

Qualitative analysis of land use change pressures, conditions and drivers in rural-urban fringes: A case of Nairobi rural-urban fringe, Kenya

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ABSTRACT: This paper is grounded on the truism that the planet's future is urban. However, urban growth process is bringing rapid economic, social and physical changes. These changes are bringing rapid transformations in areas concerned, especially on land uses in rural-urban fringes. While this is happening, the pressures and drivers are not well documented and understood, particularly so for rural-urban fringes in developing countries such as Kenya.

This paper is based on a qualitative research approach and used Nairobi rural-urban fringe as a case study in its attempt to document and analyse pressures and drivers of land use changes. The paper concludes that land use changes are contingent upon many pressures and drivers, primary of which is population increase through natural growth and immigration. The process that produces population growth is however a subset of the structuration processes that produces land use changes in the rural-urban fringe.

In suggesting ways of reconciling the likely to emerge multiple perspectives and differences in managing rural-urban fringes, the paper observes that there are always sufficient points of intersection to support dialogue and collaboration. However, this requires a strategy that looks for intersections among different positioning and rationalities and enters into a dialogue at such situated moments is needed. This entails going beyond scientific or technical forms of knowledge to involve emotional sensitivity and judgment, practical wisdom, ethics and deliberation that touches on values with reference to praxis.

KEYWORDS: Rural-urban fringe, land use, drivers, agriculture, urbanisation.

1 INTRODUCTION

The process of urbanisation is leading to rapid economic, social and physical changes particularly in developing countries [1]. As it is being observed in other parts of the developing world, the urban population in Africa (especially those in Sub-Saharan Africa) is expected to double by 2025 [2]-[3]. Urban growth will increase demand for land not only for housing but also for various other urban uses [21]. This land is not available within cities' boundaries but in rural-urban fringes, Nairobi city is not an exception (Ibid). In many countries, the encroachment of rural-urban fringes is most likely to affect (or is affecting) these areas [1]-[7].

This paper is based on an inductive in-depth qualitative research that was meant to produce contextualized data through a case study based on Town Council of Karuri, (hereafter referred as TCK) (See Figure 1), representing Nairobi rural-urban fringe (henceforth referred as Nairobi fringe). The paper sought a qualitative understanding of a place (rural-urban fringe), and processes and perceptions associated with it. To achieve the study goal, in-depth interviews with diverse individuals and groups were done, documents reviewed and, casual and participants observations were also made.

Insights from an actor-oriented approach [13] were also borrowed to augment the idea of how actors make choices and how those choices lead to the shift of the structures and activities of various institutions over time. It is the actions of the actors that illustrate how they exercise their agency within existing structures to address the circumstances that local and

extra-local conditions are creating in their areas. It is with this notion of agency in mind that this study sought to answer the question, 'why is agriculture being squeezed out by urban land uses in the Nairobi rural-urban fringe?'

This paper does not claim to have 'discovered' a full answer as to what are the drivers of urbanisation on Nairobi fringe. However, it does offer a window for partial understanding of urbanisation in the fringe and its drivers using a broad lens of a qualitative enquiry. On the other hand, it was not the intention of the paper to provide 'solutions' to (or a better way out of) urbanisation in the fringe problems as is common with studies done by urban planners' heeding to the John Friedmann's [8] call for planning to "attempt to link scientific knowledge to actions." This paper however, in general, sought to provide information that create an understanding of issues affecting urbanisation in Nairobi rural-urban (hereafter referred to as Nairobi fringe) in a way that can inform the process of policy development rather than proposing activities or normative prescriptions on how to address land use problem (*for more on planning theory see, [10]-[12]*).

The next section of this paper is structured along the broad headings which are solely meant to aid in the discussion on the drivers of urbanisation and not to portray issues addressed as mutually exclusive of each other. The paper appreciates that the drivers are interrelated and recursive. There is no single theory that provided an explanation on how different influences, factors and linkages could be established or identified. An approach which stretches across the twin poles of structure and agency was needed. Therefore to understand the various dimensions of land use/conversions and the links among them, I adopted a conceptual framework that focused on neo-classical, political economy, and structure and agency theoretical perspectives. Neo-classical and political economy theoretical perspectives could not provide insights into localised/individualised aspects of land use such as the agency of the landholders, therefore in developing my argument, I further drew insights from Giddens' theory of structuration [14] to conceptualise how an actors' agency interacts with structural determinants of change to shape the conditions for land use/conversions at the local level.

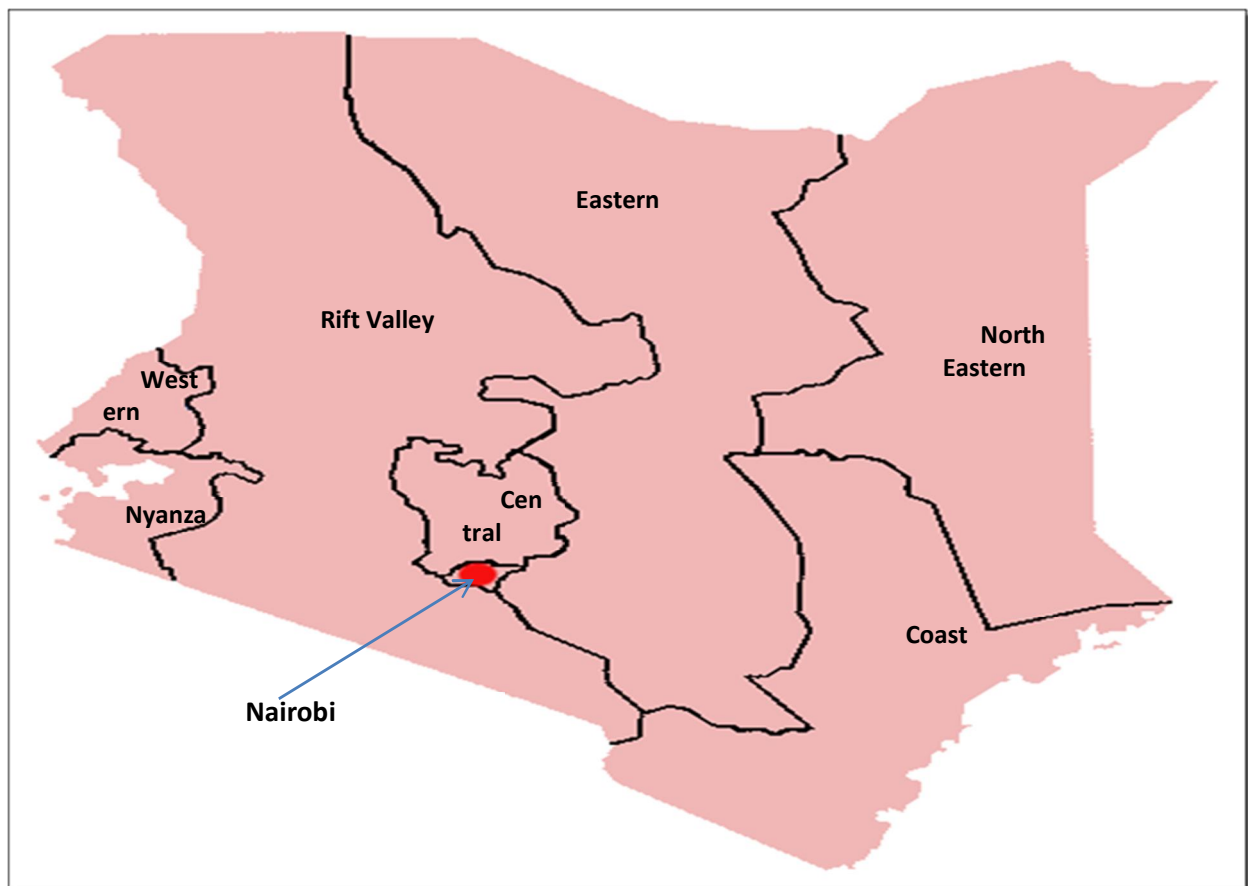


Fig. 1. Location of Nairobi in Kenya

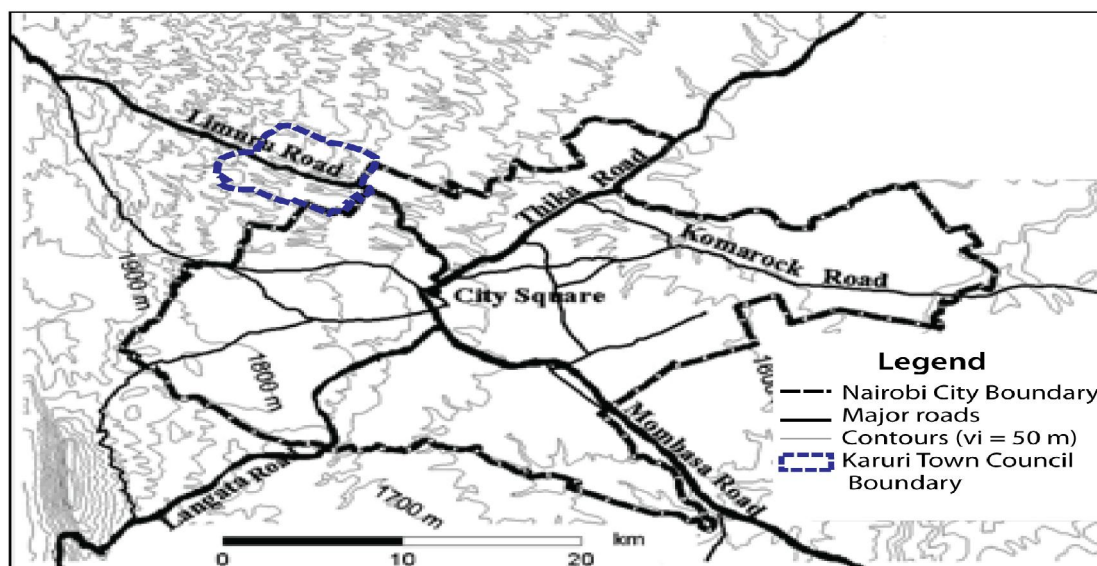


Fig. 2. The Town Council of Karuri in the context of Nairobi city [15]

2 LOCATING PRESSURES, CONDITIONS AND DRIVERS INFLUENCING LAND USE CHANGE IN THE NAIROBI FRINGE

On the surface of the above question, (why is agriculture being squeezed out by urban land uses in the Nairobi rural-urban fringe?), it may seem obvious and straightforward that this paper sets to identify various factors leading to land use changes in the Nairobi fringe. However, as this paper indicates, different aspects of land use interact in a contingent and recursive manner in the conversion of agricultural land to non-agricultural uses. It thus follows that, although this paper focuses on a seemingly parochial case study based on a micro-scale, it shows that there are factors at macro scale that influence land use activities in the Nairobi fringe.

2.1 HOUSING AND LAND MARKET FAILURE

Lack of affordable housing due to high costs of land and non-provision of public housing in the Nairobi city is making people to resort to rural-urban fringe for housing. This can partly be blamed on colonial land ownership legacy which has lingered since independence. Also, the city inherited colonial building codes, standards and regulations which were partly meant to perpetuate restrictions to the native Africans from permanently staying in the city. These have thus created additional bureaucratic obstacles in housing. In regard to land there are problems of ascertaining ownership particularly where land lease titles has elapsed and political elites have taken advantage to illegally allocate such land. These have resulted to lack of transparency in land transactions within the city, further scaring potential homeowners away.

As a result of inadequate and unaffordable housing in the city and unclear land market, Nairobi rural-urban fringe, has become attractive site for those in need of land for housing. Here most land is owned through the *Mbari* (clan) system. Under the *Mbari* system, locally specific social norms and systems of trust operate in effecting land sale and transfers. These local practices are based on locally sedimented social, economic and cultural systems which are widely regarded and accepted by the community members and even those outside the community.

In the Nairobi fringe, there are also other aspects of flexibility when it comes to complying with the land use planning regulations. Majority of the land in the area is classified as agricultural and are thus covered under Ministry of Land and Agriculture where the role of the Department of Physical Planning is just advisory. This is in contrast to land use planning compliance requirements in the city which due to its lack of explicit urbanisation and housing policy and vagueness of the land market has given room to corruption and other non-civil behaviours among council officials and land dealers.

2.2 POPULATION INCREASE

At independence, Kenya saw an upsurge of urban population due to relaxed rural-urban migration policies. The migrants to the city came to look for better life and formal employment which were lacking in many rural areas. Due to unavailability

of formal jobs to accommodate the then growing numbers of job seekers, a good number of people joined the informal sector. Majority of these people are hardly eligible for the mortgage due to their non-regular income and also due to their fear of erratic banks interest rates. Owing to land problems within the city, these people find the Nairobi fringe as a preferable site to build their houses.

Increased population through natural growth and immigration into Nairobi fringe is creating new income opportunities for indigenous groups. These income opportunities are in the service sector such as repair, construction sector and ready market for the farm produce. The newcomers are also more exposed to the 'outside world' than the locals thus contact with them is bringing in new awareness of income opportunities outside the areas.

2.3 WEAK AND CONFLICTING INSTITUTIONAL REGULATIONS

Land use conversions in the Nairobi fringe are taking place in the absence of explicit land and urbanisation policy in Kenya. As result there are legal and jurisdictional overlaps among the institutions/departments involved in land use development control. This worsened by the weak local authorities in these areas (which in most cases were initially design to cater for rural interests). These local authorities lack the capacity and capability for managing rapid land developments taking place. They also lack upto date information which to reference decisions on plan approvals. This has created apathy among Planning Officers who have to rely on the goodwill of the developers to 'do good' in the implementation of their proposed land development activities.

Multiple governmental institutions/departments with separate goals and mandate on land, coupled with lack of planning guidelines such as Local Physical Development Plans, has created a jurisdictional ambiguities/vacuum. This vacuum is being misused especially by the Land Board members to grant approvals for the subdivision of agricultural land (though knowingly it is meant for residential purposes) without seeking the advice from the Physical Planning Office. The ambiguities in responsibilities and jurisdiction are also promoting corruption among officers involved in land development approvals. Even where attempts have been to provide planning guidelines, there has been poor involvement of diverse actors and thus denying such guidelines the legitimacy and widespread acceptance by the majority of land users. There is also political interference in land use planning and control which reduces the effectiveness and operations of the Physical Planning Office in enforcing land development control within the peri-urban areas.

There are also constraints to the land use control due to dual legal system whereby customary and formal land ownership systems co-exist. In most Nairobi fringe areas, customary land use practices, such as sub-division of land for inheritance among the family members, are predominant. When subdivision of land is done for family use residential purposes, it is leading to an aspect of *in situ* urbanisation.

2.4 ECONOMIC DRIVERS

The era of Structural Adjustment Programmes (SAPs) saw the liberalisation of export and import markets in Kenya. These created a class of business people within a short span of time. However due to the reduced donor support to the budgetary deficit, there was reduced investment in infrastructures necessary for the stimulation and location of industrial and manufacturing sectors. This meant that the 'new' businessmen and men did not have many options where to re-invest their trade proceeds. Land and housing became the easy (if not the only) option thus the peri-urban areas became a preferred investment site.

Various arterial roads from the Nairobi city to other areas of the country pass through the peri-urban areas. These have made many of the areas easy to access by the use of public transport. This was particularly enhanced by the liberalisation of public transport sector which went further to reduce the costs and time of travel for those seeking to stay outside the city.

Presence of the Nairobi city has also affected labour and income aspects of the peri-urban areas in that in the city there exists a steady and high source income against that of agricultural sector which is seasonal. There is also a negative attitude, which is reproduced through an education system that castigated agriculture in favour of 'white collar' jobs. These have made people especially young people shuns farming in favour of urban-based employment. This leads to inadequate labour which consequently raises the level of farm work wages especially during the peak seasons, such as harvesting.

The reduced income from agriculture has also been occasioned by the implementation of SAPs that saw the costs of input increasing against the reduced earnings from the farm produce. Furthermore, the reduced earnings from farming and emergence of other land uses willing to pay high prices for the same land leads to the cost of land rising beyond the normal price for land between farmer to farmer. In addition, due to high demand for peri-urban land for residential purposes has

encouraged ingenuity among landholders who convert portions of their land to residential housing purposes or selling whole or part of their land in order to buy bigger but cheap parcels of land other (rural) areas.

Coffee growers' companies/cooperatives, which have been on the decline, are being subdividing their coffee estate among the members who then sell their plots or build rental housing blocks. There are also land owners who are subdividing their land parcels to cash in or to avoid restrictive zoning regulations, which are likely to be put in place, as a result of the prospective boundary extension of the Nairobi city. This proposal is creating a condition of 'impermanence' for those still practicing large-scale farming in the Nairobi fringe areas.

In addition, availability of the paid farm and non-farm labour in the city and within the peri-urban areas has led to the reduced availability non-paid family farm labour especially for the smallholders' farming households. Lack of non-paid family labour is affecting making smallholding farming system thus making such farmers prefer to subdivide sections of their land for sale or they themselves construct rental houses. There is however those who have stuck with their parcels of land due to cultural attachments and this explain why there is patchy residential development in the rural-urban fringe areas.

2.5 SOCIAL AND CULTURAL CHANGES

The entry of newcomers who are individual-oriented rather than communal-oriented has complicated the local settings in the rural-urban fringe. They are bringing new challenges which are complex than existing local social and institutional structures can handle such as crimes and prostitution. Non-alignment to the customary norms further make the newcomers treat land, which is cultural and symbolic good to the indigenous group, like any other commodity that can be traded on the market. The 'newcomers' values' are slowly being transmitted to the residents who see them as representing a more progressive system than their own. Once this happens especially to young people, they lose foothold in their families which make them vulnerable to vices such as crime and prostitution. Furthermore, other than losing family connections, young people have no attachment to ancestral land as source of employment through agriculture and thus increased incidences of heirs selling their inherited parcels of land once their parents die.

2.6 ENVIRONMENTAL POLLUTION/CONFLICTS

Increase in the paved surfaces such as houses and roads have reduced storm water ground infiltration. The increased volume of storm water have been washing soils from building sites into water bodies where it is causing siltation of dams and river channels, thus flooding along the river valley. This is affecting small-scale horticultural farming along the valleys. Excessive pressure on land as result of land shortage is causing erosion of top soil that is suitable for crops cultivation. Mining of top-soils for sale to those growing flowers and building stone quarries are also reducing the amount of land available for farming.

Poor solid wastes disposal such as polythene papers is causing problems on livestock once ingested, and further clogging water drainage systems thus causing flooding. Dumping sites are also becoming breeding grounds for the pests such as rats and mice which are destroying crops in the farms or in stores.

Poor management of human waste is also posing a great threat to continued farming and public health. Due to the small sizes of the land, digging new pit latrines is becoming impossible. Once pit latrines are emptied, the waste collectors dump the waste into open grounds especially in the isolated farming areas or into the river channels.

In areas where farming and residential land uses are co-existing, conflicts are now becoming manifests. Such conflicts are due to complaints of the foul smell and flies from livestock stables. There are also complaints from the residents on the continued use of pesticides and acaricides by the farmers. On the side of non-farming residents, conflicts are also resulting from free range livestock and poultry destroying their flower gardens and orchards. Some of the residents are resorting to unorthodox means of spraying their orchards and flower gardens with chemicals to ward-off the livestock and poultry. This is further making it difficult for free range livestock and poultry keeping while caging them require additional financial resources to feed them thus making such enterprises/activities expensive and economically unviable in the long run.

2.7 LAND HOLDERS' RESPONSES AS A DRIVER

Land conversions are producing intended and unintended consequences in the Nairobi fringe. These consequences are leading to changes in these areas. Landholders are however not passively accepting their fate of being victims of these changes but instead they have been routinely monitoring local and extra-local circumstances affecting their surroundings.

They have with time evolved varieties of local/human-level responses to enable them live in a rapidly changing environment. The actions resulting from their responses are unintentionally creating an enabling conditions for further land conversions either through making the hitherto unfavourable areas for settlement becoming favourable for residential settlement or creating more obstacles for the continuation viable agricultural activities. It then follows that, land use conversions in the Nairobi fringe is as a result of both the actions of the landholders and outcomes of such actions.

3 DISCUSSION

This paper aimed at identifying, describing and examining the conditions and driving forces that influence land use in the Nairobi fringe using TCK as a case study. The paper noted that different processes influencing land use are interwoven (see Figure 3) in a way that the singular treatment of each influence can only hold for the purpose of clarity in discussion and not in actual terms. For example, some of the influences of the land use changes at the micro-level are not necessarily local but are a product of wider social, cultural, political and economic conditions that directly or indirectly affect the way land use operates in the area. Attempts were made to link the findings to the wider processes that play a role in influencing land use activities in the Nairobi fringe. Landholders’ actions and perceptions were not taken as given but attempts were made to frame them within the wider structural forces at different levels.

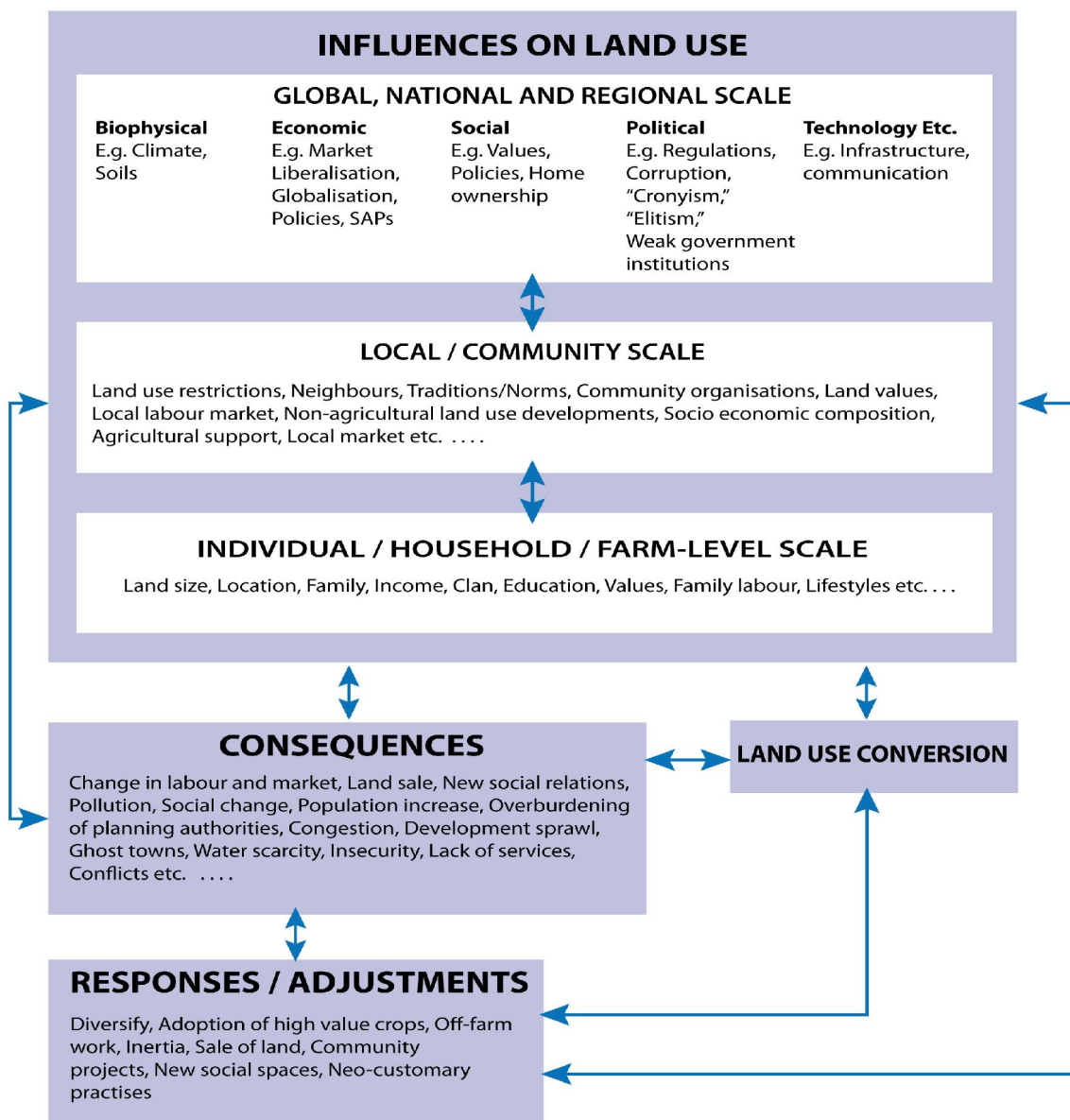


Fig. 3. Schematic diagram of the complex links in land conversion in the Nairobi fringe (Adapted from [16])

The genesis of land and housing problems within the City can be traced to pre-colonial and colonial period. After independence, the government adopted the colonial land legal system which was based on the English Common Law with some attempts to incorporate customary laws. This created a dual system of land legislation. Having different sets of laws dealing with the same land has created confusion and overlaps in its management. In addition, the institutions vested with the authority for land use planning have inadequate capacity to enforce the land laws. Developers, given the obstacles in obtaining land in the city, are exploiting the legal confusion and institutional weakness to access land for residential development in the Nairobi fringe. The confusion has also created room for corruption and other non-civil behaviour amongst government officers dealing with land.

At independence, Kenya saw an upsurge of urban population due to relaxed rural-urban migration policies. The migrants came to look for jobs in an already formal job-scarce environment. This created a need for more houses to accommodate people whose economic situation was not stable. The Nairobi City Council could not cope and therefore there was inadequate public housing. This was coupled with the inefficiency of the land and housing market which have resulted in lack of transparency in land transactions within the city and a consequent focus on developing land in the rural-urban fringe such as at TCK.

In general, as is identified in this paper, Kenya's economic situation has gone through turbulent moments which have in part affected how people (the majority whom rely on land for agriculture) have structured their livelihood. Changing economic circumstances have also affected performance of the government in terms of governance, services and infrastructure delivery. Both individual and governmental situations have created conditions that greatly influence land use in the Nairobi fringe. There are also influences coming from the implementation of SAPs and other neoliberal policies. These policies saw the liberalisation of export and import markets and reduced government investment in physical and social infrastructure. This affected farming due to increased costs of inputs against the reduction in income from agricultural produce. There was also reduced investment in housing within the city by the government.

Much of the Nairobi fringe is accessible by roads that traverse to the country-side. This coupled with cheap bus fares has made the fringe a preferred place for actors seeking self-built or rental houses. Proximity to the City has also affected labour and income aspects of the fringe. Steady City jobs against seasonal farm work have made many actors change their income focus from farming to urban jobs. There is also a negative attitude towards farming as a source of income and livelihood especially by young actors. The negative attitude to farming gets an additional boost from breakdown in traditional familial and societal ties that held the farming households in the fringe. Other than shortages of labour as result of attitude and better income available to young actors in the City, shortage of farm labour has also been worsened by the high incidences of HIV/AIDS, where able bodied actors are not able to optimally contribute their labour in the agricultural sector (which is still labour intensive) due to illness.

As the Nairobi fringe continues to be converted from agricultural to residential purposes, continued farming for the remaining farmers is being jeopardized. This is partially a result of pollution from household wastes which include solid and liquid wastes. There is also a problem of flooding and soil erosion due to reduced ground infiltration of surface water and also from siltation of rivers and dams from wastes from building sites. Soil erosion together with excess pressure on land as a result of intensive farming due to land shortage, is affecting farming in the area by reducing land productivity.

It is worth repeating again that it is not easy to separate the forces that influence land use in the Nairobi fringe. The attempt made to classify various factors and conditions into different sub-sections of this paper does not in any way show that they are working/can work independently of each other. They however interact in a contingent and recursive manner in conversion in influencing various decisions on land use.

4 CONCLUSION, LESSONS AND SUGGESTIONS

Following from the above discussions, it is therefore reasonable for this paper to conclude in regards to the central research question that the reason why agricultural land use is being edged out by non-agricultural uses in the Nairobi fringe is contingent on many factors/conditions, primary of which is population increase through natural growth and in-migration. Population growth thus is a necessary condition for land conversions from agricultural to residential use in the Nairobi fringe. The process that produces population growth is, however, a part of the structuration processes that produces land conversions in the Nairobi fringe.

I should however point out that population growth by itself does not cause land conversion in the Nairobi fringe. This argument is informed by an understanding that urban areas can have (or have had) population growth within controlled and designated zones. However, population growth comes with an increase in number and diversity of activities/actors and

extensive linkages. Increased number of actors/activities and linkages are, on the other hand, necessary in increasing the need for land for various purposes/uses.

Thinking about land use planning and management in areas such as Nairobi fringe, questions arise about how to reconcile multiple perspectives and differences that are likely to emerge from actors with diverse interests. Harrison [17] observed that within many settings actors with different traditions and values have historically intersected and continue to do so, and that there are always sufficient points of intersection to support dialogue and collaboration. The problem is not an "...inability to see across multiple positions but it is rather unwillingness to do so..." [17] by researchers and planners. To address the problem, "epistemic humility" a strategy that looks for intersections among different positioning and rationalities and enters into a dialogue at such situated moments is needed [17]. This entails going beyond scientific or technical forms of knowledge to involve emotional sensitivity and judgement, practical wisdom, ethics and deliberation that touches on values with reference to praxis [17- 20].

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