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CURRENT MIGRATIONS INTO COASTAL ZONES OF BENIN: MOTIVES, ECOLOGICAL CONSEQUENCES AND SOCIAL REALITIES

Oscar TEKA
University of Abomey-Calavi, Laboratory of Applied Ecology, Faculty of Agronomic Sciences, Abomey-Calavi, Benin
http://leabenin-fsauac.net/fr/
oscar_teka@yahoo.fr

Romeo Brice K. CHABI
University of Abomey-Calavi, Laboratory of Biogeography, Faculty of Arts and Human Sciences, Abomey-Calavi, Benin
chabiromeo@yahoo.fr

Mosunmola Lydia ADELEKE
The Federal University of Technology, Department of Fisheries and Aquaculture Technology, Akure, Nigeria
mosunmolalydia@yahoo.com

Joachim VOGT
Karlsruhe Institute of Technology (KIT), Institute of Regional Science (IfR), Kaiserstr. 12, 76128 Karlsruhe, Germany
https://www.ifr.kit.edu/
vogt@kit.edu

Caroline KRAMER
Karlsruhe Institute of Technology (KIT), Institute of Geography and Geo-ecology (IfGG), Kaiserstr. 12, 76128 Karlsruhe, Germany
https://www.ifgg.kit.edu/
caroline.kramer@ kit.edu

Brice SINSIN
University of Abomey-Calavi, Laboratory of Applied Ecology, Faculty of Agronomic Sciences, Abomey-Calavi, Benin
http://leabenin-fsauac.net/fr/
bsinsin@gmail.com

Abstract

The main objective of this study is to analyze the migration into the coastal area of Benin and the related possible effects on the socio-economic and ecological environment. In total, 660 coastal household chiefs comprising 262 women and 405 men were interviewed. Semi-structured interviews were made with 32 notables and local authorities of the coastal Districts. The Analysis of Variance was applied in order to test the relationship between socio-demographic parameters and migration motives. Results showed that migrants are above people at working age. The gender offers a possibility of differentiated analysis. The searching for jobs and training and family reasons are the main motives for migration into the coastal area. There is no significant relationship between ethnic groups and types of motivation

(P=0.54). But there was a significant relationship between marital status and type of motivation (P=0.00). There is a significant relationship between gender and type of motivation (P<0.00).

***Keywords**: Migration, Coastal Districts, Motivation, Benin*

1. INTRODUCTION

In developing countries, out-migration from rural areas is a livelihood strategy for rural households (De Haan, and Rogaly, 2002; Carr, 2005; van der Geest, 2008), and portrays an important form of population redistribution. This form of migration enables rural households to overcome problems of credit and of insurance markets (Smit, 1998; Barcus, 2004; Bartam, 2011). Recent research consistent with this hypothesis underline that out-migration facilitates the investment in new activities by providing rural households with liquidity, in the form of remittances, as well as income security in rural areas through remittances by migrated household members (Adams, and Page, 2005). However, migrations from hinterland into coastal areas have received considerably less attention. Research on migration into coastal areas focused generally only on the propensity of out-migration of youth from rural areas to coastal urban metropolises. Yet, migrations represent processes which are linked to different internal and external mechanisms. So, understanding the motives of population migration, the perception, the perspectives of migrants as well as the consequences of the migration process on natural resources in the destination is a major challenge for regional planning and resource management.

Like the whole coastal zone of the Gulf of Guinea, the Beninese one is confronted with the above-described issues (concentration of population, social and environmental problems) which call for an analysis to understand the current process of migration into the coastal area and the unregulated land use and settlement in this zone. Thus creating the basis for the development of a strategy allowing the controlling of migration influx directed into the coastal zones and to prepare and steer it through planned interventions. This is an essential prerequisite for the implementation of an integrated coastal zone management scheme.

For this study, we pose some research questions. (1) Who are the moving people into the coastal area of Benin? (2) Why do they move into the coastal area? (3) Do migrants reach their migration objectives (satisfaction from migration decision)? (4) What are the impacts of migrants on the natural resources in the coastal zone?

To answer the first question, we examine the correlation between the demographic, social, and economic base of migrants in the coastal area of Benin. To answer the second question we examine the motives which lead people to migrate into or within coastal area of Benin. To answer the third question, we assess the perception of migrants once they are in their destination. To answer the fourth question, we examine the resource use and/or demand by migrants and their possible impacts on the environment. Finally, we analyse the relationship between migration motives and socio-demographic characteristics (gender, age and ethnicity) of migrants. Moreover, the study looks ahead to identify which of the migratory models are either based on a neoclassical approach or on the maximisation of individual wealth (Todaro, 1976; Massey, and Espinosa, 1997) or on budget profits and/or wealth (Fischer, Martin, and Straubhaar, 1997) is verified in the context of interior migration in the littoral of Benin.

The main objective of this study is to analyse the migration into the coastal area of Benin and the related possible effects on the socio-economic, cultural and ecological environment. So, the specific objectives of the study are to: (i) identify the migrating population (according to age, gender, marital status and social-professional groups); (ii) assess the main motives of migration into the coastal area of Benin; (iii) analyse the satisfactory level of migrants once

they are in their destination; (iv) determine the possible consequences of in-migration on local natural resources and environment.

2. BACKGROUND

2.1 Conurbations of human populations and economic activities in coastal areas

In spite of its importance, the coastal zone is facing many planning problems. Indeed, coastal areas are today the most important spaces seen from a demographic, economic and socio-cultural perspective. Coastal areas are experiencing the conurbations of human populations and economic activities and constitute the most densely populated zones worldwide. Even though taking up only 8% of the land surface (Turner, Subak, and Adger, 1996), over 60% of mankind live there (Cicin-Sain, Knecht, Jang, and Fisk, 1998; Strasser, 2005). Coastal areas accommodate more than two thirds of all megacities worldwide, i.e. cities with more than 10 Million inhabitants (Scialabba, 1997). At the same time, in-migration to the coastal areas continues to increase and implicates high growth of coastal population. Besides, migrants claim and consume goods and ecosystem services; the high concentration of human in coastal areas already affects the environment (Panayatou, 1994; Bilsborrow, and Carr, 2001). The knowledge on the way (direction and extent) this process impacts and will impact the natural resources in the destination areas can provide a relevant information for planning activities.

The assessment of migrant impacts requires knowledge of migrants' demography (age, gender, and marital status) and the diversity of the causes and motives of migration. The lack of such data in developing countries makes it difficult to analyse the migration process and to model the ecological footprint of migrants on the environment despite its relevance for the sustainable use of coastal natural resources.

2.2 Socio-political development as "pull factor" for historical migration in Benin

The in-migration pattern in Benin and the population distribution are results of socio-political processes which characterized the development of this country. Thus, it is important to make an overview on those processes in the migration analysis. According to Atti-Mama (2006), migratory movements to the coastal area of Benin have intensified since 30 years ago (since the 1980's). The period between 1970 and 1980 was characterized by a decline in migratory movements in the littoral. Within this period, Benin was led by a Marxist-Leninist government, following policies geared to the Eastern Bloc. For this purpose, the so-called "*Groupement Revolutionnaire à Vocation Coopérative*" (GRVC) and the "*Coopérative d´Aménagement Rural*" (CAR) were deployed. The land (main production factor) was used collectively, with the harvest being distributed according to the work done (Neef, 1999). At CAR, lands were merged. On these lands, the State of Benin wanted to implement a modern agriculture with improved sorts and cultivation techniques, based on the conditions of the soil in fields and existing markets. The membership was obligatory. Many of the land owners were dispossessed from their lands which were cultivated as revolutionary fields (Neef, 1999). Numerous farmers of the hinterland who did not own any or only little farmland worked on these revolutionary fields. Therefore, they were not obliged to move southwards before finding a profitable activity. This trend remained until the mid-1980s, when a worldwide economic crisis occurred. The state owned banks and the majority of the state companies were close to bankruptcy. When the economic situation deteriorated, the population demanded an end of corruption and the payment of outstanding wages. Political opposition groups and international financial donors intensified pressure on the government until the formal president Kérékou gave up his Marxist

objectives. The National Conference noted for a new Constitution and changed the country´s political orientation towards democracy. The expropriated lands were divided and privatized. Thus, migration to the coastal area in search of jobs increased again.

2.3 Location, population and economic activities of the investigation area

The coastal area of Benin spans between 1°35' to 7°30' Eastern longitude from Togo in the West to Nigeria in the East and between 6°20' und 7°30' Northern Latitude. It comprises 39 Districts and covers an area of about 12,000 square kilometres, corresponding to approximately 10.5 % of the country's territory. In this context, the littoral is defined as Pennanguer (2005), and includes socio-economic activities which are related to the presence of sea. In this study, we distinguish two types of coastal zones: the strict coastal zone (Sc) that comprises the five coastal Districts which have access to the sea, and the broad coastal zone (Bc) that gathers all over coastal Districts.

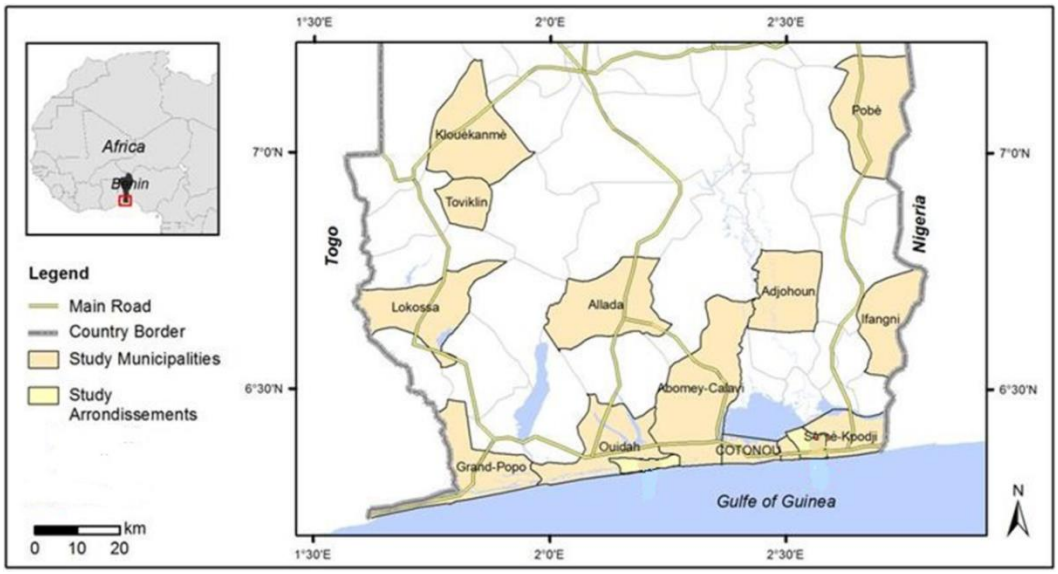

Figure 1. Geographic location of the investigation area

In the framework of the second census of Benin conducted in 1992, 2.409.289 inhabitants were registered in the coastal municipalities (*Recensement Général de la Population et de l´Habitat 2: RGPH2*). The number of inhabitants in the littoral of Benin amounted to approximately 3.178.500 in 2002 (INSAE/RGPH3, 2003). Currently, the number of inhabitants is estimated to 3.662.000, equalling an annual growth rate of 2.8% compared to 3.5% for the whole country (INSAE/RGPH4, 2014). Being home to nearly half of Benin's rural population, the littoral is the most densely populated area in Benin. The average density of population is about 249.1 inhabitants / km2 in 2002 as opposed to 200.5 inhabitants/ km2 in 1992. The active population accounts for 60% of the total population. Cotonou, Porto-Novo, Abomey-Calavi and Ouidah form the central hubs regarding population density and economic activities, merging into one big agglomeration and exerting a polarizing effect within the country. The littoral is mainly populated by Adja and Yoruba as well as related groups who have traditionally been owners and users of the land. The biggest ethnic group among the Adja are the Fon. Among the related ethnic groups, Houeda, Xlâ, Toffinou, Wéménou and Gun are predominant. In the course of the past centuries, they have immigrated searching for fertile soils for

agriculture or fishery (INSAE, 2003, 2014). This migration to the littoral has persisted during the French colonial period as well as after the country's independency in 1960.

3. METHODOLOGICAL APPROACH

Since there are no official statistics in Benin registering the in-migration to the coastal municipalities and the ethno-social characteristics of the migrants, relevant data have therefore to be collected empirically by using representative samples.

The adopted methodology mixed methods to acquire the demographic, social, economic and ecological impacts of migrants. This is necessary to achieve a comprehension of the living conditions, motives and opinions on migration as well as the satisfaction level of migrants in their destination. Therefore, a combination of quantitative and qualitative data collection was made. Quantitative data collection was consisted of structured interviews whereas qualitative data collection was semi-structured interviews, observations and documentation. These interviews were conducted from November 2014 to October 2015. During the research process, quantitative data has continuously been completed with qualitative data. Through the triangulation, qualitative and quantitative methods were combined in order to validate and complete the results. The analysis enabled the comprehension of the people's acting rationalities (Flick, von Darforff, and Steinke, 2003), clustering them into relevant groups of actors.

3.1 Interviews and observation

Two main categories of interviews were conducted, the structured interviews with the local population and the semi-structured interviews with the bearers of both public and private administrations. Structured interviews were done with all population groups who have been classified according to socio-economic parameters, especially according to ethnicity (Fon, Adja, Houeda, Xlâ, Toffinou, Aizo and Wemenou), gender (male and female), marital status (married or unmarried), age as well as the situation of their dwelling, diverging location with regard to the coast, strict coastal zone and broad coastal zone).

The interviews comprised of questions on migration (in- and out-migration, origin, destination, duration of migration); professional activities, use of natural resources, personal motives for the migration (according to their subjective perception) as well as motives for migration (e.g. quest for individual wealth or household common welfare) of the local population. In total, 667 household chiefs comprising of 262 women and 405 men who were living in the coastal area of Benin at the time of the surveys were interviewed. The objective was to reach a share of 50% women and 50% men among the interviewed persons. However, men are more often ready to take part in the interviews than women. This explained the difference between the number of men and women in the sample. Within each coastal residential area, similarly to Teka, and Vogt (2010), a differentiation was made between men (Mi) women (Fi) and age: (1) adolescents ($i \leq 30$ years of age); (2) adults ($30 < i \leq 60$ years of age) and (3) elderly persons ($i \geq 60$ years of age).

Especially if they were conducted collectively, interrogations were linked to problems, as the interviewees were inclined to conceal deficits of knowledge or to give in to a factual or assumed pressure to conform. The motivations for migration were minimized by embedding the interrogation into the context of other, less delicate contents.

Semi-structured interviews were made with 32 notables and local authorities of the coastal Districts.

3.2 Analysis of the data

To understand the in-migration processes both the net migration gain/loss as well as the spatial distribution according to the origin and the destination were important. Hence, we defined three indicators in order to analyze the spatial distribution of migrants. These were: (i) an indicator of out-migration in the coastal area that considers the part of the respondents born in a coastal district but is living in another coastal district at the time of the survey; (ii) an indicator of in-migration which estimates the pull factor of attraction of the district, i.e. the part of respondents (coastal inhabitants) born elsewhere (other districts of the coastal area or external); (iii) an indicator of the net migration gain/loss of the district, the increase and/or decrease ratio between the number of people born in place and the number of residents.

Due to the fact, the most respondents from the group Fon were sedentary and declared to be native-born, we did not take into account this ethnic group for the analysis of socio-demographic of migrants. Thus, the interviewees were classified according to the following variables:

A) Ethnicity (6), gender (2), marital status (2) and type of motivation (2). This results in a total of 48 (6 x 2 x 2 x 2) subgroups on which the variance analysis was applied using 4 factors, whereas the raw data were firstly transformed with log (x+1). The objective of this approach was to closer analyse the interdependency between ethnicity, gender, marital status and type of motivation (individual wealth or wealth based on household's welfare). An Analysis of Variance (ANOVA) was applied in order to test the relationship between socio-demographic parameters and migration motives.

B) Coastal residential area, gender, and age. Within each coastal residential area, six subgroups were defined: young men (M1), adult men (M2), elderly men (M3) young women (F1), adult women (F2) and elderly women (F3). Thus, 12 subgroups can be defined for the two coastal residential areas. The relative frequency of the motives for migration was determined for each subgroup within the 12 subgroups. This parameter (relative frequency) thus corresponds to the share of interviewees and allows adjusting possible mistakes arising from the different number of interviewed men and women. A data matrix comprising the relative frequencies of the single reason and the migration of the interviewees according to the opinion of the 12 subgroups was processed with the principal component analysis (PCA) using the software SASv9. This statistical method has been chosen to describe the interdependencies between migration motives, different age groups and the coastal residential areas.

For the graphic representation, the subgroups' labelling was simplified by placing the abbreviation of one of the six above-mentioned defined subgroups in front of the prefix of the coastal residential areas. For instance, the abbreviation "ScM1" designates the group of young men living on the strict coastal zone, whereas the group of elderly women of the same coastal residential area is labelled "ScF3".

A deeper examination was made on the social, economic and ecological context of the setting. Hereby, a particular attention was paid to the context of the natural resources use and the ways in which migrants are incorporated into social institutions in places of destination. Finally, a comparison was done between the migration situation into the coastal area of Benin and the migration theory from the literature.

4. RESULTS

4.1 Origin and geographical distribution of current migrants

The surveys revealed that most of respondents (82%) have migrated in the direction of or directly to the littoral and have lived for at least six month at the target location. These migratory movements take place on local, regional, national and transnational level. Only 18% of the interviewees were born on site and have always stayed there or have rested less than six month off their place of descent or birth.

Concerning the distribution patterns, our results showed that the migrants in the coastal area of Benin come from different and various regions and countries. Contemporary migrations can be classified into two categories according to the origin of migrants: internal migrations, i.e. the migration leads from one District to another within the coastal zone, or external migration, whereby the migration occurs between the hinterland or other countries outside Benin within or outside the coastal area. The external migration amounts to 54.8% of the migrants and the external and international migration concern 45.2% of the migrants. The immigrants mainly come from the following regions: Abomey, Bohicon, Dassa, Parakou, Natittingou, Savè, Djougou, Savalou and foreign countries, and primarily from the sub-region and Europe.

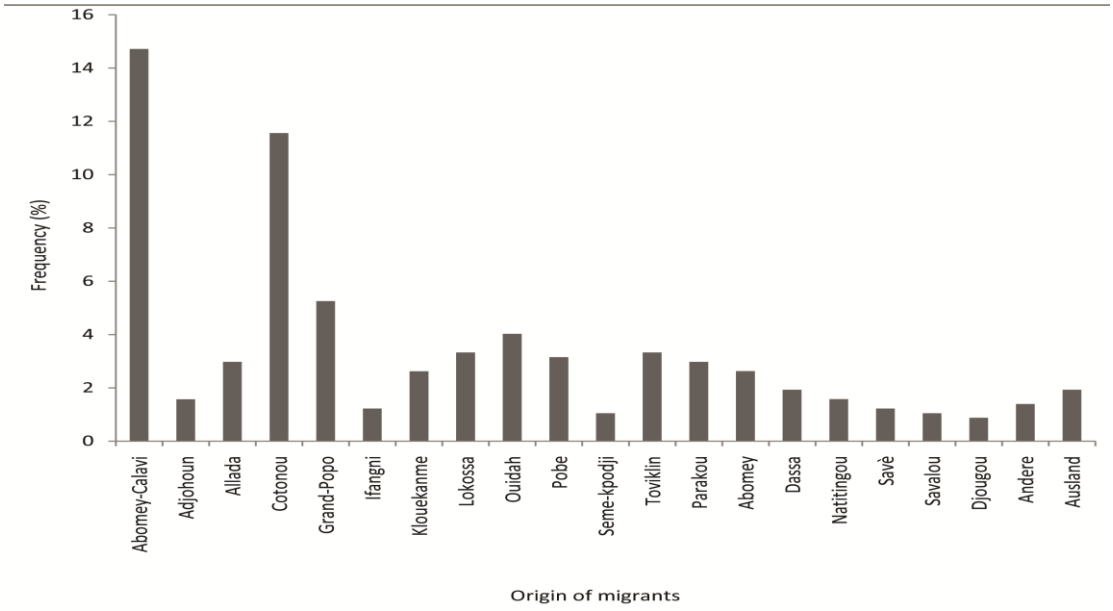

Figure 2. Origin of migrants in the coastal area of Benin
Source: Field surveys, 2015 (N=667)

The patterns of net migration gain or loss were presented in the table 1.

Table 1. In- and out-migration and net migration gains and losses in the coastal area of Benin within 1980 and 2015

Coastal Districts	Rate of in-migration	Rate of out-migration	Rate of migration
Abomey-Calavi	11.4	5.8	5.6
Adjohoun	8.9	11.1	-2.2
Allada	11.5	7.7	3.8
Cotonou	38.8	17.6	21.2
Grand Popo	8.2	14.8	-6.6
Ifangni	4.7	16.3	-11.6
Klouekanme	6.8	6.8	0.0
Lokossa	4.8	14.3	-9.5
Ouidah	13.4	10.4	3.0
Pobè	8.3	10.4	-2.1
Seme-Kpodji	12.7	11.1	1.6
Toviklin	8.3	10.4	-2.1
Strict coastal zone	18.3	12.2	6.1
Broad coastal zone	13.2	11.5	1.6

Source: Fieldwork, 2015 (N=667)

From the analysis of this table, two categories of districts can be distinguished: the districts with net migration gain and the districts with net migration loss. The district of Cotonou differs significantly from other coastal districts. With a net migration gain of +21.2, Cotonou is the most important and attractive area for in-migration into the coastal zone. The in-migration as well as out-migration numbers of Cotonou were very high compared to other districts. The ratio between these (out-migration and in-migration rates) was 1.5 for the strict coastal area, and 1.1 for the broad coastal area. For Cotonou, the ratio was 2.2, which was high indeed. This means that the investigated population who was living in Cotonou in 2015 was 2.2 times higher than the one born there. Compared to Cotonou the differences between out-migration and in-migration in the other examined districts were much lower. The portion of out-migrants varied between 4.8% and 13.4%. At the same time the portion of in-migrants varied between 5.8% and 16.3% and the net migration gains/losses varied between -11.6% and 5.6%.

4.2 Age, gender and marital status of the migrants

Further social distinguishing indicators are age, gender and marital status of the migrants. Table 2 shows the portion of migrants according to their gender and origin (hinterland or foreign country and coastal area). In general internal migration seems to be more important than external migration.

Table 2. Differentiation of migrants according to gender and origin

Origin	Men		Women		Total respondents	
	N	%	N	%	N	%
Coastal area	138	42.6	109	48.9	247	54.8
Hinterland or foreign countries	186	57.4	114	51.1	300	45.2
Total	324	100	223	100	547	100

Source: Fieldwork, 2015 (N=547)

With 57.4% of external migration, the proportion of the male migration was higher than that of the female migration which was around 42.6%. Altogether 9% of male working populations reported go to Nigeria, Ivory Coast, Gabon, Congo, Lomé and Cameroon for the economic migration. The origins were generally the districts of Pobè, Adjohoun, Ifangni and Sèmè (for

those who moved towards Nigeria and Ivory Coast), the districts of Ouidah, Grand Popo, Abomey-Calavi, Cotonou and even Sèmè in the direction of Gabon, Congo and Cameroon for the sea fishing. There were mainly Xlâ and Houedah. The analysis of table 2 showed that about 51.1% of female migrants participated in the internal migration in the coastal area whereas 48.9% take part in the migration outside of the coastal area. It is important to note that plenty of fishermen who come from Ghana (Keta, Adan and Ashanti), and from Togo (Ewe) move to Benin and especially into the coastal area as seasonal workers. Many of them settle down in that time. Their predilection zones are Avlékété (especially Avlékété Houta) and Togbin Plage. Only 7% of the female migrants are foreigners, who came particularly from Ivory Coast, Togo, Ghana, Gabon, Congo, Nigeria and Cameroon.

Figure 3 showed the age groups according to the gender of migrants. From this figure, it can be observed that migrants are above people at working age. Also, the gender offers a possibility of differentiated analysis. Regarding the age groups of migrants, we observed that the majority of adults (30 to 60 years) are women whereas the majority of youth (< 30years) are men.

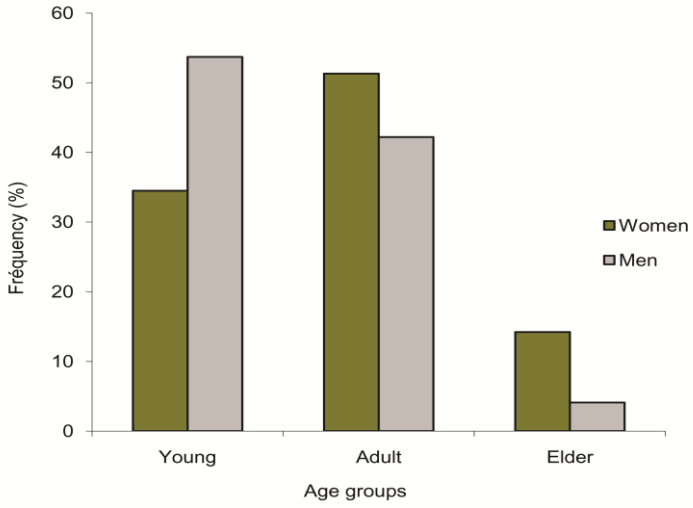

Figure 3. Age classes according to the gender of migrants
Source: Fieldwork, 2015 (N=547)

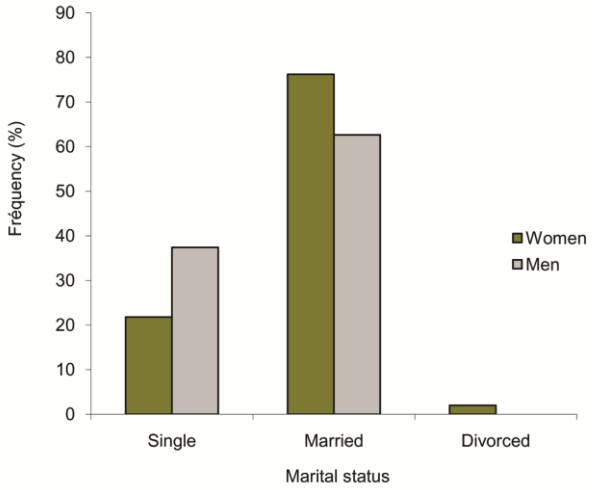

Figure 4. Marital status according to gender of migrants
Source: Fieldwork, 2015 (N=547)

The figure 3 shows a high portion of women migrants in the group of elder in the coastal region. The internal migrants stay in the coastal region but mainly concentrate around the urban zones like Cotonou, Ouidah, Abomey-Calavi, Allada and more or less Lokossa.

The present migrant streams towards the coastal areas of Benin are caused by a variety of reasons, which require a close examination in order to better understand the process of migration.

4.3 Motives of migration into the coastal area of Benin

There are various motives for migration in the coastal area of Benin. These were already mentioned in the central question, and were the search of job, the training, family reasons, moving together of partners, flight, repatriation from home countries or from places of origin and residence (social or political reasons). The table 3 indicates the portion of respondents according to gender and the given motives for migration.

Table 3. Motives of migration into and within the coastal area of Benin

Motives	**Men**		**Women**		**Total**	
	N	**%**	**N**	**%**	**N**	**%**
Labour and education	165	55	31	12.6	196	35.8
Family reasons	87	29	180	72.8	267	48.8
Flight or repatriation	20	6.7	14	5.7	34	6.2
No reason	28	9.3	22	8.9	50	9.1
Total	300	100	247	100	547	100

Source: Field surveys 2015 (N=547)

From the results (Table 3), it can be deduced that searching for jobs and training (labour and education) and family reasons are the main reasons for migration into the coastal area of Benin. These two reasons made up 84.6% of the respondents. The family reasons represented 48.8% of respondents. This motive was followed by labour and education, which were mentioned by 35.8% of the informants. The distinction between searching for jobs and training was difficult for most of respondents. Flight from the place of origin and/or repatriation only affects 6.2% of the respondents. At the same time about 9.1% of the respondents do not claim any specific reason for migrating, i.e. they do not want or cannot give a reason. This can be the case with e.g. social exclusion at the place of origin. Our results also showed that women migrate more for family reasons (72.8%) while men migrate more for occupational reasons (55%).

4.4 Relationship between ethnic groups, marital status, age, gender and type of motivation of migrants

Now the question arises whether there is a relationship between age, gender and the migrants´ motivations. In case there is a relationship, does this relationship differ according to place of settlement of the migrants? In order to answer this question there has been realized a multi-criteria analysis.

The motive of the respondents can be divided into two main types. Firstly, the individual, secondly, the household oriented maximization of benefit. In the following we will analyse the relationship between ethnic group, gender, marital status and the type of motivation more precisely. Table 4 shows the results of the analysis of variance (ANOVA) with reference to the relationship of the migration parameters.

Table 4. Relationship of the migration parameters and the motives

Source	DF	Type III SS	Average square	F Wert	Pr>F
Ethnic group	5	0.31	0.06	0.31	0.90
Gender	**1**	**4.96**	**4.96**	**25.35**	**<.00**
Marital status	1	4.33	4.33	22.15	0.00
Ethnic group*Motive	5	0.81	0.16	0.84	0.54
Marital status*Motive	**1**	**5.60**	**5.60**	**28.59**	**<.00**
Gender*Motive	**1**	**7.63**	**7.63**	**39.01**	**<.00**
Ethnic group*Gender*Motive	10	1.36	0.136	0.70	0.72
Gender*Marital status *Motive	2	0.04	0.02	0.10	0.91

Note: Printed in bold means that there are significant effects between types of motivation of the treated factors (ethnic group, gender and marital status); (N=547).

The results show that there is no significant relationship between ethnic groups and types of motivation (P=0.54). But there was indeed a significant relationship between marital status and type of motivation (P=0.00). Married people generally migrate into and within the coastal area of Benin to ensure a good foundation/basis for their household (first priority) and sometimes the enhancing of parents' well-being (at the second level). This is not the case with the unmarried respondents who firstly mention their own well-being and in the second stage the improving of the parents' (mother, father, brothers and sisters) well-being.

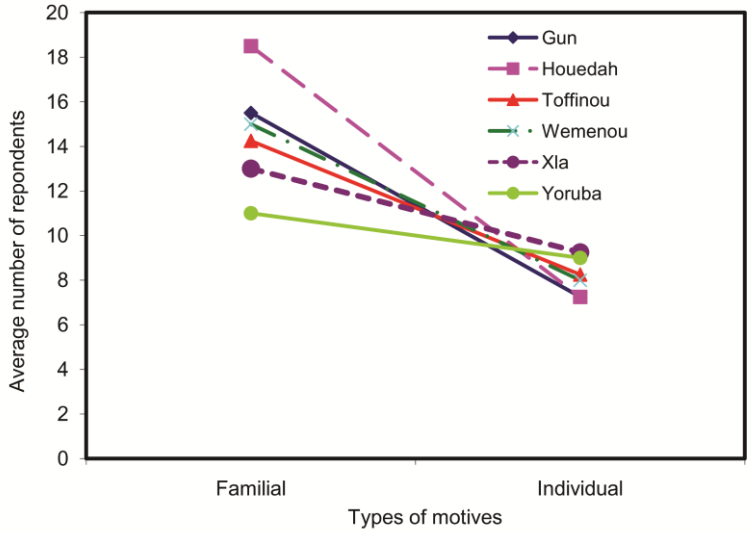

Figure 5. Motive of the migrants according to ethnic group
Source: Fieldwork, 2015 (N=547)

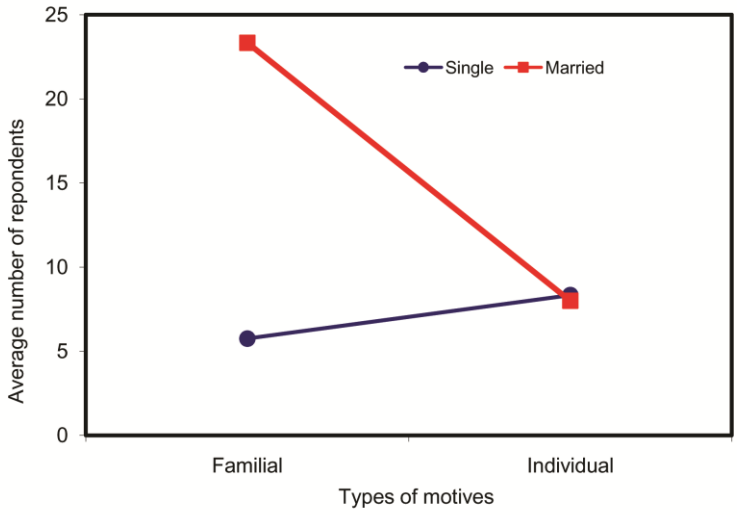

Figure 6. Motive of the migrants according to gender
Source: Fieldwork, 2015 (N=547)

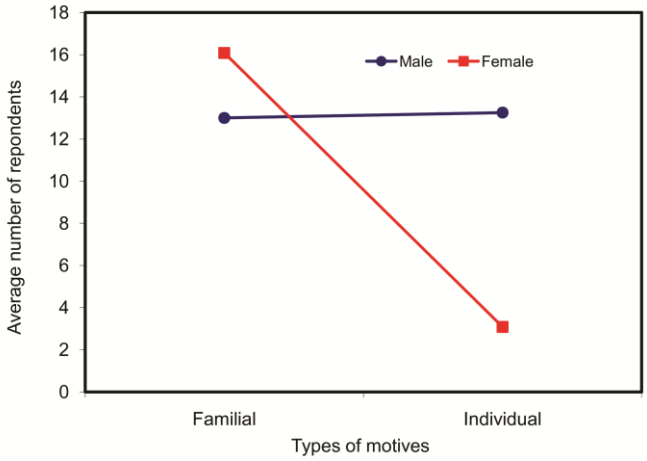

Figure 7. Motive of the migrants according to marital status
Source: Fieldwork, 2015 (N=547)

There is also a significant relationship between gender and type of motivation (P<0.00). These results are backed up by figures 5 (a, b and c) on the variability between the factors (ethnic group, gender, marital status and type of motivation).

In this section, the question is put whether the reasons for migration depend on age, gender and place of residence (close to the coast and broad littoral), because each place provides for distinct natural resources. In order to investigate the type of migration motives according to the respondents' location (strict coastal zone and broad coastal zone) and the socio-demographic parameters, a Principal Component Analysis (PCA) was carried out.

From this principal component analysis of reasons for migration given by the respondents it can be deduced that 59.4% of the information (i.e. 38.1% by axis 1 and 21.3% by axis 2) can be explained with the two first principal components. The correlation between the initial variables and these two components was presented in table 5.

Table 5. Correlation between reasons for migration and the two first components

Axis 1	**Correlation**	**Axis 2**	**Correlation**
Family reasons	0.87	Labour and education	0.75
No reason	0.63	Flight and repatriation	0.52
Labour and education	0.48		

Source: Fieldwork, 2015 (N=547)

Table 5 showed that the first principal component takes into account Family reasons, No reason and Labour and education, whereas the second principal component included Labour and education, and Flight and repatriation.

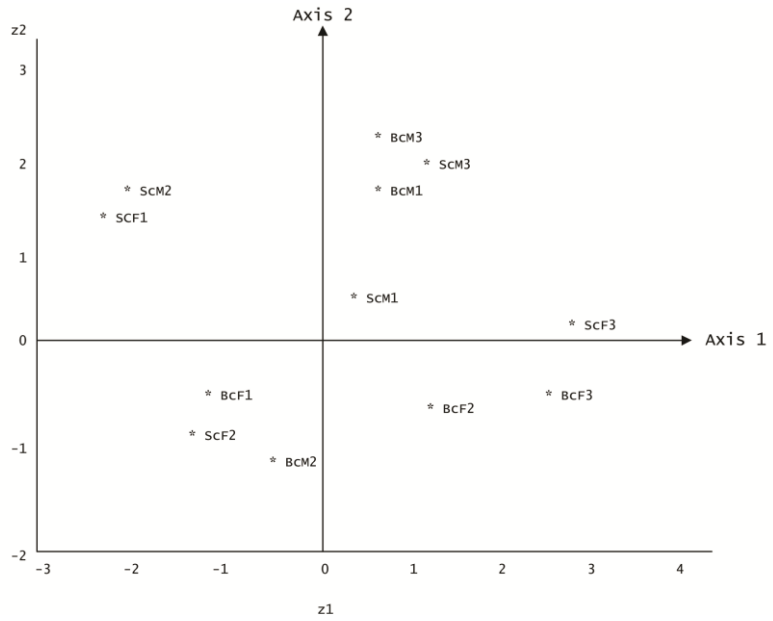

Figure 7. PCA showing the relationship between migration motives and socio-demographic characteristics **(**Gender, ethnicity and age) of migrants in the coastal area.
Projection of groups on two axes: A1 and 2.)
(Strict coastal zone = Sc and Broad coastal zone = Bc**)**
Source: Fieldwork, 2015 (N=547)

From the integration of the different examined categories in an axes system, made up of the first two first principal components (figure 6), it follows that there is a variability of migration motives between (i) places of residents (strict coastal zone and broad coastal zone) even among (ii) the migrants groups (from similar places of residence) according to age and gender. It results that men and women migrate to the coastal area for different reasons. Also, there is a difference between migration motives within the gender as well as within age classes. The migration motives differ according to the position of residence in the coastal area (close to the coast and broad littoral) and the age classes.

Whereas the labour and education (55%) represent the main reasons that make men migrate into the coastal area, family reasons and especially moving together with the partner (72.8%) constitute the main reasons for the migration of women. Regarding the age classes, it appears that family reasons represent the main motive for the migration of elderly people. The

respondents of the broad littoral mentioned fewer job searches and/or study than the respondents of the strict coastal zone. The residents of the strict coastal zone reported rather search for job and/or study as well as the deterioration of their ecological and socioeconomic situation as relevant causes for their migration.

4.5. Social realities

The Table 6 shows the satisfaction level of the informants.

Table 4.5. Satisfaction level from the migrants' point of view

Satisfaction level	Men		Women		Total	
	N	**%**	**N**	**%**	**N**	**%**
Very satisfied	85	20.99	50	19.08	135	20.24
Satisfied	126	31.11	84	32.06	210	31.48
Not satisfied	104	25.68	59	22.52	163	24.44
Disillusioned	90	22.22	69	26.34	159	23.84
Total	405	100	262	100	667	100

Source: Fieldwork, 2015 (N=547)

When asked about the satisfaction level, respondents' reaction was mixed. In total 31.48%, 24.44%, 23.84% and 20.24% of respondents were respectively satisfied, not satisfied, disillusioned and very satisfied. Altogether 48.28% of respondents were worried (not satisfied and disillusioned) about their decision to move into the coastal area. However, there was little discrepancy between men (47.90%) and women (48.86%) what about the anxiety after move into the coastal area. Again taking into account the gender, it appeared that women (26.34%) were more disillusioned than men (22.22%).

4.6. Interrelations between the migration process, ecological and social systems in the coastal area

From the results, the following relationship between the migration processes, ecological and social systems (fig. 7) in the coastal area of Benin can be deduced. This figure showed that the migration process is not characterized by separate causes, but rather by recursive coupling. The migration into the coastal area and the internal population growth lead to the population increase that raises the need of natural resource use (e.g. increase of economic activities in second and third sectors as well as the building activity for population settlement). Consequently, local population adopts non-sustainable technique of resource use which leads to the degradation of natural resources. This situation with the process of climate change / climate variability drives an increase of the vulnerability in the coastal area of Benin, and leads at the end the social problems such as the prostitution and the criminality. Indeed, the majority (78.2%) of the respondents (male) who were worried work as taxi motorcyclists (*Zemidjan*) in the coastal towns or as illegal fuel traders (63% of respondents males and females), where fuel is bought or stolen from Nigeria and smuggled to Benin. Others put themselves in criminality (mainly men) and in prostitution (especially women).

Other negative aspects of the migration into the coastal area is the reinforcement of building activities through high need of human settlements, the sand exploitation at the beaches which generates a coastal erosion and finally the loss of houses.

The migration process and its interrelations with environmental and social systems lead eventually to the risk of increasing vulnerability in the coastal area.

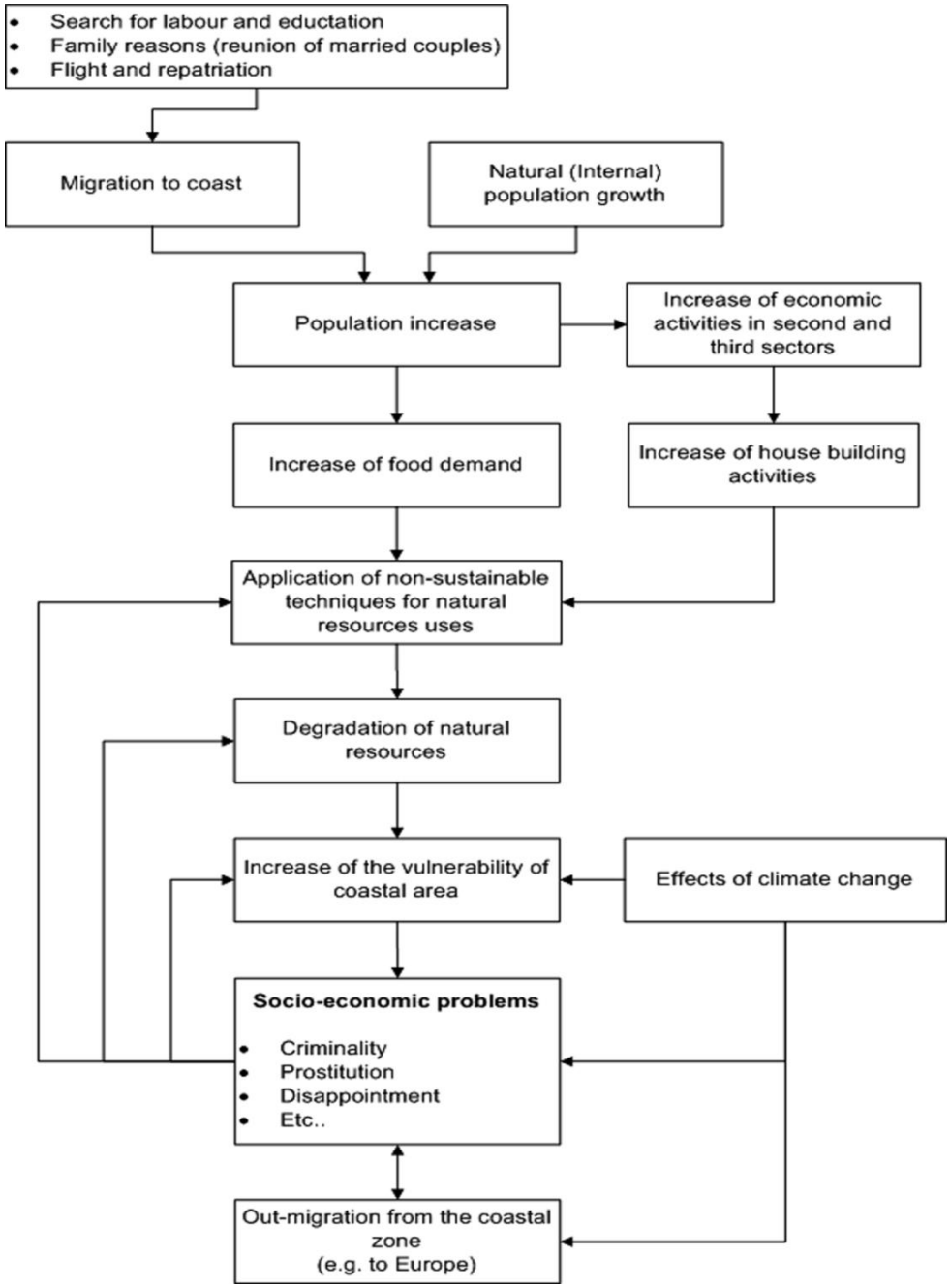

Figure 8. Linkage between socioeconomic and ecological factors of vulnerability in the coastal area of Benin
Source: Fieldwork, 2015

5. DISCUSSION

5.1 Migration as new strategy for subsistence

Results of the study show a discrepancy of coastal districts regarding human migration. Indeed, two categories of districts can be distinguished (districts with net migration gain and the districts with net migration loss). The district of Cotonou represents the most important and attractive area for in-migration into the coastal zone.

The results show that the age and the gender discriminate migrants. This can be explained by rural exodus and the relative early freedom of men. In contrast to women, men obtain their independence from their parents rather early and can emigrate in order to search for jobs and earn money. These young and mostly single (unmarried) migrants (figure 4 marital status) promise their parents, who stayed in the village, financial support (Knight, and Gunatilaka, 2007; Murphy, Blustein, Bohlig, and Platt, 2010). This is not the case with the girls. They have to stay under parental protection and especially to help their mothers with the housework. For many parents letting their daughters go means a "sexual freedom" also a high risk and therefore the danger of failing in their educational duties. In general, girls are not set free from parental control and authority until they find a husband, i.e. somebody who proposes to the parent to marry her. Thus becoming independent takes place much later for women than for men. Women are only dismissed from their parents' household after having married. This fact could explain the relative low proportion of female migrants in the adolescent group and the significantly higher proportion in the adult group. When looking at the elderly migrants, it can be remarked that the proportion of women is higher than that of the men. Women are represented by a higher number because when the family has resettled and the head of household (generally the husband) has retired, they want to spend their old age in their place of origin and be able to prepare their death at home. There even exists a saying: "he prepares his death, as only the wicked die in foreign region". This saying was quoted by many of the interviewees, or the male head of the household is already dead. Thus, the head of household moves to his origin place as soon as possible or were dead At the same time his wife, who is usually younger than the husband and therefore still at a working age, stays at the destination place where she takes care of the younger children. These children are often still in school or training.

The results also revealed that population in Benin hold various motives to move into and within the coastal area (Massey, and Espinosa, 1997; Chen, and Rosenthal, 2008; Carr, 2009; Doevenspeck, 2011; Teka, O., Sturn-Hentschel, U., Vogt, J., Bähr, H-P., Hinz, S., and Sinsin, B., 2012). The main migration motives varied according to age, gender, ethnic group and marital status. While some respondents migrate into coastal areas for family reasons (48.8%) such as moving together of partners, others move in the urban centres like Cotonou, Abomey-Calavi and Porto-Novo, looking for an education and non-agricultural occupation and increasing the competition for formal and informal employment, others migrate in the coastal rural area leaving dramatic ecological conditions (e.g. the depletion of soil fertility, climate variability) in the places of origin (Cf Carr, 2005; Hammer, 2004; Zimmerer, 2004). These results are similar to what Findley (1994), Carr (2005) and Doevenspeck (2011) reported respectively in Mali, Ghana and Benin. In this study, we also found that women migrate into the coastal area mainly for family reasons while men are more declined in labour and education (Chen, and Rosenthal, 2008). This finding can be explained by the fact that in rural areas of Benin community members got information about urban areas (living conditions, job accessibility, various possibilities etc.) through family and friends. These oft do not depict the realities in urban areas. In the case that they tell the reality (oft sad), people in rural areas do

not believe them and think that they want to discourage them from migrating. So, they decide, against all expectation to try their luck. Also access to information dissemination is reduced, unlike in urban areas. The information influences the perception and the beliefs of local communities confirming previous research (Coles, and Scott, 2009; Michaelides, 2011). So, some men decide to move into the coastal areas and especially in the urban centres in order to improve their living conditions. The high propensity of female migration due to family reasons can be seen as the consequence of the regional endogamy which is currently in force in the coastal area of Benin. Indeed, once a young man finds a job in their destination, he often gets married in his place of origin and brings his wife (Zimmermann, and Easterlin, 2006).

5.2 Migration theories and possible impacts on the environment

From a mental models perspective (Bostrom, Grangea, Bareuch, and Read, 1994) this study reveals that most migrants hold misconceptions about the coastal zone and the coastal urban zones. Moreover, many of the hinterland community members also hold similar views and believe that migration into the coastal area remains the only possibility to overcome the natural resources degradation in the place of origin. Therefore, the results are in agreement with the assessment by De Findley (1994); Haan, and Rogaly (2002); Hammer (2004); Zimmerer (2004); Cassels, Curran, and Kramer (2005); Carr, Lopez, and Bilsborrow (2009); Doevenspeck (2011) that links migration processes to natural resources degradation in the migrants' place of origin.

The study also shows migration into the coastal area as a result of a series of social problems, economic hardship and lack of job opportunities, high unemployment and poverty. Moreover, findings point out that in migrants' opinions there are, in the host regions, higher employment rates, expectations in terms of getting a better job and improving their economic status, the 'call effect' from other relatives and peers who emigrated earlier, etc. (Knight, and Gunatilaka, 2007). So, the classical theory: "The Pull and Push theory" is verified in the context of the current migration into the coastal area of Benin. In addition to attitudinal factors (beliefs about coastal area and coastal urban centres, expectations), structural level factors (poverty, high unemployment) as well as structural conditions, also have a significant influence on the decision to move. The study comes off the fact that the first motive (individual wealth or household wealth) for moving into the coastal area is linked with the marital status. The results also show, similarly to two migration models: (i) the neoclassical model or the maximisation of individual wealth (Todaro, 1980; Massey, Joaquin, Graemo, Ali, Adela, and Edward, 1998) and (ii) the new economic model that is based on budget profits and/or household wealth (Fischer, Martin, and Straubhaar, 1997).

To slow down this irregular pattern of migration into the coastal area of Benin, it will be more appropriate to develop a strategy to promote sustainable use of natural resources as well as long-term adaptive measures to climate change in the migrants' place of origin. The new challenge is now to shift the perception of rural population about the urban centres. In fact rural populations through the media think that there are facilities to easily get money or to carry on successfully in the urban areas comparatively to the rural areas.

Some of the interviewed migrants in the coastal area of Benin explained that they are already disillusioned and not satisfied (48.28%) from their decision to move into the coastal area.

Concerning the impacts of migrants on the environment, many theories were applied. These theories expanded from simplistic linear perspectives of population growth adversely affecting the environment to more complex theories that incorporate new relevant variables such as poverty, ecological crises, development, social and cultural institutions, and technologies (Panayotou, 2000; Bilsborrow, and Carr, 2001). Indeed, the global concentration process of

population and economic potential is aggravating, and it appears thus also the concentration of social conflicts and ecological damages. There is consequently the risk that an increasing vulnerability (Blaikie, 2000; Wisner, Blaikie, Cannon, and Davis, 2004) in these areas leads to social and environmental disasters. To better understand the interactions between migration process and environment, it is important to include migration as part of a multiphase response to environmental change (Bilsborrow, and Ogendo, 1992; Hammer, 2004). For instance, the rural out-migration is as a last possibility after land has been overused and degraded (Carr, 2009; Doevenspeck, 2011). Far from the idea that migration contributes to simple population increase, it was found by some authors that migrations are specific mechanisms through which the environment is adversely affected. Here, the relevant factors are the extraction patterns of natural resources from the environment for the livelihood of migrants, the rate and the efficiency of the extraction, and the social and economic context within which the use of resources occurs (Cassels, Curran, and Kramer, 2005; Carr, 2009). Fewer studies have investigated the migrant impacts on coastal environment in the developing countries, like in this study (Cassels, Curran, and Kramer, 2005). In Africa, and especially in this part of the world, the migration represents a current practice of the rural communities who leave the degraded areas to move into the wetter and more fertile zones (OCDE/CSAO, 2008; UICN, 2011). Migrants oft destroy the relatively wooded natural landscapes in order to cultivate crops and for their settlement. The soil management practices (shifting cultivation: agriculture on burnt areas) they set up are truly destroying environment and are also a source of carbon emissions in the atmosphere (Macharia,Thuranira, Nganga, Lugadiru, and Wakori, 2012). Migrants and activities they carry out, often lead to environmental degradation (land degradation, pollution, loss of biodiversity and soil fertility, etc.) which are pointed out by Auclair, Gubry, Picouët, and Sandron(2001) and Ndiaye (2008). Currently, many of migrants who farm, practice the out off season crop (vegetable cultures). This activity, even if it takes part significantly in the adaptation strategies of harmful effects of the climate change (Badabaté, Koffi, Kpérkouma, Komlan, Thierry, and Akpagana, 2012), contribute to increase the emission of greenhouse gazebecause of the use and overuse of mineral fertilizers, in particular the urea which releases ammonia (IPCC, 2013). The use of soil managers techniques such as the ploughing are considered to be effective in the improvement of the outputs of the cultures (Nicou, Ouattara, and Somé, 1990; Wedum, Doumbia, Sanogho, Dicko, and Cissé, 1996) but they are questionable because in the long term, they constitute destocking factors of the soil carbon by the stimulation of the microbial activity (Dilly, Blume, and Munch, 2003; Piovanelli, Gamba, Brandi, Simoncini, and Batistoni, 2006). In fact, the agricultural activities decrease the turnover of carbon by modifying the degree of protection of the soil organic matter.

6. CONCLUSION

The coastal area of Benin presents enormous attraction factors (infrastructures), social amenities and but also it is supposed to be provided in occupations by rural populations. This situation was reinforced through the mass media which sometimes spray/portray false image of urban area. Consequently, there are high rate of population who migrate into this area. The migration into the coastal area was explained through socio-demographic and ecological factors. Due to the fact that migrants claim to have/possess resources for their subsistence, the process of migration leads at end to a high pressure on the coastal resources. Nowadays, coastal resources are overused and could not satisfy all the inhabitants. For instance the agricultural yields, mangrove productivity are declining. Coastal inhabitants in order to guarantee their existence employ not sustainable techniques for resources exploitation (for example the use of

prohibited fish nets, overuse of mineral fertilizers). Finally, the whole coastal area is vulnerable. The fact that, the degradation of natural resources impacts should be seen as pull factor of migration into the coastal zone. Indeed, this consideration should be taken into account in the drawing up the sustainable development plan for the coastal area.

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