco on the cultural and discovery tourism market. Rural tourism could be promoted to accompany the development of coastal tourism (currently favored by tourism officials) by increasing its attraction in comparison to its Mediterranean competitors, but also to distribute the

direct benefits of tourism more evenly in rural areas and contribute to local human and socio-economic development [1].

These two reasons are behind the current enthusiasm for the development of this activity. The first refers to the Moroccan Ministry of Tourism's interest in alternative forms of tourism (the 2002 strategy of rural tourism), while the second explains the local associative movement to accompany or encourage small initiatives that have been put in place to attract tourists and offer a minimum number of services.

The involvement of these two levels (state and local) raises questions about governance and links between top-down and bottom-up actions. In this paper, we hypothesize that the level of success of a rural tourism project is above all, related to the degree of appropriation by the local population [2], [3]. This will be the first point of discussion.

Moreover, numerous stakeholders at different levels, from local to international, sometimes lead to inconsistencies or even conflicts of interest that weigh down initiatives [4]. In addition, the implementation of rural tourism requires a territorial approach, which underlies the Ministry's development of the "*Pays d'Accueil Touristique*" (PAT) or Tourism Destination Area [5]. The problems associated with this approach will be the second point of discussion.

Two cases, that are fully representative, will be used to discuss these two points: 1) the region of Chefchaouen in the Rif Mountains and 2) a project that spans the Atlas Mountains in the South. Both are representative of the various project managers, implementation conditions, partnerships, stakeholders, linkages between top-down and bottom-up initiatives, local products (*produits de terroir*). But first, it is essential to describe the rural tourism boom that has taken hold in the Moroccan countryside throughout the country.

1. Rural Tourism Fever in Morocco

There is a keen interest in the various opportunities to host tourists in rural areas and thus the activity is spreading rapidly and often spontaneously both on the demand and on the offer side. Currently, reliable figures of tourist involved in the activity are unknown because there is no system or method for evaluating or tracking demand at this time. In a 2002 study for the Ministry it estimated the number of actual rural tourism consumers in Morocco at 650 000 people and forecast an increase to 2 900 000 in 2010 [6]. Although these numbers have not yet been attained, a real demand exists as well as an offer that is becoming progressively more organized.

The case of the region of Chefchaouen illustrates the precocity of the demand. By the mid-90s, individuals and groups visiting Chefchaouen were prolonging their stays to go hiking in the back country, or even to stay in improvised accommodation in private homes. Then, came small groups of tourists arriving in Morocco by cars who had planned their route to the south with a stopover in Chefchaouen in order to go on treks that have since become "classic." The program of these hikes is developed alongside young city guides, local development associations, or restaurant and accommodation professionals. Today, the interviews conducted indicate that each

year more than 5000 people journey to the region and stay there at least one night. Even if difficult to confirm, this number is significant considering that rural tourism continues to lack the structure and commercialization that would make it fully operational.

Thus throughout Morocco a downstream demand has set off the process. However, while the richness of the culture and the landscape, sometimes enhanced by a park or nature reserve, is an attractive feature, the proximity of main departure points is the determining factor. The process has taken hold particularly from the following departure points: Agadir Ida-ou Tanane (Western High Atlas), Essaouira (country), Marrakech (High Atlas), Chefchaouen and the resorts in the north (land of the Jbala), Rabat (Oulmès and Casablanca), Rabat, Fez and Meknes (Middle Atlas). These departure points serve mainly as redistribution points for foreign tourists who did not specifically come to visit rural destinations. This is especially the case for large international tourism resorts (Agadir or Marrakech) that create far-reaching tourism areas.

In most cases, the local populations are open to these innovations and seize opportunities for additional income. International NGOs and donors have shown a great interest in supporting and accompanying this process. They may be directly from the State (European Union, Spain, Italy, and France) or rely on NGOs funded by the states. To this, the multitude of actors involved throughout this process is added. In addition to international NGOs, the role of local development associations, the Ministry of Tourism, regional development agencies and local authorities must also be acknowledged.

In this way informal tourist territories are progressively being created throughout Morocco in the periphery of official international tourism destinations [7]. Whether in the North, the South Atlantic or the Pre-Atlas and the Atlas, touristic areas are organized and structured around a variety of guest houses, rural accommodations and inns—often not given a classification, that is not officially listed. In the area close to Essaouira, 90 establishments were counted, of which 29 had been officially documented and only six classified. Around Chefchaouen dozens of guest houses are open year round.

It should be noted that this phenomenon is at various stages of progress throughout Morocco and four cases can be distinguished based on recent developments:

- Destinations already officially registered in territories being structured by the Ministry of Tourism, where demand and offer are becoming more organized and are increasing (region of Chefchaouen, the Middle Atlas, Ida-ou-Tanane, and the Western High Atlas).
- Destinations with a dynamic underway: dispersal of accommodations, formalization and integration into the Ministry program not yet completed. This is the case for a number of regions, such as the countryside of Essaouira.
- Destinations with strong potential that benefit from the proximity of large departure points and have a strong presence in regional programs and projects, but where the tourism dynamic has not taken off due to a lack of appropriation by the local populations (region of Oulmès).

- Destinations where international initiatives converge and are able to mobilize local actors who have emigrated, without indicating that the success is the same everywhere (a tourism development program in the southern mountains linked to an international initiative).

2. Public Action and Local Authorities

The proposed framework highlights the three major categories of actors: the state and its external services, international organizations and local businesses. Hence, there is a need to analyze their interactions, which will be done using two case studies: Chefchaouen and the Atlas mountains in the south.

2.1. Chefchaouen: multiple stakeholders at the local level

Early demand

Historically, tourism officials in Morocco were focused on seaside resort tourism complemented by the “Imperial Cities” cultural product and secondarily the desert tours [8]. It was not until 2000 that that Plan Azur, an ambitious tourism recovery strategy based on seaside tourism, was associated with niche products and alternative forms of tourism [9]. Meanwhile an informal demand highlighted the desert and rural sectors, and the State had to integrate these two components as well as a growing demand for national tourism into their strategy. Thus in the development of rural tourism in Morocco local initiatives have often preceded that of the State taking into account their direct and induced effects. The region of Chefchaouen is chronologically the first destination where rural tourism was popular and it serves to illustrate the succession of local actions and those of the State.

The countryside of Chefchaouen is a region that is already on the rural tourism market. A part of the Province of Chefchaouen, of which the small city of Chefchaouen is the capital, the region encompasses a geomorphologic entity (limestone ridge) and covers virtually the entire territory of the Rhomara tribe. The area is a geographical coherent territory with a strong cultural identity and a variety of potentials. Of a major interest is the Talassemtane National Park, which is one of the most forested areas in the country (cedar, cork, Algerian oak, black pine and the only natural fir in Africa) and was classed by UNESCO in 2006 in the Intercontinental Biosphere Reserve of the Mediterranean [10]. It is located near Tangier and the coast of Tetouan, a departure point for clients looking for a cultural and discovery product, and easily accessible from Rabat and Casablanca. In addition, the newly built Mediterranean route, known as the *rocade*, opens access to the north and the coast even further.

The region has a number of assets and benefited very early on from a spontaneous demand that did not come about from an advertising campaign. The main tourist clientele, who frequent the region the most, inevitably pass through Chefchaouen, a stopover city and the main departure point for hikers and green tourism lovers. The city has a sufficient capacity for accommodation (550 beds) and a host of unclassified family pensions.

Thus an area is beginning to emerge in concentric circles around the city with a high density of potential, establishments, accommodations and high-traffic trails, corresponding to areas where various activities were undertaken in partnership with local stakeholders and NGOs (see Map 1).

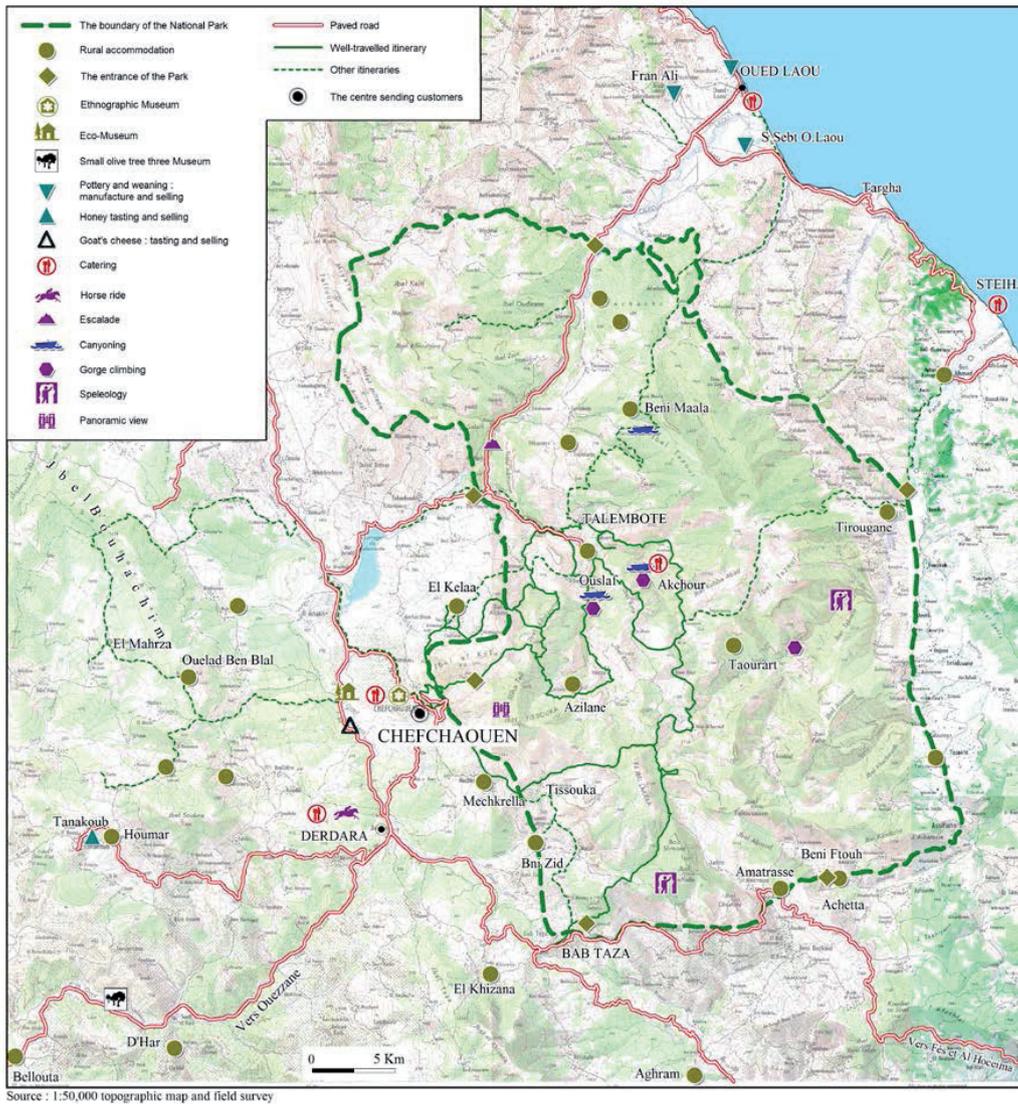
Local initiatives

This tourism demand interests local actors in the region. The flow of tourists in the region has generated a response from local actors who have risen to the occasion.

The diversity of these initiatives is particularly noteworthy [11]. Young official guides working in the city, or others less legal, capture a part of this demand by being organized (fax, phone, and website) and receiving requests to organize tours. Tourism professionals, such as restaurant and hotel owners, co-organize group excursions with guides. Residents of some of the more frequented villages have improvised makeshift accommodations for tourists arriving in small groups. These accommodations are of course organized in partnership with the young guides. In several villages rural homeowners rise to this occasion: rural accommodations are created, renovated and/or restored from old houses [12], [13].

Long before the establishment of the Ministry's program the area had a number of touristic establishments. A form of homestay was already popular in some villages since the early 90s. But it was a very improvised offer, leaving much to be desired in terms of hygiene, comfort and quality of life (villages of Khizana and Azilane; Bni Maala or Imourassen).

The situation will change when the numerous and active local development associations in Chefchaouen integrate rural tourism into their activities. With support from international NGOs they organize short courses and some have created ecotourism clubs that plan and test routes and treks. Still others receive groups travel groups organized by European associations. One of them has initiated the construction of a rural accommodation six hour walk from Chefchaouen, and intends to accommodate groups sent by foreign associations for responsible tourism circuits. Two associations appear to be strong supporters of tourism development due to their backing by international donors. Both have made rural tourism a priority in their activities and hope to be able to diffuse their activities through networks of village associations with whom they carry out projects. The Talassemrane Association for Environment and Development (ATED) works for environmental protection and for them rural tourism represents a means to improve the income of local people, which could help reduce anthropogenic pressures on the forest, particularly on the Moroccan fir (a threatened endemic species). The Local Development Association of Chefchaouen (ADL) focuses on rural development and it has also identified tourism as an activity to accompany development.



Map 1: Chefchaouen tourist destination and its hinterland

Quickly perceiving the value of this activity and in response to requests from associations, many small projects have arisen to create rural accommodations. Local investors have become improvised rural accommodation and inn managers, such as the investor from the region who opened an inn (Derdara), which serves as a starting point for hiking, walking or riding in the mountains. In summary, a fever has taken hold of Chefchaouen and its region. All strongly believe in rural tourism and hope it will provide a way to generate additional revenue locally but individually based enterprises remain very fragile.

International aid interests

International donors and developers showed very early a strong interest on this activity. Various projects and activities initiated by international NGOs are part of the effort to develop rural tourism. Thanks to assistance obtained from the Spanish Foundation IPADE and the Junta de Castilla La Mancha, ADL organized a training program to award a professional qualification in rural tourism. Twenty-one young people from Chefchaouen were trained as guides, as well as receiving teaching for first aid and organization of local tours [14]. It is through this same support that ADL was able to publish an inventory of resources and tourism potentials in the Province of Chefchaouen.

One of the most ambitious projects in support of rural tourism in the region seems to be the project "Participatory development of forest and forest periphery areas in the province of Chefchaouen" funded by the European Union within the framework of MEDA II. The program's priorities include the signposting of several hiking trails, contracted to ATED, and supporting the implementation of the Talassemrane National Park. Today, a new Spanish association, the ACTLC (Catalan Association for Leisure and Culture) is present and deeply involved. It initiated the creation of an association dedicated exclusively to rural tourism "Chaouen Rural," which with its help has renovated rural accommodations, provided training to home owners in welcoming tourists and also provides marketing, while also offering hikers a customized program of discovery tours. Recently, a joint venture with a park located in Tunisia was initiated by IUCN as a part of a wider program aimed at developing a network of ecotouristic destinations in the Southern Mediterranean [15].

2.2. The intervention of the State: the Tourism Destination Areas of Chefchaouen

The proliferation of projects and initiatives that has been triggered in the Chefchaouen region is not without the help of decision-makers, both at the local and central level (Ministry of Tourism). Still, the most interesting initiative is advocated as part of the national strategy of rural tourism: the concept known as the "*Pays d'accueil touristique*" (PAT) or Tourism Destination Areas, offering options at the regional and local levels. This concept takes over for the previous local initiatives and raises the question of the relationship between top-down and bottom-up actions.

The PAT concept

Given the need to share skills and potential, the PAT has its own identity and its boundaries are defined on the basis of the elements that distinguish it from its neighbors: physical and cultural unity but also diversity of products [16]. It must be located near a departure point and be given a specific label. It comes mainly from a local desire for tourism development in the territory, and requires support as well as organization for development and management. For this reason, the PAT must have various institutional organs and rely on a specific organized activity: identification of routes, courses, workshops or interactive discovery of local culture, a calendar of traditional events, ethnographic and eco-museums, and promotion of rural heritage. It requires appropriate tourist facilities and furnishings: a Tourism Destination Centre or Heritage House (*Maison du Pays*), rural accommodations, restaurants and tourist signs. In summary, a PAT is a

territory that is not a region, a province or a municipality. It can be a part of the first two or it can span two or more municipalities (above all it is a project territory).

However, a PAT cannot come into existence unless local actors show a strong will to work collectively to build together an image by making items that can part of the local heritage (“patrimonialization”) and tying all of this to a quality label, which is still to be defined. They must also organize the accommodation, restaurant and entertainment offer, promote it through targeted communication and sell it via operational channels that already exist for the marketing of the Moroccan product.

Attempts to build a rural tourism product

The Chefchaouen PAT was the first to be implemented by the Ministry of Tourism in 2003. And this pilot project will have to integrate and bring together all existing initiatives and strategies that are not yet connected. After eight years of existence, the Chefchaouen PAT still lacks visibility.

One of the strengths of a PAT is the opening of the Tourism Destination Centre, a showcase for tourism in the area and a headquarters for the management, as well as housing the managers, providing activities, and managing and developing the PAT. Currently, this emblem of the tourism offer is severely lacking in visibility and efficiency.

Overlapping actions of multiple stakeholders causes visibility to suffer: Around the same time that the Ministry of Tourism created the Tourism Destination Centre in the city center, the High Commission on Water and Forests created a Centre for the National Park at the entrance to the Park above Chefchaouen. The goal of the first is to promote the destination as a whole, while the latter deals only with the Park, none of the office is clearly indicated and both locals and tourists are often confused with that situation. The division between these two Administrations works against a strong integrated promotion and image of the Chefchaouen tourism destination. Faced with this lack of coordination of actions from above, guides, rural accommodation owners and other agents of local tourism are powerless and do not know how to react. Further, personal interests, ancient conflicts between administrations and local tug of war for power and access to financial support have prompted and maintained rivalries that work against the collective interest.

Management and development of the PAT is non-existent due to the absence of a key person in the PAT and the PAT Centre: the Director. In theory, the Director is a local development officer and not an administrative officer. His appointment should not depend on the formalization of the PAT, but rather precede it to act as the facilitator for its establishment. The Delegation of Tourism in Tetouan decided to appoint a facilitator of rural tourism from among its newly recruited staff. However, in addition to his profile being inadequate for the position and his office being in Tetouan (70 km north of Chefchaouen), he does not hold the title of Director of the PAT Centre. Again, this signals a lack of coordination among the Ministry, the municipality, and the region that ensures his remuneration.

One reason for the dysfunction is the large number of stakeholders involved in rural tourism initiatives. The development of rural tourism in the countryside of Chefchaouen involves: the Ministry of Tourism (the Ministry, Delegation, CRT), the High Commission of Water and Forests (National Park), the Province (economic service), the Municipality of Chefchaouen, the Development Agency for the North (ADN), the Social Development Agency (ADS), the EU (GEFRIF project initially, followed by MEDA II), the association Movimondo (Italy), the association ACTLC (Catalonia) and its "subsidiary" association "Chaouen Rural", ATED, ADL, the rural accommodation owners, local guides, the members of the population directly concerned and those offering tours whether local or not.

The consequences of these simultaneous interventions are various. The challenges and strategies of each are not always consistent, for example, the differences between the Ministry of Tourism and the Forestry Administration in terms of the Talassemtane National Park. The various ministries are often involved in territorial units whose boundaries do not always coincide. There are also many redundancies in the actions taken by each, for example, training guides and marking routes. A certain amount of competition (inevitable and mostly in commercialization) can be observed among international NGOs, local associations, guides and rural accommodation owners. Finally the governance problem has become quite acute because with this multitude of actors. It is no longer possible to know who does what, for what purpose, on whose behalf or with what legitimacy. This situation is not peculiar to Chefchaouen, it creates a lot of frustrations amongst the local population who get discouraged after a while and withdrew its supporting from rural tourism initiatives [17].

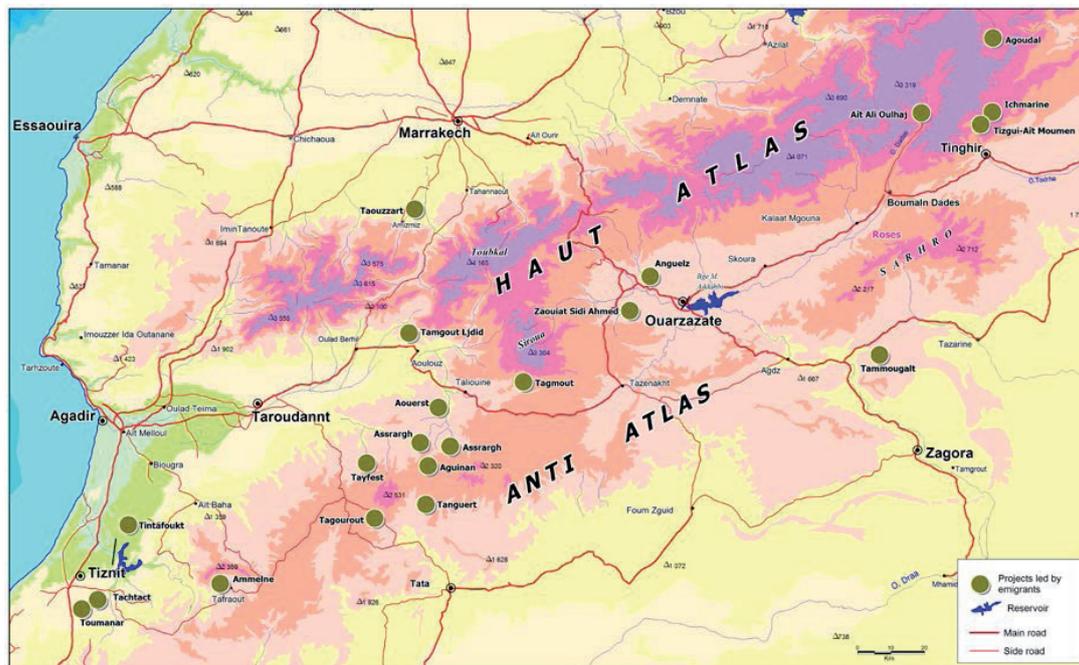
2.3 The role of international cooperation

The southern side of the High Atlas and the western edge of the Anti-Atlas (see Map 2) represent a different region and a different model of rural tourism development. Unlike Chefchaouen, the initiative to introduce organized tourism comes from the exterior. The demand already existed here since these areas have been long frequented by buses and all-terrain vehicles common to classic group tourism. However, the originality of the approach and the reason for the choice of project sites was not related to the presence of early hiking tourism, but rather the project managers.

A project initiated from the exterior

While this area still represents local development based on tourism, it comes from an international effort involving a multitude of partners with a delegation of roles and responsibilities down the chain. The initiative came from the European Union who launched a pilot program of co-development based on rural tourism. The coordination was entrusted to the French Development Agency (AFD), with the objective of contributing to local development in regions of origin of Moroccans residing in France in order to curb emigration. In June 2003 a contract was signed in which the AFD delegated the project to the Moroccan Social Development Agency (ADS). The ADS has charged the execution of the project to Migration and Development (M&D), an association created in France by Moroccan emigrants with a delegation to Taliouine.

The original intention was to create 21 rural accommodations with a budget of over 2 million Euros (with accompanying measures and subsidies to investors representing 30% of the project, capped at €70 000).



Map 2: Location of housing projects of M&D association

The project targeted emigrated investors exclusively making it necessary to search for migrant families willing to invest in an activity that was at that time still largely unfamiliar. The integration of potential investors is the main reason that the establishments go beyond the territory typically covered by M&D. The spread of the territory is thus due to investments in several provinces, including Tiznite, Taroudant, Ouarzazate, Agadir, and Marrakech (see Map 2).

To date, 18 projects have come to fruition of a total of 21, but only 10 are functioning, and for some only with serious difficulties. This inconsistent picture contrasts with the dynamic already described in the region of Chefchaouen, and calls attention to the fact that the initiative has been a failure despite the intervention of reliable donors and efficient development agents.

Limited appropriation by local actors

There are a number of reasons for this low success, but most of the constraints and obstacles come from the fact that local actors do not actually take ownership of projects that are imposed from outside.

The choice of M&D was justified because the project was aimed at emigrants. Although the NGO has a long experience in providing basic infrastructure to villages and mobilizing villagers through a network of associations, it was unprepared for designing tourism projects. The fact that the project is intended for Moroccans residing or having resided abroad has caused frustration for others, especially among influential persons who compete with these emigrants. Moreover, in most cases it is not the migrants who have benefited from this program that manage the projects, but rather their parents, which amplifies the frustration [18].

Even if the association already had a good understanding of Moroccan migration to Europe, it had to turn to the already known migrants and not to others wishing to invest in the sector or to those who were already familiar with the rural tourism. This led to difficulties in convincing Moroccans in France to invest in their villages in a sector that was not yet well known nor developed. At the same time, the association had to convince isolated villagers to accept these investments and the arrival of tourists in their lives.

A field survey of two villages (Tagmoute and Aourest) located in the region of Taliouine illustrates these difficulties. The two villages have benefited from the same program supported by M&D and have each had an inn created. The first seems to have accepted the construction and tries to benefit, while in the second the project has been blocked by a systematic rejection of the project.

In Tagmoute, the village association has agreed to educate the inhabitants to accept the inn, located at the entrance of the village. The manager of the inn is a farmer in the village who always directs visitors to the cooperatives.

In the second, a conflict has quickly arose between one village association, approached by M&D and headed by a relative of the emigrant who invested in the project, and another association managed by the chairman of the village council, a man of power but not an emigrant. Conflicts between these two associations have resulted in power struggles at the local level with consequent judicial actions, which affect the future of the project. Today, the inn operates without the permission of local authorities.

These conflicts within the village are also found between inns located in different villages, which hampers operation and in particular marketing. It is likely that these conflicts would have been lightened if the projects were based on existing local initiatives instead of being dictated from above and managed according to external concepts and criteria.

M&D has made efforts in promoting, signposting and training, but has also demonstrated a degree of amateurism in the field of selecting projects holders and marketing. We return later to the effects of this type of project implementation on territorial construction of the project.

A bleak outlook

The overall outcome of this project (Table 1) is bleak. To avoid mentioning establishments the results have been grouped according to the three areas (“Lands”) used by M&D to construct the product. This will be discussed further later on. Establishments are relatively small, but still

acceptable for this type of accommodation (average capacity of 20 beds). But it is the employment and returns that are striking: a total of 18 employees (one employee for more than 11 beds), 18 customers per bed/year and a turnover of 191 dirhams per customer. Data on the number of nights is missing, but it seems that number of visits, an indicator of success, is quite low, indicating an unattractive and unsustainable product. Attention should be drawn to the large disparities among the three regions and among establishments. The Land of Roses is clearly the most productive with 44 visitors per bed/year and 202 dirhams per visitor. But this elevated performance has little impact in terms of employment. The Land of Roses is in the middle of the tourist area in the region of Ouarzazate, the main receiving area for desert and mountain tourism. Within this set of data, there is an establishment that sets itself apart due to its location in the middle of an oasis (Agdz oasis) and its management by a university graduate, parent of an emigrant investor.

Product	N° of establishments	N° of beds	Permanent employees	Seasonal employees	Clients – 2009	Revenues – 2009 (in MAD)
Land of Safran	4	77	6	9	857	123 100
Land of Roses	3	55	7	8	2500	505 120
Land of Argan	3	70	5	6	415	95 890
<i>Total</i>	10	202	18	23	3772	724 110

Source: Field Survey – 2010

Table 1: Brief summary of M&D rural tourism project

This is a reminder that the criterion for site selection of these projects was more focused on the availability of emigrants who supported the project than on the suitability of the area or the availability of human resources at the management level. When these two conditions are met, as in the case of the hotel in the Agdz oasis, the project has every chance to succeed.

The selection criterion (emigrant investors) also generates problems for building a territory since migrants, once back in their home villages are often marginalized by those who did not had the chance to migrate, are no longer fully integrated in the social local network and often outside the core of the local power. It can be said that their migrant status has led to a kind of “*detritorialisation*” [19].

3. Attempts to build a territory

3.1. Territory projects without project territories

Rural tourism is spreading throughout Morocco, and as has been pointed out often spontaneously at the level of demand or offer. It has not developed in the same way as classical tourism via successive plans since the late 60s. Indeed, this new form of tourism would benefit more from being seen as a system, while classical tourism is often treated as a sectorial activity. The first involves a multitude of actors different from those usually interested in the second. First and

foremost it is a local initiative. This means that its development must be controlled locally, its capital based on the promotion of local products and its management strictly local. Initiatives for implementing rural tourism are more about local development in peripheral or marginal areas than about classical tourism models. For all these reasons, a territorial approach should be used in implementing rural tourism. In this paper, we believe and support the dynamic of tourism development through a territorial approach [20], [21]).

As it has been defined above, the PAT requires a territorial unit that is not defined by administrative or natural criteria. In this definition, we must consider the places of interests for tourism and infrastructure, but the main criterion remains the tourism actors and their drive to come together to build a project territory. The first step in identifying this territory is a learning process that involves bringing people together to build a product to make it a tourist territory. This process should lead to identification of the territory, an area that emanates from a base and continues to evolve because its boundaries are not meant to be fixed.

In terms of the various PATs created or under way in Morocco, the preliminary studies emphasize the necessity for identification and collective construction of a tourist territory, while this was completely left out of the implementation process. Implicitly PATs correspond to provincial rural tourism officials. This means that the proposed PAT should correspond to an administrative area with fixed boundaries while assuming that all socio-territorial components of the province are involved and support the project, and that is contradictory.

This is then very far from being a project territory built from the bottom-up that evolves gradually with the increase in demand and the participation of new actors.

This applies to all PATs, created or still in development. The M&D project is no exception since the territorial component is virtually absent despite the spatial clustering of accommodations in three "Lands". There were no alternatives since the first criterion of the projects was the presence of a migrant ready to invest. Also the territorial dimension should come into play well before the product design phase by basing its territory creation on the complementarities among sites, but also on the connections and networking between potential project managers. Even with the shared labels of "Land of Saffron," "Land of Roses" and "Land of Argan", these inns have nothing that groups or connects them while the managers of these establishments complain about the lack of awareness and the lack of a collective dynamic in the project territory. This accounts for the marketing difficulties and low returns observed in these establishments.

3.2 A significant capacity for bottom-up tourism development

Other than the M&D projects, which have had no territorial impact thus far, an impact can be observed wherever initiatives are more spontaneous and locally run leading to positive developments. Through project leader's strategies in various areas we are indeed witnessing bottom-up territorial construction that is emerging in an informal, real context and that also contributes to a more efficient dynamic initiated by local populations.

Whether in the tourism destinations of Chefchaouen, Essaouira, the Middle Atlas, or in the oases the owners of guest houses and inns begin actions that become a part of the actions of a number of other stakeholders. All of this converges and becomes a bottom-up tourism implementation that is both unexpected and uncoordinated, but is successful in attracting tourists in these areas.

These small initiatives, which are neither covered by a development plan nor by any sort of action plan whatsoever, provide combined accommodation capacities of close to a thousand beds per region. Given the flexible nature of guest houses, the multifunctionality of rooms in a Moroccan house and the possibility of group rentals, this capacity could be doubled.

Unlike hotels, these guesthouses are open all year round and employ a permanent staff, mostly from the local area. Each structure employs at least three people: one for the housekeeping, one for cooking and one for child care and maintenance. In addition, these numbers may increase during high season. They also offer a restaurant on site that serves local products promoting local Moroccan cuisine, popular with tourists. In addition to local jobs, food is also supplied locally, which suggests positive returns for the village economies.

These initiatives are not limited to simple houses for family or commercial use. Complexes with between 100 and 300 beds are beginning to emerge in certain areas, especially around Essaouira.

These settlements result from spontaneous individual initiatives and involve a certain architectural research that is not limited to the simple reproduction of models inspired by the architecture of southern Morocco, but also incorporates local architecture. This includes the use of local materials, which contributes to the preservation of local heritage and “savoir-faire”. It works efficiently against disappearance of local skills threatened but ever growing urbanization as well as negative impacts of globalization.

These accommodations are generally concentrated in the immediate countryside of regional capitals within organized areas of concentric circles (see Map 1). The progressive construction of this territory is also due to the tourist circuits resulting from local initiatives or travel agencies based in major cities. The circuits on the market are organized by theme and often correspond to the layout of the routes and the nature of sites to visit. The richness of the offer is clear and it is only the beginning of an evolving process, which is what makes it so remarkable.

Dynamic diffuses from the capital to the immediate peripheral areas first and then further into the interior of the region. This confirms that a departure point close to the clients plays an important role in the development of rural tourism. It also serves as a reminder that rural tourism can only be initiated from a central core, a starting point for diffusion of the phenomenon that will spread through a territory and eventually grows.

The processes observed in the region of Chefchaouen are found throughout Morocco where there has been progressive bottom-up building of tourism territories that are recognized and supported by populations and project leaders. The State’s actions to structure and develop rural tourism have been built over top of these existing territories, with the State encompassing the territories and trying to fit them into administrative units (Province), which makes them lose their initial coherence.

3.3. Heritage and globalization

The construction of a virtual image of the destination and local reinvention

Only three PATs have been officially launched: Chefchaouen, Ida Ou Tanane and the Middle Atlas. But other unlabeled destinations exist across the country and operate more informally. This is the result of various actions carried out by small projects and it is the owners of accommodations who are the real actors behind shaping a tangible image of the destination.

These owners show a certain degree of imagination and professionalism in building customer loyalty and finding ways to extend visitor's stays (from adding local products to their restaurant menus, organizing excursions and visits to cooperatives, offering introductory courses in local activities and trades, to providing local body-care treatments, oriental dance classes, introduction to local cuisine and crafts, playgrounds for children, and theme evenings). Some owners also offer hosting of seminars, conferences, and scientific and cultural events within their establishments. They try to maximize existing services and activities in the area, which mainly consist of water sports, hunting, and various hiking options. The concept of rural tourism thus extends into the types of tourism known as "niche tourism" that complement the range of activities in rural areas.

Even informally, their sales force is efficient given the opportunity offered by the Internet. The lack of professional and structured promotion is significant for non-official destinations that have not yet benefited from development projects and state promotion. To make up for this effect, project leaders (accommodation and activities) are investing in the Internet to promote and market their business. They also use other means such as guides or local tourist magazines, travel agencies and distribution of posters or leaflets in the city hotels, kiosks, phone shops, or even in the Provincial Delegation of Tourism. With this multitude of actions, a virtual image of the destination has been built and is now being efficiently promoted.

Finally, although operating in the informal sector, accommodation owners, associations and the population contribute to build a local product with an image and specific products all directly connected to the global system without relay or intermediary.

This connection to the world of local socio-economic and cultural systems also leads to patrimonialization processes that are intensified in response to globalization.

Building an heritage through others eyes

The notion of heritage recurs in a number of fields related to tourism in Morocco, particularly in: cultural and rural tourism; the taking into account of natural or human-influenced landscapes; comparison with the past, memory and history; and discussions on local development in rural areas that take into account socio-economic legacies and know-how "*savoir-faire*". Until recently, heritage and its safeguarding were concerned mainly with historical monuments, architectural legacy, particularly dynastic architecture, historical centers of old cities, and some urban cultural components (such as Andalusian music). Thus it was predominantly concerned with urban heritage while now the attention is moving elsewhere [22].

Taken by a true "heritage fever" development actors leave the city to understand the heritage building process under way in the countryside. In the debate, the reflection is not limited to the natural or cultural landscapes, but has also included territories, trades, practices and crafts as well as pilgrimages and religious events. This is mainly due to the growing interest in heritage as a tool for local development within national and international institutions, and as various ethnic identity related phenomena triggered by the ever growing weight of globalization.

Throughout the study areas, forgotten or trivialized products, trades and "savoir-faire", will be rediscovered after an external request to be recognized as a heritage. Based on obvious value in the eyes of local people, these heritages are at the center of important issues that will not necessarily lead to direct benefits for the populations [23].

However when conveyed abroad this heritage process may also blur the images. Strongly present in the design of most guest houses and inspired by earth made buildings becoming more widespread in Morocco and spreading a more standardized and de-territorialized style. This heritage that is revisited by outsiders with the expansion of the kasbah style to all regions of Morocco, creates confusion in a country where the local and regional cultural properties are very strong.

Conclusion

At the end of this analysis, deliberately limited to two case studies, lessons can be learnt from the first 15 years of rural tourism in Morocco.

The development of rural tourism involves a multitude of actors from the local to the international levels. These actions follow one another in time, overlap in space and, despite good intentions, have many inconsistencies and dysfunctions related to the profusion of actors and governance issues. The relationships between "top-down" and "bottom-up" approaches are quite complex and often generate misunderstandings and frustrations, while appropriation of projects by communities and local stakeholders is a necessary and imperative condition for success.

In addition to the technical aspects, the relationship between what is imposed from above and what comes from below are essential in the construction of tourist destination territories. The primary criterion remains the tourism stakeholders and their willingness to build a project territory together. In the majority of cases, the collective construction of a territory to host tourists has been disconnected from the process of implementing state programs. The PATs implicitly fall within the provincial boundaries, and are managed by the Provincial Delegation of Tourism although it has neither the skills nor the capacity to work on territorialized local development being a very different approach than that of the classic sectorial tourism management which is their strong point.

Moreover, far from being distinct, autonomous tourist destinations with their own clients, the PATs are seen as auxiliary products to nearby major existing tourist destinations and future sea resorts.

Nevertheless, dynamics for PAT construction exist here and there, often coming from the local level that lends them to tourism implementation by the territorial approach. The numerous initiatives carried out by local actors multiply the number of accommodations, sometimes concentrated and organized in networks in the country, to offer a diversity of tourist destinations: Chefchaouen, Essaouira, Ifrane, Immouzer Ida or Tanane, Agadir, Marrakech. Destination territories do exist and operate as such, in an informal way, carried and supported by individual and private initiatives.

At this stage of analysis, one can hypothesize that from a sectorial vision, tourism could be disruptive to local farm economies. By taking into account the recreational value of natural resources and by symbolically appropriating the territory, tourism stakeholders, both operators and customers, are in a position of opposition with farmers and rural people in general, who exhibit a legitimate indigenous territoriality through a sense of identity and actual appropriation of its resources. Rural territories used by tourists become divided and the local population gradually loses control over them. Where the farmer sees resources that underpin his rationale for existing, the tourist sees recreational spaces and scenic, exotic landscapes, and the tourism operator sees a potential for economic development. This contrast in perception is one of the elements that can lead to tourism being rejected by local populations.

This is the reason that the importance assigned to local communities and their perceptions in any territorial creation of a rural tourism product is vital and indispensable to ensure sustainability.

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References

- [1] OMT, Ministère du Tourisme, *Stratégie de développement du tourisme rural*, 261 p, Ministère du Tourisme, Secrétariat Général, Bureau de Développement du Tourisme Rural, 2002
- [2] S. Blangy & A. Laurent, *Le tourisme autochtone : un lieu d’expression privilégié pour des formes innovantes de solidarité*, Toreo, 2007
- [3] M. Berriane, M. Aderghal, L. Amzil, B. Badidi, G. Ferrero & S. Nakhli, *Tourisme rural, gouvernance territoriale, et développement local en zones de montagnes*, édition de l’Observatoire National du Développement Humain, 110 pages, 2012
- [4] J. Simmoneaux, *Acteurs, enjeux et régulations dans la dynamique du tourisme rural*, thèse de doctorat de géographie, Université de Toulouse-Le Mirail, 1999
- Froger, G. (dir.), 2010, *Tourisme durable dans les Suds ?* Peter Lang, Bruxelles, volume 11
- [5] M. Berriane, *L’approche territoriale pour la mise en tourisme du milieu rural*, in *Développement rural, pertinence des territoires et gouvernance*, coordination A. Iraki, Inau/Relor, Rabat, pp. 83-95, 2006
- [6] OMT, Ministère du Tourisme, *Stratégie de développement du tourisme rural*, 261 p, Ministère du Tourisme, Secrétariat Général, Bureau de Développement du Tourisme Rural, 2002
- [7] M. Berriane & S. Nakhli, *En marge des grands chantiers touristiques mondialisés, l’émergence de territoires touristiques «informels» et leur connexion directe avec le système monde*, *Revue Méditerranée* n° 116, 1/2011, « Le Maghreb dans la mondialisation », 2011

- [8] M. Berriane, « La géographie du tourisme au Maroc : essai de synthèse sur l'état de la recherche », in (Berriane M. et Popp H., éd.) *Le tourisme dans les pays du Maghreb : diversification et effets sur le développement local*, Publications de la Faculté des Lettres et des Sciences Humaines de Rabat, Série colloques et séminaires, Vol. 77, pp. 15-28, 1999
- [9] OMT, Ministère du Tourisme, *Stratégie de développement du tourisme rural*, 261 p, Ministère du Tourisme, Secrétariat Général, Bureau de Développement du Tourisme Rural, 2002
- [10] E. Thompson, *Implementation of Ecotourism for the Conservation of Natural Resources in Protected Areas : A Case Study of Talassemtane National Park, Chefchaouen, Morocco*, Mémoire de stage pour l'obtention du diplôme de Master en "Foresterie tropicale durable", AgroParisTech-Engref, Centre de Montpellier, 2011
- [11] M. Berriane, L'approche territoriale pour la mise en tourisme du milieu rural, in *Développement rural, pertinence des territoires et gouvernance*, coordination A. Iraki, Inau/Relor, Rabat, pp. 83-95, 2006
- [12] S. Céline, *Tourisme rural et développement territorial, Cas des Provinces de Chefchaouen et de Larache au Maroc*, mémoire de Master Sciences du territoire, Université Pierre Mendès France, (Grenoble), 2009
- [13] G. Froger, (ed.), *Tourisme durable dans les Suds ?* Peter Lang, Bruxelles, volume 11, 2010
- [14] ADL, *Inventaire des ressources et potentialités touristiques de la province de Chefchaouen*, 2002
- [15] IUCN, *Plan stratégique d'écotourisme parc national Talassemtane*, ATECMA/ECOTONO, 2012
- [16] OMT, *Stratégie de développement du tourisme rural*, Finalisation de l'étude sur la formulation du projet pilote intégré de Chefchaouen et Al Hoceïma, 50 p, Ministère du Tourisme, Secrétariat Général, Bureau de Développement du Tourisme Rural, 2003
- [17] P. Marcotte, L. Bourdeau & M. Doyon, *Agrotourisme, agritourisme et tourisme à la ferme. Une analyse comparative*, Teoros, 2006
- [18] B. Schéou, *Du tourisme durable au tourisme équitable*, de Boeck, Bruxelles, 2009
- [19] C. Bataillou et B. Schéou B., *Tourismes, patrimoines, identités, territoires*, Presses Universitaires de Perpignan, 2010
- [20] J. Simmoneaux, *Acteurs, enjeux et régulations dans la dynamique du tourisme rural*, thèse de doctorat de géographie, Université de Toulouse-Le Mirail, 1999
- [21] Ph. Violier, La mise en tourisme vue par les géographes, in Sacareau I. et Vacher L (eds) *La mise en tourisme des lieux et des espaces, processus, périodisations et variations régionales*, La Rochelle, Ed. Letotelo, pp. 15-22, 2001
- [22] M. Berriane, *Patrimoine et patrimonialisation au Maroc*, Hesperis, Volume XLV, 2010, p. 11 – 17, 2010
- [23] B. Romagny, & S. Boujrout, *La ruée vers l'huile d'argan. Chronique de la patrimonialisation d'un terroir marocain*, Hesperis, Volume XLV, 2010, p. 151-166, 2010

Management of gullied areas in semi-arid Atlantic plateaus of Morocco

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Abstract

With the objective of management of gullied slopes on the north banks of the Oued Grou, Sehoul commune, the option was to plant *Atriplex halimus*, a fodder shrub adapted to semi-arid environments, on degraded lands. The experimental plot corresponds to a strongly gullied old fallow. The gullies are parallel and start at the middle of the slope and extent to upland by retreat of their head. Each gully is 2 to 4m large and 1 to 2m deep. Downstream, the gullies loose their depth and deposit fans composed of material eroded upstream, before they join the channel of Hannanet, which has the tendency to incise its bed (more than 4m deep) inside colluviums made of sand, clay and pebbles.

This paper presents an evaluation of this SLM (sustainable land management) technique, to assess its effect in term of soil protection and vegetation restoration. The monitoring concerned several parameters, the covering of the herbaceous vegetation, its biomass and the floristic biodiversity, the fodder production, the soil surface in term of moisture, resistance to penetration, cohesion, rate of pebbles and of the encrusted parts. In addition, we made observations on the gullies transversal profile and on the steepness of the banks.

The results of the monitoring during two years show that the *Atriplex* technique, for correction of the gullies, presents several advantages. During the intense episodes of rain of the winters 2010 and 2011, in the atriplex plot more rain infiltrates and less runoff is generated. This process appears through the profiles of the gullies, which already show lee steepness and more sharp banks.

The soil management by atriplex plantation offers a good opportunity for both, fodder production and soil conservation. The main factor responsible of this trend is the plot fencing during the phase of atriplex growing and herbaceous recovering. Less animal pressure on the vegetation cover and on the soil is then the solution for gullies cicatrisation and for ecosystem stability.

But, the regional analysis demonstrates the difficulty to extent this kind of management and the constraints, which face the management. The participatory approach adopted before the experimentation was not enough to avoid these constraints. It is why the social context should be more understood to prevent the difficulties we faced.

Keywords:

Atlantic Morocco, Sustainable land management, gullies, semi-arid environments, pastures management

1. Introduction

Under semi-arid conditions, the erosion by superficial runoff, concerns more than 80% of the slopes, but contributes only for a weak part of the global soil loss [1], [2]. The beginning of the streaming concentration, under the aspect of rills and gullies, constitutes a fundamental step in the slopes degradation [3]. Its main danger occurs when those concentrated streams start and carry the maximum of soil exportation. We pass from a discrete and continuous transport to a massive exportation that impregnates the landscape. The danger is still looming ahead as long as the rill exists, because it canalizes water immediately downstream, and can transform itself, in case of excess of precipitation, into a deeper and more active gully [4].

There is no unique scenario; the sorts of rills and gullies vary according to local and general conditions; the thresholds of their appearance are more or less heightened; their evolution is more or less exaggerated; the reasons of their appearance can be purely natural or in relation to a determinant anthropic factor. But, in any case, it seems clear that we are dealing with dangerous phenomena that can lead to a disastrous evolution of the slopes.

In the Maghreb [5] the poor quality of soils explains their potentially high erodibility [6]. The reduction of organic matter and vegetation cover, results in soil compaction and higher overland flow generation, in the overgrazed areas, whilst in the ploughed areas, erosion yield is often higher. In semi-arid environments, out of the fragile mountainous regions, the traditional land management systems, involving a combination of agriculture, animal husbandry and forestry, produce moderate amounts of overland flow and soil erosion rates. It is the case of the Atlantic plateaus of Morocco. Poverty and the absence of traditions of the resources protection do not lead to investment in adaptive management strategies [7], [8].

In this area, the *Quercus suber* forest seems to be the more conservative land use, compared to pastures and crops. Under the forest, are recorded smaller overland flow amounts, inferior to 10% of rainfall. An increase of grazing pressure leads to significantly higher overland flow amounts [9], [10] and, erosion is significantly enhanced.

Outside of the forest, the traditional use concerns both agriculture (cereal production) and grazing by mobile flocks around and inside the forests. Both agriculture and grazing have an important responsibility in the natural vegetation degradation and retreat [11], [12]. It is in these areas that gullies show their maximal extension.

In the framework of the DESIRE project, the Moroccan team applied an experiment, with the aim of demonstrating the potential of degraded lands rehabilitation

2. Definition of the research question and hypothesis

For the assessment of existing land management techniques, the Moroccan DESIRE team used the WOCAT Questionnaires [13] and field measurements of vegetation and soil surface, in addition to laboratory analysis of soil fertility and organic matter. The results were presented to the local stakeholders within a participative workshop for the selection of promising technologies to be adopted in which participated the farmers, the local technicians, the elected officials and associations. Eight of the discussed options were classified, based on 12 economic, ecological and socio-cultural criteria. The participants were invited to score the options and farmers had a predominant role in term of scoring. Their choice was for the conservation of the current system, prevailing in the Atlantic plateaus of Morocco, based on

cereals and grazing. They also recommended to introduce a minimum of innovations, and to minimize the effort necessary to implement these innovations. This choice can be explained by the scarcity of water resources in this area and the great variability of rainfall, in addition to the proximity of Rabat, which represents a large range of other jobs for the rural population and the possibility for urban investment in land. That is why the farmers gave privilege to the solution of fodder shrub strips, because, with this technique, cereals remain dominant on the slopes, and because the strips may serve as a fodder complement.

For the slopes affected by gullies and rills, the choice was for to avoid mechanic correction and to implement a dense plantation of fodder shrubs, like *atriplex halimus*, along the contours, with the will that these degraded areas can rapidly be restored and become productive and less eroded.

The team of research applied this recommended action. In the gullied plot of the Hannanet catchment, were planted Atriplex shrubs, inside a fenced area; these shrubs constitute bands with a distance of 6m in between and a density of about 760 shrubs/ha; the rate of success was about 89%; the shrubs were irrigated every 20 days, during the four first summer months. In winter 2011-12, the field was opened to grazing, 2 years and a half, after its plantation.

The choice for Atriplex results from the fact that this shrub is able to grow and reproduce under conditions of rainfall between 100 and 400 mm of rain per year. Due to its strength and its hardiness, the plant grows vigorously even after being cut and grazed. The main objective becomes to improve the pastoral productivity. The second objective is reduction of the runoff and the sediment yield.

3. Presentation of the field study site

The Sehoul Plateau, located between the Mamora forest in the north, and the Grou valley in the south, is a part of the Palaeozoic Atlantic Meseta. Despite its location in favourable parts of Morocco in terms of climatic conditions, it consists of marginal land with both a high poverty and important indicators of degradation.

On the surface of the plateaus, the Pliocene and Pleistocene calcarenites have been deeply weathered and furnished a thick Fersiallitic soil in which processes of leaching have occurred and produced a sandy superficial horizon which represents a fragile material, stabilised by the organic matter, but threatened by runoff and wind erosion, in case of vegetation cutting.

Two big valleys and their tributaries incise this plateau, the Bouregreg and the Grou, which join, 15 km far from the Atlantic Ocean. The incision reveals the geologic material composed of Miocene marls on top of Palaeozoic shale and sandstone. On the slopes, the successive quaternary cycles produced colluviums and soils, themselves subjected to erosion and deposition downstream, and along the valleys, by superficial runoff and channels more or less incised. The outcrops of these colluvial materials show the complexity of the dynamics, which occurred during the recent Pleistocene and the Holocene.

In spite of the transformations in the agricultural system, we observe the resistance of the grazing activity and an overgrazing situation inside and out of the forests. The reduction of the lands reserved for grazing explains the concentration of herds on narrow pastures, with less possibility of movement. The fodder balance assessment remains negative, because, almost 50 % of the needs are brought from the market or induce practices, ending in an

overgrazing of the forest, the pastures and of the cultivations residues [14]. The animal pressure increased recently, particularly because of the association between local residents and investors from the neighboring cities.

The Hannanet experimental site represents a small catchment, with large area covered by annual crops or fallow, representing the normal local land use in this area. The plots are located on slopes of about 15 %, covered by red sandy colluviums, mixed with stones, removing the deeply weathered material of an old fluvial terrace, on top of the Mio-Pliocene marls. Erosion on slopes often washed the fine material and let to the concentration of stones on the surface. In these areas, water erosion keeps the form of sheet runoff, due to the high stoniness, in spite of the fragility of the soil, often compacted and crusted. Annual rainfall is about 480 mm, during a single rainy season from October to May.

In the annual cultivations (cereals, beans, lupine, etc.), the soil is ploughed by animal traction or mechanically. Grazing during summer consumes the whole residues. In September, the soil is completely bare; it is why, sheet erosion exports important amounts of material. Some small plots conserved the matorral cover, composed of *chamaerops humilis*, *Oleaster* and *Lentiscus* and the original thick calci-magnesian soil on the marls, which passes to a fersiallitic soil on top of the hills. Some other plots, cultivated during successive years, are now abandoned to long-term fallow, because their advanced state of degradation let to the wide ablation of their soil by sheet and rill wash in certain cases, or to incision and the development of gullies in others (see Figure 1).

4. Description of the gullied slope in Hannanet catchment

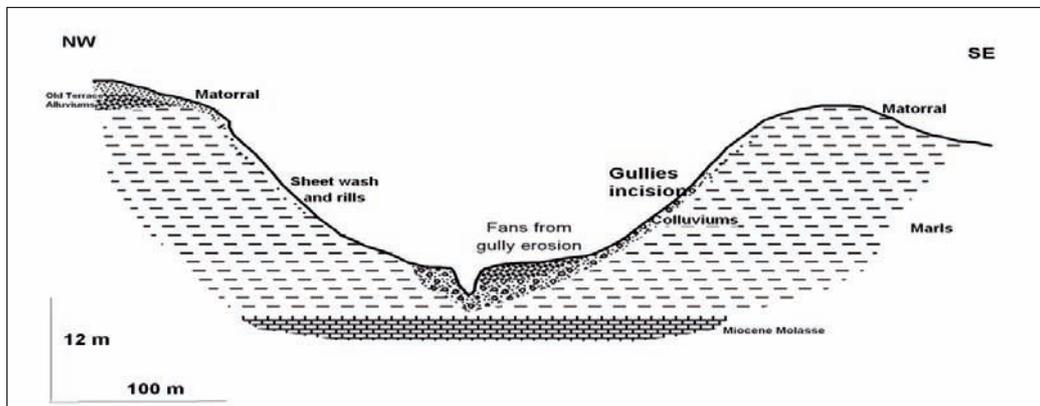


Figure 1: Transsect of the Hannanet catchment

The gullied slope has a transversal rectilinear profile (see Figure 1), regulated since its convex summit, up to a large bed where is located a deeply incised talweg. Lengthwise too (see Figure 2), the profile is rectilinear enough, without sufficient incisions to develop the possibility of hierarchy of gullies, inside colluvial materials of less than 2m thick. The hill slope is complex, constituted, in spite of its planity, of a succession of sections, in consequence of an old phasis of colluvial deposition, which filled the depressed zones, between marls outcrops. The more or less thick colluvial filling is composed of silts from marls, sand and quartzite pebbles, from the old terrace. On the colluviums, a weakly evolved soil was developed. This paleo-morphology is going to guide the posterior evolution and namely the depth of the gullies, in accordance with the substratum.

The slope (see Figure 2) shows longitudinal gullies and discontinuous holes, opened sometimes downstream. Those scars, reminding the effects of piping, indicate the action of the hypodermic streaming within the inferior horizon, the richest one in clay. They also indicate the appearance of subsuperficial water in saturated places and its contribution to the superficial runoff. The concentrated deep and parallel gullies are separated by inter-gullies, where the thickness of the colluvial material is totally preserved. The surface of the inter-gullies is affected by areolar runoff, responsible of a superficial loss of fine particles; the surface is then, covered by a gravel paving. Each gully maintains a rigid transversal profile, with vertical banks and narrow talweg (see Figure 2). The consistency of the colluviums enables the verticality of the banks, which fall down after particular events with a high intensity of rain. It is the reason why we find soil blocs in the gully bottom, swept away by the following events. That is also the reason of extension of the gullies, both upstream and laterally. For the scars which appear at the middle section of the slope, the extension is also downstream, until the concavity which leads to the colluvial fans developed up to the main channel. All the gullies become superficial when they reach this level. Downstream, the gullies deposit fans composed of material eroded upstream, before they join the channel of Hannanet, which has the tendency to incise its bed (more than 4m deep) inside colluviums made of sand, clay and beds of pebbles.



Figure 2: Extension and forms of the gullies before management

On the facing slope (see Figure 1), sheet erosion was responsible for the denudation of the slope and the outcrop of marls. Down of the plot covered by a remnant matorral, with a thick soil, the marls appear, coloured by removed soil, from upstream. The continuous cultivation of this steep part of the slope led to the complete denudation and the abandon of this area, facing the South East, to grazing. Rills are responsible of this sweeping on the quasi-totality of the slope. The process corresponds to the passage of less powerful sheet-shaped streaming to rills. At that moment, the swift dragging of materials is linked to the incision of water veins. Later, the rill stabilizes itself in accordance with a certain water flow (Kalman, 1976), and the erosion becomes very low. However, water is evacuated forthwith and then presents, for the downstream the danger of the floods accelerated formation. Those rills originate in the

middle part of the slope and spread upstream only in case of durable rain, able to saturate the soil in depth and in case of thick material, easy for incision.

5- Hypothesis

About the origin of gullies

In the Sehoul, 80% of agricultural land is still occupied by rainfed grain, tilled by disc plows, responsible of the destruction of the structure of these silty soils. Coinciding with the autumnal rains, mechanized tillage promotes the formation of crusts capping, leading to increased runoff. In fact, even lands kept fallow are not immune to compaction because they are severely grazed during the wet season. After the stubble, all lands are trampled and denuded by overgrazing, resulting in more runoff and the infiltration process reduction.

The small incisions (less than 30 cm deep) are ephemeral and erasable by plowing; they appear especially in autumn and early winter, following the first rainfall. They may start on slight slopes and are generally concentrated in their middle section. The phenomenon affects particularly the leached fersiallitic soils developed on the surface of the plateau and the colluviums, which remove, on the slopes, the silts and fine sands developed upstream.

The gullies developed on slopes are of medium size and evolve particularly on southern exposure. Their extent is on soils slightly evolved, in case of thick colluviums.

The channels of the valleys' bottoms are larger, created by more concentrated and energetic flow inside the massive accumulation of sediments from hillsides.

The spatial distribution of incisions, all sizes combined, seems to be conditioned by the physical environment, including topography and lithology; but in details it is the surface characteristics, associated with different forms of land use that control their occurrence and development.

Hypothesis on possible means of land rehabilitation

In the Sehoul, farmers are particularly fearful of gullies, which make ploughing increasingly difficult and lead to abandon the land for grazing. Sheet erosion has negative impact on soil fertility, but it remains discreet, less daunting to farmers who give more priority to gullied areas in the rehabilitation and land restoration process. As soon as the gully appears, farmers try to mitigate it by intervening directly on its channel. In the plots near houses, the gullies are often transformed into a dumping area receiving all sorts of waste. In the cropping plots open to grazing, the rehabilitation efforts are often not successful due to the grazing effect. In areas less frequented by animals, some farmers have tried to reduce gullies by planting trees such as ficus or eucalyptus.

Given the scarcity of rock outcrops, the local population has not developed the techniques of walls and check dams widely practiced in other regions of Morocco. It is why, the local knowledge in term of attenuation of gullies appears to be ineffective. Trees planted directly in the channels are quickly diverted by the flow.

The state project PMVB tried to remedy the problems of erosion by improved agricultural practices, livestock management and planting fruit trees. Between 2002 and 2005, this project contributed to raise awareness through campaigns and direct experiments with new

techniques and practices. The gabions technique tested in some gullies remains costly and inefficient.

The experiment planted and fenced plot of 5000m² size, applied in the framework of the DESIRE project, corresponds to an old fallow strongly gullied. After plantation, the plot was fenced in April 2009. The fencing and the non-grazing decision has as objective to improve the vegetation cover by the reduction of the biomass withdrawal and by the less compaction of the soil. This was intended to improve the rate of biodiversity, to offer richer and more varied grass fodder, in addition to the fodder from the shrubs, to retain water in the soil, reduce the runoff and the drainage basin of the gullies.

6. Methodology

The monitoring methodology is based on the follow-up of types of the land use behaviour, by comparison between several plots, a plot of land still covered by original matorral, the plots continuously cropped with cereals, the plots with rotation cereals / beans or cereals / lupine, the plots abandoned to long term fallow, after deep soil degradation and the gullied plot.

This monitoring concerned several parameters:

- the covering of the herbaceous vegetation, its biomass and the floristic biodiversity, vegetation and crop characteristics (height, cover fraction) by the point quadrat method, mulch cover fraction [15], [16];
- evaluation of the fodder production: mineral part, organic part, fat, nitrogen matter, cellulose, and digestibility in vitro of the organic matter;
- Agronomical activities of the farmer and yield assessment;
- Soil surface assessment : the percentage of crusted parts, roughness, cohesion using a TORVAN, penetration resistance with a penetrometer, soil moisture with portable TDR probe (0-6 cm depth), infiltration rate, using double ring infiltrometer,
- Observations on the gullies transversal profile and on the steepness of the banks; erosion features (gully density and dimensions)
- Meteorological and discharge measurement, on the Hannanet watershed, and the neighbouring areas, with a V-nodge on the main channel, follow-up of overland flow on plots and rain simulation.

7. Results

The dynamics on the slopes and in the channel

The measuring of the superficial runoff on slopes enables to understand the thresholds from which the process gives way to an erosion tending to concentrate in more or less deep streams. The runoff coefficient (Cr) on slopes varies between 0 and 30%; however, most often, it remains largely inferior to 10% [17] [11]. If we consider the results of moderately rainy periods, it is obvious that the superficial streaming remains globally weak, but during a very wet period, the results may go up very strongly. It is in the Mda basin, in the Prerif hills [1] that were recorded the highest figures with a Cr equivalent to 30% and erosion, which overtakes 54t/ha/year. Those massive exportations show the qualitative operated change,

consisting in the overstepping of a threshold; the plots that signal so high rates are all scratched or affected by gullies.

The episodes with a strong intensity give a more important runoff, in Mamora, 10km north to the Hannanet catchment [18]. The highest Cr was recorded in the rainy period of the beginning of April 1992, that interfered with a high intensity, whereas the soil has not been enough wiped up, after the rains of the end of March. The intense rains on an already saturated ground are the most dangerous situations and give rise to immediate streaming, while on a dry soil, the runoff starts only after a rainy peak ranging from 18 to 20mm.

It seems that it is the continuous rain, responsible of the saturation of the superficial horizons, which accounts for the strongest values of suspended load. On the other hand, the intense and brief rains, accompanied with a high Cr, allow only a moderate concentration. In the Rif mountain, in the Mokrisset area [17], the rains of winter 1991 (635 mm in January and February) allowed the apparition of saturation phenomena in located sites. This was responsible for the formation of scars, that corresponds to small mud flows (scars of about 2 to 3cm deep, 20 to 30cm large and 15m long). The scars, which appear, at the middle of the Hannanet slope can be interpreted in the same way. The thickness of the colluviums and their content in clay explains both the generation of the initial scars and the possibility for their deep and large extension.

The infiltration measurements in various plots of the Hannanet catchment show that grazing is a fundamental factor of infiltration reduction [18] [19]. Both in forest areas and in cultivated lands, grazing explains the compaction of the soil and the rapid generation of runoff.

The rain simulations showed the high rate of overland flow in the bare land with important stoniness and in the degraded pasture, submitted to overgrazing.

The hydrologic behavior [20] confirms this tendency for rapid generation of runoff in the grazed plots, but with a variation between seasons. In autumn, the flood hydrograph shows a fast response. The peak discharges correspond to a runoff coefficient superior to 54%. In winter and spring, the peak discharge and the runoff coefficient are low, compared to the autumnal period (less than 5%). During the intense rain events, is recorded high content of suspended load.

	Overland flow rate (Cr %)	Erosion (g/m ²)
Bare and stony Fersiallitic soil	25	205
Fallow on calci-magnesian soil	9	55
Pasture on calci-magnesian soil	18	38

Table 1: Overland flow and erosion on slopes submitted to overgrazing

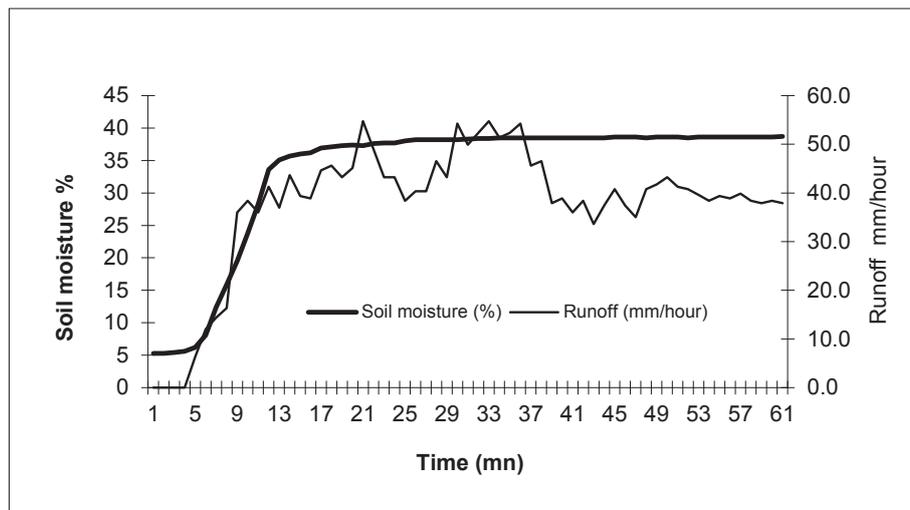


Figure 3: Rain simulation during 1 hour, on a degraded red soil

The effect of the fencing and atriplex plantation

The assessment of this effect was made by the comparison between the restored plot, which correspond to an old cropping field, today abandoned after its incision by gullies, managed by our team, by fencing and plantation of Atriplex fodder shrubs, the non-managed part of the gullied plot and a field in fallow, not yet gullied.

In the plot treated by Atriplex plantation, we noted rapid change in the evolution of surface characteristics. This result was actually initiated by both the fencing and the creation of water traps around the shrubs, which helped water retention and increase of soil moisture. The results of the monitoring during two years show that the protection of the slope affected by gullies and rills by fencing and fodder shrubs plantation has several advantages:

- Increase of the covering rate by herbaceous plants from 57% in the gullied field to 87% in the restored plot during spring.
- Improvement of the quality of the herbaceous vegetation, with a 3 times increase of the permanent species after one year.
- Improvement of the floristic biodiversity: in the Atriplex plot, the number of species is 2 times the one in the non protected slope.
- Increase of the vegetation biomass: the total palatable biomass has increased from 360 kg/ha to 1235, after management.
- Improvement of the quality of fodder: the rate of nitrogen matter increased from 34 to 190 kg/ha and the rate of cellulose from 63 to 211 kg/ha.
- Increase of the fodder production, from 127 fodder units per ha to 694, which represents a rate of 72%.
- Improvement of the soil surface: In the atriplex plot is recorded a higher soil moisture than in the non-protected slopes, and a weaker resistance to penetration as well as a lower cohesion. Compared with control plots, the observations and the moisture measurements by TDR showed that the soil becomes increasingly open and permeable. We can directly observe strong soil disturbance caused by restored biological activity, allowing aeration and soil amendment with organic matter, which made the soil less compacted and encrusted.

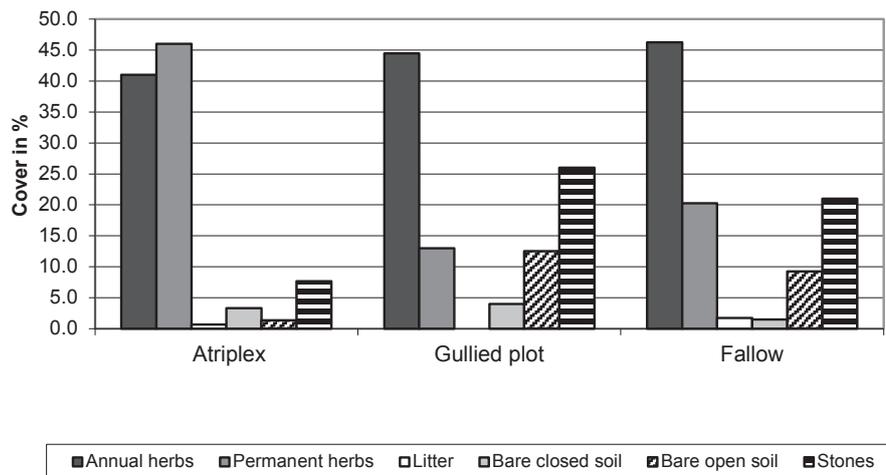


Figure 4: Comparison of 3 plots in term of soil cover composition

-The observations made during the intense episodes of rain of the winter 2010 show that in the atriplex plot more rain is infiltrated and less runoff is recorded. This process appears through the profiles of the gullies which already show less steepness and more sharp banks.

-The morphometric measurements show an important extension of the area occupied by each gully in the non-fenced slope, while in the managed field, the tendency is for the cicatrisation of the gullies, the loss of steepness of the banks and the growing of vegetation in the channels. As opposed to gullies located in the control plot, which are considerably cleaned and straightened on their edges, the gullies in the planted plot are increasingly mitigated. Edges continue to provide sediments by both creep and micro landslide, but these materials move over short distances, consequently filling the channel.

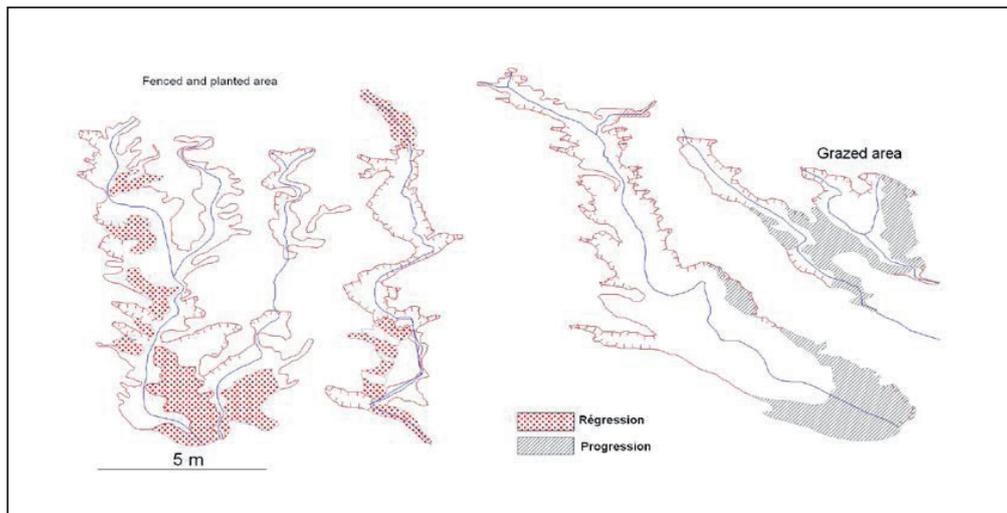


Figure 5: Progress and retreat of the gullies in the managed plot and in the grazed area

In the long run, the Atriplex planted along strips, can contribute to improved fodder potential, higher water retention, and more organic matter. Thus, an eventual generalization of Atriplex

plantation associated with rainfed grain will significantly contribute to surface evolution, thereby reducing both the runoff and the land degradation (see Figure 6).



Figure 6: The gullied slope before and after the management of the left part of the slope

8. Discussion : Regional analysis of the possibilities of management and constraints

The proposed technology of gullies control is adapted for two types of land in the commune of Sehoul (see Figure 7):

- The already gullied steep slopes, originally covered by matorral, made of trees and shrubs, and used as a grazing area,
- Middle gradient slopes (4-20%), used for grazing and some marginal annual crops, threatened by runoff and sheet erosion, but also by rill incision and local formation of gullies, in some unfavourable locations.

But, many constraints face this choice of management. These constraints derive from social evolution of the population during the last 60 years, with the regression of demographic growth and mainly the rapid transformation of the rural structure of families to a new kind of farmers, more interested by what they can earn during their frequent movements to the city than by their own traditional agriculture. Due to the penetration of urban investment, direct overgrazing and indirect effects related to mismanagement of land for fodder production, operate massive damages to the vegetation cover and to the soil. It is why the SLM approaches and techniques have a very low rate of chance for success, without a deep change in term of land ownership, law constraints, agrarian structures, relations between the city and its vicinity, etc.

Scenarios were built, based on various rates of land management inside the fragile environments, vulnerable to degradation by runoff and erosion. These scenarios try to integrate the concept of SLM into the current system of livestock to make this system, progressively evolve towards intensification, more income and less land degradation. The proposed changes are not easy to apply. At first, at the level of the farms, we must consider the private character of property, the dispersion of the plots and the various state and forms of degradation. At the level of the whole territory, many agro-sylvo-pastoral combinations are possible. But, in what measure is this vision practical? Can we recommend a specialization of certain lands in grazing and others in farming, without rethinking the restructuring of the

fragmented plots? This calls agreements between farmers and new landowners, coming from the city. The choice for planting gullied plots with *atriplex* demonstrated, during two years of monitoring, its effective potential for land rehabilitation, fodder supply of the cattle and for evolution towards a new semi-intensive breeding. But, how to encourage the farmers to invest in this effort of planting? What would become the role of the domanial forest, which would be in this perspective, less used for grazing and devoted for new activities?

As the cost investment reaches about 2500 euros/ha, after 6 years, the financial balance remains negative and the technology needs a long time horizon to be profitable; it is then not acceptable for land users, without a state subsidy, in order to reduce the cost supported by them. The fencing has an effect of eliminating the free displacement of flocks and then the free grazing; at the same time, it increases the pressure on the remnant fields not fenced, the forests and the fallow for example. The fencing represents a large part of the investment cost. In case of a concerted action, fencing larger fields than the individual plots could reduce the costs; but it needs coordination between land users.

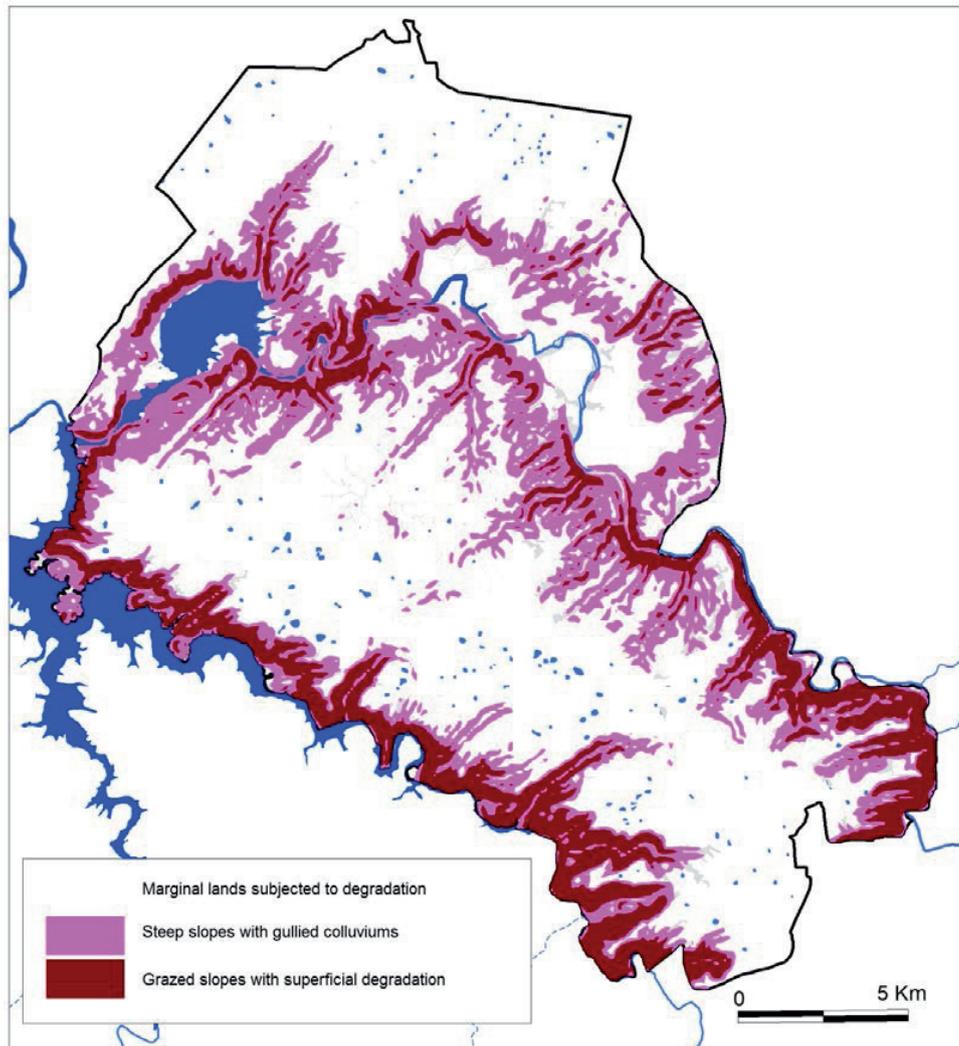


Figure 7: The lands adapted for gully control in the Sehoul commune

The positive effects of the technology are evident: it generates a five times decrease of the erosion rate; it increases the biomass from 10 to 25 times after 10 years implementation and then an economic profit on the long term. It reduces the need for stubble from the croplands and for forest grazing and then it improves the croplands and the forest lands. It has also an off-site hydrological effects, by the decrease of reservoir siltation, due to gullies cicatrisation.

But there is a need for subsidies, as a payment for Ecosystem service and coordination to ensure the adoption and the extension of the technology and we can consider that without reduction of the costs, the technology is condemned.

At the opposite, the integration of the whole resources (forests, pastures and croplands) can make each resource profit from the management of the other resources

The rehabilitation of the degraded land by the engagement of the government in subsidizing part of the inputs can elevate the awareness among the people to maintain the SLM technologies. The change in hydrological behaviour of the surface and improved water balance upland and off-site, the densification of the vegetation cover and the improvement of the fodder quality and quantity will permit to accept temporary fencing when necessary, due to the enrichment of the herbs by control of the period of grazing and of the number of animals.

The awareness about gullies and the behaviour of the population differs from the productive areas, where the birth of a gully represents an immediate threat and induces an immediate and individual intervention and the non productive lands, mainly the abandoned ones, where no action is made to prevent the gullies extension. In the pastures, on steep slopes, the gullies management should suppose a social organisation and a community intervention. The experience of the DESIRE project and the failure of the will of restoration extension is related to these factors all together: cost, absence of subsidies, weak consideration of the value of the steep slopes lands and the absence of community organisation.

9. Conclusions

The natural resources of the Sehoul commune deserve to be valued, what requires the conception of a strategy of socio-economic development and management. The recommendation thus is to prepare an integrated project indicating the possible tracks for the rehabilitation of the strongly degraded lands and the development of soils threatened by degradation, in case of continuation of the current system characterized by over-consumption (options of plantation, fencing, modification of the practices of cultivation and sowing).

The strategy of farmers is influenced by the two main traditional activities: annual crops for food production and livestock for immediate income. For most farmers, these two activities remain vital, because they complement each other, but no one can be viable on its own. Both suffer from over-harvesting and over-grazing, leading to severe land degradation.

The stakeholders meetings showed the importance of bringing solutions to this degradation trend which threatens both the environment and the farmers' income. The choice for more integration between croplands and pastures represents the less costly and the most profitable option, because livestock profits now from all the resources and from all types of land use and represents the first objective of land exploitation.

The farmers are more concerned by their immediate income than by sustainability and by the long term effects, it is then necessary to alleviate their level of conscience and at the same time make the remediation techniques profitable and have a real effect on their income. The selected actions must be simple and easy to reproduce, in order to facilitate their gradual adoption by other farmers.

Incentives to land users are recommended to exclude grazing and to plant fodder shrubs in order to prevent soil erosion and stabilize gully formation. At the same time, bold political decisions are needed to reverse the trend and challenge of natural resource degradation and desertification. It is also urgent to identify new legal contexts that can enable effective implementation of reforms and improvements.

References

- [1] B. Heusch, "L'érosion dans le Prérif: une étude quantitative de l'érosion hydraulique dans les collines marneuses du Prérif occidental". Annales des recherches forestières, 12, 1970
- [2] E. Debazac et P. Robert, Recherches relatives à la quantification de l'érosion, 1973
- [3] R. Kalman, "Etude expérimentale de l'érosion par griffes". Revue de Géographie Physique et de Géologie Dynamique, Vol 13 (5), pp. 395-406, 1976
- [4] J. Poesen, J. Nachtergaele, G. Verstraeten & Valentin, Gully erosion and environmental change: importance and research needs, Catena 50, 91– 133, 2003
- [5] A. Conacher & M. Sala M., Eds., Land degradation in Mediterranean environments of the world, Wiley, 1998, 491 p.
- [6] C.O.A Coelho, A. Laouina, A.J.D. Ferreira, R. Nacira, M. Chaker, R. Naafa T.M.M Carvalho, A.-K. Boulet & J.B.P. Pereira, Forest and grazing impacts on hydrological and erosional processes in Southern Portugal and Northern and Central Morocco. Man and soil at the Third Millennium, Geofoma Ediciones, Logroño, 1255-1264, 2002
- [7] M. Aderghal, A. Watffeh, M. Tailassan, R. Nafaa & J. Al Karkouri, Les techniques de CES dans le Plateau Central, le haut pays d'Oulmès in GCES au Maroc, Public. Fac. Let. Sc. Hum. Rabat, p. 151-164, 2007
- [8] A. Watffeh, R. Naafa, M. Aderghal, J. Al Karkouri & M. Tailassan, La durabilité des ressources en terre et en eau, dans le contexte des transformations agraires dans les plateaux du Sahel Atlantique de la Mamora et du Gharb (en Arabe) in GCES au Maroc, Public. Fac. Let. Sc. Hum. Rabat, p. 17-30, 2007
- [9] C. Coelho, M. Sala, M. Gonzales del Tanago, A. Laouina, A. Hamza, K. Regaya, A. Ferreira, T. Carvalho, M. Chaker, R. Nafaa, R. Naciri, A. Boulet, L. Reina & S. Bernia, Effects of land use and land management practices changes on land degradation under forest and grazing ecosystems. Final synthesis report, Project ERBIC18- CT97-0147 (MEDCHANGE), 2000.
- [10] C.O.A. Coelho, A. Laouina, A.J.D. Ferreira, M. Chaker, R. Nafaa, Fenjiro R., Antari M. & S.J.E. van Dijck, Hydrological response and bed load transport at two small catchments in the *Quercus suber* natural distribution region. First results. Montado/Dehesa Symposium, Cáceres, 2003

- [11] R. Nafaa, Dynamique du milieu naturel de la Mamora. Paléoenvironnements et évolution actuelle de la surface. Thèse de Doctorat, Université Hassan II, Mohammedia. Publications de la Faculté des Lettres et des Sciences Humaines, Mohammedia. Série Thèses No 3, 321 pp., 2002
- [12] E. Roose, Introduction à la gestion conservatoire de l'eau, de la biomasse et de la fertilité des sols (GCES). Bull. Pédol. FAO. N°70, 420 p., 1994
- [13] WOCAT, Where the land is greener – case studies and analysis of soil and water conservation initiatives worldwide. Liniger HP, Critchley W, Associate Editors: M. Gurtner, G. Schwilch, R. Mekdaschi Studer, CTA, FAO, UNEP & CDE, Bern, 2007
- [14] S.J.E. Van Dijck, A. Laouina, A.V. Carvalho, S. Loos, A. Schipper, J. Van der Kwast, R. Nafaa, M. Antari, A. Rocha, C. Borrego, & C.J. Ritsema, Desertification in northern Morocco due to the effects of climate change on groundwater recharge (Rabat region, Morocco), Proceedings of the Conference on “Desertification in the Mediterranean region, a security issue”, Kepner, Rubio, Mouat & Pedrazzini eds, 549-577, Springer, Netherlands, 2006
- [15] PH. Daget & J. Poissonnet, Une méthode d'analyse phytoécologique des prairies. Critères d'application. Ann. Agronomique N°22, 1971
- [16] M. Gounot, Méthodes d'étude quantitative de la végétation. Eds masson et C^{ie}. Paris, 1969
- [17] A. Laouina, M. Chaker, R. Naciri & R. Nafaa R., L'érosion anthropique en pays méditerranéen: le cas du Maroc septentrional; Bull. Ass. Géogr. Franç., Paris, 5, p. 384-398, 1993
- [18] A. Laouina, C. Coelho, C. Ritsema, M. Chaker, R. Nafaa, I. Fenjiro, M. Antari, A. Ferreira & S. Van Dijck, Dynamique de l'eau et Gestion des terres dans le contexte du changement global, analyse agro-hydrologique dans le bassin du Bouregreg (Maroc), Sécheresse, vol. 15, n° 1, p. 66-77, 2004
- [18] R. Nafaa, Mesure de l'érosion hydrique superficielle sur les versants de la Mamora; Travaux du Laboratoire de Géomorphologie, Rabat, n°2, p.20-29, 1993
- [19] A. Laouina, C. Coelho, C. Ritsema, M. Chaker, R. Nafaa, M. Antari, A. Ferreira et S. van Dijck, La différenciation spatiale des comportements des terres dans le micro-bassin de Matlaq (région de Rabat, Maroc, Zeit. für Geomorph., suppl. vol. 143, p. 127-141, 2006
- [20] M. Antari, Mesure du ruissellement et de l'érosion des terres dans le micro-bassin versant Matlaq et essai de modélisation (Région de Rabat, Maroc). Thèse de Doctorat. Université Mohammed V Agdal, Faculté des Lettres et des Sciences Humaines, Rabat, 218p., 2007

Sub-Saharan migrants in Fes: A presence on the margins of an evolving city

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Abstract

In recent years, the city of Fes has become a major destination of European and sub-Saharan migrants. We postulate that this is not linked to endogenous dynamics, but rather to a symbolic representation of a city that had its economic and cultural glory in the past. For Europeans it is generally a choice and a mean to start a new project of life in the south, or a way of being at the same time 'here' (Fes) and 'there' (place of origin). Whereas sub-Saharan perceive Fes in reference to its historical functions, spiritual, commercial and haven for students, the role played by the city throughout centuries. And because of these links Fes is represented as a city to which sub-Saharan migrants can travel illegally and in which it is also possible to settle without identity breach while keeping links with home territories and African identity.

Sub-Saharan migrants, have mixed with students or pilgrims whose presence in Fes has become familiar, contributing to the consecration of an existing 'otherness' and for which the host society has developed ways of coping with. There is neither assimilation nor integration planned, nor that the society has overcome the problem of coping with 'others', but, in all its various layers, it offers slots to allow settling and in some cases even social promotion.

Our aim in this paper is to analyze the role played by Fes in attracting flows of African migrants, as well as to see how far it can exceed its symbolic function in order to respond positively to of people's expectations regarding employment and social and cultural integration, whose primary reason for migrating is economic.

Keywords

Urban fragmentation, sub-Saharan migration, African identity, otherness, urban margins, social diversity, segregation, home territory, exclusion

Introduction

Fes is one of the cities in Morocco, which has occupied a central position in traditional economic spaces, essentially those structured by flows of trade and transnational exchanges connecting the Sahara on one side and Europe via the Mediterranean Sea on the other. Whilst the city remained continental, its economic, political and cultural reach extended beyond

Morocco borders, which meant that, throughout the whole pre-colonial period, it acted as a magnet for populations from diverse origins.

This diversity, which is not simply geographical but also cultural and religious, raises questions about the manner in which it has been managed. Fes is often described as a cosmopolitan city. This description serves to paint a positive picture of its capacity to deal with difference in reference to what the Mediterranean maritime city has been: a “commercial interface and city of mixings and meetings”. Even though the city’s moment of economic glory is now behind it, this has certainly not resulted in an urban framework where these mixtures between different populations would have been possible. For even though the city’s structure does not give the impression of a mosaic of districts differentiated by ethnicity, race or religion (except in the case of the Jewish Mellahs in former times), the fact remains that a spatial and anthropological distance marks out the locations of differentiated social groups in sites around the city. This is the physical reality of the city, which can be traced across various periods of its history.

Founded in the 8th century, it initially had a dual structure, comprising two urban hubs separated by the Fes wadi, one occupied by the Arabs and the other by the Amazigh, joined by other populations coming from Andalusia. In the 8th century, Fes-Jdid, a third hub outside the city walls, was built by the Marinids in opposition to Fes el Bali, as a location for the Makhzen, palace and administration, in addition to districts occupied by new migrant populations and the Jewish Mellah. With the protectorate, a fourth hub was built in the form of a colonial new city reserved for European populations and distinct from the Arab city.

With each of these phases in the city’s development, social distances were managed with reference to standard distinctions under the categories of religion, culture, economy and geographical or ethnic belonging. At present, the city’s urban structure is more complex, and segregation between the different populations is based less on ideas, being basically determined by material factors and social class.

Over the past few years, the city of Fes has been introduced into an era of openness, becoming a destination for transnational European and Sub-Saharan migrants.

Our hypothesis for this work is that this openness is not due to an endogenous process, but rather to a symbolic impression of a city, which has had its moment of glory, both economically and culturally. For Europeans, it is generally chosen and experienced as a way of starting out afresh to build a new life in the south, or a way of living between *here* (Fes) and *back there* (the place of origin). Meanwhile Sub-Saharans perceive Fes in terms of the historical, spiritual, trading and student haven roles it has played over the centuries. It is because of these links that Fes is seen as a city to which Sub-Saharan migrants can travel without the need for valid papers, and in which it is also possible to settle without any risk of losing one’s own identity, as an extension of African soil, society and identity [1].

What is the reality of the situation facing the Sub-Saharan migrants in a city characterised by the strength of its cultural identity and the weakness of its economic performance? What are the opportunities for work, housing and recreation, which allow them to live in the city and visit its different spaces? How does the city of Fes, the producer of marginality, simultaneously encourage links between groups who are distanced by ethno cultural and

sometimes religious differences, but close through their social allegiances? These are questions we shall attempt to answer in this paper. Our end objective is to analyse the role currently played by the city of Fes in polarising flows of Sub-Saharan migrants, to see how far it is capable of going beyond its symbolic function to respond positively to the aspirations for employment, social and cultural integration expressed by populations whose primary role for leaving their country of origin is economic.

Our hypothesis is that Fes, a Moroccan city which “seems to have constructed itself around the idea of duality”[2], has not evolved towards forms of exclusion, relegation and confinement of the least privileged social classes. Whilst its urban structure resembles a fragmented space, movement around the city is not hampered. The presence of the State in the most marginal districts, through various community-based services, enables us to consider this fragmented reality as understood by Bouchanine [3]. In other words, where the city’s sprawl fosters the emergence of districts, which are unequally equipped and disconnected from the centre, without this truly resulting in the confinement and isolation of the least privileged social classes.

This is why we feel that Sub-Saharan migrants who have come to latch onto groups of students or pilgrims whose presence in Fes has become commonplace contribute to the entrenchment of an otherness which already exists and to which the host society has developed means to adapt. It is not a question of assimilation or planned integration, nor does it suggest that society has overcome the problem of the stigmatisation of others, but that society, in both its lowest and highest echelons alike, offers openings for settling in and maybe even social advancement. As for recently arrived Moroccans, relegation means precarious economic conditions and a lack of time spent in the city to internalise its norms, in other words the norms of those already established there and who proclaim themselves to be “*Fassi*” [4].

Methodology

This work is based on the results of fieldwork, a survey and interviews, conducted in 2009. Of 400 Sub-Saharan migrants selected for the survey, 371 (of whom 27.5% were women) responded to the questionnaire, giving information about their demographic and socioeconomic profile. They were contacted in the districts where they live and the places they most often visit (university campuses and places where Sub-Saharan students live, Internet cafés, Western Union and Money Gram branches). From this survey, 40 respondents were chosen to take part in detailed interviews with questions about their migratory route, their daily life in Fes and their relations with society and the places they visit, along with the prospects for their migratory project.

This article is divided into two main sections. The first section covers the urban duality of the city of Fes over time, and the city’s failings, socio-spatial fragmentation and marginalisation, arising from an imbalance between demographic growth and the performance of the city’s underlying economy. The second section is devoted to Sub-Saharan migrants bringing new styles of urban living, seeking freedom of the city.

1. Fes: the duality of an historic city and the growing complexity of today's urban fabric

1.1. Fes: duality within/outside the historic city

Compartmentalisation of the Medina's internal spaces

Throughout the whole pre-colonial period, Fes was an urban melting pot and a place for migrants attracted by the city's prosperity to converge. But although its strong polarisation and universality derived from its position in a borderless space, its inner spaces were inaccessible to non-muslim foreigners. Thus, religious factor introduced a distinction between the interior and the exterior, confirming the opposition between Muslims, Jews and Christians. The religious factors was also used to impose the dominant official version of Islam, to the detriment of other variants of a popular Islam which may exist in society.

That distinction between the inner and outer world was reinforced by an organisation based on spatial separation between different social categories. The social hierarchy constructed around wealth, power and sometimes the nobility of one's origins imposed a spatial distribution of the population which reflected a tendency towards the introduction of compartmentalisation between residents within a single location [5]. Those are divides which have run through the city's social body over different periods of its history.

Under the Protectorate, movement in Morocco's centre of gravity towards the coast was the trigger for a process in Fes leading to its economic downgrading and evolution towards a new dual urban configuration which sets the Arab city against the European city [6].

The colonial city, openness and modern/traditional duality

The colonial city, constructed within a separate socio-spatial class, become a symbol of modernity and the concentration of power. It was the place not only for Europeans to settle, but also for the Moroccan upper middle-class. A number of families tried to move closer to the new centre, either by work or by residence. This gradual shift of the more prosperous families to the modern city was in line with a process of cultural integration of the elite sought by the Protectorate; there is also evidence of a change in behaviour towards Europeans, driven by a search for the profit and commercial opportunities offered by the colonial economy. This drove the *Fassi*, over the first half of the 20th century, to emigrate to the port cities; Casablanca, in this case.

1.2. Towards greater complexity in the urban fabric

Alongside its traditional city functions as a regional centre for trade and spiritual capital, Fes saw the development of an industrial, essentially textile sector. This increased its attractiveness and stimulated its rapid growth. Its population multiplied, going from fewer than 100,000 inhabitants in around 1900 to 361,258 in 1982, 769,000 in 1994, and 946,000 inhabitants in 2004. This is currently a city of a million inhabitants. In association with the growth of the city's population, two intersecting processes started; firstly, the city lost a large proportion of its middle-class contingent with the emigration of the families most

representative of the *Fassi*¹ elite to more dynamic cities, whether in Morocco or abroad; secondly, it became the destination for migrant populations, initially Moroccans from a rural or even urban setting, and then foreigners through European and Sub-Saharan transnational migration.

The distribution of the new arrivals happened in a differentiated manner, depending on the opportunities offered by the city for a mixed population whose reasons for settling in the city varied.

Uncontrolled urban expansion

The urban expansion of Fes under pressure from migratory flows took two forms. The first was to do with increasingly dense occupation of the Medina. It fell into disrepair and, due to the low rents and working opportunities on offer became the place to settle for new arrivals from diverse geographical origins. It remained a place which was sustained by its traditional trades and crafts, but the social and urban environment was subjected to a deterioration which was to become alarming over time. The second form can be seen in the drive for anarchic urban development in the city's outlying spaces. These new districts including Montfleuri, Narjis-Ouinat El Hajjaj, Jnanate, Sahrij Gnaoua and Dhar Lakhmis and Bensouda, constructed around modest housing plots, are places which are socially and economically poles apart from the medium- or high-prestige residential suburbs.

The spatial failings arising from that anarchic growth are, in fact, simply an echo of the general outline of this city built upon a socio-spatial structure which was fragmented from the start. Not only are the new districts under-equipped and lacking in community services, but the population here experience spatial marginalisation, being located far away from the centre, and economic marginalisation, subject to modest material conditions, unable to access the commercial and leisure spaces invented by and for the modern city.

There is no doubt that deficiencies in terms of urban management have led to the social exclusion which is often made manifest through the poverty, the environmental and security risks to which the people are exposed.

Mixedness and segregation: two sides of a single city

The contrasts between the historic district comprising the Medina, symbol of traditional authenticity, and the new city with all its modernity, are not just spatial, but also economic and cultural, with reference to different models of the city living cultivated in each place.

The centre brings together the main activities constituting the city's economic base. At the same time, it is open to people from the margins, coming here to find work, to study, to shop or simply for leisure. But the fact that a specific place is not out of bounds does not mean that the people who only have a temporary right to be there are not stigmatised through their belonging to the marginal places of residence. The range of stigmas covers several aspects, and has as much to do with the physical aspect of these districts as the socio-cultural and economic features of the people who occupy them. These marginal districts are generally of low architectural value, built either illegally or in anarchic plots; the social classes occupying

¹ An inhabitant of Fes

them are identified as caught between two worlds, between a rural approach to life which is still evident in the way they live in the city, and a contingent floating urbanity deriving from recent immigration into the city. This stigmatisation of populations on margins is in fact a recycling of the vocabulary once used to describe new occupants of the Medinas following the departure of the *Fassi* families. A large part of these populations exercised a residential mobility towards some of these districts and, thanks to their past and their passage through the Medina, they consider themselves to be part of the *Fassis*, thus distinguishing themselves from the new migrants who have settled directly in the periphery.

But stigmatisation does not mean a fixed social reality. Over time, migrants build up their social capital, manage to integrate into the city and adopt its norms by adapting them, which in the end it produces a hybrid *Fassi* culture.

2. New south-south migratory flows: new populations on the margins?

The city of Fes has played an historic role in polarising the flows of exchanges occurring within the trans-Saharan economic space. Even today, it continues to occupy a privileged position as a religious centre for adherents to the *Zawiya Tijaniyya* [7], and a university centre for students originating in Francophone African countries. But Fes has long been on margins of the circulatory itineraries of Sub-Saharans arriving in Morocco with a migratory project.

One could hypothesize that the direction of migratory routes to the countries of North Africa, and Morocco in particular, is a modern-day recreation of the commercial and religious relations which have always linked the countries located on either sides of the Sahara.

The mosaic of Sub-Saharan countries from which the immigrants we met in Fes originated indicates a recent development in the Sub-Saharan migratory situation in Morocco. Because not only does the phenomenon include countries located deep in the heartlands of African continent, and where the relationship with Morocco is strongly linked to recent migratory developments, but also because the geographical distribution of Sub-Saharan migrants in Morocco is not subject to the attractiveness of key locations on the international migratory routes (see Map 1).

This situation results from the convergence of two factors. The first is to do with the restrictive European policies on immigration, which result in the abortion of migratory projects among a large number of Sub-Saharan migrants with Europe as their destination. The second is the opportunity for Sub-Saharans stuck in Morocco to be able to circulate and settle in different places, relying on solidarities, which are built up of the course of journey, or who rely on communities already established in Morocco.



Map 1: The origin of the surveyed Sub-Saharan migrants in Fes – 2008.

From interviews with migrants, Fes emerges not as a destination city, nor even a transit city, on the route to Europe. A number of them were even unaware that it existed, and its name was only revealed to them as a possible destination once they had arrived on Moroccan soil. However, the city of Fes is presented as a haven offering opportunities for migrants wearied by their travels to recharge their batteries, but this does not by any means allow all of them to envisage settling there permanently.

But despite its recent, irregular nature, Sub-Saharan migration to Fes has become an established fact. It shows itself through the presence of migrants seeking possible inclusion in the city, either through accommodation, or through work, or even through religious practices.

Beyond the date of arrival and the issue of what these migrants represent in numerical terms, the important thing is to see how this presence, as fleeting as it may be, makes its mark on the space and influences social relations with Moroccans on one side and migrants from other nationalities on the other.

In order to tackle these aspects, we have looked at the profiles of these migrants and their lives in Fes, through the spaces which they occupy, their occupations, visits and activities in which they engage.

2.1. The socio demographic profiles of Sub-Saharan migrants in Fes

The migration of Sub-Saharans towards Europe, in its illegal form, involves populations made up of both men and women belonging to the youngest age groups. The preponderance of young people can largely be explained by their specific living conditions, and the push factors to which they are subjected, encouraging them to leave. These are the categories most affected by unemployment and under-employment. In countries affected by political instability and war, it is often young people who are forcibly conscripted into the army or militias; meanwhile, women also find themselves exposed to violence of all kinds. Given the harsh travelling conditions and the scale of the risks to be taken, particularly when the route is through the desert [8], [9], [10], [11], [12], [13], it is indeed only young people, with few ties to their country, who are likely to embark upon the adventure of emigration by hazardous routes. Finally, it is young people within African societies who most aspire to better future and improved living conditions that emigration makes them possible.

Young male migrants

The distribution by age of Sub-Saharans in Fes shows a predominance of those age groups between 20 and 35 years old, i.e. 338 people, making up 91% of the survey population; those aged over 35, i.e. 38 people, account for just 8.3%. The ages at extremes of the scale are 48 for the oldest and 19 for the youngest.

The mean age upon arrival in Fes is in fact 28, and can be explained by the fact that this is a population on the move and seeking out opportunities outside its country of origin.

It is also an essentially male population, with women making up 27% of the total number. They can be found in the 20 to 30 years age group, which accounts for 77.4% of them. The sex ratio is 263 over the population as a whole, and ranges from 248 for the under-30s to 308 for the over-30s. Women are therefore more numerous among the younger people.

Single status, cohabitation and children born during the journey

A breakdown by marital status of Sub-Saharan migrants before embarking on migration shows a predominance of single people, who make up 65.5% of the total, but there is a variation between men (66.9%) and women (59.8%). This difference is greater in the case of married people, at 4.9% compared to 12.2% for men. However, divorced Sub-Saharan women are more numerous, at 16.7% compared to 0.3% for men. The greatest characteristic of this Sub-Saharan collective in Fes is the practice of cohabitation, involving 15.4% of the survey population.

The marital status after departure changes in a great many cases; thus, it can be seen that the proportion of each marital status is lower except for the case of cohabitation, which has seen a rise of five percentage points, i.e. 20.2%, particularly among women.

However, we remain sceptical about the institutionalisation of these partnerships, insofar as these are often non-lasting relationships, and sometimes simply based on circumstance [14], [15].

This supposition was confirmed by the interviews, which revealed cases where this kind of relationship has been used to establish links of mutual solidarity. These unions are not established exclusively between migrants, but may be mixed, between a migrant and a student. A number of these relationships entered into along the way, or once settled in Fes, result in children being born, some of whom are not acknowledged by the father. Of the 371 people surveyed, 175 said they had children to care for before leaving their country, i.e. 47.1%, but only 20.6% said they were married, compared with 42% single people and 17% divorced or widowed individuals. In addition, 22 people, i.e. 12.6%, said that their children lived in Morocco, whilst the others said they had left them in their own country with family members, or had simply abandoned them.

The number of children living in Fes with their parents has reached 82, only 16 of whom were born to migrants arriving in Morocco prior to 2005. Of those children, 40% live with married parents, 30% with cohabiting parents, and 29.1% in single-parent families, where the parent is either unmarried, divorced or widowed, and generally the mother.

Unmarried mother status, though not included in the survey, is clearly in evidence. This poses problems of a different kind, particularly what status to accord to those children born outside the institution of marriage as legally constituted in Morocco. What will be the fate of those children born during their parents' travels who, upon reaching school age, will need to face the issue of finding a school place? This situation is illustrated by the case of an Ivorian mother. Having studied to Baccalaureate level, this young woman returned to Morocco via Casablanca airport in 2004. She lived initially in Casablanca, where she met her future husband, with whom she was to live in Rabat for about 4 years. One child was born from that relationship. After separating from her husband, she came to Fes in 2009, accompanied by her four-year-old son. She is currently experiencing financial difficulties in paying for her child to attend a private school, since there is no state educational provision in Morocco for children in this category².

Literate migrants with an elementary level of education

Among the Sub-Saharan community in Fes, those who say they have received an education account for 92.7%, compared with 6.2% without any education. But whilst people with an average level of education, not having progressed beyond secondary level, account for 76.7%, the presence of migrants educated to university level is remarkable: 14.02% of the total.

² Interview with an Ivorian emigrant woman

Level of education	Gender of survey subject				Total	
	Male		Female		Number	%
	Number	%	Number	%		
None	21	7.81	2	1.96	23	6.20
Primary	83	30.86	38	37.25	121	32.61
Secondary	125	46.47	46	45.10	171	46.09
Higher	37	13.75	15	14.71	52	14.02
Other	3	1.12	1	0.98	4	1.08
Total	269	100	102	100	371	100

Source: E3R survey, October 2009.

Table 1: Levels of education among Sub-Saharans in Fes

In addition, we see that school education is more widespread among women than among men, and that they account for a higher proportion of those educated to primary and higher level.

The level of education therefore indicates a community comprising men and women who have gone through school and aspire to find a job, which will enable them to establish a purpose for their lives in Fes.

The level of education says much about the social origins of these migrants. For it is generally accepted that advanced levels of education in Africa, despite the efforts made by certain countries in respect of development, literacy and education, remain one of the distinguishing features of the socially advantaged urban environment.

2.2. Before leaving, immigrants were engaged in urban occupations

A breakdown of Sub-Saharans by activity type prior to departure is very suggestive of the social situations from which they have come. These are migrants who were working in an urban setting, even though many of them are of rural origin and have recently arrived in town. Those who say they were working prior to the departure account for 60.7%, of whom 33.2% are women. Although we know that unemployment and under-employment among young people are structural problems in the economies of Sub-Saharan Africa, within the survey population those who were not working because of unemployment made up barely 2.7% of the total, and 36.9% were not working because of school.

Among those actively employed, 5.7% belonged to the agriculture and husbandry sector, and 30% were involved in commerce or the service sector. That proportion rose to 45% among women.

Type of activity	Level of education					Total	%
	None	Primary	Secondary	Higher	Other		
Commerce and services	9	49	56	4	1	119	32.1
Electro mechanics and transport	3	21	19	2		45	12.1
Building and civil engineering	4	11	5			20	5.4
Agriculture and husbandry	2	11	8			21	5.7
Civil servants and private sector		5	3	2		10	2.7
Students and pupils		21	70	43	3	137	36.9
Other	3	3	3	1		10	2.7
Unemployed	2		7			9	2.4
Total	23	121	171	52	4	371	100.

Source: E3R survey

Table 2: Types of activities undertaken before leaving and level of education

Among the declared service activities are small jobs as hairdressers, cobblers, dressmakers, and traders are often retailers with no fixed business premises. They are more like itinerant traders than true shopkeepers. The area of business may often be centred on a town and constitute an occasional activity, or it may extend to remote buying and selling locations with a certain stability of trade.

- Take the case of the young man who had become an occasional clothes trader in Cotonou:

“I stopped studying, and I haven’t been to school for two years. I stopped school in the 4th year, and I learned a trade in refrigeration and air conditioning. With the life I was living, I stopped work and decided that I’d make my own way. I was a bit of a lad; when I had a bit of money, I’d spend all my time going out, drinking beer, going to nightclubs. I don’t want to go to work anymore, I want easy money. The boss was being a real nuisance at work; he used to hit me, it really annoyed me, and I decided to stop. When I go to the market, I buy a pair of “Jeans” trousers for 1000 fr and sell them on for 2000 fr, trousers, jumpers, shoes. If I buy something for 500 fr I sell it on for 1000 fr; if I buy shoes for 1500 fr, I sell them on for 2500 fr, so there is a lot of profit.”³

- The case of an itinerant trader working between Ndjamena and the Chad/Cameroon border:

“I haven’t studied much. I went to secondary school until the 3rd year, then I was involved in trade in Chad. I bought little things like salt, sugar, tobacco, cigarettes, and sold them on the border with Cameroon. That’s to say, just before the border. There’s a little town, let’s call it a village, “Lama”. I’d go to Ndjamena to buy goods and then set

³ Interview with a Beninese emigrant man

off to Lama at the border. I'd travel by bus. I had roughly 25,000 to 30,000 CFA as capital, which wasn't much. For each week and each journey, I could make 5,000 CFA"⁴

In Africa, commerce and services seem to be the sectors where activities are dominated by the informal market, and serve as an outlet for a large proportion of the under-employed populace whom the structured economic sectors are unable to accommodate. The most highly qualified of the jobs done in the country of origin, at 12.7%, were those of mechanic, electrician, hotel owner or haulier; meanwhile, those who had occupied stable posts such as administrative employees were very few, at 2.7%.

Those in active employment are generally educated, at 93.8%, of whom 41.7% have been educated to secondary level, and 0.4% to higher level.

It would therefore appear that the Sub-Saharan migrants in Fes were not the poorest of the poor. This is a category of urban dwellers, some of whom were originally from the countryside, who have taken on board the concept of the makeshift economy. Which should set them apart from the majority of young people from the Sub-Saharan African countries where, in 2005, around 62% of the population was aged under 25, and three out of every five unemployed people were young, and an average of 2006 of young people lived on less than two dollars a day [16].

But although they are engaged in an activity which enables them to build up a nest egg, young Sub-Saharan migrants are sometimes bound by commitments to their families, whom they have to help. In cases where they still live with their parents – or one of them, if they are separated – the children contribute to expenditure. In fact this is seen as a gift, which they expect to be returned to them upon them committing themselves to financing personal plans, particularly migration.

3. Sub-Saharan migrants: a new way of city living, but difficulty obtaining the freedom of the city

Among the categories of migrants in Fes, Sub-Saharan migrants bring an urban culture which they have acquired in their places of origin, and which they do not manage to express, given the marginal position which they occupy in the city which, in spite of the changes it has seen, does not manage to fulfil the role of a real metropolis. By which we mean a metropolis which has a strong economic base, making it attractive for migrant populations seeking to settle permanently there, and not simply to see it as a transit stage to other places. Through their daily lives, Sub-Saharan migrants actually come to represent very diverse situations. However, they suffer from the marginalisation which they suffer when trying to find a place to fit into the spatial and economic life of a city which is physically open but socially founded on segregation.

3.1. The distribution of Sub-Saharan migrants in the city of Fes.

For many Sub-Saharan migrants, settling in Fes was not planned in advance. In the majority of cases, it occurred following an encounter with a compatriot or Sub-Saharan "brothers"

⁴ Interview with a Chadian emigrant man

familiar with Fes, having stayed there as students, in some cases, or as pilgrims or travelling migrants in other cases.

Inclusion into the settled community takes place at a distance. With an address in Fes, the migrant is sure of having somewhere to stay upon arrival. In Fes, the prime hub for the Sub-Saharan community is composed of pilgrims and students whose activities have made their mark on two areas of the city (Dhar el Mehraz campus and surrounding districts for students, and the Medina around the Zawiya Tijaniyya for pilgrims). It would therefore be reasonable to assume that migrants would tend to settle in those same places. But the reality of the geographical distribution emerging from the survey results provides an opportunity to verify this hypothesis in case of the student areas, although with some nuances, considering two elements: (i) the rented accommodation on offer takes demand into account, resulting in an increase in the rental value of apartments in the districts nearest to the university; (ii) the emerging trend for greater autonomy among Sub-Saharan migrants when choosing their accommodation, which can be seen in a gradual spread to more and more marginal districts relative to core university district.

Concentration in the working-class districts in the south-eastern sector of the city

The survey results reveal a high concentration of migrants in districts located in the city's south-eastern sectors. The districts of Montfleury, Sidi Brahim and Saada are home to 40.4%. These districts lie further out from the districts of Lido, the Dhar El Mehraz student halls of residence and Erac, where 26.7% live (see Map 2).

Two groups of districts which play a satellite role are located at each end of this central band. In the north, there is the area comprising the city centre, Adarissa, Atlas, Annajah and Assaada districts, which are home to 16.2% of the migrants surveyed, and in the south there are the districts of Narjiss, Al Karama, Douar Dalou and Al Amal, with 12%. The Medina is notable for the small number of Sub-Saharans choosing to settle there, at just 1.2% of the total number.

Distribution across districts displaying social mixedness

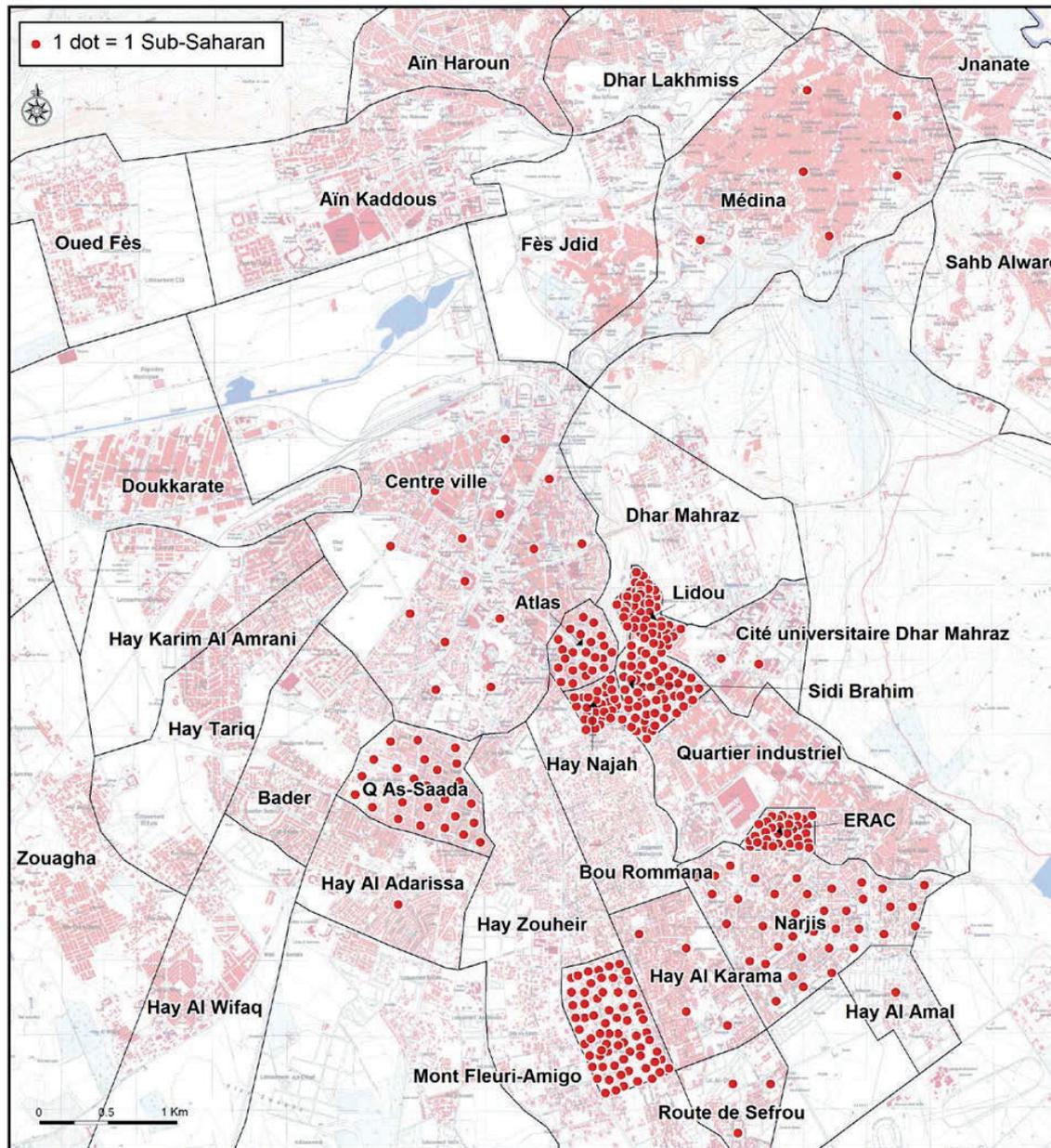
Without a doubt, the spatial distribution of Sub-Saharans in Fes can be seen to mirror the geography of the city, which is characterised by a twofold social and spatial fragmentation.

The districts where Sub-Saharans are concentrated emerge as places which are accessible to classes with modest incomes, and which allow new arrivals to find accommodation easily. These districts, located close to the university campus, and not far from the city centre, and where rents are acknowledged to be modest, are hubs where Sub-Saharan students prefer to settle.

Lido, Dhar el Mehraz and Erac districts are located alongside Dhar el Mehraz plateau which is characterised by outdated accommodation, despite there being a few recently built high-rise buildings. These places are close to the military barracks, the campus and the industrial district, where the working classes rub shoulders with the middle classes. But they all share a space where they have put down roots after moving there for reasons of study or work.

Other districts with unregulated housing are also places for social mixedness. The Montfleuri district, for example, comprises illegal developments which sprang up on agricultural land between 1970 and 1990. The dwellings with ground floor plus two floors above have not only made it easier for social categories who are less established in the city to own a home, but they have also increased the rental offer at lower prices than in the city centre.

Other places have been transformed into shanty towns taking in the poorest social categories, as it is the case in Aouinat el Hajjaj to the south of Sidi Brahim industrial zone.



Map 2: Neighbourhood of residence of the surveyed sub-Saharan in Fez

These are districts which, in spite of the State's efforts to do away with slums and restructure districts which have been illegally developed for housing, continue to develop spontaneously under the effects of demographic pressure and the existence of spatial segregation.

In the face of that pressure, rising land prices and the trend towards selective urban development have given rise to the appearance of new districts differentiated by the social levels and status of their occupants. On the one hand there are the rich districts reserved for the city's traditional middle classes and the new elite, and on the other are the modest or poor districts extending into new private plots intended for the new populations arriving in Fes, some of whom are from Sub-Saharan origins.

3.2. Migrants facing the problems of unemployment and underemployment

Sub-Saharan migrants, whether employed or independent, have difficulty finding work. 197 (i.e. 53.1%) of them say they are or have been engaged in paid work since their arrival in Fes.

Low-qualification activities in the informal sector

This sector of the population is widely affected by under-employment, and devotes itself to activities with low demands in terms of qualifications.

Activity	commerce	small jobs and services	domestic work	labourers	call centres	other	Total
Number of persons	44	45	16	15	59	18	197
%	22.3	22.8	8.1	7.6	29.9	9.1	100

Table 3: Activities undertaken by Sub-Saharans in Fes

This basically means activities for survival which are undertaken on the margin of the organised employment sectors.

Thus those working in commerce are essentially dealers in or retailers of products imported from their countries of origin or smuggled goods [17], [18]. They generally have no premises and their profits are often shared with a number of other individuals. The situations described in some interviews reveal a certain joining of forces between Sub-Saharans with varying residency status and material possibilities on the one side and Moroccans on the other. Thus, a trader whose residency papers are not in order has merchandise brought in by a Sub-Saharan student, and to sell it on he leaves it with a Moroccan grocer. Alternatively, he might rely on a small network of Sub-Saharan retailers.

Others with a little bit of money behind them, and who have papers enabling them to travel within Morocco, occupy themselves by selling on smuggled goods from the border towns of Oujda, Tetouan and Nador.

Those engaged in small jobs and services work mostly as cobblers, tailors, mechanics, joiners, builders or hairdressers. Women work as maids, work in the catering industry, or specialise in braiding hair.

In addition, of those who describe themselves as day labourers, the majority of Sub-Saharanans who work are employed, at 58.8%. The others describe themselves as independent, particularly traders (accounting for 34 out of a total of 64) and cobblers.

Only 60.9% of these activities are permanent. But permanency here is more in terms of the activity they undertake, namely how they make their living, because regularity of employment, especially for those who are employed, is rare. 38.6% of workers are taken on for periods of less than a fortnight, with 60.9% working on a day-to-day basis. Those taken on for a month make up 35% of the total, whereas those whose period of employment is not specified, since they have to work on a task-by-task basis or on commission, make up 25.7% of the total.

Those taken on for a month at a time basically comprise those who work in call centres, who make up more than 50% of that category, i.e. 48 people out of 80.

Low wages

The wages they receive vary, and depend not only on the activity in which they are engaged, but also its regularity. The declared amounts reveal wages of 80 MAD per day, 20% less than the minimum wage which in Morocco is capped at 2200 dh. More than 50% of workers taken on a month at a time say that they receive pay of between 1200 MAD and 2000 MAD. Wages are no more than 4000 MAD per month, even among those working in call centres where the working day can be as long as 16 hours a day⁵.

3.3. Working conditions in contravention of current regulations

In fact, the wages declared in the survey, taken at face value, do not reflect the working conditions, nor the amount of time spent at work, nor the nature of the tasks demanded of workers. In addition, these are gross salaries, without any social security contributions on the part of employers. This is black market labour with many irregularities.

Exploitation of women in domestic work

The interviews speak volumes on this subject. Take the case of “K”, a Senegalese woman employed in a Fes middle-class family home. She had to work for one year for a salary of 1300 MAD, but actually only received 300 MAD. The difference was, in principle, being paid by her mistress into a bank account in her name, but she was unable to recover it after being dismissed. Her working day started at 8 o'clock in the morning and finished at 6.30 pm every day of the week, including Sundays:

“When I arrive in the morning, I set the table straight away, [the mistress’s] husband has his coffee and cornflakes and then goes. After that, the wife comes down, has her breakfast and tells me about my tasks for the day (...). They go off, I but stay in the house (...). At about midday I finish my housework and set the table for lunch for them all, when they come and eat with their children (...). I clear the table, do the washing up and tidy up. After that I go down into the garden, I clean, sweep, take out the rubbish, then I go down into the cellar, then I do housework. After that, I do the cleaning in the

⁵ Interview with an Ivorian emigrant man

husband's gym room; then at about 6 o'clock I finish there and gather my things together to go home."⁶

The dawn of the call centre for educated Sub-Saharans

In call centres, the work in which a large majority of Sub-Saharan migrants are involved, both those educated to university level and students, is a recent activity in Fes. The city is in fact becoming a base for international call centres. In addition to the existence of a workforce suited to call-centre activities, thanks to the presence of the university, the attractiveness of Fes for this new kind of activity resides in the property prices, which are still relatively low compared with cities such as Rabat and Casablanca.

Job offers in this sector are aimed at university graduates with language skills, particularly in French. But given the modest salaries, between 1800 and 2800 MAD per month, and the language handicap for many Moroccan students, the offer seems more advantageous for students and Sub-Saharan migrants educated to an advanced level.

We have no statistics on the number of Sub-Saharans employed by call centres, but judging by the number of survey subjects declaring that they work there, our view is that this is a factor which adds to the attraction of Fes for educated Sub-Saharan migrants.

Sub-Saharan migrants who work do not enjoy the benefits of current employment legislation in Morocco. These job seekers are in an irregular position with regard to the authorities, added to which Fes, like cities in developing countries, can only offer small jobs in the informal sector to a large part of the working population. Sub-Saharan migrants find themselves in a situation, which, if not actually worse, is at least similar to that of the majority of Moroccan migrants flocking to Fes from the surrounding regions. However, a distinction can be made. Unlike young rural Moroccans settling in Fes, some Sub-Saharan migrants have a level of education, which enables them to engage in new activities falling within the sphere of communications and IT.

3.4. Use of space and tackling subsistence problems

With their places of residence located on the margins of the city, the Sub-Saharans occupy spaces, which are poorly integrated with the centre. The public transport which is available imposes expenditure which the migrant would rather devote to food. In fact, very few of these people travel into the city centre. A large number of the Sub-Saharans we interviewed are unaware of the existence of the Medina, and live a separate lifestyle. For several of them, with an elementary level of education, the space they frequent is limited to the room where they cohabit with other Sub-Saharan migrants, or the street on which their home is located, and where they go to buy things, telephone or visit the Internet café. Those who feel free to move around have the privilege of an education, which helps them to pass themselves off as students, and to go to spaces, which are open to the public, such as going to a café or night club, for example, or going to play football with Moroccan people.

⁶ Interview with an emigrant Senegalese woman

Sub-Saharans in Fes, for reasons to do with their characteristics as travellers seeking ways out of Morocco to get into Europe, are not always driven to put down roots in the places to which they move.

In response to the shortcomings of Fes where job opportunities are concerned, they have developed a system of solidarity between individuals facing the challenges of day-to-day survival. This solidarity is formed around accommodation, but also extends to food. Without necessarily being of the same nationality or belonging to the same community of origin, those renting a single apartment or room will share all their expenses. In cases where the migrant does not have the means to contribute, they are looked after until they manage to gain an income through working, begging, or receiving money from relatives or friends.

Conclusion

The influx of Sub-Saharans into Fes has been dictated by a changing migratory context. But the city's attraction is not founded on a strong economic base, and it suffers from an urban structure which hinders any attempted integration by foreign migrants, especially when they lack tangible resources and have difficulty in maintaining their subsistence through stable, regular or well-paid work. In the case of the Sub-Saharans, we have noticed that, contrary to Moroccan emigrants from the countryside, they bring experience of urban life. Their youth and level of education predispose them to adapt better to job offers provided by sectors of the city's activities which have more to do with the economics of globalisation [19].

But their presence in the city is characterised by a sort of marginalisation which is not planned but suffered, given an urban order which seems to regulate life in Fes on the basis of each individual's material wealth.

The geographical distribution of Sub-Saharans in Fes is conditional upon their financial capabilities, and the offer of low-cost housing is only there in the far-flung districts which suffer from economic and social marginalisation. In the districts where they live, Sub-Saharan migrants share the same spaces with Moroccans and sometimes live together with them in the same houses, and even the same rooms. But even though they share the same spaces, relations between Sub-Saharan and Moroccan migrants in Fes have yet to move beyond the mercantile dimension of commerce, the offer of accommodation or a few precarious and poorly-paid jobs. Sporting and religious activities give rise to opportunities for forging links with the Moroccans, but not only do these links remain confined to the place which has brought them about – the Mosque or football pitch – but they only involve a minority of people.

It can therefore be said that the city of Fes produces segregation between peripheral districts and the centre, but that it is a city where spaces are open, and populations occupying the marginal districts do not suffer confinement, except that imposed by the precarious economic conditions. "Taken as such, segregation is no longer a problem of exclusion, but of access to the city where otherness is found." [20]

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References

- [1] M. Berriane, M. Aderghal, M. I. Janati & J. Berriane, Immigration to Fes: The Meaning of the New Dynamics of the Euro-African Migratory System, *Journal of Intercultural Studies*, 34:5, 486-502, 2013
- [2] D. Gazeau, *La société de Fès au miroir d'un ouvrage de droit musulman: le Livre des séances des juges d'al-Yafrani (XVIème siècle)*, édition critique, traduction et commentaire historique, thèse de doctorat de l'Université Paris I, 2 tomes, 308 et 337 p., 1996
- [3] F. Bouchanine Navez (dir), *La Fragmentation en question : des villes entre fragmentation spatiale et fragmentation sociale ?*, Paris, L'Harmattan, coll. « Villes et Entreprises », 2002
- [4] N. Elias, *Logiques de l'exclusion. Enquête sociologique au cœur des problèmes d'une communauté*. Fayard, 279 p., 1997
- [5] R. Le Tourneau, (2ème éd. 1987), *Fès avant le Protectorat. Etude économique et sociale d'une ville de l'Occident musulman*, Rabat, Editions La Porte, 668 p., 1949
- [6] A.-C. Kurzac-Souali, *Les médinas marocaines : une requalification sélective. Elites, patrimoine et mondialisation au Maroc*, Thèse de doctorat de l'Université Paris IV, 2 Tomes, 483p., 2006
- [7] J. Berriane, Ahmad al-Tijani and his Neighbors. The Inhabitants of Fez and their perceptions of the Zawiya, in Patrick A. Desplat, Dorothea E. Schulz (eds.), *Prayer in the City; the making of Muslim Sacred Places and Urban Life*, Reihe Globaler lokaler Islam, pp. 57-77, 2012
- [8] L. Marfaing, Relations et échanges des commerçants sénégalais vers la Mauritanie et le Maroc au 20e siècle, in Marfaing, in Laurence et Wippel Steffen, (dir.), *Les relations transhariennes à l'époque contemporaine. Un espace en constante mutation*, Paris, Karthala : 251-276, 2004
- [9] C. Escoffier, La traversée du Sahara : une expérience initiatique ?, in Marfaing, Laurence et Wippel Steffen, (dir.), *Les relations transhariennes à l'époque contemporaine. Un espace en constante mutation*, Paris, Karthala : 141-148, 2004

- [10] C. Escoffier, *Communautés d'itinérance et savoir-circuler des transmigrant-e-s au Maghreb*, Thèse pour le doctorat nouveau régime de Sociologie et Sciences Sociales - Université Toulouse II, 2006
- [11] A. Pian, Des routes religieuses et commerciales aux routes de transit à destination de l'Europe. Le cas des réseaux sénégalais au Maroc, Communication au colloque : immigration, transit et rétention : le Maghreb à l'épreuve des circulations transahariennes, Marseille, 2-4 novembre, 2006
- [12] M. Timera, Hospitalité et hébergement dans un réseau migratoire local et international d'Afrique de l'Ouest, in Lévy-Vroélant Claire (dir.), *Logement de passage. Formes, normes, expériences*, Paris, L'Harmattan, 2000
- [13] J. Brachet, D'une étape à l'autre: Transit et transport dans les migrations (trans)sahariennes, in, Berriane Mohamed et de Haas Hein (édit.), *Les recherches sur les migrations africaines*, L'Harmattan, Paris, pp. 93-112, 2012
- [14] C. Escoffier, *Transmigrant(e)s africain(e)s au Maghreb, Une question de vie ou de mort*, 210 pages, L'Harmattan, 2008
- [15] A. Pian, Aventuriers et commerçants sénégalais à Casablanca : des parcours entrecroisés, *Autrepart* 4/2005 (n° 36), p. 167-182, 2005
- [16] Africa Development Indicators 2008/2009: Youth and Employment in Africa. The Potential, the Problem, the Promise. World Bank document. P.1, 2009
- [17] L. Marfaing, Relations et échanges des commerçants sénégalais vers la Mauritanie et le Maroc au 20e siècle, in Marfaing, in Laurence et Wippel Steffen, (dir.), *Les relations transahariennes à l'époque contemporaine. Un espace en constante mutation*, Paris, Karthala : 251-276, 2004
- [18] A. Pian, Des routes religieuses et commerciales aux routes de transit à destination de l'Europe. Le cas des réseaux sénégalais au Maroc, Communication au colloque : immigration, transit et rétention : le Maghreb à l'épreuve des circulations transahariennes, Marseille, 2-4 novembre, 2006
- [19] S. Sassen, *La globalisation. Une sociologie*, Paris, Gallimard, 338p., 2007
- [20] M.H. Bacqué, & Lévy J-P., 'Ségrégation', in. J-M Stébé & H. Marchal (dir.) *Traité sur la ville ?* Paris ; PUF, p.303-352., 2009

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