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Collaborative Governance in Land Acquisition and Aggregation Practices: The Impacts on Neighbourhood Functionalities in Tanzania

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Abstract

In urban development projects, the amount of land needs to be large enough to support not only the intended development but also the subsequent well-functioning of the neighbourhood through enhanced accessibility, service provision and liveability in general. Obtaining land for public goods and services at neighbourhood level may however be difficult especially in developing countries' cities where the formal-informal continuum hampers the effective urban planning and development. This is attributed to the fact that a larger part of land in these cities is occupied and any public good or service provision initiative must be through either compulsory land acquisition or land aggregation approaches. In either approach there are pros and cons towards realising the well-functioning of the neighbourhood in terms accessibility, recreation, social services and other public amenities. Based on non-parametric tests of neighbourhood functionality differences across land access modalities, the survey data across wards in Dar es Salaam City, Tanzania it has been revealed that government action through compulsory acquisition of land may be justifiable in as much as the functioning of social and physical infrastructure is concerned but can limitedly be relied upon in making such facilities available in the first place. Voluntary contribution of land, open market purchase and even the voluntary contribution of cash are working better than compulsory acquisition of land for that purpose. Further evidence alludes to the fact that compulsory acquisition of land is not only detrimental to neighbourhood social networks but also can worsen neighbourhood level economic opportunities. As such alternatives to compulsory acquisition need be used in well-developed inner city neighbourhoods while some combination of compulsory or voluntary land and cash contributions are well suited in outskirt neighbourhoods.

Keywords: Compulsory land acquisition, land aggregation, neighbourhood, public services, Tanzania

1.0 INTRODUCTION

Demand for land for the provision of neighbourhood level public goods and services that ensures safety and security, health and welfare, social and economic development has been on the rise in Africa major cities (Alemu, 2012). An important stage in any neighbourhood or human settlement development initiative is getting land for the proposed development. This may comprise as simple a process as getting land free of charge from the community or donor agent to several complex steps involved in compulsory acquisition/purchase by the government (Ministry of Finance, Planning and Economic Development (Uganda), 2015; Raghuram et al., 2009). Private developers if not assisted by the government would often install minimum physical and social infrastructures, i.e. libraries, firehouses, waste and clean water network, sewage treatment facilities, rights-of-way, roads and electricity supply networks (Asian Development Bank, 2008; Attakora-Amaniampong, 2006). This calls for alternative mechanism to acquire land publicly rather than relying on private purchase. Alternatively, land for such development may be acquired through private market purchase. When the government invokes eminent domain powers of taking land from its own citizens with or without compensation, it is often referred to as Compulsory Land Acquisition (CLA) and when the private sector aggregate land from private small holders it is referred to as Land Aggregation Practices (LAPs). The historical view on eminent domain is that rulers should exercise their domain over property "no public purpose" is required (Bell, 2009). In this view, there is nothing like "natural property rights", except at the sufferance of the sovereign. Thus, the sovereign is the root of all title. As long as the government grants property, then it can be presumed that everyone "know" that her property is subject to an implicit "take-back" clause.

An alternative justification to eminent domain can be found in the "distributive justice" explanation. Under this explanation, property owners must yield to other claimants where justice so demands, rather than as a matter of inferior power (Bell, 2009). Eminent domain is therefore, the power of the government to take property from landowners so long as the objective is "public use" and the landowners are provided "just compensation" (Alemu, 2012; Gerstle, 2014). In this approach, the government takes property to fulfil its obligation of public good provision and to overcome strategic barriers that would block the government's consensual acquisition of such property (Bell,

2009). Compulsory acquisition therefore, is justified only when (1) the government is the preferred owner for reasons of justice or efficiency, and (2) coercion is the preferred transfer mechanism (Bell, 2009; Lehavi & Licht, 2007). In practice, there are limited contradictions on the use of CLA when the goods to be provided is of public nature (Alemu, 2012; Lehavi & Licht, 2007; Ray, 2014). In some developing countries, original owners may reserve the right to reclaim their land through purchase if the expropriated land is used for purposes other than public (Alemu, 2012).

From the perspective of efficiency theory, land for any purpose can be acquired through private [purchase] mechanisms, i.e. the market. On the contrary, CLA does not require any market test of efficiency (Shavell, 2010). As a result, eminent domain has been subject to several critiques regarding its efficiency as a mechanism of land acquisition. One such critique suggests that CLA places an unfair burden on landowners and has the potential to promote economic waste (Gerstle, 2014). The private purchase of land however does not also guarantee efficiency specifically when the land required is held by multiple owners, then the aggregator/acquirer needs all the owners to sell in order to proceed with the developments (Shavell, 2010). With a sufficiently large number of landholders in an area earmarked for redevelopment, it could be impossible to acquire land through purchase if every affected property owner or even tenants could veto the plan by refusing to give-away his/her rights (Lehavi & Licht, 2007; Ray, 2014). The resulting market failure in relation to public goods, externalities, natural monopolies and information symmetries – impede the allocative efficiency of the market system and therefore, public intervention in land use and urban development is often required (Spaans et al., 2010). Although the private firm acquiring land may use secret agents to purchase private land to avoid hold-outs, such techniques may not be applicable under government projects (Lehavi & Licht, 2007).

Further view from public choice theory propounds that the identification of market failures is not adequate to justify government intervention (Spaans et al., 2010). For planning purposes, planners can obtain the necessary information of correcting market failures and furthermore, they have sufficient personal incentives to act on the basis of the information (Anderson & Leal, 1991; Buchanan, 1986). Through taking, the government adds value to the land hence original owners can have rights to the newly created value. The added value of land can be described as windfalls and wipeouts or worsenments resulting from governmental projects and regulations (Spaans et al., 2010). Windfalls and wipe-outs reflect the increase and decrease respectively in the value of land or real estate that is also community caused.

Whatever an approach employed, the end result comprises functioning neighbourhood where public goods and services are available and functioning. Urban land development comprises zoning and where necessary, engineering and surveying, subdividing and if applicable physical work and the final stage in this process involves the physical work of grading the land and putting in utilities, streets and landscaping (Attakora-Amaniampong, 2006). As a result, modern intervention through planning comprises not only traditional land use controls such as zoning and subdivision regulations, but also growth management techniques such as concurrency requirements, growth phasing programmes, urban growth boundaries, rate-of-growth programmes and restricted development zones (Spaans et al., 2010). Eventually, it is not clear whether the availability and functioning of the resulting public goods and services mirrors the different modalities through which land was or is accessed within the neighbourhood, given the informal nature of cities in the Global South (Alananga, 2018; Kombe, 2010; Lupala & Chiwanga, 2014). The negative impacts associated with urban land development policies may include outward expansion of urban areas, the rising prices of housing, a highly dispersed leapfrogging pattern of development, longer commuting distances and the decline of central cities. Consequently, any land acquisition approach may be justified on betterment grounds – a condition that presumes that windfalls exceed wipe-outs in any project implemented subsequent to land acquisition. The questions of which acquisition approaches yield betterments that far outweigh worsenments remain unanswered in the literature of the Global South. This study intends to bridge that knowledge gap from the experienced wipe-outs and windfalls of residents in areas where the different land acquisition approaches are haphazardly applied.

■2.0 LITERATURE REVIEW

2.1 Land Acquisition and Aggregation in the Context of Urban Land Governance

The three elements of the prototypical structures of the city's governance decision matrix entail non-segmented, hierarchical, and specialized structures (Lai, 2019). Specialised governance structures entail high-level regulation which is also associated with corruption, further inflicting negatively on restrictive city structure (Kaufmann et al., 2018). This form of governance is mirrored in Compulsory Land Acquisition (CLA) which is a realisation of eminent domain which is vested to the state authority over property (Mahalingam & Vyas, 2011). It involves seizing all the stick in the bundle of rights for a public purpose, without the willing consent of its owner or occupant (Bell, 2009; Mittal, 2013). CLA is however, considered inequitable, coercive; a method that necessitates displacement of people, and permanently delinks property owners from their economic, social, and cultural networks (Mittal, 2013). Despite its widespread application, CLA leads to capricious redistribution because landowners are entitled only to the "fair market value" of their land, not to any of their subjective surpluses or any of the subsequent development value (Heller & Hills, 2008). In additional to that, landowners are rarely consulted during acquisition (Mahalingam & Vyas, 2011) or there is unsystematic public consultation and poor information disclosure patterns (Asian Development Bank, 2009) and under urgency situation, the government may invoke special powers and skips the stakeholder consultation stage (Singh, 2011). Furthermore, under CLA, dispossessed landowners cannot share in the downstream benefits of the project (Mahalingam & Vyas, 2011). Many projects may be delayed in different stage including preparation, planning, valuation and even compensation payment (Asian Development Bank, 2008; Mahalingam & Vyas, 2011; Makupa & Alananga, 2018; Raghuram et al., 2009), especially when land to be acquired is very huge (Ministry of Finance, Planning and Economic Development (Uganda), 2015); and most importantly is that CLA may be used to obtain land for private development in the disguise of "public purpose".

Beginning the 1980s, however, notable changes in the provision of public goods and services in cities of developing countries have been registered. These changes involve direct provision of quasi-public goods by the private or some collaboration between private and public actors specifically in urban planning. These departures from the oftentimes top-down land governance structures can be explained alongside the collaborative governance literature. The emergence of collaborative governance traces its origin from failure of downstream implementation and to the high cost and politicization of regulation which led to the desire for bringing affected stakeholders together to

inform consensus-based policy and management (Ansell & Gash, 2008; Rapp, 2020). The genesis of collaborative governance emanates from the need to replace the top-down, command-and-control administration by emphasizing multi-sectoral collaboration, stakeholder engagement, and public participation in policy planning, negotiation, and implementation (Kaufmann et al., 2018). It replaces adversarialism of interest group pluralism and to the accountability failures of managerialism (Ansell & Gash, 2008). As part of public administration, collaborative governance represents a joint of different and oftentimes inconsistent streams of theory and practice, ranging from the polar opposites of new public management to new public service (Denhardt & Denhardt, 2015; Kaufmann et al., 2018). Collaborative governance can therefore be looked at as dissolution of rigid systems of administrative control.

Collaborative governance-oriented regimes are expected to have a modest level of collectivism where group interests take precedence over individual's interests (Hofstede, 2001). This collectivism suggests for a limited number of regulations emanating directly from state authority (Kaufmann et al., 2018). Therefore, collaborative governance in land acquisition and aggregation for urban development can be implemented through a bottom-up or the top-down approach. In the top-down approach, the state/local government may reserve the right to purchase any land that comes up to the market at any time through regulations (Cernea, 2008). This could be considered a public Mixed Method Approach (puMMA) because although the government pays the market price, it is a monopsony in the land market, thus, competition is restricted to maintain the government leadership role in the collaborative process. Under this approach, the land is from contagious multiple owners but the project is initiated by the government (Mittal, 2013). Private initiated urban development is often carried out on land acquired through land assembly or pooling technique in what could be considered a bottom-up approach (Alemu, 2012). In land pooling, it is not necessary for original owners to have stakes in the new development (Mittal, 2013; Singh, 2011). A variant to land pooling is land assembly, where the assembly of multiple individually-owned parcels into one larger is ultimately singly-owned (Brooks & Lutz, 2016). Land assembly can be carried out by both the private and public which also define whether it is a bottom-up of top-down approach (Bell, 2009). In the bottom-up of private land assembly approach, the government is simply a middleman. Under this approach, land is brought to the market through open tendering (Singh, 2011), herein referred to as Open Market Purchase (OMP). Although OMP is an extreme form of collaborative governance as there is no direct government involvement in the "taking", the whole process of transfer and ultimate development is guided by statutory laws.

With market imperfection, private land assembly may yield too little land acquired due to inefficiencies from asymmetric information (Shavell, 2010; Spaans et al., 2010; Strange, 1995) or positive externalities arising from assembly (Grossman & Hart, 1980; O'Flaherty, 1994). With a sufficiently large number of landholders in an area earmarked for redevelopment, it could be impossible to acquire land through purchase if every affected property owner or even tenants could veto the plan by refusing to sell his parcel (Lehavi & Licht, 2007; Ray, 2014). Private initiative to acquire land is also hampered by the regulation of land by local governments, such as zoning restrictions, development fees, and building codes (Glaeser et al., 2005). The inefficiencies in private "taking" may also arise from bargaining problems between the developer of the land and the land sellers (Brooks & Lutz, 2016; Heller & Hills, 2008). If owners realize that a purchaser is attempting to aggregate a larger parcel by combining several smaller lots and if the purchaser has purchased a part of the planned larger parcel, the assembler may become locked into purchasing the rest of it to avoid duplicating the site-specific investment at another site (Heller & Hills, 2008). Holdout therefore arises when landowners strategically delay to accept purchase offers, so that they can extract as much project's surplus as possible (Bell, 2009; Mittal, 2013; Sarkar, n.d.). Under this regime, predictably, too little land is eventually obtained (Heller & Hills, 2008). Although the private firm acquiring land may use secret agents to purchase private land to avoid holdouts, such techniques may not be applicable under puMMA (Lehavi & Licht, 2007; Shapiro & Pincus, 2007). In addition to being partially sensitive to land markets, puMMA is advantageous because it may incorporate existing landowners as partners in the future development of the land (Singh, 2011). Empirical evidence however, suggest that accessing land for public uses through some collaborative approaches such as OMP have a premium over other modalities and such premium is not driven by endogenous locational factors (Brooks & Lutz, 2016).

2.2 Neighbourhood Functionalities and Land Access

Among the core neighbourhood functions is the provision of public physical and social infrastructures herein referred to as Neighbourhood Availability of Physical Infrastructure (NAPI) and Neighbourhood Availability of Social Infrastructure (NASI) respectively. NAPI comprises infrastructures for gas, water, sewers and electricity (Aiello et al., 2010; Cho, 2003; Jiboye, 2010; Mohit et al., 2010; Rahman et al., 2012), while NASI comprises schools, hospitals, postal services, leadership, population density and housing density, libraries and recreation facilities (Freiler, 2004; Jiboye, 2010). For the purpose of land for NAPI, individuals may be willing to pay a certain amount in terms of Voluntary Contribution of Cash (VCC), though none may be able to afford the full quantity of such goods individually, thus collective action strategies either directly through CLA or indirectly through VCC or Voluntary Contribution of Land (VCL) are required to elicit the goods in full quantity (Spaans et al., 2010). Land for NASI could also be provided through CLA given the public nature of the goods and services. When the intended purpose is strongly "public", CLA is then justifiable and the landowners are provided with "just" compensation (Alemu, 2012; Gerstle, 2014). The distributive justice theory propounds that although property is created for individuals, it is subordinate to the reciprocal duties and responsibilities created by the social institution of property (Bell, 2009). Thus, through the government "takings" power, property rights bow to claims of justice asserted by the community or persons for whom property rights are created.

Neighbourhoods in many developing countries are characterised with dilapidated physical condition, thus necessitate an understanding of functioning rather than availability alone. Neighbourhood Function of Physical Infrastructure (NFPIs) entails environmental health and housing quality, refuse collection services (Rahman et al., 2012), spatial adequacy of shelter, beauty or function and aesthetics as well as external and internal conditions of dwelling (Jiboye, 2010), accessibility as measured in terms of commuting cost[1] (Freestone, 1977; Pahl, 1971), accident situation and vehicular level. Neighbourhood Functioning of Social Infrastructures (NFSIs) can be understood both in terms of social dimension, and the symbolic and functional dimension of neighbourhood attachment and housing tenure, i.e. family and household characteristics (Freiler, 2004; Lu et al., 2018; Tremblay et al., 2001). To guarantee NFPI, land needs to be accessed in a manner that will prevent encroachment by nearby residents. If the subsequent public infrastructure will be provided through community initiatives, then its functioning will also be connected to willingness to participate as part of collaborative governance machinery.

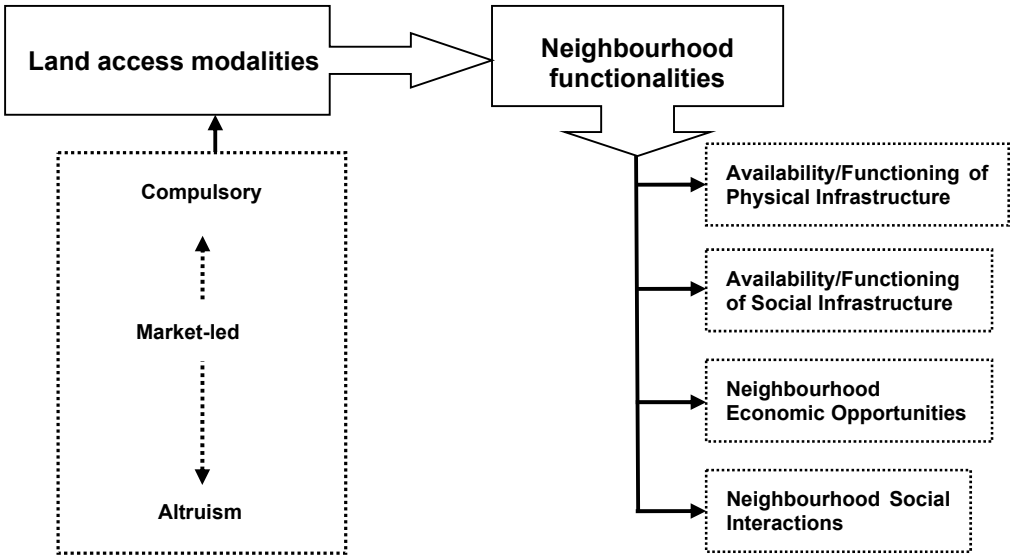


Figure 1 A schematic view of neighbourhood functionalities concepts in relation to land access modalities

The degree at which the land access modality in the neighbourhood is collaborative could open-up or hinder a host of economic opportunities for individuals depending on their personal characteristics and their relationship with others within a neighbourhood. Important characteristics defining access to Neighbourhood Economic Opportunities (NEO) may include age, differences in assets ownership, workplace proximity, duration of stay, household income and private car ownership (Alananga, 2015; Chadbourne, 2014; Freiler, 2004; Lu et al., 2018; Rahman et al., 2012). Through restrictive governance structures such as CLA, the government adds value to the land, hence, original owners can have rights to the newly created value. The added value of land however, can be described as windfall and wipeouts or worsenments resulting from governmental projects and regulations (Spaans et al., 2010). Although CLA may open up a number of NEO, its negative consequences on economic opportunities (Gerstle, 2014; Mittal, 2013) render an ineffective land governance machinery. As a result, CLA could be justified only on betterment grounds, a condition that presumes that windfalls exceed wipeouts in any project implemented subsequent to land acquisition. Furthermore, owners' valuation of their land may include sentimental attachment to the land or special adaptations to the particular site that generate producer or consumer surplus for the landowner (for instance, location near to long-time customers). To capture sentimental attachment to the land, collaborative land governance tools such as OMP are better placed than segmented governance tools such as VLA (Heller & Hills, 2008), although altruism could be the best of all public land access modalities.

Findings in neighbourhood studies suggest that low-income neighbourhoods are rich in social capital[2]. This is because low-income neighbourhoods have many more local associations than in some more affluent areas and newer sub-divisions (Limbumba, 2010). People who are rich in the right type of social connections are more likely to have housing, jobs, good health and life satisfaction (Warren et al., 1999). Social ties, community relations and social participation at the neighbourhood level have been observed to be the strongest attributes of the Neighbourhood Social Interactions (NSIs) (Brown et al., 2003; Lu et al., 2018; Mohit et al., 2010; Woolever, 1992). In as far as restrictive governance tools such as CLA detaches people from their well-established social network (Mittal, 2013), it can be considered the worst approach for generating neighbourhood level social interactions. From efficiency theory perspectives, land for any purpose should be acquired through collaborative governance tools and restrictive governance approaches such as CLA, justified only when: (1) the government is the preferred owner for reasons of justice or efficiency, and (2) coercion is the preferred transfer mechanism (Bell, 2009; Lehavi & Licht, 2007).

2.3 The Conceptual Framework

As a result of promising outcome of collaborative governance, modern land acquisition and aggregation is increasingly collaborative, in a way that belies the assumptions of public administration "built on a tight theory of hierarchy and authority" (Kaufmann et al., 2018). Contrary to efficiency and fairness motives of traditional governance model, collaborative governance is situated on purpose (Sun, 2017). Among the key attributes of collaborative governance as suggested by Sun (2017) is diversity in addition to the government, including non-governmental organisations, enterprises and the public and other subjects. With increasingly collaborative nature of government, governance is increasingly emergent and dynamic" (Kaufmann et al., 2018). The government leadership purpose in collaborative governance is only to set the starting point and motive of the co-governance of the plural subject, either in order to achieve common interests or to solve common problems. Pull and push factors towards or away from collaborative governance are summarised by Kaufmann et al. (2018) as follows: push factors include citizens greater participatory demands or expectations, movements for more public deliberation, community problem solving, and other forms of participatory governance; a response to deepening legitimacy crises and the collapse in trust toward public institutions, as a result of increasing education levels, citizens have become "more insistent on having opportunities to speak to the nature of programs that will affect them. Nonprofit engagement and other forms of stakeholder collaboration directly address perceived legitimacy gaps, since nonprofit and civic organizations have higher levels of public trust than government

agencies themselves. Meanwhile, push factors towards collaborative governance include increasing complexity of public problems, trends toward devolution, globalisation, and hyper-pluralism and the efficiency gains of outsourcing as a means of reducing transaction costs.

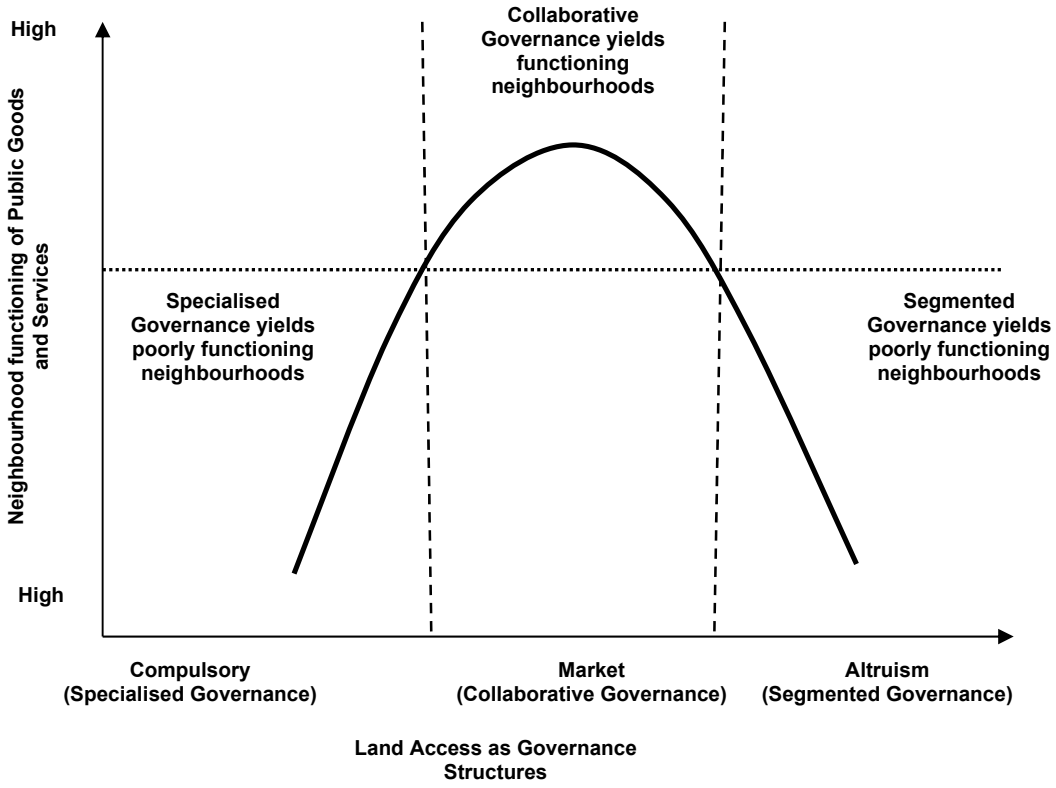


Figure 2 A conceptual relationship between neighbourhood functionalities and land access modalities in urban land development projects

Demand for land for the provision of public goods and services that ensure safety and security, health and welfare, social and economic enhancement of the society has been on rise in African major cities (Alemu, 2012). Within any city, decisions structure entails definitions of right of access to specified decisions; access structure defines problems in relation to decision situation; solution structure assigns solutions to decision situation; and spatial structure situates decision situation to locations (Lai, 2019). With planning for the city, the spatial arrangement of the city is achieved through linking decision situations locations but the intangible structural constraints of decision structure, access structure and solution structures are hardly achieved, thus, calling for collaborative governance that brings in both public and private sectors into urban development. Private developers for example, can install some social infrastructure, i.e. libraries, firehouses, wastewater and sewage treatment facilities (Attakora-Amaniampong, 2006); physical infrastructure such rights-of-way (Asian Development Bank, 2008), roads, water and electricity supply networks which may not suffice public needs. Traditionally, however, such provision of goods and services through urban development projects such as settlements and traffic or industrial investment (Lamerdi et al., 2015) has been the domain of government. Therefore, the effective elimination or reduction of city's problems may be required in addition to traditional physical planning – institutional design that supports collaboration and problem-focused planning (Lai, 2019).

Based on the above theoretical *exposé*, it is evident that the modality through which land is obtained for urban development may have remarkable impact on the resulting functioning of public goods and services. If neighbourhood level of public goods and services is very closer to being "pure public", then restrictive governance tools such as CLA would be the best approach to obtain land for the provision of such goods. Collaborative governance like instruments such as PPP and OMP would be inferior as shown in Figure 2. However, since it is difficult to have real public goods and services, an understanding of the relationship between the public land access modalities and neighbourhoods functionalities is justifiable for several reasons: first, compatible land access approaches that bring together multiple stakeholders in a collaborative manner is a panacea for a coherent and sustainable urban system (Lai, 2019); second, variations in land acquisition and aggregation practices can within the same city require context specific policies; and lastly private sector land access modalities can provide a means through which less efficient urban land governance structures can be identified and possibly abandoned in favour of most efficient ones (Shavell, 2010). The growing interests of the private sector into neighbourhood public land and associated functions (Cernea, 2008; Spaans et al., 2010; Gerstle, 2014) also provide some new opportunities for collaborative governance in financing land acquisition and urban development projects. Still, the efficacy of the different approaches need a thorough examination.

3.0 METHODOLOGY

The nature of this study is quantitative with a strong reliance on primary data based on questionnaire surveys towards 179 respondents. However, some secondary data were collected from the National Bureau of Statistics (NBS) website and an extensive 2015 dataset comprising 2340 property owners and 2114 tenants for Kinondoni Municipality. The data were collected by one of the authors as part of his PhD study at Ardhi University. The data were analysed using first descriptive statistics and then non parametric tests of statistical significance. Project level data were collected based on land acquisition projects and aggregation practices that were carried out between 1995 and 2015 within the city of Dar es Salaam. For each project, the land acquisition and aggregation modality/approach which was adopted and implemented, actors involved, their roles in relation to one another were solicited. For religious institutions, industry and private school operators and/or authorities especially in informal areas of private land aggregation initiatives were examined through closed-ended questionnaires, where information on neighbourhood functionalities and land access modalities were solicited.

The first part captured the nature of the land aggregation initiatives, the timing, the institution involved and costs. The second part was intended to capture the modality of land aggregation initiatives and challenges encountered. The section was also designed to capture information from responsible authorities (government and private) on reasons for choices made in terms of the land aggregation approach used. The third section captured the financing modalities depending on institutional priorities, which is however not part of this paper. The last part of the questionnaire captured the process evaluation in terms of timeliness, adequacy of the intended objectives and disputation mechanisms which are also not reported in this paper. The neighbourhood functionalities were evaluated based on either dummy response or Likert-scale questions on the neighbourhood indicators as discussed in the literature. The data are part of secondary data from 2015 survey carried out for all wards of Kinondoni Municipality by one of the authors. At an aggregate level, neighbourhood functionality indicators included in this study are: Neighbourhood Availability of Physical Infrastructure (NAPI), Neighbourhood Functioning of Physical Infrastructure (NFPI); Neighbourhood Availability of Social infrastructure (NASI); Neighbourhood Functioning of Social Infrastructure (NFSI); Neighbourhood Social Interaction (NSI) and Neighbourhood Economic Opportunities (NEO). Table 1 provides a description of the variables used to measure each of neighbourhood functionalities.

Table 1 Variables defining neighbourhood functionality

Number	Variable	Indicators Included in the Questionnaire
1.	NAPI	Distance to CBD, distance to minor and major roads, proximity to services i.e. water, electricity and other environmental services.
2.	NFPI	A accessibility to services i.e. marketplaces, government offices; commuting modality, cost and time.
3	NASI	Proximity to social services i.e. schools, hospitals, worship area; and ward level household size, population density and duration of residency.
4	NFSI	Ward level work-out risk; perceived attractiveness of the nearby environment; ward level settlement age and proportion of recent/older residents.
5	NSI	Residents' age, family size, education and occupation.
6	NEO	Mobility, rent, space occupied, income, property prices, construction cost and overall expenditure.

NB: Each variable is measured based on a unidirectional aggregate index ranging between 1 and 100, whereas 1 indicates the lowest value for the variable and 100 is the highest value based on equation 1.

The collected data were analysed along two main levels. In the first level, the study analysed the data in order to understand the neighbourhood level functionalities. The neighbourhood was narrowed to an administrative ward because of the availability of secondary data on personal characteristics from the National Bureau of Statistics (NBS). One of the major challenges in using predefined areal units such as wards as neighbourhoods, is the MAUP (Modifiable Areal Unit Problem), which reflects sensitivity of analytical results to the definition of spatial units for which data are collected and analyzed. The basic assumption of using these politically-defined geographic delineation is that such spatial units have no effect on the outcome, even when they are changed which may not be the case (Cho, 2003). As such, the results presented in this paper may vary depending on how wards and subwards are defined.

Each neighbourhood functionality can take a value ranging between 0 – 1 in the probability scale, which is a value closer to zero reflects limited functionality while a value closer to 1 is considered functional. To obtain such a value, all the measurements in Table 1 were transformed into a ratio based on the following procedure:

1. The direction of a functionality was first determined, i.e. whether a larger or lower value is ideal;
2. An indicator value is created by aggregating the different indicators that are used to measure it as summarised in Table 1;
3. For each ward (neighbourhood), either a maximum value is computed for those functions for which a larger value is ideal or a minimum value for those values for which a lower value is ideal;
4. A ratio ranging between 0 – 1 is then created by dividing each value computed in stage 2 by the corresponding value computed in stage 3; and
5. The final indicator is computed as the median value for all respondents in a particular ward/neighbourhood.

Based on this strategy, the neighbourhood functionality indicator is an aggregated index comparable to Functionality Relative Index (FRI) which is commonly utilised in Likert-scale data where the number of respondents are considered as weights. However, in this study, even ratio scale data had to be converted into dummy like data in order to compute the FRI. For each functionality, the FRI reflects whether a variable was considered important in promoting a certain function or otherwise as shown in equation 1.

$$FRI = \frac{\sum_{i=1}^{F} W_{hi} f_i}{F * MaxW} \quad \ldots\ldots (1)$$

Where,

W_{hi} = Factor weight given to each factor i by household h in evaluating neighbourhood functions and for the case of the questionnaire designed for this research the weight was either the YES=1 or NO=0.

F = Total number of factors contributing towards the value of an index

f_{hi} = Factor i's score for household h.

$MaxW$ Highest response integer which for this research was 1.

In the second stage of analysis, non-parametric tests on whether a neighbourhood functionality index varied significantly across land access modalities were carried out. To this end, the two-sample Kolmogorov-Smirnov tests of differences in ranking was utilized to establish whether land access modalities differ in terms of the realised level of each of the neighbourhood functionalities. This test was carried out because the neighbourhood functionalities which are in this case the dependent variables were measured in terms of probabilities and the samples were relatively unequal. Furthermore, the two-sample Kolmogorov-Smirnov tests provide an intuitive easy to interpret output. The general hypothesis of interest in this study is that the availability and functioning of neighbourhoods do not differ across all original land access modalities while the alternative suggests that neighbourhood functionalities differ depending on the original mode of land access. Specifically, the study tests the following six (6) hypotheses:

Table 2 Hypotheses to be tested

No.	Hypothesis type	Hypothesis proposition
H1	Null hypothesis 1:	There are no significant differences in the NAPI across all pair-wise comparison of original land access modalities.
	Alternative hypothesis 1:	There are significant differences in the NAPI in at least one pair-wise comparison of original land access modalities;
H2	Null hypothesis 2:	There are no significant differences in the functioning NFPI across all pair-wise comparison of original land access modalities.
	Alternative hypothesis 2:	There are significant differences in the NFPI in at least pair-wise comparison of original land access modalities.
H3	Null hypothesis 3:	There are no significant differences in the NASI across all pair-wise comparison of original land access modalities.
	Alternative hypothesis 3:	There are significant differences in the NASI in at least one pair-wise comparison of original land access modalities.
H4	Null hypothesis 4:	There are no significant differences in the NFSI across all pair-wise comparison of original land access modalities.
	Alternative hypothesis 4:	There are significant differences in the NFSI in at least one pair-wise comparison of original land access modalities.
H5	Null hypothesis 5:	There are no significant differences in the level of NSI across all pair-wise comparison of original land access modalities.
	Alternative hypothesis 5:	There are significant differences in the level of NSI in at least one pair-wise comparison of original land access modalities.
H6	Null hypothesis 6:	There are no significant differences in the level of NEO across all pair-wise comparison of original land access modalities.
	Alternative hypothesis 6:	There are significant differences in the level of NEO in at least one pair-wise comparison of original land access modalities.

The two-sample Kolmogorov-Smirnov test statistic is computed as in equation 2:

$$D_{m,n} = \sup\left|F_m(x) - G_n(x)\right| \quad \ldots\ldots (2)$$

Where F and G are the sample empirical distribution of the sample observations, Xs of the two samples being compared respectively with sample sizes m and n respectively. For each sample observation, $F(x_i)$ and $G(x_i)$ are computed as the average number of sample observations that are less than x_i for the first and the second sample respectively. In this study, samples are clustered based on 6 land access modalities which are Compulsory Land Acquisition (CLA), Government Market Purchase (GMP), Open Market Purchase (OMP), Voluntary Contribution of Land (VCC), Voluntary Contribution of Cash (VCL) and Others comprising all approaches to obtain land such as inheritance, squatting and payment in kind. For each of the 6 indices of neighbourhood functionality, a pair-wise comparison between two land access modalities is carried out leading to a total of 15 pair-wise comparisons tests. $D_{m,n}$ Statistic is then the largest value of the absolute differences in the frequency of neighbourhood functionality indicator falling below a given value. To establish

significant differences between the pairs of land access modality, the computed $D_{m,n}$ is compared with the threshold values at critical significance, i.e. $\alpha = 0.05$ based on well-established statistical tables. The null hypothesis is rejected only if $D_{m,n}$ is greater than the critical value.

4.0 RESULTS ON NEIGHBOURHOOD FUNCTIONALITIES AND LAND ACCESS MODALITIES

Urban public land access is used for a number of developmental purposes such as construction of roads, dams and irrigation canals, establishing manufacturing industries and related activities. Private land aggregation could be used to access land for similar purposes, though often times, both altruism and profit motives are prevalent. Land acquisition and aggregation practices in Dar es Salaam are done through various methods such as; Compulsory Land Acquisition (CLA), Open Market Purchase (OMP), Voluntary Contributions of Cash (VCC), Mixed Method Approach (MMA), Voluntary Contribution of Land (VCL) and other unspecified methods. This section provides empirical evidence of urban land acquisition and urban development projects in Tanzania in relation to urban neighbourhood functionalities. The 2017 survey on land access and neighbourhood functionalities managed to reach 179 respondents who were involved in land acquisition or aggregation projects at ward level. Depending on the level of missing responses, some analyses presented below may suggest for lower response rate. The survey captured both the nature of the land access or the purpose for which land was accessed as shown in Figure 3 and Table 3.

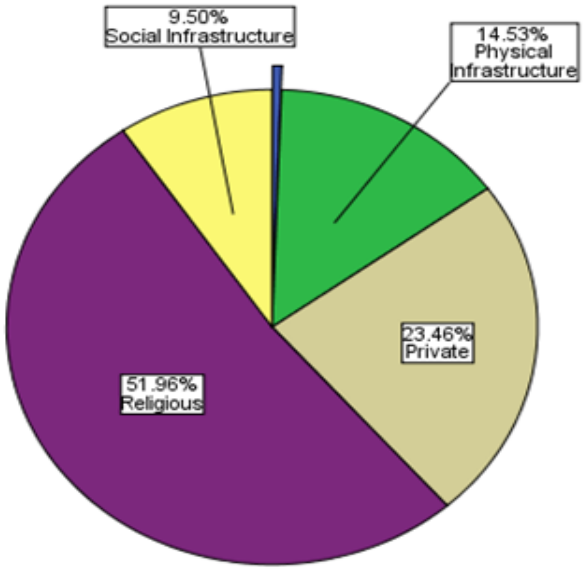


Figure 3 Type of land acquisition projects

Table 3 Land access modalities and purposes

Authority	Physical Infrastructure	Social Infrastructure	Religious	Private	Total
Compulsory Land Acquisition	20	4	0	0	**28**
Public Mixed Method Approach	12	2	3	14	**31**
Open Market Purchase	0	8	26	0	**34**
Private Mixed Method Approach	3	2	44	1	**50**
Voluntary Contribution of Cash	4	2	9	4	**19**
Voluntary Contribution of Land	2	3	3	8	**16**
Total	**41**	**21**	**85**	**31**	**178**

4.1 Description of Cases and Respondents

The descriptive statistics for the availability and functioning indices of neighbourhoods are summarised in Table 4. The indices were computed separately for tenants and owners but Table 4 provides the averages for the two while the locations of the neighbourhoods are categorised into four groups. Based on the mean indices, it is evident that availability of physical infrastructure declines as one moves away from the city centre though functioning peaks in middle cities and declines as one both ascends towards the city centre and descends towards the periphery neighbourhoods. This pattern is also similar for availability of social infrastructure whose function is however

stronger both in middle and peri-urban neighbourhoods. Social interactions reflect the behaviour of functioning of social infrastructure while the index of economic opportunities peaks in the periphery. These descriptive statistics point to several important directions for the purposes of this study: one, there is a mismatch between availability (what is provided through different land governance machinery) and functioning (derivation of intended functions to the residents) for the different infrastructures; two, proximity to the city centre may not be the only factor defining both functioning of infrastructure as well as economic opportunities; and three, the nature of informality in human settlements attracts economic opportunities in the periphery rather than the CBD.

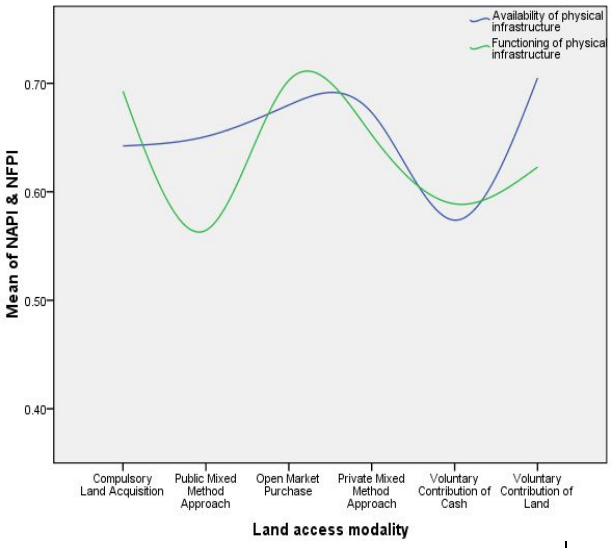
Table 4 Descriptive statistics for neighbourhood functionalities

Variable	Location	N	Minimum	Maximum	Mean	Std. Deviation
Availability of physical infrastructure	Inner city	37.00	0.40	0.87	0.61	0.17
	Middle city	99.00	0.42	0.89	0.58	0.16
	Outer city	27.00	0.43	0.69	0.53	0.08
	Periphery	6.00	0.52	0.52	0.52	0.00
	Total	**169.00**	**0.38**	**0.89**	**0.58**	**0.15**
Functioning of physical infrastructure	Inner city	37.00	0.27	0.79	0.43	0.17
	Middle city	99.00	0.30	0.97	0.60	0.24
	Outer city	27.00	0.31	0.71	0.51	0.16
	Periphery	6.00	0.38	0.38	0.38	0.00
	Total	**169.00**	**0.27**	**0.97**	**0.54**	**0.24**
Availability of social infrastructure	Inner city	37.00	0.50	0.75	0.62	0.08
	Middle city	99.00	0.49	0.83	0.64	0.10
	Outer city	27.00	0.52	0.69	0.60	0.05
	Periphery	6.00	0.59	0.59	0.59	0.00
	Total	**169.00**	**0.48**	**0.83**	**0.63**	**0.09**
Functioning of social infrastructure	Inner city	37.00	0.59	0.97	0.68	0.09
	Middle city	99.00	0.58	0.88	0.71	0.09
	Outer city	27.00	0.50	0.70	0.64	0.08
	Periphery	6.00	0.66	0.66	0.66	0.00
	Total	**169.00**	**0.46**	**1.00**	**0.69**	**0.10**
Neighbourhood social interractions	Inner city	37.00	0.44	0.54	0.49	0.03
	Middle city	99.00	0.44	0.61	0.51	0.06
	Outer city	27.00	0.45	0.55	0.49	0.03
	Periphery	6.00	0.55	0.55	0.55	0.00
	Total	**169.00**	**0.42**	**0.63**	**0.50**	**0.06**
Neighbourhood economic opportunities	Inner city	37.00	0.22	0.52	0.31	0.09
	Middle city	99.00	0.24	0.52	0.34	0.08
	Outer city	27.00	0.25	0.51	0.29	0.05
	Periphery	6.00	0.35	0.35	0.35	0.00
	Total	**169.00**	**0.22**	**0.60**	**0.32**	**0.09**

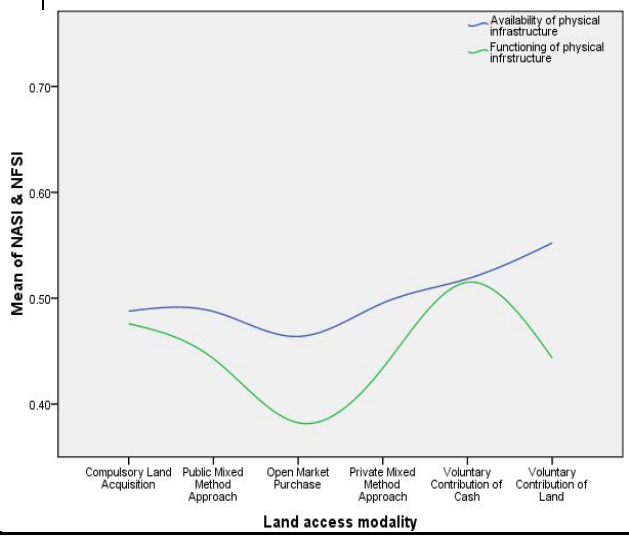
Information on the acquiring entity was also solicited in order to device appropriate policy recommendations. Figure 3 suggests that around 53% of the responses came from religious related projects while 24 were from private entities – both of which are land aggregation practices. In terms of the acquiring authority, Table 4 suggests that 72 of the projects came from religious institutions/community that mostly develops land for religious and related purposes such as education and health facilities. The least encountered acquiring authority is by other groups with 4 responses. The other group includes the business people and family. This suggests that most of the projects encountered are projects that acquired lands through land pooling/aggregation practices. With regard to project location and name, 75% of land acquisitions for physical infrastructure were outside Dar es Salaam while overall land acquisitions within Dar es Salaam City were about 58% of all the 167 projects evaluated. 58% land aggregations were carried out within Dar es Salaam and the least encountered projects within Dar es Salaam are physical infrastructure projects with only 9%.

Table 5 Authorities in need of land for public purpose

	Project purpose				
Authority	**Physical Infrastructure**	**Private**	**Religious**	**Social Infrastructure**	**Total**
Ministry of lands	8	2	0	1	**11**
Local government	10	2	4	3	**19**
Private entity	16	8	25	9	**58**
Religious institutions	3	6	48	15	**72**
Community-based Organisations	0	0	3	0	**3**
Others	0	2	1	1	**4**
Total	**37**	**20**	**81**	**29**	**167**



(a) Property owners: NAPI and NFPI gap is relatively higher where land is accessed through CLA or altruistically



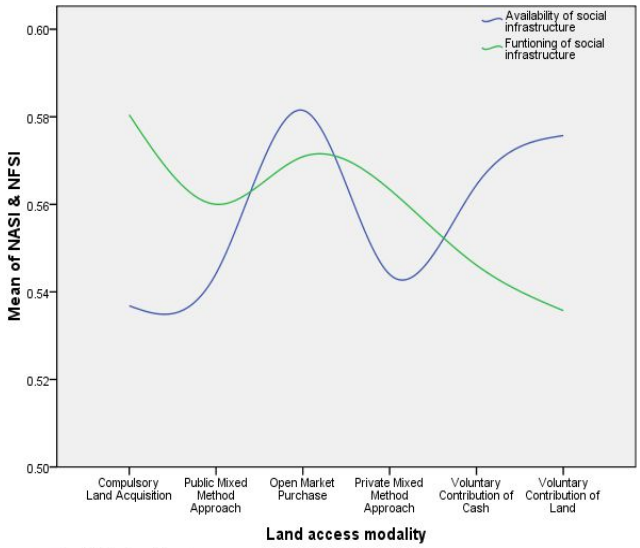
(b) Tenants: NAPI and NFPI gap is relatively higher where land is accessed through market or altruistically

Figure 4 Neighbourhood availability and functioning of physical infrastructure across land access modalities

The results in Table 5 principally reflects upon the dominance of private aggregation practices for expansion of religious activities which may encompass land for education as well as health services. Similar purposes can also be carried out by private individuals whose interests however are different from the government or religious entities. Social infrastructure projects were the least encountered, these are mostly done by both the government institutions and private organisations mainly in the provision or schools and hospitals. The results in Table 4 provide a clear distinction between providers of physical and social infrastructure. While the governments (central and local) dominate in the provision of physical infrastructure, the private sector is also becoming central in those functions reflecting some collaborative governance features. For the provision of social infrastructure, the government seems to lag behind both private and religious institutions reflecting the desire of government to shoulder some of its burden to local communities.

The initial comparison between neighbourhood functionalities and land access modalities are presented in Figure 4 (a) and 4 (b). The result indicates that landowner's evaluation of the availability and functioning of physical infrastructure marginally differentiated when land access is provided through mixed methods. The gap between tenants and owners however enlarges towards compulsory acquisition and open markets mode of land access. The largest gaps between availability and functioning of physical infrastructure are observable for land and cash contributions. For tenants, Figure 4 (b) suggests that open market and voluntary contribution of land have higher availability than functioning of physical infrastructure while land contributions, mixed methods and compulsory acquisition have higher functioning than availability of physical infrastructure.

(a) Owners evaluation of NASI and NFSI



(b) Tenants evaluation of NASI and NFSI

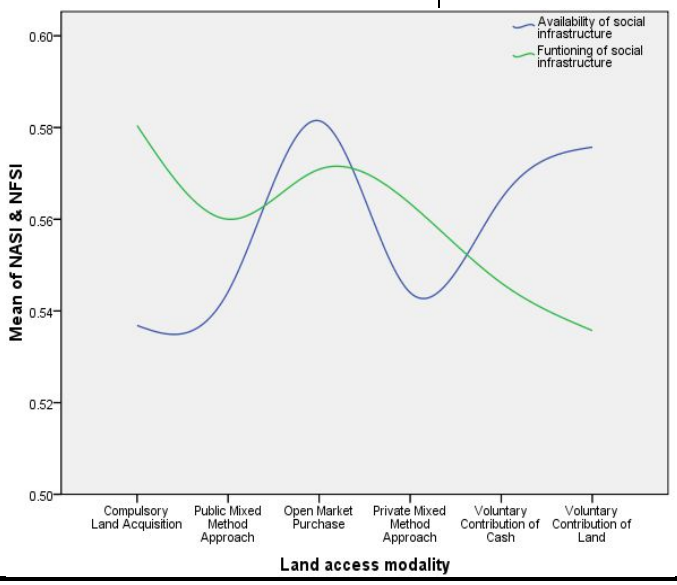
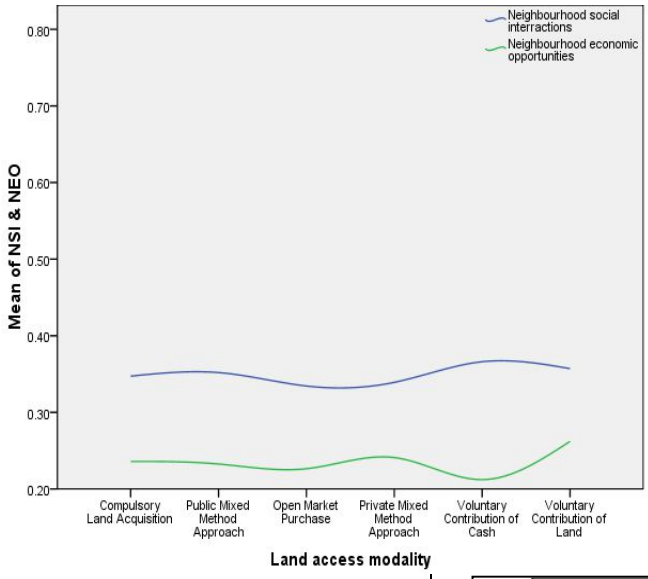
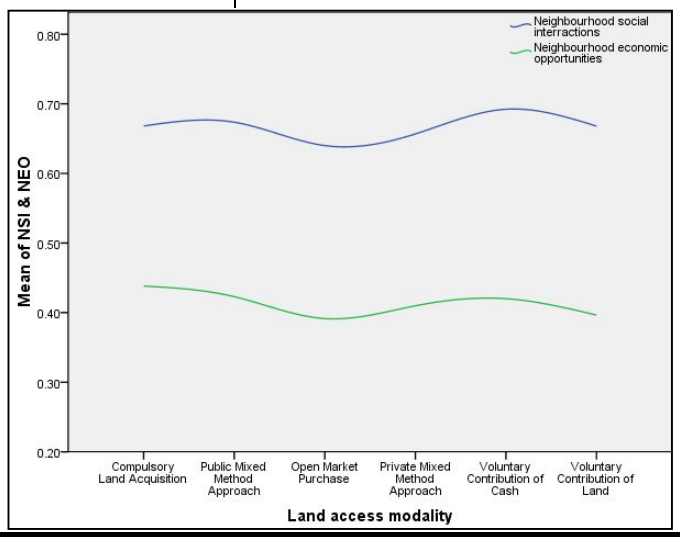


Figure 5 Neighbourhood availability and functioning of social infrastructure across land access modalities

There is basically an agreement among tenants and owners that open market purchase and cash contributions are associated with higher availability than functioning of neighbourhood level physical infrastructure; whereas tenants may be more positive on the functioning of physical infrastructure provided under compulsory acquisition, land acquisition and mixed method, owners have an opposing view on this. This could be linked to the longer stay effect where owners' experience within a neighbourhood is associated with lower knowledge on functioning than availability of physical infrastructures. Owners have a more real feeling of both functioning and availability of physical infrastructures than tenants especially in neighbourhoods where compulsory land acquisition and mixed methods of land access were adopted. Figure 5 (a) indicates that the neighbourhood functioning of social infrastructure is viewed superior to its availability across land access modalities among owners while this is only true for land contributions and mixed methods of land access among tenants in Figure 5 (b). Since land contributions and mixed approaches are likely to provide social infrastructure and services in a relatively shorter period of time, its impact on neighbourhood functionalities is likely to be the same among tenants and owners. Cash contributions and compulsory acquisition of land are often long terms strategies which are limitedly observable among tenants and those who find some challenges in the functioning of social infrastructure are likely to relocate. As a result, sitting tenants are more likely to be positive on functioning than owners, given their flexibility in residential mobility decision.



(a) Property owners' evaluation of NEO and NSI



(b) Tenants' evaluation of NEO and NSI

Figure 6 Neighbourhood economic opportunities and social interactions

Figure 6 (a) and (b) provide the results of the evaluation of neighbourhood economic opportunities and social interactions for owners and tenants respectively. To owners, NEO is more prevalent in their neighbourhood than NSI across all land access modalities while to tenants NSI is more prevalent than NEO. This observation suggests that land access modalities have limited influence on both NEO and NSI, they respond quickly to housing tenure status than land access modalities.

4.2 Two-Sample Kolmogorov-Smirnov Tests Results

The final analysis was carried out to provide answers to the question on whether neighbourhood functionalities are related to land access modalities within the same neighbourhood. This question is responded through a series of hypotheses as provided in Table 2. The results for all the hypotheses are presented in Table 5. Since OMP yields significantly lower NAPI than VCC, the first null hypothesis is rejected because at least one of the land access modalities pair-wise comparisons in NAPI yields significant results. The voluntary contribution of land for the provision of public goods and services is associated with significantly higher availability of neighbourhood level physical infrastructure. With regard to the second hypothesis, Table 5 (column 3) suggests that CLA yields significantly higher NFPI than VCL. As such, the second null hypothesis is rejected because at least one of the land access modalities pair-wise comparisons in NFPI yields significant results. The compulsory acquisition of land for the provision of public goods and services is significantly associated with higher functioning of neighbourhood level physical infrastructure.

From Table 5 (column 5), it is also clear that CLA for the provision of public goods and services is significantly associated with lower neighbourhood level availability of social infrastructure than private Mixed Method Approaches (prMMA). Similarly, OMP is superior in making available the social infrastructure in the neighbourhood compared to VCL and both VCL and VCC are better options than prMMA. The third null hypothesis is therefore rejected in favour of the alternative that at least one of the land access modalities for NASI pairwise comparison is statistically significant. The results for NFSI presented in Table 5 (column 7) suggest that CLA yields significantly higher NFSI than other unspecified land access modalities. The fourth null hypothesis is therefore rejected because at least one of the land access

modalities pair-wise comparisons for NFSI yields significant results. The compulsory acquisition of land for the provision of public goods and services is significantly associated with higher functioning of neighbourhood level social infrastructure.

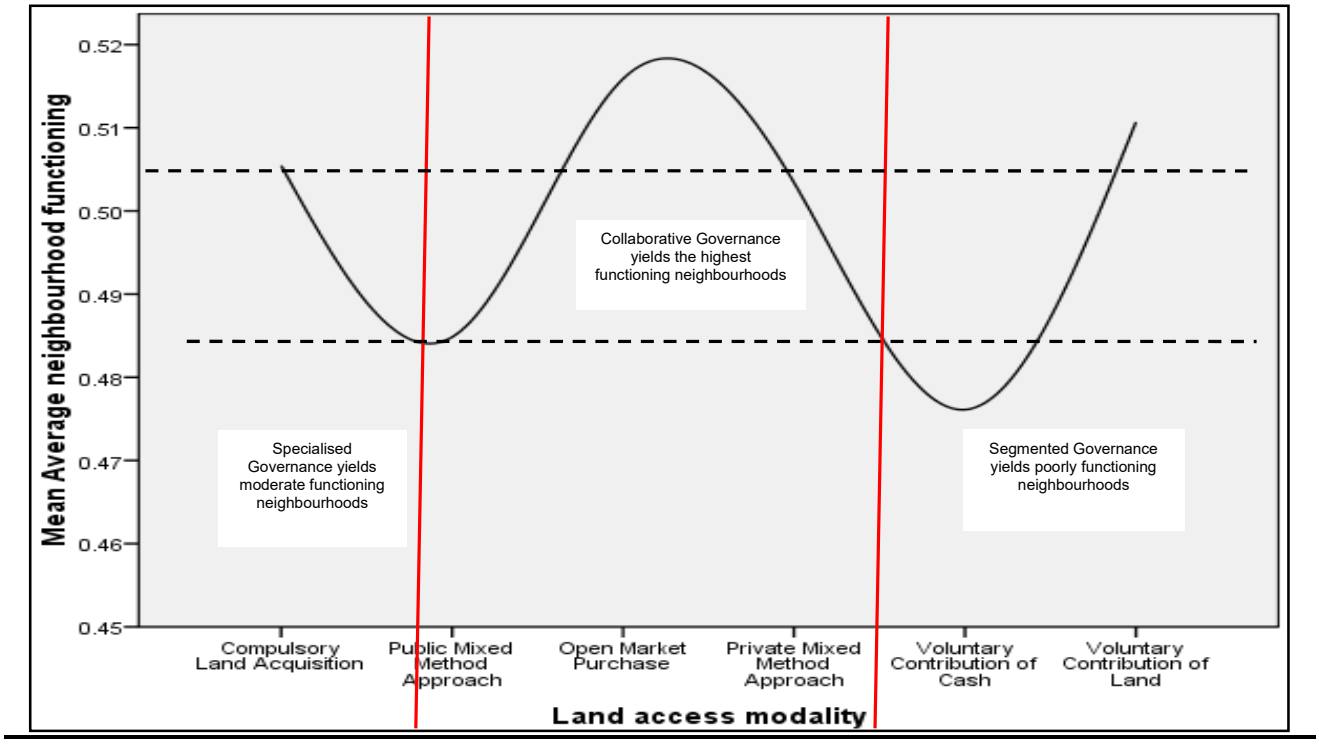


Figure 7 Neighbourhood economic opportunities and social interactions

Table 5 Neighbourhood functionalities across land governance tools for urban land access

Land Access Modality	Variable	NAPI		NFPI		NASI		NFSI		NEO		NSI	
$F_m(x_i)$	$G_{pn}(x_i)$	Stat.	Sig.	Stat.	Sig.	Stat.	Sig.	Stat.	Sig.	Stat.	Sig.	Stat.	Sig.
	OMP	0.76		1.19		1.52	**	0.76		0.7		1.02	
	VCL	1.06		1.37	**	1.56	**	1.21		1.34	*	2.08	***
CLA	VCC	1.24*		1.22	*	2.05	***	0.87		1.24	*	1.97	***
	puMMA	0.73		0.73		1.45	**	0.73		0.7		0.73	
	prMMA	1.33*		1.03		1.39	**	1.35	**	1.23	*	1.41	**
	VCL	1.11		0.62		1.38	**	1.08		1.17		1.44	**
OMP	VCC	1.36**		0.59		1.09		0.39		1.27	*	1.09	
	puMMA	0.44		0.7		0.51		0.4		0.39		0.33	
	prMMA	0.75		0.63		0.92		0.89		0.94		0.87	
	VCC	0.67		0.52		0.6		0.8		0.6		0.48	
VCL	puMMA	1.04		1.03		1.58	***	0.96		1.23	*	1.46	**
	prMMA	1.11		0.74		0.73		1.22	*	1.02		0.7	
VCC	puMMA	1.21		1.11		1.3	*	0.75		1.21		1.16	
	prMMA	0.93		0.59		0.71		0.93		1.19		0.49	
MMA	prMMA	0.65		1.05		1.22	*	0.87		0.8		0.98	

The results for NEO are presented in Table 5 (column 9) and suggest that none of the pair-wise comparison of the land access modalities yields significant differences in NEO (unless the cut off significance is lowered to 0.1), manifesting that the fifth null hypothesis cannot be rejected. Neighbourhood economic opportunities do not vary across land access modalities. The results for NSI are presented in Table 5 (column 11). The results suggest that the compulsory acquisition of land for the provision of public goods and services is significantly associated with lower neighbourhood level social interaction than prMMA but is associated with higher social interaction than

voluntary contribution of land as well as cash. Similarly, OMP is superior in enhancing social interactions in the neighbourhood compared to VCL and VCL tends to be a better option than puMMA in as much as neighbourhood social interaction is concerned. The sixth null hypothesis is therefore rejected in favour of the alternative that at least one of the land access modalities for NSI pairwise comparison is statistically significant. The overall neighbourhood functionalities as portrayed in Figure 7 indicates that OMP is the best land access modality followed by extreme altruism where people volunteer their land to be used for public goods and services. Compulsory land acquisition takes the third position and is only superior to puMMA and VCC.

■5.0 DISCUSSION

The observations from this study provide some evidence that collaborative governance in land access for the provision of urban public goods and services can be linked to the availability and functioning of residential neighborhoods. The observations suggest that hierarchical governance structures involving collaborative among private sectors through Open Market Purchase (OMP) as a method of accessing land for public purposes should not only be permitted but also preferred in Dar es Salaam partly because of the failed restrictive governance structures through Compulsory Land Acquisition (CLA) – rent seeking by government agents or interest groups and the very reason supporting CLA can be expanded to the private sector (Bell, 2009). OMP generally creates value in excess of current fragmented governance systems (Shapiro & Pincus, 2007), as reflected through either Voluntary Contributions of Land (VCL) or Voluntary Contribution of Cash (VCC). It should however, be noted that OMP by being a market approach by itself does not guarantee success (Shapiro et al., n.d.). It is also dependent on the nature of the good binge provided. By including NEO and NSI which are not necessarily "public", neighbourhood functionalities tend to be in favour of OMP, thus, favouring collaborative governance approaches to land governance in the provision of quasi-public goods.

With regard to the first hypothesis, it was noted that the segmented land governance tool, i.e. VCL is associated with significantly higher NAPI compared to other land access approaches. Under VCL, many landholders would surrender their land without compensation for the provision of roads, water or sewage systems only if there is a higher certainty that those goods and services will be provided immediately following such surrender (Ministry of Finance, Planning and Economic Development (Uganda), 2015). As such, in many areas where adequate land is provided for the construction of public goods and facilities, such goods will ultimately be available. Restrictive governance tools, i.e. CLA tends to be relatively inferior for making neighbourhood level physical infrastructure available, contrary to the verdict of previous works by Attakora-Amaniampong (2006) and Asian Development Bank (2008). This is evident as many land acquisition projects in Tanzania are not directly linked to the provision of roads and other physical infrastructure and are often in the outskirt where habitation takes very long to materialise (Kironde, 2015; Mwiga, 2011). The failure of both extremes, i.e. state-led CLA and altruistic VCC to avail adequate NAPI, calls for collaborative governance in support of restrictive governance approaches to neighbourhood development (Spaans et al., 2010).

The results for the second hypothesis suggest that the restrictive CLA as a governance tool for the provision of public goods and services is significantly associated with higher NFPI compared to collaborative puMMA. Although CLA for public goods and services may fail to avail NAPI, it can slightly (though statistically significant), guarantee the functioning of the limitedly installed physical infrastructures. This may be associated with an enhanced tenure security emanating from clear demarcation of residential plots against physical infrastructure. NFPI also depends on the size of land which is often larger under CLA than other approaches, thus making it an effective approach for functioning of physical infrastructure (Mittal, 2013) when compared to fragmented governance structures. If the same is provided in informal areas through fragmented governance tools such as VCC or VCL, clear demarcations may not be available and if available are oftentimes violated. Given this central position, CLA could be implemented despite its notable deficiencies. Its successful implementation however, depends on the extent to which consent and willingness to participate is solicited prior to implementation from the majority of the affected population (Lindsay, 2012). CLA however, is noted to have marginal differences in NFPI when compared to other approaches whereas the largest positive differences are noted for VC, signifying a somehow direct connection between fragmented governance tools i.e. VCC and the functioning of physical infrastructure (NFPI). With regard to fragmented governance in the provision of land, it is suggested here that, although there is greater certainty that physical infrastructure will be installed, there is higher uncertainty that it will be functioning. This provides some evidence that fragmented governance for the provision of public goods and services has limited contribution towards the functioning of the same at neighbourhood level. Potentially, this could be attributed to limited land being made available through market-led approaches (Asian Development Bank, 2008; Attakora-Amaniampong, 2006) and the higher informality through which fragmented governance prevails in the city under consideration. Similarly, since most land aggregation is done informally through the market before being formalised later, there is often higher uncertainty under market led approaches due to zoning regulations (Glaeser et al., 2005).

With regard to NASI, the observations from this study suggest that restrictive governance through CLA is significantly associated with higher availability of social infrastructure (NASI) than all other land access modes with the exception of puMMA where there is lower NASI than provided under collaborative governance tools (puMMA). Contrariwise, OMP is superior in availing NASI than VCL and both VCL and VCC are better options than MMA. Availability of social infrastructure entails social services such as schools, hospitals, worshiping buildings and recreation facilities – the provision of which depends on the availability of land. Because collective governance tools such as VCC, VCL and OMP are all directly targeted towards a particular service, they often end-up making it available – something which is unlikely under CLA, which is more generic and may not specifically end-up with any of the social services intended. These findings suggest that with innovation in planning, inefficiencies associated with CLA could be minimised through real estate taxation and the creation of new markets through voluntary contribution of land (VCL) as it is the case in regularisation or VCC which does not replace the market (completely as CLA) (Mahalingam & Vyas, 2011; Ministry of Finance, Planning and Economic Development (Uganda), 2015). The findings in this study further suggest that CLA for the provision of public goods and services is significantly associated with higher NFSI. This suggests that although restrictive governance is an inferior a technique for availing physical infrastructure, it is well suited for the functioning of the same. The idea is that restrictive governance is well-suited to protecting social infrastructure against encroachment once it has been installed, hence stimulating the functioning of the same. This may also be linked to enhanced tenure security emanating from clear demarcation of residential plots and formal recognition of such services from respective

authorities such as the ministry of health or education. If the same is provided in informal areas, such recognition may be difficult and oftentimes conflicts ensue due to encroachment.

Based on the literature, neighbourhood economic opportunities (NEOs) tend to be enhanced through workplaces, walkability, residential mobility and more importantly household characteristics that are linked to the presence of affluent neighbours who have a positive rather than a competing attitude (Alananga, 2015; Chadbourne, 2014; Jencks & Mayer, 1990; Lu et al., 2018). The results presented in this study suggest that NEOs do not significantly vary significantly across land access modalities. There are several possible explanations for this outcome. Informality in economic activities in the city seems to smooth-out the effect of land access modalities because in almost every neighbourhood, informal economic activities are common (Alananga, 2015; Kironde, 2015; Kombe, 1994). Secondly, the legacy effect of informality in many areas that were regularised, guarantees that even planned areas tend to move backwards towards informality, thus, making it difficult to differentiate older planned and unplanned neighbourhoods especially those closer to the CBD (Kironde, 1992). Lastly, the practice of combining workplaces and residents in almost all neighbourhoods suggest that workplaces as an indicator of NEO is almost flat across land access modalities; works are not concentrated in any of the neighbourhoods within the city rather it is scattered almost everywhere making it difficult to separate residential from workplace wards (Alananga, 2015).

Despite the limited variation of NEOs across land access modalities, collaborative land governance tools, i.e. MMA and OMP achieve relatively better NEOs than other approaches. The flexibility of both open market purchase and mixed methods suggest also for some flexibility in the use of the land obtained for the provision of public goods and services such as markets or commercial centers and other public workplaces which could enhance NEOs. There are limited prospects for enhanced NEO if land is obtained through fragmented governance tools, i.e. VCL or VCC or even restrictive land governance tools. This is because the restrictive CLA is often associated with serious delay in opening-up workplaces and commercial centers in a neighbourhood (Asian Development Bank, 2008; Raghuram et al., 2009), while VCL and VCC are mostly used for religious or social activities for which only a limited number of the local communities are likely to be employed or work for. Similarly, since OMP and MMA are common in informally initiated neighbourhoods, households in these areas tend to combine workplaces and residency (Alananga, 2015), leading to higher NEO. Therefore, despite the above noted observation that CLA is significantly associated with NAPI and NASI, it hardly facilitates such neighbourhood functioning in terms of opening-up new economic opportunities. This could be among the major weaknesses of CLA as adopted in Tanzania.

Lastly, the observations from this study point out that restrictive governance structure for the provision of public goods and services is significantly associated with lower provision of social infrastructure (NSI) than other collaborative governance tools, i.e. puMMA but is associated with higher NSI than fragmented governance tools such as VCL and VCC. Similarly, private sector "collectivism" through OMP is found to be superior in enhancing NSIs than fragmented governance tools, i.e. VCL while VCL tend to be better options than MMA in as much as NSI is concerned. These observations are consistent to Lu et al. (2018) who noted a relatively higher place attachment in private-initiated than in state-led neighbourhoods. The weaknesses of CLA were expected as CLA involves removing people and their properties away from their well-established networks. The destinations of these people are often not taken care of. The plots emanating from CLA are often sold at a subsidised price for which any person who qualifies can be allocated. As a result, many CLAs are associated with weak social interactions as neighbours often do not know each other and are limitedly related to one another. As such, despite its ability to enhance the functioning of both physical and social infrastructure, restrictive land governance tools may not only worsen neighbourhood level economic opportunities but also social interactions. Altruism seems to be inferior to restrictive governance approaches to access land in, as far as NSI is concerned. This could reflect the common MAUP problem since NSI is more localised than the definition of neighbourhood that is adopted in this study (Cho, 2003). Any changes in ward size may modify the results presented in this paper.

■6.0 CONCLUSION

Based on the preceding discussion, it is evident that certain land access modalities could shape the ultimate functionality of a neighbourhood in terms of both social and physical infrastructures. This study provides some indication that restrictive governance structures through compulsory acquisition of land may be justifiable in as much as the functioning of social and physical infrastructure is concerned but can limitedly be relied upon in making such facilities available in the first place. Fragmented governance structures such as voluntary contribution of land, open market purchase and even the voluntary contribution of cash are working better than compulsory acquisition of land for that purpose. It would therefore be prudent to devise a mechanism that ensures land is available first without resorting to compulsory acquisition of land. This could be done through persuasive mechanism that increases the acceptability of land acquisition projects among residents and through encouraging them to contribute both in-cash and in-kind towards the provision of land to enhance a sense of ownership of the proposed development. Once these strategies have been successful, a formal land acquisition can be initiated with additional resources from the government. Under this proposal, the main purpose of acquisition should not be to take land and relocate residents rather to provide clear demarcation of willingly surrendered land for public physical and social infrastructure in a similar manner that specific regularisation is conducted. If land for such facilities is inadequate, the additional resources from the government should be used to purchase land rather than resorting to statutory compensation.

There are definitely a number of governance benefits of adopting the proposal put forward under this study. In additional to a sense of ownership and higher chances of participation, there is a higher likelihood of achieving both availability and functioning of both social and physical infrastructures at lower cost, less time and limited bureaucracy and corruption than if compulsory acquisition was adopted. The role of professionals is thus persuasive rather than coercive, and the ensuing neighbourhood is likely to achieve higher neighbourhood level social interactions, thus enhancing social capital. The limited link between land access modalities and neighbourhood level economic opportunities has serious implication in as far as poverty research is concerned. Given the limited studies on neighbourhoods in developing countries, there is a need to conduct more rigorous studies along this dimension. If neighbourhood effect is flat across cities, then land tenure tools cannot be used to enhance economic opportunities at neighbourhood level, they can be regarded as micro-level instrument for specific targeting rather than area based tools. If however cities of the developing countries differ at neighbourhood level, it would be prudent to devise tenure specific instrument for each city and neighbourhood instead of adopting generic instruments and tools that may

end-up spoiling neighbourhood economic opportunities in some cities and enhancing in others. Generally, the doors are open for further research along this dimension.

Notes

(1) Accessibility is defined as how fast it is to get there; the spatial relation between origin and destination, or the degree of connection between that location and all others in a region (Cho, 2003).
(2) For the purpose of this study, social capital refers to the aggregate value of social networks which may accrue to an individual as well as the society as a whole (Freiler, 2004).

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