Rationalizing Urban Housing Land Allocation Policy in Khartoum for Sustainable and Effective Urban Planning

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Abstract: Khartoum is an example of a city where the land is controlled and allocated by the State. The land is allocated for housing and different urban activities through a specific process and procedures under specific rules, laws, and institutional structure and policies. The paper discusses these issues to explore how sustainable the system is and how effective is the allocation process. Having a large number of interfering factors inherent in the urban land allocation, the paper discusses the rationality of the process and how it could be appraised. Adopting a deductive research method, the article portrayed the complex nature of the system and highlighted the need for more sustainable and rational methods of allocation that can enhance appropriate urban land development.

Keywords: Khartoum, land policy, land allocation, sustainability, urban planning

1. Introduction

Urban land issues are central to all urban development projects. They are also fundamental issues in sustainable development. Provision of enough land for all urban activities and investments related to housing, retail, business, industry, and other uses is a crucial issue in urban development. Land markets are not effectively responding to the needs and the increasing demand for those activities. Access to land is becoming increasingly difficult for all the people. Resolving complicated urban land issues and achieving appropriate and fair land allocation for the purposes of improved planning is a challenging task to accomplish. Land allocation for different uses and different beneficiaries is a process that pertains adherence to righteous ethical conduct.

The paper aims to highlight the adopted systems of urban public land allocation, regulatory systems laws procedures and processes and the impact on the planning of Khartoum and the avenues by which sustainability can be achieved, concomitantly adhering to the appropriate and effective land allocation rules.

2. Theoretical Background

2.1 Sustainable Development and Land

Sustainable development is crucial globally recognized concept that has achieved broad support as a guiding notion for urban development. Appropriate allocation of urban land for different uses, the land patterns, and reform are critical factors in promoting sustainable development. Rooted applications of outmoded land policies and rooted land-related regulations and legal aspects are difficult to change or even reformed which makes it also difficult to achieve sustainable development.

Sustainable development addresses how the arising needs of food, shelter, clothes, water, materials, and industrial products of human beings can be provided under the limited resources of land and the continuously increasing population and how can the negative consequences of these human activities can be mitigated. Sustainable development is about considering the carrying capacity of the planet earth.
Sustainable development is dependent on the State having overall responsibility for land management regarding information about land tenure, values, and use. Sustainability is also associated with State’s good governance that includes a number of characteristics viz., sustainability, subsidiarity, equity of access, efficiency, transparency and accountability, civic engagement and citizenship and security.

2.2 Land Policies in the Developing Countries

Availability of land is a vital issue not only in the housing supply but also in the provision of all urban activities. In most cases, there is no absolute shortage of land to meet the urbanization demand. The population concentration in the city region makes the land a finite resource that should be managed efficiently for the benefit of all, reduce conflicts, combat speculation on land and prohibit encroachment and squatting. In physical planning, the land is not only the source of the natural resources, but also a platform on which most forms of human activity take place, and on which all human activities depend. So changes in land affect the lives of the people. Land, having such characteristics, is firmly connected to sustainability in the sense that the misuse of it causes catastrophic economic, social and environmental downturns.

The land is a sensitive political issue that is often connected to the political patronage of vested groups. Conflicts on land and its miss-allocation are actually behind many of the political conflicts around the world. One of the causes of the Darfur crisis in Sudan is the conflict on land. On the other side, adopting appropriate land policies will be a contributing factor to the development and political stability of the country.

The central issue in urban land policies is that the urban and environmental design protagonists concerned with land policy issues focus on the role of the governments in terms of ensuring that land is planned and supplied in the right time, the right location, at the right price. The state can adopt a mix of roles in land policy including acceleration of the economy, capital accumulation, favour particular groups, act against vested groups who irrationally benefit from the process of land allocation and distribution or maintain the inequality of income and wealth through the land policy [1].

Housing land policies and land acquisition issues are inseparable from fiscal policies concerning wealth distribution, planning strategies, affordability measures, and the tenure arrangements, which the authorities will subsequently have with housing projects beneficiaries [2]. Land taxation is a desirable strategy for city regions to encourage development and to attract residents to the old city centres. However, this is not likely to be the case in Sudan, as the tendency in such policies is to bring high revenues for the local government, leaving no room for such mechanism to take place. If it is intended to mobilize the urban housing land resources, the authorities must intervene to act upon the market forces through an appropriate fiscal policy.

3. Land Policy in Khartoum

3.1 Historical Evolution

Khartoum grew as a colonial town having typical traits of the British colonial planning. The initial impetus of urban planning in Britain’s African colonies was explicitly race and hygiene-related [3]. The colonial housing policy focussed on the socio-spatial order of the community.

Khartoum was designated as a capital during the Turkish rule in 1830. Khartoum restored further significance after it was designated as a capital city in 1898 by Lord Kitchener after The English campaign against the Mahdists. Khartoum was built as a colonial town having a European style given a priority of development and was provided with a high level of services and infrastructure, based on a prepared master plan for the first time in Sudan. New residential districts for natives were added later. The city plan was based a housing classification system that will be discussed in the next part. After the independence of
Sudan in 1956, the capital became an attractive centre of rural-urban migration. The land tenure in Sudan was a traditional type dominated by Islamic modes of tenure. Payne (1997) [4] identified three main types of national tenure policies, freehold, conditional freehold, leasehold, and other options, which included condominium ownership and co-operative ownership.

### 3.2 The Housing Classification System

One of the unique features of housing policy in urban areas of Sudan in general and Khartoum, in particular, is the housing classification system, which classifies housing into first, second, and third classes. This classification is a colonial-based system that remained after independence hitherto without substantial changes. It is an inherited method of standardization of the housing and social stratification that is primarily income-based. No similar system was found. In such form, the housing classification system emphasizes the social stratification of the community and ignores the dynamic nature of the social statuses and income levels of households. Table 1 shows detailed characteristics of the housing classification system.

<table>
<thead>
<tr>
<th>Housing Class</th>
<th>Land lease duration in years</th>
<th>Income group</th>
<th>Minimum area (sq. m.) in 1957</th>
<th>Building materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>First class</td>
<td>Term 50, First renewal 30, Second renewal -</td>
<td>high</td>
<td>800</td>
<td>Red bricks, stone, cement, concrete</td>
</tr>
<tr>
<td>Second class</td>
<td>30, 20, 20</td>
<td>medium</td>
<td>400</td>
<td>Red bricks, stone, cement, concrete</td>
</tr>
<tr>
<td>Third class</td>
<td>20, 10, 10</td>
<td>low</td>
<td>300</td>
<td>Mud, and mud with red brick facing</td>
</tr>
</tbody>
</table>

Table 1 - Housing classes in Khartoum (1947).

The application of the regulations of the housing classification system in Khartoum dates back to 1912, the year when MacLean’s Master plan of Khartoum was adopted. Although housing officials admit this fact they did nothing to change the system. Officially, it is not strongly restricted to improve or redevelop any plot in any of the housing areas if the household could afford to. This makes the system somehow useless in the absence of adequate city development controls and the changing income or social statuses of the household head. The residential zoning was apparently on “class-and-race” basis, and that official report of the town planning committee in 1933 openly spoke about first class zones as European. Nevertheless, the classification system is currently in the process of being ruled out by the dynamically changing market forces. It was criticized as implying social stratification and segregation of income groups and denying the poorest groups from basic infrastructure and services [5]. Another criticism is raised by Post (1994) [6] that “it is astonishing to see that the obsolete, British-inspired classification of residential areas according to wealth — as laid down in 1957 Town and Building Regulations — still dominates the planning action”.

The problem with the housing classification system in that the household size is taken as a critical determinant to qualify the household for a plot, but it is not considered as a determinant factor in assessing the plot size. Income levels are ever changing influenced by the unstable fiscal and wealth distribution policies. As no ceiling restrictions are imposed on building standards, households are allowed to build the highest standards they can afford. This may justify the adoption of the classification system. As it existed over the past sixty years, medium rise concrete frame buildings were constructed within the low-income housing areas. This created a complex urban fabric where environmental and social problems often occur. Some advantages could be noticed such as the positive social interaction between the different income groups of the society reducing the gap between the poor and the rich and creating better and more coherent and interacting communities.
3.3 Land Supply

Rapid urbanization which characterizes developing countries has created a problem of shortage of land in urban areas. Land markets require appropriate assessment of its performance for the policymakers. City officials need to develop databases and adopt practical techniques of managing the available land resources including the data often found in different forms and the documentary sources such as government records, cadastres, subdivision records, decrees, newspapers, and private property valuators. Such data are highly essential for policymakers to monitor the available land resource and apply appropriate allocation techniques [7].

Sudan is an example of a developing country where land is controlled by the state. So, the land shortage is more accentuated in the urban concentrations that are located at the riversides and large inland urban centres. An advantage of the public land ownership is that it could be allocated equitably to all social groups including the low-income households. It also can be efficiently allocated for different land uses and urban activities. However, under the lack of sufficient land allocation legislation and measures, the adopted practices do not reflect appropriate standards of equality, justice, restrictive planning regulations and transparency. In cases where land is privately held, land supply depends on the willingness of the private sector to sell or dispose it in any form.

For a family, a secure plot of land or a house provides an opportunity of establishing a small commercial and industrial enterprise, in which the family becomes economically productive. It provides security against loss of job or any economic downturns. Plot ownership also acts as collateral for obtaining credit for investment purposes where individuals become productive members of the society. Households who acquire a plot of land would be able to establish themselves in the urban economy and will be exposed to gradual capitalization of the assets. Access to a parcel of land means access to wealth, but access to land is becoming increasingly difficult over time. The government in Sudan is tolerant towards public land invasions and squatting. Apparently, the reasons are the inability to control and combat these invasions and conversion of agricultural land into residential land and for political patronage. The large-scale subdivision of land as sites-and-services represents an exploitation of the publicly owned land that caused vast urban sprawl.

Land supply in urban areas can be done by reducing the attractiveness of the urban land as a vehicle for storage of capital through taxation, land-use controls, credit controls and price freezing. Better land management can be done by better legislation for compulsory acquisition of land and establish inventories for publicly owned land property.

Land speculators are the most effective actors in the housing market. They buy housing plots and sell them for mainly financial profits causing market imperfections. The middle and high-income people are the primary purchasers for financial benefits or family social security purposes. Owing to the high inflation rates, characterizing the economy of Sudan, affordable people tend to acquire land to preserve the local currency value against the continuously increasing inflation rates rather than saving money in banks, constraining the whole resource mobilization process.

3.4 Land Tenure

Nearly ninety-nine percent of land in Sudan is government owned and allocated on a leasehold basis [8]. The remaining one percent is mostly freehold land along the inhabited parts of the sides of the rivers, including cities.

In 1925 the colonial authorities issued "The Land Registration and Settlement Ordinance" which was a landmark in the land tenure system where land ownership was subdivided into freehold and leasehold. All unregistered land was officially held by the central government and disposed as leasehold for different purposes based on law. Thus, a bi-tenure mode was created in Sudan; the lease system which was used in
urban areas and the traditional Islamic modes which were used in the rural areas.

The central issue around the urban land tenure policy is to realize an equitable balance between the interests of the landowners, developers, residents, and the state; whilst recognizing the need to increase the efficiency of utilization and increased productivity. Such issues are apparently difficult to achieve, as they are often conflicting [4].

The advent of Islam modified the indigenous tenure system which was prevalent in Sudan during the pre-colonial period [9]. The Islamic tenure system is incorporated into the laws in Sudan as a reference for settling land disputes, but it is not used by people in urban areas to acquire land through vivification. Instead, the leasehold is used by the government to dispose plots to the people as sites-and-services. However, special laws were enacted under the policy of the government to encourage and attract foreign and local investments in real estate during the last decade.

3.5 Land Laws and Institutions

There are some of departments responsible for implementing government laws, judicial and ministerial decrees and ordinances regarding urban land. The land department’s task is to allocate land for different purposes and different beneficiaries and issuance of title deeds and pass it on to the Land Registration Department under the "Land Usufruct Act." It is also responsible for land acquisitions of the privately owned land for urban uses and tenure clearance and enforcing tenure terms. The land registration was applied by Lord Kitchener, the first Governor-General of the British colonial authority, after the reoccupation of Sudan in 1898. The land registration system is a replication of the system applied by Lord Kitchener in Cyprus, which he took as a model.

The regulatory framework is one of the few instruments available to governments to influence urban land and housing markets, and the investment decisions of private-sector developers [10]. The regulatory instruments in Khartoum include some of planning and land laws that date back to the early period of the British rule. These laws at their early stages were colonial-based laws, reflecting the power of control and authority over the land and its disposal methods. The advantage of these laws in that they bring land ownership in the hands of and at the disposal of the government, which facilitated undertaking government decisions on land use and its planning and allocation until recently. The disadvantage is that these planning laws have become outdated and continued to exist without substantial modifications to cope with the post-colonial developments in housing policy and the with the new international development agenda as well. Most other regulations focus on the preservation of tenure rights, not stimulating urban development and housing supply.

Another problem is that those land laws are not supported by sufficient enforcement powers and institutional capacities, and they obviously need reform. Planning laws, building bylaws and rental laws are inadequate in Sudan [8]. Nothing much has changed since independence concerning planning legislation and regulation, as well as the leading views in the profession, and it is mostly still the same today.

"Land Usufruct Act" is the most important law that governs land allocation. The ultimate government objective behind the "Land Usufruct Act" is to realize land development and construction for the benefit of the people, in a condition that it should be disposed by adopting the principles of equality and justice and maintain the real land value when they are allocated for the different uses. According to this Act, land should not be disposed unless it is verily owned by the government and subdivided by the planning authorities. Land should not be disposed for a governmental use before ensuring availability of enough funds for construction to ensure appropriate land development practice. Surprisingly, the law states that land should be granted free of charge for housing. A nominal infrastructure provision cost is usually charged. Land
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for commercial and other uses should be disposed in public auctions. However, the Act remained with no substantial change, and that its incomprehensiveness and un-tightness give chances to corrupt practices.

The department of land registration is one of the key departments in charge of keeping land registers under the judicial authorities. It provides secure foundations for land acquisition and transactions and enjoyment of the rights of the change of title deeds. It is centred on the duty of tax levying and ignores undertaking appropriate land management and market assessment tasks. The department of land also keeps records of the formal housing sector and regularized squatter areas. Land registration in Sudan still operates successfully with its initially inherited characteristics since it was first established during the British rule. Computerised registry records replaced the old manual system of issuing title deeds. The literature review revealed that the official planning and building standards in most African countries are based on those imported from Europe during the colonial period. Such standards have served only the needs and interests of an elite ruling minority but were not responding to the needs of the native majority [11]. It is assumed that the government’s role is to adopt effective land laws to curb speculation, utilize the public land holdings efficiently, and establish land development agencies with sufficient authority and accountability [12].

4. Land Allocation System

4.1 The Allocation Criteria

The land allocation process is a result of three types of criteria; the broad community goals of equality and justice; the planning and design criteria and the government strategic guidelines and rationing system.

4.1.1 Equality and Justice

Equality and justice are presumably superior underlying forces behind the allocation process. Equality is a function of human values prevalent in the society, which occurs where there are conflicting interests or various benefits that need to be dealt with. The principles of justice and equality are core issues in most government policies as a constitutional right. Where equal circumstances and capabilities of individuals to gain a particular scarce benefit exist; equal opportunities should be insured for all, avoiding discrimination on the basis of ethnicity, gender, origin, beliefs, religion, race or colour. The absence of justice and equality might lead to instability, loss of confidence, social and political eruptions.

The forms of realization of equality in practice include equality in law, equality in the judiciary, equality in fiscal policies and equality in competing for employment. In practice, complete equality may be difficult to achieve, but it should be preserved, however, as an ultimate guiding value. Justice is the most appropriate tool that could be employed to balance and realize equal distribution of opportunities among people. It involves rationing measures and criteria. Rules, regulations and laws are governing tools to ensure the realization of fair allocation of scarce land resources. Vaguely designed rules, regulations, and laws lead to corruption.

4.1.2 Planning and Design Standards

Planning and design objectives bring up two types of the planning and design criteria, viz., quantitative and qualitative criteria. They are standard professional guidelines and conventional methods based on theory and practice. They form general rules to be followed by planners and designers as de-facto guidelines in practice.

- Quantitative planning standards

These could be defined as measures based on experimental methods and statistical assessment, of the human physical, social, and psychological requirements that focus on utilization of space. These types of standards could be developed with high levels of accuracy using precise calibration methods and are often tested. Examples are space standards, housing floor area per person and densities.

- Qualitative design standards
These types of standards are regarded as urban design criteria aiming to achieve aesthetically pleasing environment, responsiveness to climate and location characteristics, and better environmental qualities that have been unambiguously considered as good. Land policies usually include some of these standards adopted as qualitative design criteria. In order to give the buildings or the whole neighbourhood specific visual character or architectural style, plot sizes, floor space and setbacks may need to be adapted in some way. Therefore, they need to be carefully assessed.

4.1.3 Government Strategic and Rationing Criteria

Some of the housing plots allocation criteria are neither a result of equality and justice criteria nor planning and design criteria. They are necessarily a result of policy guidelines and rationing. In democratic ruling systems, the allocation criteria often conform to the factors of equality and justice and the technical planning and design criteria. Khartoum’s government classification of housing, based on income groups is an example of such practice. Around 45% of the plots were allocated to the labour associations' members, mainly for political patronage. Considerable number of plots were allotted to military, police, lawyers and other groups and labour associations. The housing allocation is therefore likely to be a wealth distribution policy rather than a real supply of housing.

4.1.4 The Allocation Indices

Housing plots in government schemes are allocated through points score system for the various allocation criteria. These criteria are three groups, migratory status, and social status of applicant and fulfilment of other special conditions. The first include points for the place of birth, place of application, and the date of application. The second includes marital status, number of wives, number of children, and the number of maintained relatives. The third type is a list of general conditions that every applicant must satisfy. These include nationality, and the applicant must not have obtained a plot in a previous housing scheme, documents brought in support of the application must be certified and attested, the applicant must pledge by oath on that all the information is truthful, and finally, he must meet the deadline of application.

The process did not incorporate a comprehensive coverage of the detailed criteria that would realize an efficient system of allocation taking into account all aspects. Married households were given priority while other household types were not weighed within the point score system. The system does not include data that could be utilized in assessing the affordability and considering income. To conclude, it is clear that the whole process is a politicised, rationing and a shortlisting process no matter what will be the results. The land allocation decisions are best made in a market framework. Land should be allocated on the basis of technical criteria and sustainability, with the quality and value of the land being taken into account. However, analysing such allocation process entails the lack of sustainability measures. It involves focussing on the distribution of plots which consumes the available urban land and have caused a remarkable urban sprawl. It did not involve considering the best use of land and optimum density and affordability and future needs for not only housing but also for other urban land uses.

5. Sustainability Issues in Land Allocation in Khartoum

5.1 Land Commercialization

Speculation on land as an alternative to the monetary value of cash savings is dominating the land market in Khartoum. Under the unstable economic conditions and increasing rates of inflation, the land is considered as a vehicle for storage of capital, and that contradicts with sustainable development measures. Land prices increase more rapidly than the general consumer price index. It is assumed that the government should make all possible efforts to curb the land speculation activities as this also acts against sustainability concerning the misuse of the available land resource. The increased demand on land affects its price, thus...
giving an opportunity to those who hold the right of its investment and use to generate more wealth through speculation. Owners often tend to maintain the land as vacant until expectations for higher prices can be realized.

The government’s role is changing from a primary land disposer to a land seller causing commercialisation of land which adds more fuel to the land price increase. The government tends to sell valuable land for quick revenues or to convert the land tenure from illegal to legal, as is the case in many regularization and rehabilitation programmes of squatter areas [8]. Apparently, such processes did not consider the appropriate land use planning techniques, which determines that land should be allocated for specific function under specific development controls and sustainable development measures. The Land is not openly sold under strict and organized procedures to avoid cloudy decisions. Parts of the plots were allocated under decisions of the planning board and investments law with prices far below the market levels. The government can activate the leasehold law where it can re-hold the land by the end of the lease period that varies according to the housing class area.

5.2 Land as Government Income Source

The major source of income for state government and the sub-municipalities is the public land sale. The monetary revenues that are concerned with urban land in Khartoum are primarily from three sources, taxes on real estate sales, selling of urban land at the market value, and the nominal cost of land paid by the beneficiaries in the housing plans. The first includes a betterment levy on resold land ranging from between 25 to 40 percent of the total cost, 10 percent direct income tax, 5 percent registration fee, and 2.5 percent zakat, which is a religious tax. The total mounts up to between 42.5 and 57.5 percent of the resold house. However, these rates are subject to change from time to time. As the urban land is consumed, the government’s financial turnover dwindles. Therefore, it is doomed to diminish in the short future.

5.3 Misuse of Land and Corruption

Corruption in land administration is likely to be a widely spread phenomenon around the world. Corruption as is defined as the “abuse of the public office for the private gain” or “an abuse of entrusted power for personal gain.” Governments are advised to eradicate corruption and ensure greater transparency, efficiency, accountability, responsiveness and community participation in the management of local resources, which include land.

The vaguely designed allocation criteria adopted in Khartoum in the allocation of the land have caused leakage of some housing plots to untargeted people. These criteria are not tightly customized to reach the target groups or to avoid wrong attitudes of both the officials and applicants. A research carried out by the author revealed that 1.5% of the plots fell into the hands of non-qualified persons.

5.4 Urban Housing Land Development

The government housing projects in Khartoum have failed to provide real housing. Observation shows a high rate of vacant plots after twenty-five years since they were allotted in the government project of the 1990s. In addition, the majority of the plots are incrementally built. Plot coverages are low. However, the distribution of plots was a starting point of launching the building construction process by the beneficiary households who are mostly low-income. The vacancy is partially ascribed to the “raiding” phenomenon which happens in the allocated low-income housing areas in Khartoum where some households sell their plots because they could not afford to build them and because of their desperate need for cash for other necessities. They sell their land to high-income groups at low prices.

5.5 Urban Planning and Land Use Strategies

Urban planning in Sudan gives an impression that
decisions are often improvised and taken on ad hoc basis and the town planning activity is seen as something of a subordinate field of interest. Plans are designed on a drawing board at the Planning Department [6]. It could be added that no land use planning process is applied in Khartoum. During the last twenty-five years or so the focus was on subdividing whatever vacant land was available within the city region, as residential and commercial, often for investment, not fully complying with a local development plan or the structural plan of the city. Whenever a project is to be done, or a need arises for any purpose, officials often search in the map for whatever available pieces of land that would be suitable. It is usual to find high officials concerned in the daily work with a small problem of allocating a plot of land for a small investment project or a person. It is advised, as a sustainable new trend in urban planning to adopt “compact city” and “new urbanism” approaches [13], which seem to be quite appropriate for the case urban land in Khartoum.

As housing plots allocation was based on rationing. Households in acute need obtained plots. This assumes that they start construction right after distribution. Nevertheless, the construction process was prolonged. It is known that low-income housing in Khartoum is built incrementally through self-help. A study of Al-Azhari district south Khartoum, block number 13, has shown a very slow development over 26 years since it was first built in 1991. Fig. 1 shows that 13.8 percent out of 865 plots are still vacant and most of those who started building have not yet completed construction. All plots are 15 metres by 20 metres.

The government land use strategies show an irrational method of assessing plot sizes which are clearly high. Plot sizes are important and determinant factors in the housing supply process and the optimum utilization of the urban housing land. It was found by the author that the plot size per person has reached 61.5 square meters in the government housing plan. Not only this, in one of the districts the roofed area per person was only five square metres. It is argued that plot sizes in many parts of Africa are among the largest in the world [11].

6. Conclusion

The government needs to review the urban land policy for sustainability and to set out rules and regulations by which land should be allocated to all
participants for all uses under strict rules and regulations. For investment purposes, land itself should be disposed at market prices and appropriately valuated. The allocation system of land adopted in Khartoum are not really housing supply policies. They rather tend to be a method of land allocation approach with characteristics of wealth distribution policy viewing land as a wealth generator.

The land allocation is done without clear objectives and prior planning that takes into consideration the future needs of the generations to come, which is the core issue of sustainable development. No clear declared land policies and objectives exist, and no precise land use planning techniques are adopted. The random sale of those pockets causes a misuse of this valuable urban land resource. Regularizing and controlling such operations can lead to a better utilization of funds from the economic point of view. However, from the planning perspective, it is necessary to allocate these plots in a way that would fulfil the urban planning objectives. To summarize, it is essential to compromise between the economic objectives and planning objectives that also incorporates social and physical planning objectives to achieve sustainable development. The release of urban land plots in Khartoum was not based on the future demand for land, but rather on an ad hoc basis. The government should adopt an adequate regulatory framework, combat speculation, counteract corruption and unethical land dealings, and reduce as much as possible the irrational and excessive urban land consumption, which are all fundamental issues in realizing sustainable development goals.

References