

# Environmental Impact of the Real Estate Companies Boom in the Central Region, Ouagadougou (Burkina Faso)

**Comment [U1]:** What do you mean by environmental impact? You should explain about the environmental impact briefly in Introduction part.

**Comment [U2]:** Justify all your text.

## Abstract

**Comment [U3]:** Abstract should write in one (1) paragraph and must start with the research problems.

**Aims:** Impact of the real estate companies' boom on the environment in the central region of Burkina Faso (Ouagadougou) and solutions to resorb the negative effects of the activity.

**Comment [U4]:** Not aims. It should be the objective of research.

**Study design:** The present study was run via the Problem-In-Context framework along with the Hydro-Quebec environmental assessment design.

**Comment [U5]:** The research objective should start with verb for example to examine, to identify, to evaluate, to investigate etc.

**Place and duration of study:** The study was conducted in Burkina Faso, for the Environment department of Fada N'Gourma University for twelve months.

**Methodology:** The environmental impact of the project was assessed according to Hydro-Quebec group method by prioritizing the inventory items regarding to their sensitivity.

**Comment [U6]:** Is it a method or theory?

**Results:** Burkina Faso revised Law No. 034 on agrarian and land reorganization (RAF) on July 2, 2012. This revision allowed the population to be landowners, generating a boom in Real Estate development with the sale of big surfaces of lands by landowners. This boom is not without impacts on the environment. It leads to the destruction of forests, loss of biodiversity, loss of agricultural production areas, threats to green spaces conservation areas, anarchic occupation of lands, etc. by real estate companies and the non-ecological urbanization of the city of Ouagadougou. The anthropogenic and climatic constraints with which Burkina Faso is confronted generate strong pressure on the existing natural resources: soil, fauna, flora, water, etc.

**Conclusion:** ~~The Burkinabe capital is about to engulf all the surrounding municipalities of Komki Ipala, Komsilga, Koubri, Loumbila, Pabré, Saaba and Tanghin-Dassouri. The main ways to reduce the environmental impacts of this real estate boom are the registration of agricultural production and conservation areas and the revision of the RAF in order to remove the right of land owning to the population.~~

**Keywords:** Burkina Faso; Real Estate Boom, Environment, Solutions

## 1. Introduction

Limited to the North and East by the Central Plateau region, to the South by the Central South region, to the West by the Central West region, the Central region of Burkina Faso, Kadiogo, covers 1.03% of the national territory. Its population is mainly composed of Mossi. The capital of the region is Ouagadougou located in the center of the country [1]. The need

to define a national policy on the environment is the manifestation of the political will at the national level, to better define and regulate the interactions between the environment and the prospects for sustainable development and the fight against poverty [2]. Burkina Faso, like other African countries south of the Sahara, is faced with the problem of land. Today the political, economic and social issues related to access to land do not spare urban centers, nor rural areas [3]. For the management of land, natural resources and the environment, Burkina Faso has a number of relevant political, institutional and legal instruments, programs and strategies. In addition, the country has subscribed to sub-regional and international agreements and conventions on environmental and social protection [4]. The country has adopted texts allowing property development in 2008, which allowed the creation of several offices in this field [5]. On July 2, 2012, the Burkinabe State reviewed its RAF (Agrarian and Land Reorganization) and granted the people the right to own land [6]. This revision has generated a boom of real estate companies because the mostly poor landowners will start selling their land to cope with their poverty. However, this boom of real estate companies is not without impacts on the environment. Agrarian reforms and decentralization policies have profoundly changed the configuration of the region. These changes generate tensions around the land issues [7]. Ouagadougou alone holds 237 projects and thus mobilizes more than 18,000 hectares [3]. Real estate development is an activity that consists of producing real estate intended to be sold to buyers who may choose to occupy or operate it. Collective or individual housing, shops, offices, industrial premises, the real estate developer supports the design of real estate assets of all kinds. The real estate developer assumes full responsibility for the project he undertakes. As the buyer of the initial property, he manages all the financial, administrative, technical and commercial aspects of the operation [8]. Compliance with ecological and environmental standards became one of the key concerns of the early 2000s in several sectors, and real estate is no exception [9]. The definition of sustainable development may seem abstract, but it is nevertheless essential today when we see how we are harming our planet.

This study presents the impact of the real estate companies boom on the environment in the central region of Burkina Faso (Ouagadougou) and propose solutions to resorb the negative effects of the activity.

## **2. Methodology**

### **2.1. Administrative situation**

Law No. 10/96/ADP of April 24, 1996, modifying provincial boundaries, makes Kadiogo a province made up of six departments (*Komki Ipala, Koubri, Komsilga, Pabré, Saaba and Tanghin-Dassouri*), a full-service municipality (Ouagadougou) with special status and a



meet growing water needs (Tanghin 1, 2 and 3). The Loumbila dam, in the province of Oubritenga, plays a big role in supplying the city of Ouagadougou with water. The province also benefits from a few water reservoirs scattered throughout the localities [1].

The vegetation is subject to uncontrolled exploitation for domestic, artisanal and construction needs. Along the temporary watercourses has developed a wooded savannah. The region has two (02) classified forests, which are the classified forest of Gonsé and the classified forest of Bangrewéogo, one (01) regional forest (Forest of Bargo), eight (08) endangered village forests, four (04) groves.

**Table 1:** Forests present in the central region

N°	Forests	Communes
1	Bangréweogo Classified Forest	Ouagadougou
3	Communal Forest of Komsilga	
5	Kalzi Village Forest	Komsilga
6	Communal forest of Koubri	
7	Pitioko Village Forest	
8	Kouba Village Forest	Koubri
9	Didri Village Forest	
10	Goghin Village Forest	
11	Kuba Grove	
12	Communal Forest Komki-Ipala	
13	Komki-Peulh Village Forest	Komki-Ipala
14	Komki-Ipala Village Forest	
15	Communal Forest of Pabré	
16	Nedogo Village Forest	Pabré
17	Sabtenga Village Forest	
18	Gonsé Classified Forest	

19	Bargo Regional Forest	Saaba
20	Communal Forest of T-Dassouri	
21	Departmental Forest of T-Dassouri	T-Dassouri
22	COTECNA Grove	

In the central region, wildlife is almost non-existent due to land pressure, degradation of plant cover, scarcity and drying up of surface water. The essentially ferruginous tropical soils, of the clay-lateritic type, rest on a large fissured granite mass. These soils are poor, fragile and therefore vulnerable to erosion.

### 2.3. Demographic situation of the central region

The central region is the smallest region of Burkina Faso with an area of 2,869 km<sup>2</sup> but the most populated region with 3,032,668 inhabitants or 14.80% of the country's total population according to the preliminary results of the Fifth General Population and Housing Census of Burkina Faso [11] with a population density of 1057 inhabitants per km<sup>2</sup>. The distribution of the population by commune shows that Ouagadougou is the largest commune with more than 85% of the total population. The commune of Tanghin Dassouri with 3.2% of the population and Komsilga, which has 3.1% of the population, follows it by far. The smallest of the communes are *Pabré* and *Komki-Ipala*, which represent respectively 1.6% and 1.2% of the population.

The land system in Burkina Faso is governed by Law No. 001-2007 of June 4, 2007 and reread on July 2, 2012 [6]. This law determines the fundamental principles of land use planning, rural and urban land management, regime of water, forests, wildlife, fisheries, substances, quarries and mines, as well as the regulation of real property rights. However, it should be added that even today the effectiveness of this law suffers from traditional practices, especially with regard to its management.

### 2.4. Data analysis and classification

According to Hydro-Quebec (1990a), for the projects submitted for environmental assessment, it is appropriate to prioritize the inventory items according to their sensitivity. An apprehended impact is *strong* when an element is destroyed or strongly disturbed by the realization of the project. It is *medium* when it is altered by the implementation of the project; this alteration diminishes the quality of the element without calling into question its existence

within the layout or the location. Finally, the apprehended impact is *low* when the element is somewhat modified by the implementation of the project.

### 3. Results and Discussion

#### 3.1. Justification of the activity

Social reasons, there is the possibility being landowner, and to selling the land freely. The physical causes are the exponential increase in the population of the central region; the low purchasing power of landowners; the presence of land and the low rainfall, which does not favor the practice of agriculture. Several reasons contribute to the existence of these activities, namely the failure of the texts, in particular the RAF (Agrarian and Land Reorganization) which attributed the right of landowner to the populations in its article 30. It stipulates that: *“The land heritage of individuals consists of all the land and other real estate belonging to them in full ownership; rights of use on the lands of the unallocated private real estate domain of the State and local authorities and on the land heritage of individuals; rural land holdings; rural land use rights”* [6]. Every Burkinabe wants to possess his own house, which has led to strong demand with strong proliferation of real estate companies. Thus, a real deal is created between these real estate companies and the landowners who sell them their land.

#### 3.2. Potential effects of the activity

The impact assessment evaluation was inspired by that established by the Hydro-Quebec method [12]. The analysis first proceeded to identify the impacts. The significance of the impact is based on the use of the five (05) criteria that are the Nature of the impact; Significance of impact; Intensity of the disturbance; Extent of impact; Duration of impact. Impacts are identified by linking the sources of impact, both in the site development phase and in the post-development phase (installation/operation), with the components of the receiving environment. This linking takes the form of a grid where each identified interrelationship represents a probable impact of an element of the project (source of impact) on one or more components of the environment. Depending on the criteria mentioned above, the impact of carrying out the activity on the environment is summarized in the **Table 2** below.

**Table 2:** Summary of the impacts of the project on the environment

Source of impact	Nature of impact	Intensity of the disturbance	Impact extent	Impact duration	Significance of impact
land clearing	Negative	Strong	Punctual	Long	Medium
Housing construction					

**Comment [U7]:** Which sources do you got the source of impact ? Proof it.

	Negative	Medium	Punctual	Long	Medium
Lane tracing	Negative	Medium	Punctual	Long	Medium
Presence of the workforce	Negative	Low	Punctual	Short	Small
Use of surface and ground water	Negative	Strong	Topical	Long	Major
Loss of production area	Negative	Strong	Topical	Long	Medium
Anarchic occupations of production and conservation areas	Negative	Strong	Topical	Long	Medium
Loss of biodiversity	Negative	Strong	Topical	Long	Medium
Development of the region	Positive	Strong	Topical	Long	Medium
Accessibility of plots and accommodation	positive	Strong	Topical	Long	Medium
Disposal of domestic waste	Negative	Low	Punctual	Long	Small

Noise pollution from construction works on housing estates does not affect local populations and wildlife to a lesser extent. The natural landscape experiences major disturbances linked to the activity of land clearing to clear spaces. During construction, air quality is locally affected by dust emissions and perishable household waste. The quality of surface and groundwater is impacted by withdrawals for construction and for consumption by the population. The work entails the cutting of trees and shrubs. Wildlife is impacted by the activities of real estate companies. Project activities do not affect public health and safety. However, dust during work can affect the health of workers and residents, and risks of accidents can occur. As a reminder, the RAF delimits the territory into areas of agricultural productions, conservation areas and housing. The real impacts of the activity are:

### 3.3. Encroachments on production and conservation areas

Encroachments result in the loss of production areas (fields, lowlands, protected forests, pasture areas, etc.) [13]. For instance, the Bargo regional forest, which had an area of about 6000 hectares when it was created in 1953 [14], now has an area of 37 hectares [15]. Conservation areas (classified forests, the Ouagadougou green belt and green spaces, etc.)

are also threatened. For instance, there are installations of farms less than 10 m from the Gonsé classified forest while the regulations authorize an installation only 100 m from the forest (**Photo 1**).



**Photo 1:** Encroachment on the Classified Forest of Gonsé

### 3.4. Anarchic occupations of production and conservation areas

In the central region, several anarchic occupations are observed in production spaces as well as in conservation spaces and mainly by spontaneous habitats (**Photo 2**).



**Photo 2:** Spontaneous habitats on the green belt of Ouagadougou

Artisanal quarries (18) and aggregate collection sites (23) are also present on the green belt (**Photos 3a, 3b**) with difficulties to restore the belt [16].



**Photo 3a:** Aggregate collection

**Photo 3b:** Quarry on Ouagadougou green belt

The different anarchic occupations are summarized in **Table 3**.

**Table 3:** Types of green space occupation

Type of anarchic occupation of green spaces	Total	incidence (%)
Mosques	14	11,43
churches	20	17,14
Schools	17	14,28
Trading places	31	25,71
Car garages	27	22,85
Uncontrolled rubbish dumps	10	9,37
<b>Total</b>	<b>119</b>	<b>100</b>

Real estate companies have bought and taken over large areas of production land. These lands became their private properties. The green belt of Ouagadougou was supposed to limit the extension of the city but today this belt is found in the middle of the city of Ouagadougou. The degradation of vegetation in the central region leads to the loss of biodiversity. For instance, Buffaloes, Jackals, spotted Hyenas, Warthogs... once encountered naturally in the region, have almost disappeared [17]. The fauna present consists of small animals such as hares, rats, genets, monkeys, duikers, civets, ground squirrels. There is also guinea fowl, hornbills, sparrow hawks, francolins, bats, doves and a few bustards and battler eagles encountered especially in the areas of the rural communes of the region. However, if nothing is done to stop this accelerated degradation of the vegetation cover, these remaining species risk disappearing as well [18].

### 3.5 Conflict between the State and actors of the activity: solutions

Often certain anarchic installations are demolished by the State and this leads to conflicts between the State and these actors. Solutions to those issues are numerous. Among them are the followings:

- ✓ Securing the land assets of State structures, by proceeding with classifications, registrations and declaring public utilities;
- ✓ Prioritize a participatory approach taking into account all rural development actors in any land development project in order to achieve an eco-responsible and sustainable land management system;
- ✓ Review the RAF, by attributing the right of landowner to the State;
- ✓ Decentralize services and develop other cities, which will greatly reduce the population of Ouagadougou;
- ✓ Carry out an environmental and social assessment beforehand for any land development project and implement the resulting Environmental and Social Management Plans (ESMPs);
- ✓ Accentuate awareness campaigns on the need for the protection and restoration of natural resources;
- ✓ Support the municipality in the fight against the wandering of animals;
- ✓ Teach environmental education to the population.

#### 4. Conclusion

Insofar as Burkina Faso seeks to reconnect with the principles of good governance of the rule of law, it is appropriate that vigorous measures be taken to clean up the property development activity and ensure strict respect for legality, ethics and fairness in land subdivision and allocation operations. The boom in real estate companies has allowed landowners to save a little money and has also made it possible to make plots and habitats for sale available. The activity of real estate companies has harmful effects on the environment. It leads to the destruction of the vegetation, the loss of production areas, the modification of natural landscapes, air, water and soil pollution. Strong measures are needed to secure production and conservation areas. Decentralized services and development of other cities could slightly reduce the population of the city of Ouagadougou.

#### References

1. INSD, 2006 General Population and Housing Census (RGPH-2006): Monograph of the Boucle du Mouhoun region. 2009. p. 174.
2. MECV B.F, National Environmental Policy. 2005: p. 30.
3. National Assembly B.F., Parliamentary Commission of Inquiry on Urban Land in Burkina Faso: Summary Report. 2016: Burkina Faso. p. 38.
4. Municipality of Ouagadougou, Strategic environmental assessment of the development project for the centrality of Tanghin in Ouagadougou. 2019. p. 307.

**Comment [U8]:** Conclude about the environmental impact.

**Comment [U9]:** Delete

**Comment [U10]:** •Make sure the references mentioned in the text are also listed at the References List and references in the References List are also mentioned in the text.  
•The format writing for references is not in a right way. Change to the right format of writing references.  
•There are many uncompleted references.

5. National Assembly B.F., Bill on real estate development in Burkina Faso. 2008. p. 11.
6. National Assembly B.F., Law No. 034-2012/AN on Agrarian and Land Reorganization of July 2, 2012 and its implementing decree. 2012. p. 220.
7. Yameogo, T., African Monasteries and Land Conflicts. The case of the Saint-Benoît abbey of the Benedictines of Koubri (Burkina Faso). *African Studies Notebooks*, 2021(243): p. 641-659.
8. City&You. Real estate development: what is it? 2022.
9. Immonotairesauctions. The impact of ecology on real estate. 2022.
10. BNDT, National Topographical Database (BNDT) Geographical Institute. Burkina Faso, 2012.
11. INSD BF, Fifth General Population and Housing Census of Burkina Faso: Preliminary Results of the 5th RGPH. 2019. p. 76.
12. Hydro-Québec, Lignes et Postes environmental assessment method. 1. Environmental assessment process. 2. Techniques and tools. Working group report. Montreal. 1990a: p. 322p.
13. Walker, R., Urban spray and natural areas encroachment: linking land cover change and economic development in the Florida Everglades. *Ecological Economics*, 2001. 37(3): p. 357-369.
14. IUCN/PACO, Actors and governance of protected areas in West Africa: what contribution to conservation? Ouagadougou, BF: IUCN/PACO, 2012.
15. OUEDRAOGO, P.O., Actu vert: The regional forest of the Center risks disappearing, in Sidwaya. 2022: Ouagadougou.
16. Sana, A., Contribution to the development of a restoration plan for the green belt around Ouagadougou. University of Ouagadougou 2001.
17. National Assembly. Law No. 003-2011/AN on the Forest Code in Burkina Faso. . 2011
18. Wijkman, A. and L. Timberlake, Natural disasters: acts of God or acts of man? 2021: Routledge.