



Role of Women in Maintaining Suburban Agricultural Land in Togo (West Africa)

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Abstract

The preservation of suburban agricultural land in the face of rapid urbanization in the West African region has been a major problem in recent decades. This paper examines the land tenure strategies used by farmers in relation to their assessments of the impact of urban growth. It is based on individual surveys conducted among farmers and landowners on the outskirts of the city of Lomé in Togo. This study reveals that perceptions differ according to gender and that women—although marginalized by customary land tenure—play an important role in maintaining suburban agricultural land. These women perceive the urbanization process as an opportunity for suburban agriculture, unlike men, and develop two local land tenure strategies that are favorable to the maintenance of suburban agriculture land.

Subject Areas

Agricultural Science, Biodiversity, Ecology, Ecosystem Science, Environmental Sciences

Keywords

Suburban Agricultural, Land Use, Women, Urbanization, Togo, West Africa

1. Introduction

The urbanization of West African countries is one of the major changes of recent decades. It is taking the form of large urbanized areas that can be likened to metropolises (Dakar, Lagos, Abidjan, Cotonou, Lomé, Accra) that are growing steadily, or even conurbations of regional dimensions such as the one currently

taking shape between Abidjan and Lagos [1]. Everywhere, by absorbing the countryside, cities are spreading out, ever larger, ever further from city centers. They are recomposing peripheral rural spaces and in fact they are challenging the sustainability of suburban agriculture. The urbanization of agricultural land therefore brings to the forefront the future of agriculture in peripheral areas. We consider as urban peripheries, the spaces encompassing the city, where rural and agricultural spaces tend to regress to the benefit of a space with various uses: productive use, residential use, pleasure use, nature use.

One only has to travel around the cities of West Africa to realize the place that agriculture occupies. Market gardening, corn or cassava fields, or teak, oil palm or coconut plantations form a mosaic of land uses that reveal sometimes very different logics and strategies in the face of urbanization, and complex modalities of coexistence between the city and agriculture. Agriculture in these spaces has often been denied or forgotten by public policies, but it undoubtedly contributes to local economic development [2]. Suburban agricultural production even represents an important issue for food security in these developing countries [3], by providing urban centers with a supply of fresh produce. But in the face of rapid urbanization, what perceptions do farmers have of this process and what land strategies do they envision?

This paper is set in a scientific context where research on the agricultures and mutations of the peripheries of cities in the South is booming [4] [5] [6] [7]. It focuses on the recent urbanization context of the Maritime Region of Togo and reports on the diversity of perceptions related to this urbanization as well as the land tenure strategies of farmers on the outskirts of the agglomeration of Lome, the capital of Togo. The analysis of these perceptions and strategies aims to differentiate between men and women, and to highlight the influence of gender in the maintenance of suburban agricultural land.

2. Study Area

The Maritime Region (6° - 6°50'N and 0°40' - 1°50'E) of Togo served as the framework for this study (Figure 1). It is one of the five administrative regions of the country and concentrates 42% of the total population on about one tenth (1/10) of the country's surface area. It has a density of 407 hbts·km⁻² in 2010 compared to 102.4 hbts·km⁻² in 1981. It is the only region where the number of urban dwellers (1,610,010) far exceeds the number of rural dwellers (989,935). The urbanization process is rapid and the urban framework of this region is dominated by the Lome agglomeration, a city of more than 1.5 million inhabitants, with a population growth rate of 3.8 percent since 1981 [8]. The region's economy is weak and relies primarily on transportation infrastructure development and the agricultural sector. Agriculture is favored by the sub-equatorial Guinean climate with rainfall between 800 and 1200 mm per year. The number of agricultural workers is declining annually by 1.02 percent, but the female share remains predominant (51.7 percent). However, most of the agricultural land (82.3%) is in the hands of men, heads of households [9].

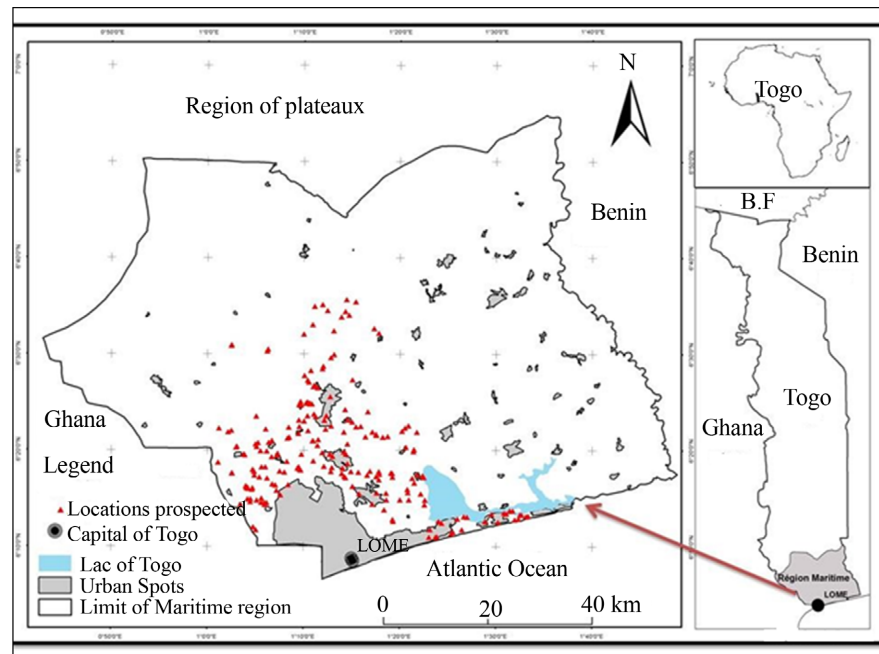


Figure 1. Location of the samples and state of urbanization.

3. Methodology

To account for the speed of the urbanization process, urban sprawl was measured by agglomeration—a specific method to the e-Geopolis research project—which defines an agglomeration as a built-up area with no discontinuity greater than 200 m [10] [11]. It is urban when the corresponding population reaches 10,000. In the following, the term “urban agglomeration” refers to this definition. Built-up areas are identified using satellite images from the Landsat TM sensor at 30 m spatial resolution dated January 30, 1986, April 4, 2001, and January 25, 2014. The population is estimated on the basis of population censuses and the mapping is carried out by photo-interpretation with ArcGis 10.3 software. To show the extent of urban consumption of agricultural land, a fine analysis of changes in occupation was carried out by intersecting two land use maps from 2002 and 2012, on two pilot sites randomly selected 25 km from the northwestern (site I) and eastern (site II) urbanization fronts of the city of Lomé center. These maps were designed from very high resolution satellite images, available on Google Earth and taken in 2002 and 2012.

The analysis of the perception of the ongoing urbanization process and of local adaptation strategies was carried out on a sample of 1210 farmers (899 men, 311 women) surveyed in 215 localities on the outskirts of Lomé. Due to a lack of official data for stratifying the sample, we decided to survey this large number of farmers in order to ensure that the survey was representative. The respondents operate in the “direct farming” mode [12], on plots of land ranging from 0.3 ha to 6.5 ha. A preliminary survey lasting 15 days revealed that farmers operating under indirect tenure contributed very little to the survey, as they had no decision-making power over the conversion of the farm to other uses. The survey

was conducted between December 2015 and November 2016, and contact with the respondent was unannounced, directly on his farm. His consent to participate in the survey was sought after explaining the purpose of the study [13]. The response rate for perceived risks from urbanization was 86.5% compared to only 26% for considered strategies. One of the apparent reasons for this low rate on strategies is that most of the respondents (70%) are involved in agriculture as a side activity. Information on the age of the respondents, the size of their farms, and the evolution of their cropping systems was also collected. The multivariate data set obtained was submitted to descriptive statistics and multivariate analysis using EXCEL software. The Student test was used to set up the difference between men and women.

4. Results and Discussions

4.1. Urban Dynamics and Consumption of Agricultural Land in Lomé and Its Outskirts

The measurement of urban sprawl shows that in less than three decades, the urbanized space of the Maritime Region has quadrupled, from 9580 ha in 1986 to 39,131 ha in 2014, an increase of nearly 1000 ha per year. This urbanization dynamic combines urban sprawl along the front of the city of Lomé and the formation of new agglomerated territories by densification of the built-up area in rural areas (Figure 2). The city of Lomé, with approximately 29,301 ha, alone contributes nearly three-quarters (74.9%) of all urbanized land. The new agglomerated areas in the countryside are not very large. However, some rural towns on the outskirts of the city of Lomé are notable for the rapid densification of their buildings. For example, the area of the town of Djagblé has increased 69-fold, from 16 hectares in 1986 to 1101 hectares in 2014. That of Adétikopé has multiplied by

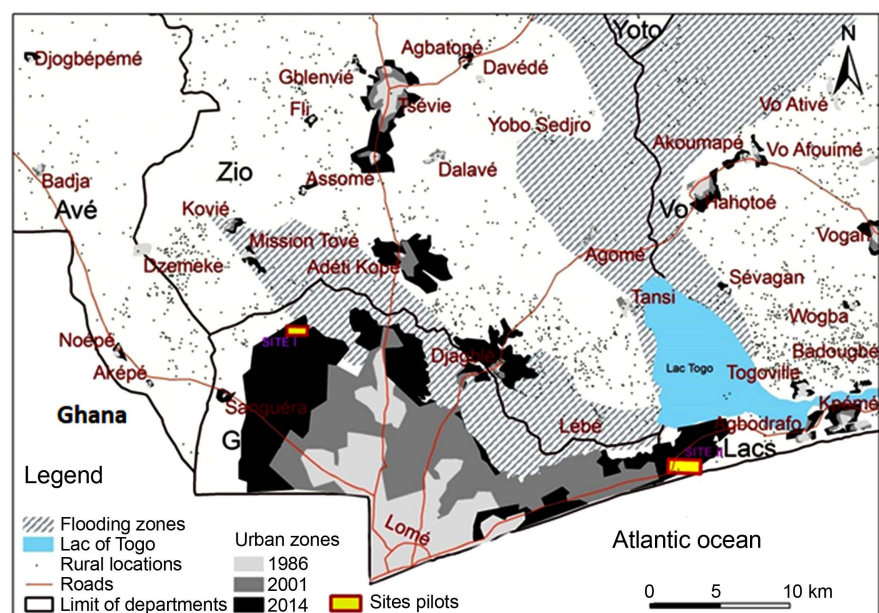


Figure 2. Urban extension of the city of Lomé and its peripheral towns.

110, going from 11 hectares in 1986 to 1208 hectares in 2014. This meteoric expansion of urban agglomerations and rural towns is not without effects on the peripheral agricultural areas.

The analysis of land use change at the pilot sites reveals that the urbanization process is primarily through conversion of agricultural land. The land use transition matrix (**Table 1**), shows that 72.2% of the urbanized space in 2012 on pilot site I, was agricultural in 2002 and more than half (52.7%) of the agricultural land in 2002, became urbanized in 2012. This conversion of farmland is much lower on Site II where urbanization affects only 10.6% of farmland and 79.1% of all land urbanized between 2002 and 2012, was agricultural. In this site, farmland is much more stable as farmers develop land strategies and adapt their cropping systems in the face of urban growth.

4.2. Perceptions and Local Land Strategies

Table 2 shows that, more than half of the respondents ($55.9\% \pm 1\%$) see urban growth as a direct threat, and $30.6\% \pm 2\%$ see it as an opportunity. The pressure of urbanization on agricultural areas is perceived differently by male and female farmers. To better reflect both perceptions and closely related strategies, the analysis focused on data collected from farmers who only farm as a profession (314 respondents, 247 men and 67 women). **Table 3** shows the diversity of strategies by gender.

Table 1. Land use changes and surface evolution (2002-2012).

Land use in 2002	Land use in 2012 (ha)				
	SITE I				
	Agricultural areas	Urbanized spaces	Plantations	Natural vegetation	Total
Agricultural areas	38.3	42.6	0	0	80.9
Urbanized spaces	0	36.5	0	0	36.5
Plantations	16.8	3.6	4	0	24.4
Natural vegetation	3.2	12.8	0	5.5	21.5
Total	58.3	95.5	4	5.5	163.3
	SITE II				
	Agricultural areas	Urbanized spaces	Plantations	Natural vegetation	Total
	Agricultural areas	141	17	0,2	2.6
Urbanized spaces	0	10.5	0	0	10.5
Plantations	3.5	4.5	0.7	0	8.7
Natural vegetation	0	0	0	49	49
Total	144.5	32	0.9	51.6	229

Table 2. Perception of urban growth by farmers.

Perception of urban growth	Men	Women	Total	
			Number	Proportion (%)
Direct threat for agriculture	676	00	676	55.9
Opportunities for agriculture	115	255	370	30.6
No answer	108	56	164	13.5
Total	899	311	1210	100

Table 3. Diversity strategies.

	Men	Women	Total	
			Number	Proportion (%)
Splitting and sale of the farm's land	182	00	182	58%
Speculative strategies	21	00	21	6.7%
Partial conservation	5	19	24	7.6%
Total conservation of the exploitation	39	48	87	27.7%
Total	247	67	314	100

4.2.1. Urban Growth Perceived as a Direct Threat by Men

Urbanization is perceived as a process in which agriculture no longer has a place according to 73.7% of the men surveyed (182 out of a total of 247). Most of these men were of advanced age (the median age is 57 ± 5 years), and had bought or inherited old oil palm and coconut plantations that had become unprofitable. They all opt for the sale of land because the urban land market presents as a godsend. Most of them (54.4%) are considering abandoning their agricultural activity (Table 4). For these men, a reconversion and/or investment in another sector of activity are in order: construction of rental housing (36%), marketing of food products, hardware stores (9%), finding a non-farm job in the city (55%). For another, smaller fraction (31.3%) of this group of men, selling is part of logic of expanding the farm. However, because of the pressure on the land they occupy on the outskirts of the city, they are considering selling their plots and buying larger land further out in the countryside, and investing in farm equipment. Finally, 14.3% of these men have no plans.

Some 20 male farmers (8.5%) also perceive urbanization as a threat, but they choose to delay the sale of their land as long as possible in order to maximize the profit on the land rent induced by urbanization. This is a speculative strategy corresponding to a form of cognitive capitalism [14]. It is the preferred choice of men, who often have one or more other farms elsewhere. Those who have only one plot of land and who are also seduced by urban land rent (2.0%), engage in partial sale, which consists of selling part of the farm and investing in the remaining plot, with the purchase of farm equipment, inputs and plant protection products. This investment allows them to improve their farm yields and income.

Table 4. Diversity strategies after the sale of land by men.

Type de stratégie après-vente	Number	Proportion (%)
Moving out of Agriculture for good	99	54.4
Purchase larger tracts of land further away from the city	57	31.3
Not defined	26	14.3
Total	182	100

In addition to these two strategies (total sale and land speculation), which are largely adopted by men (82.2%) but are not conducive to maintaining agricultural land, only a much smaller fraction (15.8%) of men have chosen to keep all of their land because of the development of the local urban market. For the most part, these are much younger men than before, with a median age of 46 ± 7 years. The low proportion of men shows that they see this as a threat, whereas women see it as an opportunity for agriculture.

4.2.2. Urban Growth Perceived as an Opportunity by Women

One of the interesting results of this analysis is that none of the women chose to sell all of their farmland. In contrast to men, all women opted to maintain their farms either fully (71.6%) or partially (28.5%). These women are much younger than the men. The median age is 39 ± 6 years. Most of them (59.6%) live in couples. The area of their farms is on average half that of men. It corresponds to 1.7 ± 1 ha compared to 3.5 ± 2 ha for men. Their choice to conserve farmland is motivated by the need to protect their main activity as farmers and to take advantage of the growing urban market. To better withstand urban pressure, they are transforming their cropping systems to best meet the demands of the city.

To understand these adaptations, an analysis of past (2000 and 2015) and projected (2030) land use was conducted based on questionnaire results from 87 farmers (39 men and 48 women) who chose to retain all of their farms (Figure 3). Their farms cover a total area of 203.1 ha. The results show a strong decline in cash crops (oil palm and coconut) between 2000 and 2015 (from 49.9% to 16.7% of cultivated areas), in favor of vegetable crops (from 12.8% to 49.2%). These farmers also confirm that these transformations will continue, since cash crops and market gardening are expected to account for 5.4% and 76.1% of cultivated areas respectively in 2030. However, the development of market gardening should also come at the expense of food crops, which would only represent 18.5% of crops.

4.2.3. Women: Actors in the Maintenance of Suburban Agricultural Land

The study of land strategies in the face of rapid urban dynamics complements previous work on suburban agriculture in Togo [13] [14] and in the Gulf of Guinea countries as a whole [15] [16]. It shows that the consumption of agricultural land by urbanization leads to a diversity of strategies by farmers (Figure 4). The sale of land is the predominant strategy in the outlying areas of Lomé. It is

motivated by the high urban land rent and the liberalization of the land market. These observations are consistent with those made by [17] [18] in Accra, [7] and [19] in the Maghreb and in several northern countries. . Most often, this sale corresponds to a definitive abandonment of agricultural activities. It may be part of logic of farm expansion, and may result in the displacement of farmers from peripheral areas [14]. This mobility reflects the difficulties of coexistence between the city and agriculture within the same space.

The striking fact of this study is the refusal of women to sell all of their land and their desire to maintain agricultural activity, unlike men. These women take advantage of the development of the local urban market by adapting their farming

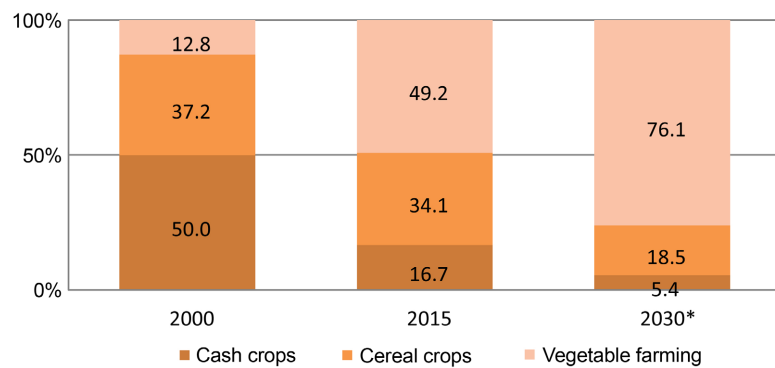


Figure 3. Evolution of cultivated lands (%).

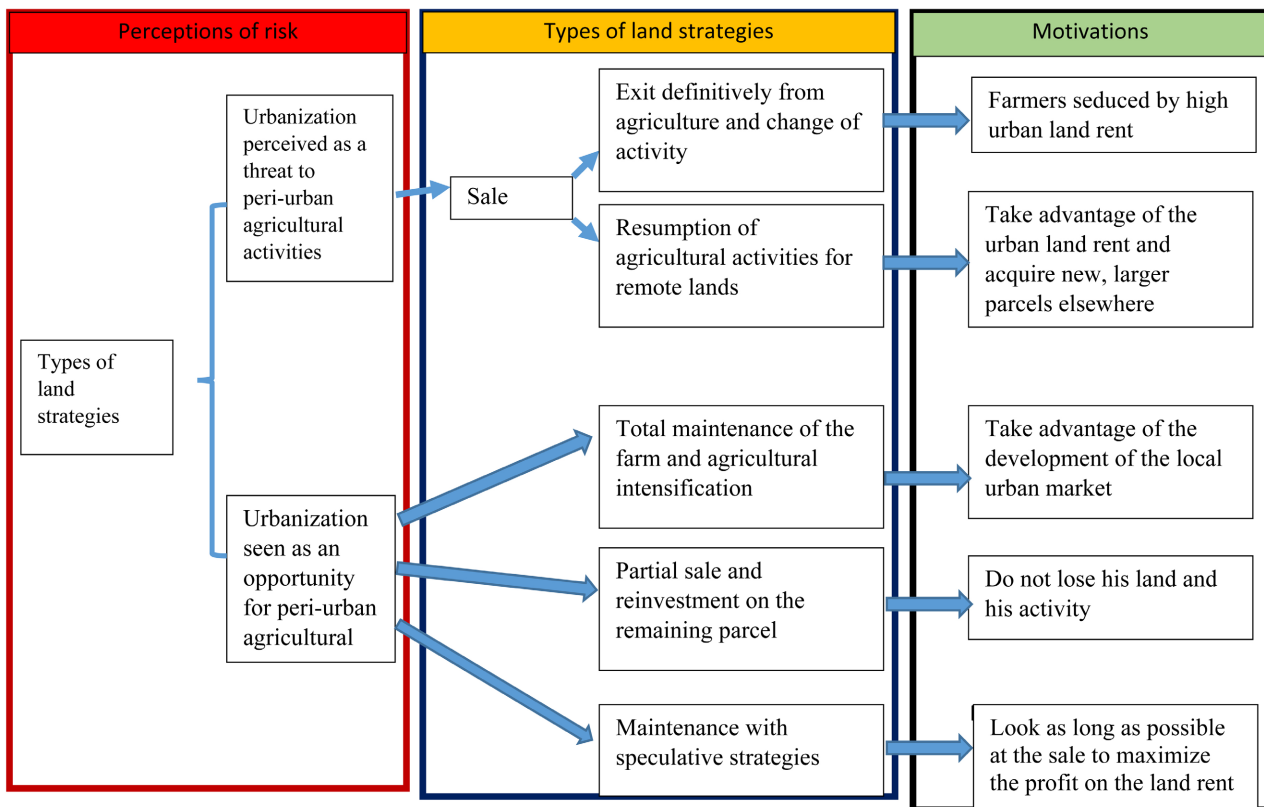


Figure 4. Perceptions, land strategies and motivations of farmers.

systems. The adaptation to urban pressure is achieved through the intensification of cropping systems, particularly market gardening, which replaces food production systems and cash crop plantations. The rise of these intensive cropping systems can be explained by the increase in the cost of land, which encourages these farmers who want to remain in business to produce more in order to make their farms profitable. In the market garden areas of the city of Lomé, [20] observed a succession of crops whose cycle varies from one to three months on the same plot during the year. This intensification is made possible by the use of large quantities of fertilizers and phytosanitary products [21]. It also relies on increasingly efficient irrigation systems. Manual watering is gradually being replaced by motorized sprinkler or drip irrigation. Farmers are favoring products with shorter shelf life, including leafy vegetables (lettuce, spinach), root and tuber vegetables (carrots, turnips), and fruit vegetables (tomatoes), at the expense of products with longer shelf life (peppers, onions).

5. Conclusion

This analysis has shown that the process of urbanization is taking place primarily on agricultural land in southern Togo and is leading to the development of a diversity of strategies depending on the gender and age of the farmers. The difference observed between men and women in the analysis of the perception and land strategies developed in the face of urban expansion has made it possible to highlight the key role played by women in maintaining suburban agricultural land. These women, long marginalized by customary land tenure, are taking advantage of the liberalization of the land market to gain access to land. Unlike men, they perceive urban growth as an opportunity for agriculture and their land strategies contribute to the maintenance of suburban agriculture. In this sense, women are undoubtedly becoming important actors in maintaining agricultural activities in these peripheral areas under pressure around African cities.

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Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] OCDE (Organisation for Economic Co-Operation and Development)/CSAO (Compagnie du Sénégal et d'Afrique de l'Ouest) (2020) *Dynamiques de l'urbanisation africaine 2020: Africapolis, une nouvelle géographie urbaine*, Cahiers de l'Afrique de l'Ouest, Éditions OCDE, Paris.
- [2] Robineau, O. (2013) *Vivre de l'agriculture dans la ville africaine: Une géographie des arrangements entre acteurs à Bobo-Dioulasso*, Burkina Faso, Thèse Doct. de Géographie, Univ. de Montpellier Paul Valéry, Montpellier III, Montpellier.
- [3] Guyomard, H. and Schmitt, B. (2014). *Les terres agricoles, un enjeu pour la sécurité*

- alimentaire de la planète à l'acuité variable selon les régions du Monde. *Cahier Demeter*, **15**, 101-118.
- [4] Ba, A. and Moustier, P. (2010) La perception de l'agriculture de proximité par les résidents de Dakar. *Revue d'Économie Régionale & Urbaine*, No. 5, 913-936. <https://doi.org/10.3917/reru.105.0913>
- [5] Chaléard, J.-L. (2014) *Métropoles aux Suds, le défi des périphéries?* KARTHALA Editions.
- [6] François, M., Valette, E., El Hassane, A. and Debolini, M. (2013) Urbanisation des terres agricoles: Ressorts, dynamiques et impacts sur l'agriculture à la périphérie de Meknès. *Maghreb-Machrek*, **1**, 123-140. <https://doi.org/10.3917/machr.215.0123>
- [7] Maachou, H.M. and Otmane, T. (2016) L'agriculture périurbaine à Oran (Algérie): Diversification et stratégies d'adaptation. *Cahiers Agricultures*, **25**, Article No. 25002. <https://doi.org/10.1051/cagri/2016011>
- [8] République du Togo (2011) 4ème Recensement générale de la population et de l'habitat (du 06 au 21 novembre 2010), résultats définitifs. Direction Générale des Statistiques et de la Comptabilité Nationale, Togo.
- [9] République du Togo (2013) 4ème Recensement national de l'agriculture 2011-2014: Profil de l'agriculture togolaise. Ministère de l'agriculture et de l'élevage, Direction de la statistique agricole, Togo.
- [10] Bawa, A. (2017) Mutation des périphéries urbaines au sud du Togo. Des espaces ruraux à l'épreuve du peuplement et de la marchandisation des terres. Thèse de doctorat, Université de Montpellier, Montpellier.
- [11] San Emeterio, J.L. and Mering, C. (2021). Cartographie des agglomérations urbaines africaines à l'aide d'images Google Earth. *Journal international de télédétection*, **42**, 4882-4897. <https://doi.org/10.1080/01431161.2021.1903613>
- [12] Colin, J.-P. (2004) Le marché du faire-valoir indirect dans un contexte africain. Éléments d'analyse. *Economie Rurale*, **282**, 19-39. <https://doi.org/10.3406/ecoru.2004.5492>
- [13] Atakpama, W., Kanda, M., Folega, F., et al. (2021) Agriculture urbaine et périurbaine dans la ville de Lomé et ses banlieues. *Revue Marocaine des Sciences Agronomiques et Vétérinaires*, **9**, 205-211.
- [14] Kanda, M., Badjana, H.M., Folega, F., Akpavi, S., Imbernon, J. and Akpagana, K. (2017) Dynamique centrifuge du maraîchage périurbain de Lomé (Togo) en réponse à la pression foncière. *Cahiers Agricultures*, **26**, Article No. 15001. <https://doi.org/10.1051/cagri/2016054>
- [15] Adeoti, A.I., Cofie, O. and Oladele, O.I. (2012) Gender Analysis of the Contribution of Urban Agriculture to Sustainable Livelihoods in Accra, Ghana. *Journal of Sustainable Agriculture*, **36**, 236-248. <https://doi.org/10.1080/10440046.2011.620229>
- [16] Yapi-Diahou, A., Yassi, G.A., Tchan, A.D.B. (2014) Les classes moyennes dans les périphéries d'Abidjan: La clientèle des promoteurs dans des espaces en recomposition. In: Chaléard, J. L., Ed., *Métropoles aux Suds: le défi des périphéries?* KARTHALA Editions, 115-132.
- [17] Soro, D.M. and Colin, J.-P. (2008) Marchandisation, individualisation et gestion intra-familiale des droits sur la terre en basse Côte-d'Ivoire. *Économie rurale, Agricultures, alimentations, territoires*, n° 303-304-305, 154-168.
- [18] Antwi, M. and Seahlodi, P. (2011) Marketing Constraints Facing Emerging Small-Scale Pig Farmers in Gauteng Province, South Africa. *Journal of Human Ecology*, **36**, 37-42. <https://doi.org/10.1080/09709274.2011.11906415>

- [19] Elloumi, M., Selmi, S. and Hammami, M. (2003) Agriculture périurbaine dans le Grand Tunis: Pression urbaine et stratégies des agriculteurs. In: Elloumi, M. et Jouve, A.M., Eds., *Bouleversements fonciers en Méditerranée. Des agricultures sous le choc de l'urbanisation et des privatisations*, KarthalaCIHEAM, Paris, 55-84.
- [20] Kanda M, Djaneye-Boundjou, G., Wala, K., Gnandi, K., Batawila, K., Sanni, A., et al. (2013) Application des pesticides en agriculture maraichère au Togo. *VertigO-la revue électronique en sciences de l'environnement*, **13**, 1-17.
- [21] Kanda, M., Wala, K., Batawila, K., Djaneye-Boundjou, G., Ahanchede, A. and Akpagana, K. (2009) Le maraîchage périurbain à Lomé: Pratiques culturelles, risques sanitaires et dynamiques spatiales. *Cahier Agricultures*, **18**, 356-363.
<https://doi.org/10.1684/agr.2009.0319>