



Roles of Local Governance Institutions and Promotion of Urban Agriculture Practices in Western Kenya

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Abstract

The role of local government institution and especially institutional structures and political culture often shape government performance including livelihood supporting activities such as Urban Agriculture (UA). The changing population pattern orchestrated by the spread of urbanization has resulted into a rise in poverty and food demand, necessitating UA. However, there seem to be limited documentation with regard to how local governance institutions influence and promote UA practices. The purpose of the study was to assess how roles of local governance institutions influence promotion of urban agriculture practices in Western Kenya. The specific objectives were to investigate the influence of economic, social and environmental roles of institutions, and the relationship between county government institutions roles and urban agriculture practice. Cross sectional survey design was adopted on a target population of 440 urban farmers (Eldoret: N=137; Kakamega: N=145; Kisumu: N=158) identified through the assistance of County Agricultural officers in the three towns. A sample size of 205 respondents (Eldoret=63; Kakamega=68; Kisumu=74) was obtained using stratified technique. Questionnaire and Key Informant interviews were used for data collection. Inferential statistics using Pearson Product Moment Correlation Coefficient was used in data analysis. Results showed that the department of agriculture, livestock and fisheries was the most important institution on promotion of urban agriculture in Kisumu (40.0%), Kakamega (42.2%) and Eldoret (64.8%). There was there was a moderate positive correlation (n=205; $r = .532$; $p < .05$) between role of county government institutions and UA practices which was statistically significant.

KeyWords: Urban Agriculture; Role of Government Institutions; economic influence; Social influence; Environmental influence.

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1. Introduction

The United Nations (UN) population prospects estimate a growth to the World population of 34% from 6.8 billion today to 9.1 billion in 2050 [1]. Moreover, more than 70% of the world's population is expected to be urban by 2050 [2, 3]. This urbanization will bring with it changes in lifestyles, consumption patterns and a rise in global demand for food projected to be 70% higher than today [4]. According to Clos [5], local government planners are expected to include spatial planning and strategic endeavors aimed at addressing emerging rise in food demand, such as Urban Agriculture (UA) practices. Urban Agriculture (UA) refers to farming operations taking place in and around the city that goes beyond food production: taking care of the environment, social services and supports local economies [6]. UA practices include production of food and non-food plant and tree crops and animal husbandry both within (intra) and fringing (peri) built urban areas for households' consumption as well as for sale to the rapidly growing urban population [7]. Piorr, Zasada, Doernberg, Zoll and Ramme [8] contend that UA has become a growing phenomenon worldwide over the last decades for a large variety of different food production activities, protection of environment, social integration and economic enhancement at the grass root level. According to Barthel and his colleagues [9] as well as Leys and Vanclay [10], local government is under obligation to provide conducive environment for the thriving of UA including necessary extension support and financial services. However, the role of the local government in enhancing urban agriculture seems to have attracted limited documentation. A Local Government is a governing institution at the grassroots level of administration meant for meeting peculiar grassroots need of the people [11]. According to Mgbenka, Mbah and Ezeano [12], local government as the closest tier of government to the people is a government at the grassroots level of administration meant for meeting peculiar grassroots needs of the people. Local state politicians and leadership are therefore called upon to be proactive in putting necessary mechanisms for the enhancement of UA without fear of public liability and accountability [13]. Studies [14 – 17] have tended to concentrate on the benefits of UA without paying attention to the role of local governments in enhancing the same. Curry and his colleagues [15] analysed urban agriculture practices and the policies of European Union with a focus on the need for renewal. Through interviews, findings revealed that while EU policies lay emphasis on baseline framework for action, limited link exist between national, regional and local level policies. Halloran and Magid [14] analysed the importance of local and central governments in promoting sustainable urban agriculture in Dar es Salaam (Tanzania) and Copenhagen (Denmark). The findings suggest that municipal recognition and institutional support for urban agriculture is an important component in increasing the sustainability of related initiatives. Local and central government plays a role in the legitimization and institutionalization of urban agriculture through the facilitation of multi-stakeholder processes, policy development and the conservation and allocation of land. Schmidt, Magigi and Godfrey [16] utilized semi-structured interviews of farmer associations and interviews with government officials in Moshi and Dar es Salaam, Tanzania, to analyse the relationship between urban agricultural organizations and the context in which they operate. Findings revealed that the manner in which groups organize, the economic role they play, the issues they are concerned with, and the degree to which they collaborate exacerbated by urbanization patterns that impact the role and functioning of urban agricultural organizations. Mwangi [17] examined the factors influencing urban agricultural practices in Nairobi Kenya. The study established that urban poverty in Nairobi County has highly contributed to increased urban agricultural practices. High urbanization without

corresponding Agricultural practices in Nairobi County was positively associated with nutritional status in some income groups. Given the critical role that the local government stands to perform in enhancing UA, the gap in knowledge created by the absence of related literature was therefore set to be filled by the current study.

1.1 Statement of the Problem

The rising urbanization is set to tilt the population topography such that by 2050, more than 70% of the world's people will be living in urban and peri-urban areas. The resulting food demand will necessitate drastic changes to agricultural policies by the local governments to suit the needs of the grass root people. Despite its crucial role, urban agriculture has continuously been viewed as illegal in almost all developing countries and continues to be ignored by local governments. It is still perceived as a marginal activity that does not belong in modern cities. The common perception in many African and Latin American countries is that UA is marginal, temporary and an archaic practice which is harmful to consumers, farmers, the environment, the urban land economy and the city's appearance. In addition to policy, urban farmers are usually faced with other challenges such as lack of land, insecure land tenure and various public and environmental risks. Similarly, the role played by local government institutions towards enhancement of UA seems to have received limited documentation. This lack of adequate documentation thus necessitated the current study to analyse the economic influence of role of local government, social influence of the role of local government, and the environmental influence of the role of local government on UA practices in Western Kenya.

1.2 Objectives

- i) To analyse the economic influence of local government institutions on promotion of urban agriculture practices in Western Kenya
- ii) To assess the social Influence of local government institutions on promotion of urban agriculture practices in Western Kenya
- iii) To establish the environmental influence of local government institutions on promotion of urban agriculture practices in Western Kenya

2. Materials and Methods

2.1 Research Design

The study adopted concurrent triangulation design within the mixed method approach [18]. Thus the researcher collected and analysed quantitative and qualitative data on the same phenomenon and then the deferent results were converged through comparison and contrasting for ultimate validation [19]. The intent in using this design is to bring together the differing strength and non overlapping weaknesses of quantitative methods with those of qualitative [18]. Qualitative method tends to collect data from open-ended questions without predetermined responses while quantitative method usually includes closed ended responses such as found on questionnaire [20].

2.2 Population and Sample Size

The target population comprised of 440 urban farmers from Eldoret (137), Kisumu (158) and Kakamega (145). Proportionate sampling method was used to derive a sample size of 205 farmers: Eldoret (63), Kakamega (68) and Kisumu (74). The sample size of each town was further stratified on the basis of whether one was active or not active in urban farming over the last five years. Therefore, a total of 162 and 43 urban farmers were further sampled as active and inactive sub-groups respectively. Table 1 presents distribution of sample size.

Table 1: Distribution of Sample Size

Town	Population	Proportion per Town	Sample size	Study Population Sampled			
				Active	%	Non-Active	%
Kisumu	158	0.36	74	54	26	20	10
Kakamega	145	0.33	68	58	28	10	5
Eldoret	137	0.31	63	50	24	13	6
Total	440		205	162		43	

2.3 Data Collection Methods

The study collected both secondary and primary data. Primary data is information gathered directly from respondents while secondary data is information that has already been collected and is already documented (Kombo & Tromp, 2016). Secondary data was collected through a review of literature from sources such as research articles, books, internet and government documents especially reports and Kenya gazettes. On the other hand, primary data was collected through questionnaire, interviews and focus group discussions. Structured questionnaire and interviews were used to collect data from household heads doing urban farming and key informants respectively. The Household (HH) interviews used a semi-structured questionnaire to collect data from two hundred and five (205) respondents at the household level. On the other hand, the Key Informant Interviews (KIIs) method was used to collect data from a total of twelve (12) key informants which included, three (3) chief officers for agriculture and livestock, three (3) county directors for agriculture, three (3) county directors of livestock and three (3) town manager or municipal manager in the three towns. Focus group discussion (FGD) method was used to collect data from a total of twenty four (24) participants, mainly from three (3) urban farmer groups; each consisting of eight (8) members.

2.4 Data Analysis and Presentation

Qualitative data from FGD and KIIs was subjected to content analysis and multi-criteria. Quantitative data collected from urban farming household head interviews was analysed using Statistical Package for Social Scientists (SPSS) software version 22 which yielded both descriptive and inferential statistics.

3. Findings and Discussions

The objective of this study was to assess the role county government institutions in the practice of urban agriculture. The study covered the three aspects of role played by county government institutions on the practice of urban agriculture: economic, social and environmental roles. The relationship between county government institutions and urban agriculture practice was also assessed. The economic role was determined using three variables of subsidies provision, funding level and financing and accessibility of funds to urban agriculture. The social role had four variables namely; administrative structures, agriculture extension service, public participation and city/town board or management committee, while environmental role was mainly determined by one variable of environmental directorate incorporating urban agriculture units.

3.1 Economic Role

The economic role was evaluated using assessment indicators which included; subsidy provision to urban farmers, level of funding, and accessibility of funds to the practice of urban agriculture. During the analysis, subsidy provision was assigned a weight of 0.35, level of funding 0.1 and accessibility of government allocated funds was 0.3. During the period before devolved system, Kisumu and Eldoret led with an economic score of 1.05 while Kakamega was last with 0.75. After inception of the devolved system, Kakamega was first with a score of 1.6 while Kisumu and Eldoret towns came last with a score of 1.2 (Table 2).

Table 2: Multi-Criteria Analysis Matrix for Economic role

Criteria	Economic Role Scenario 1 –Before Year 2012						Economic Role Scenerio 2 - After Year 2012						
	Kisumu		Kakamega		Eldoret		Kisumu		Kakamega		Eldoret		
	Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.	
	Wt.	Score	score	Score	score	Score	score	Score	score	Score	score	Score	score
Funding													
Subsidies provision	0.35	+1	0.35	+1	0.35	+1	0.35	++2	0.7	++2	0.7	++2	0.7
Funding level & financing UA	0.1	+1	0.1	+1	0.1	+1	0.1	+++3	0.3	++2	0.2	++2	0.2
Funds accessibility for UA	0.3	++2	0.6	+1	0.3	++2	0.6	++2	0.6	+1	0.3	+1	0.3
Total score	0.75		1.05		0.75		1.05		1.6		1.2		1.2
Rank			1		3		1		1		2		2

3.1.1 Key for Magnitude of Role

- - -	(-3)	Very negative role +	(+1)	Positive role
- -	(-2)	Moderately negative role ++	(++2)	Moderately positive role
-	(-1)	Negative role	(+++3)	Very positive role
0	(0)	No role at all, neither positive nor negative		

In short, the study revealed that before the devolved system, the county government institutions in Kisumu and Eldoret towns played a greater economic role in practice of urban agriculture than Kakamega. However, after the devolved system, the trend was reversed with institutions in Kakamega playing a much greater economic role than any of the two other towns. This difference was attributed to the different management styles of county governments that came into being after the devolved system in the year 2012.

3.1.2 Subsidy provision

Results from multi-criteria assessment indicated that, county government subsidies increased twice from the previous total positive score of 0.35 to very positive score of 0.7 in all towns, (Table 3). There was an increase of 0.35 which was mostly attributed to the increased subsidy support to urban farmers in the three towns. These farm input subsidies were mostly seeds, chemicals, and livestock given to urban farmers by county governments in these towns. According to one key informant, the county Director of Agriculture-Kakamega, it was revealed that prior to the devolved system, the Ministry of Agriculture never used to focus on input- subsidy driven extension but rather on demand-driven extension service delivery. However, a paradigm shift occurred after inception of the devolved system, whereby agriculture as a government function was devolved to the counties and the county governments took charge of agricultural extension services thereby resulting in a sudden shift from the previous “silent” government policy of no hardware-no handouts to farmers, to the current input-subsidy driven extension approach. In view of this shift, subsidy provision therefore played a key economic role in promotion of urban agriculture in the three towns. Leys and Vanclay [10] maintain that urban agriculture financing refers to monetary and non-monetary resource mobilisation, individual and collective savings, and subsidies in different forms, micro-credits and conventional loans. Rogerson (2011) asserts that although there have been several urban agriculture supportive initiatives driven by the provincial administration in partnership with other stakeholders and the tier of local (metropolitan municipality) government, sub-national initiatives are still relatively weak and lack the influence that a national policy for urban agriculture might produce. It is noteworthy to say that there was a shift in extension policy that led to a number of urban farmers receiving various support from the county government institutions. For instance, results from household interviews revealed that those who received some support from county government institutions, majority maintained that there was moderate change in agricultural extension service delivery in Kisumu (90.2%) and Eldoret (100%) while minor change was mentioned in Kakamega (54.5%). Among those who did not receive any support, majority still held a similar view that there was moderate change in Kisumu (81.8%) and Kakamega (49.1%) while minor change was mentioned in Eldoret (59.3%), (Table 3).

Table 3: Support from County Government Institutions by Town and Changes in Extension Service Delivery

Support from county government institutions		Changes in Extension service delivery			Total
		No change	Minor change	Moderate change	
No	Kisumu	0.0%	18.2%	81.8%	100.0%
	Kakamega	19.3%	31.6%	49.1%	100.0%
	Eldoret	0.0%	59.3%	40.7%	100.0%
Yes	Kisumu	4.9%	4.9%	90.2%	100.0%
	Kakamega	18.2%	54.5%	27.3%	100.0%
	Eldoret	0.0%	0.0%	100.0%	100.0%

It was concluded that there was moderate or minor change in agricultural extension service delivery in the three study towns. This change was therefore due to change experienced from the old “silent” government policy of no hardware-no handouts to farmers, to the current input-subsidy supply driven extension approach. Similarly, Holden & Lunduka (2013) argue that input subsidy enhances food production but it does not target the poor better than program that distributes inputs randomly and that usually corruption and targeting errors lead to local frustration and conflicts. However, during the procurement and distribution of the inputs and subsidies, the department of Agriculture and Livestock faced some challenges. These same basic problems of establishing a credible population base, developing clear targeting criteria, establishing a system for beneficiary selection and targeting, were noted as serious problems in the study area. Key informant discussions with the Chief Officer for Agriculture in Kisumu revealed that when the county government purchased dairy cows, goats, chemicals and fertilizers to be given to farmers as subsidies, a clear targeting criteria and system for beneficiary selection and targeting which was put in place by the department of Agriculture was ignored, abused and disregarded by the local politicians. This led to conflict and frustration as the inputs were later given to undeserving “farmers” leading to loss and resale of some dairy cows. Since the so called “farmers” who benefitted were never prepared and trained by the Livestock department staff to receive the dairy cows, the cows could not find adequate care in terms of feeding and water leading to deaths or were sold in exchange for money. This finding indicate that politics can interfere with input subsidy programmes, hence there is need to delink these input subsidy programmes from politics if the real farmers are to benefit. However, this may take time especially in the devolved county governments where local politics takes precedence over most of the development programmes. Barthel and his colleagues (2010) argued that local governance and political leadership is considered to be involved a lot in shaping directions with regard to economic activities to be engaged in including UA. According to Leys & Vanclay (2011), within social networks around the UA activities, human and social capital is created and harnessed: knowledge and management capacities from socio-cultural memories are established and conserved, enhancing resilience of the urban social-ecological system.

3.1.3 Funding Level of Urban Agriculture

Results show that the funding level of urban agricultural activities in all the three towns achieved a similar weighted score of 0.1 before the devolved system. However, Kisumu was leading with a score of 0.6 while Kakamega and Eldoret had similar scores of 0.3 (Table 3). Results indicated that those who agreed that funding

level for urban agriculture activities increased, most of them who also received support from county government institutions were in Kisumu (54.2%) while those who did not receive were in Kakamega (83.3%) and Eldoret (93.4%). However, those who disagreed that funding level of urban agriculture increased, majority who agreed that they received support from county government institutions were in Kisumu (100%) while those who did not receive support were in Kakamega (87.5%) and Eldoret 100%).

Table 4: Funding Level by Town and Support Received from County Government

Increased Funding Level		Support Received from county government institutions		Total
		No	Yes	
True	Kisumu	45.8%	54.2%	100.0%
	Kakamega	83.3%	16.7%	100.0%
	Eldoret	93.4%	6.6%	100.0%
False	Kisumu	0.0%	100.0%	100.0%
	Kakamega	87.5%	12.5%	100.0%
	Eldoret	100.0%	0.0%	100.0%

It was interesting to note that both those agreed or disagreed; majority also asserted that they did not receive any support from county government institutions except for Kisumu town. Among urban farmers agreed that there was increase in funding level, majority also who received support from county government institutions were in Kisumu, while those who disagreed that there was support from the government were in Kakamega and Eldoret. Similarly, those who disagreed that funding levels increased, majority also received support from county government while the other two towns did not receive any support. The variations in Kisumu was due to the fact that support received from county government was as a result of an urban agriculture project which was on-going within Kisumu and was jointly funded between county and national government. The increase in funding levels of agriculture was confirmed during by remarks of County Director of Agriculture for Kisumu, that it was a paradox for county government increase agricultural funding, at least compared to the period before the devolved system, but never achieved the aspirations of important declarations such as the Maputo declaration, of allocating 10% of the national and county budgets to agriculture, with Agriculture department in Kisumu only allocated an average of 4% of total revenue per year. Lovett (2016) assert that several urban agricultural practices in developed countries tend to become instruments of social exclusivity, as the focus has shifted from UA as a means of providing food, to UA as an elite, recreational pastime. This can be explained in part by changes in the scope and role of the state, though concerns still exist that current funding levels are insufficient to address the challenges facing the sector, leading to pleas to reverse the trend, and increase funding.. Warren, Hawkesworth and Knai (2015) argue that in consonance with economic theory, total expenditure on agriculture had a positive significant role on economic growth and that economic growth was independent of recurrent expenditure, but dependent (positively) on capital expenditure in the long run, hence agriculture should be given priority in budgetary allocation and capital spending to promote economic growth.

3.1.4 Funds Accessibility

Results showed that the level of accessibility of funds, before the devolved system, was 0.6 for both Kisumu and Eldoret towns, while Kakamega realized an accessibility weighted score of 0.3. However, after the devolved system, Kisumu still had double weighted score (0.6) compared to either Kakamega or Eldoret which had a score of 0.3 each, (Table 4). The reason for better weighted scores in Kisumu was the presence of an ongoing urban agriculture project which was funded by the Ministry of Agriculture, Livestock and Fisheries headquarters to the tune of Kenya shillings one million (1M) for capacity building in 2016/2017, Kenya shillings 4.5 million in 2017/2018 for setting up structures, but was not being implemented in the other two towns. According to discussions with key informants in these towns, Kisumu realized a bigger economic score on urban agriculture as opposed to the other two towns because it had better funds accessibility for training of urban farmers than the other towns. Discussions with key informants revealed that although there was quite a substantial increase in agricultural funding by the county governments, these funds were often inaccessible for agricultural extension work, since the county assemblies reduce the budget allocations at will, by reallocating funds to other areas. The County Assemblies was one of the county government institutions that played a key oversight role in both allocation and spending of public funds in relation to agriculture, including urban agriculture management. The County Government Act 2012 and Public Finance Management Act 2012 provide the county Assembly with powers to play oversight role on public expenditure ranging from planning, budgeting, spending and implementation of projects. Piorr and his colleagues (2018) argue that agricultural public investments are more likely to have two key features: higher attributability to politicians and donors of the output of public spending, and a shorter lag time between expenditures incurred and outputs produced. Besides, evidence show that there is geographical targeting of agricultural public funds that correspond more closely with theories suggesting that resources are used to sway communities opposed to the ruling party rather than to reward political supporters. This finding was the reverse in the case of these three towns, where political supporters benefited more rather than the communities or individual urban farmers.

3.2 Social Roles

The county government institutions played a social role in setting up administrative structures, establishment of city/town boards or committees, conflict resolution and agricultural extension service delivery systems for practice of urban agriculture. During the analysis of the social role by key informants, the following weights were assigned to the criteria assessment indicators; administrative structures (0.06), establishment of city/town board or management committee (0.06), public participation (0.04) and extension service delivery with weight of (0.03). In terms of social role, which was assessed by governance, had Kakamega coming first with a score of 0.7 followed by Kisumu and Eldoret with equal score of 0.1. Similarly, Kakamega had the best governance with a score of 0.35, followed by Kisumu with -0.04 and Last Eldoret with -0.07 (Table 5).

Table 5: Multi-Criteria Analysis Matrix for Social role

Criteria	Wt.	Social Role Scenario 1 - Before Year 2012						Social Role Scenario 2 - After Year 2012					
		Kisumu		Kakamega		Eldoret		Kisumu		Kakamega		Eldoret	
		Raw score	Wt. Score	Raw score	Wt. Score	Raw score	Wt. Score	Raw Score	Wt. Score	Raw score	Wt. Score	Raw score	Wt. Score
Governance													
Administrative structures incorporating UA City/Town board or management committee set up for UA regulation	0.06	1	0.06	1	0.06	1	0.06	-1	-0.06	2	0.12	-1	-0.06
Public participation	0.04	-2	-	2	-	2	-0.08	2	0.08	2	0.08	2	0.08
Agriculture Extension Service	0.03	++2	0.06	+1	0.03	++2	0.06	++2	0.06	+1	0.03	+1	0.03
Total Score	0.19		0.1		0.07		0.1		-0.04		0.35		-0.07
Rank			2		1		2		2		1		3

Key for Magnitude of Role

- (-3) Very negative role + (+1) Positive role
- (-2) Moderately negative role ++ ++ (+2) Moderately positive role
- (-1) Negative role +++ (+++3) Very positive role
- 0 (0) No role at all, neither positive nor negative

3.2.1 Governance

Results show that in terms of governance, before the devolved system, county government institutions played a similar social role in Kisumu and Eldoret (0.1) while Kakamega was first with a score of 0.07. However, after inception of the devolved system; Kakamega was first (0.35), followed by Kisumu (-0.04) and Eldoret (-0.07)

last, (Table 4.36). It was observed that county government institutions played a greater social role, in terms of governance of urban agriculture, in Kakamega than in Kisumu and Eldoret which had similar performance. After devolved system started, Kakamega still had better social role than Kisumu which came second and Eldoret last. Again apart from, the difference in governance in the these towns, these towns had much operational governance structures such as board/town committees, by-laws for conflict resolution and better outreach to urban farmers which was not the case after devolved system except for Kakamega town.

3.2.2 Administrative Structures Incorporating Urban Agriculture

Results showed that, before the devolved system, all the three towns had a similar score of (0.06) on administrative structures incorporating urban agriculture units. However, after the devolved system began, Kakamega led with a score of 0.12 while Kisumu and Eldoret had a similar score of -0.06, (Table 4.37). It was noted that Kakamega had a slightly better administrative structure than the other two towns, since it had already passed a county legislation on urban areas and cities management, which mentioned urban agriculture promotion and regulation. However, having good administrative structures is not a guarantee for better performance in policy implementation as other factors such as political culture also dictate performance. Marsden & Groer (2016) hold a different view that "better" structures are not sufficient to achieve the implementation of more effective policies and that while institutional structures must matter, it is the broader governance environment, resources and politics that seem to dominate implementation of policy. The study carried out a cross-tabulation analysis which was done between existence of urban agriculture desk office and most effective measure in promotion of urban agriculture. Results showed that those who agreed there was an urban agriculture office, majority said developing urban agriculture policy was the most effective measure in promotion of the practice in Kisumu (45.0%) while awareness creation and lobbying of policy makers was in Kakamega (85.7%) and Eldoret (85.7%), (Table 6).

Table 6: Urban Agriculture Office by Town and Most Effective Measure for Promotion

Urban Office	agriculture most effective measure for promotion					Total
	Awareness lobbying makers	creation of policy	Availability credit	of Establish institutional framework	Develop agriculture policy	
Yes	Kisumu	5.0%	15.0%	35.0%	45.0%	100.0%
	Kakamega	95.0%	5.0%	0.0%	0.0%	100.0%
	Eldoret	85.7%	4.8%	0.0%	9.5%	100.0%
No	Kisumu	25.9%	22.2%	16.7%	35.2%	100.0%
	Kakamega	95.7%	4.3%	0.0%	0.0%	100.0%
	Eldoret	90.0%	5.0%	5.0%	0.0%	100.0%

Similarly, those who asserted that there was no urban agriculture office also had majority suggesting development of urban agriculture policy, and awareness creation and lobbying of policy makers as the two key promotional measures. It was concluded that urban farmers felt that developing an urban agriculture policy, and

creating awareness and lobbying of policy makers were the most effective measures to promote urban agriculture besides establishing an urban agriculture office.

3.2.3 Environmental Role

Results indicate that Kakamega and Eldoret had a similar weighted score (0.18) before the devolved system while Kisumu had a slightly lower score (0.12). However, after the devolved system, Kisumu and Kakamega reported better similar scores (0.12) while Eldoret dropped to 0.06, (Table 7). Prior to the devolved system, county government institutions played a similar environmental role in all towns but after the devolved system, the score of Eldoret dropped while Kisumu and Kakamega were leading with similar scores.

Table 7: Environmental Role played by County Government Institutions

Criteria	Wt.	Environmental Role Scenario 1: Before Year 2012						Environmental Role Scenario 2: After Year 2012					
		Kisumu		Kakamega		Eldoret		Kisumu		Kakamega		Eldoret	
		Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.	Raw	Wt.
		score	Score	score	Score	score	Score	score	Score	score	Score	score	Score
Environmental Management													
Environment & UA directorate set up in city/town	0.06	+++3	0.18	+++3	0.18	+++3	0.18	++2	0.12	++2	0.12	+1	0.06
Total Score	0.06		0.12		0.18		0.18		0.12		0.12		0.06
Rank		3		1		1		1		1		1	3

Key for Magnitude of Role

- - - (-3) Very negative role + (+1) Positive role
- - (-2) Moderately negative role ++ (+2) Moderately positive role
- (-1) Negative role +++ (+3) Very positive role
- 0 (0) No role at all, neither positive nor negative

Urban agriculture was treated as an environmental issue in all the three towns, both before and after the devolved system. Within the organogram of the city/municipal Council, urban agriculture was being handled as part of Directorate of Environment. This situation is bound to remain as none of the study towns had a plan to

integrate the urban agriculture management as a unit in the administrative structure of the town. The key informants asserted that before the devolved system, there were clear Municipal by-laws and a Directorate of Environment which were used to manage urban agriculture in all the towns, yet after the devolved system the by-laws were repealed and no county legislation had so far been put in place hence observed changes. However, Eldoret town dropped slightly due to various reasons. Discussions with County Physical Planner revealed that confusion was reigning as to which offices should enforce environmental management, with the veterinary and county physical planning directorates coming out as the key implementers. The Veterinary directorate was particularly mentioned as having impounded pigs, arrested pig owners and sometimes poisoned pigs in their effort to enforce environmental management. On the other hand, the county Physical planning directorate received reports of growing of tall crops especially maize in some parts of the town and acted by cutting them down.

3.2.4 Role of Local Governance institution and practice of urban agriculture

To establish whether there was any statistical significant role of county government institution the practice on urban agriculture, a bivariate Pearson’s Product-Moment Coefficient of Correlation analysis between the scores of the two variables was conducted. The SPSS output Table 8 shows the correlation results.

Table 8: Correlation between local Governance Institutions and Practice of Urban Agriculture

		Role of County Government	Practice of Urban
Role of County Government Institution	Pearson Correlation	1	.532**
	Sig. (2-tailed)		.000
	N	205	205
Practice of Urban Agriculture	Pearson Correlation	.532**	1
	Sig. (2-tailed)	.000	
	N	205	205

** . Correlation is significant at the 0.01 level (2-tailed).

From Table 8, it was evident that there was a moderate positive correlation (n=205; r =.532; p <.05) between role of county government institutions and practice of an agriculture which was statistically significant. Given that the p-value was less than .05, it was therefore acceptable to conclude that there was statistically significant positive relationship between county government institutions and practice of urban agriculture. It was noted that, with improved role of county government institutions, including re-organization of organograms to include urban agriculture, it was likely to trigger higher performance of urban agriculture practice.

4. Conclusions and Recommendations

The study concludes that role played by county government institutions was inadequate and ineffective, although there was a statistically significant moderate positive correlation relationship between county government institutions and urban agriculture practice such that improving role played by county government institutions was likely to trigger higher influence on urban agriculture practice. The role of county government

institutions was inadequate and ineffective because urban agriculture was not fully integrated in key county government institutional strategies and plans, and administrative structures. There was a greater economic role played by county government institutions in promotion and regulation of urban agriculture practice in Kisumu and Kakamega than in Eldoret town. Similarly, county government institutions played a greater social role in Kakamega than in Kisumu or Eldoret. On the other hand, county government institutions played a similar environmental role in all towns but after the devolved system, the performance of these institutions improved except in Eldoret where it dropped. For improvement of local government roles and institutions, re-organization of organograms and administrative structures to trigger better performance in planning, promotion and regulation of urban agriculture practice in these towns is required. This can be achieved via the department of urban planning and the department of Agriculture at county level. This would guarantee proper planning and incorporation of specific urban agriculture programmes and projects in the Counties. Similarly, urban agriculture units in the administrative structures can also help to further entrench urban agriculture practice in these towns.

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References

- [1]. World Food Programme (WFP, 2012). The State of Food Insecurity in the World 2012: Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition. FAO, Rome.
- [2]. UN-HABITAT, United Nations Human Settlements Department. (2016a). Draft outcome document for adoption in Quito, October 2016. Paper presented at the United Nations Conference on Housing and Sustainable Urban Development, 17-20 October, Quito, Ecuador.
- [3]. United Nations Department of Economic and Social Affairs. (UN-DESA, 2015). World population prospects: the 2015 revision, key findings and advance tables. New York: UN-DESA, Population Division.
- [4]. Orsini, F., Kahane, R., Nono-Womdim, R., and Gianquinto, G. (2013). Urban agriculture in the developing world: a review. *Agronomy for sustainable development*, 33:695-720.
- [5]. Clos, J. (2016). Principles of planned urbanization. <http://unhabitat.org/principles-of-planned-urbanization-dr-joan-clos-executive-director-un-habitat-2/> Date of Access: 25 Apr. 2019. [Podcast]
- [6]. Sanyé-Mengual, E. (2015). COST Action Urban Agriculture Europe: Freelance STSM: Stakeholders' acceptance, governance and power relations in innovative forms of urban agriculture. *Agron Sustain Dev.*, 35:1477– 1488.
- [7]. Mougeot, L. J. A. (2006). Growing better cities: Urban agriculture for sustainable development.

Ottawa.

- [8]. Piorr, A, Zasada, I, Doernberg, A, Zoll, F and Ramme, W (2018). Research for AGRI Committee – Urban and Peri-urban Agriculture in the EU. European Parliament, Policy Department for Structural and Cohesion Policies, Brussels
- [9]. Barthel, S., Folke, C. & Colding, J. (2010). Social–ecological memory in urban gardens—Retaining the capacity for management of ecosystem services. *Global Environmental Change*, 20 (2), 255-265.
- [10]. Leys, A. J. & Vanclay, J. K. (2011). Social learning: A knowledge and capacity building approach for adaptive co-management of contested landscapes. *Land use policy*, 28 (3), 574-584.
- [11]. Arowolo, D. (2008). Local government administration and the challenges of rural development in Nigeria. [http: /www.articlesbase.com/leadershiparticles.html](http://www.articlesbase.com/leadershiparticles.html).
- [12]. Mgbenka, R.N., Mbah, E.N. and Ezeano, C.I. (2015). The Role of Local Government Council in Agricultural Transformation in Nigeria: Need for Review of Policy. *Agricultural Engineering Research Journal*, 5(2): 27-32.
- [13]. Corfee-Morlot, J., Cochran, I., Hallegatte, S., and Teasdale, P.J. (2011). Multilevel risk governance and urban adaptation policy. *Climatic Change* 104 (1), 169-197.
- [14]. Halloran, A and Magid, J. (2013). The role of local government in promoting sustainable urban agriculture in Dar es Salaam and Copenhagen. *Geografisk Tidsskrift-Danish Journal of Geography*, 113,2, 121-132.
- [15]. Curry, N., Reed, M., Keech, D., Maye, D. and Kirwan, J. (2014). Urban agriculture and the policies of the European Union: the need for renewal. *Spanish Journal of Rural Development*, V (Special 1), 91-106.
- [16]. Schmidt, S., Magigi, W. and Godfrey, B. (2014). The organization of urban agriculture: Farmer associations and urbanization in Tanzania. *Journal of Cities* (2014), <http://dx.doi.org/10.1016/j.cities.2014.05.013>
- [17]. Mwangi, K.W. (2015). Factors influencing urban agricultural practices in Kenya: a case of Nairobi County, Kenya. Unpublished research project submitted to the University of Nairobi.
- [18]. Creswell, J.W. Plano, C. V. and Clark, L. (2011). *Designing and conducting mixed methods research*. (2nd edition) London : Sage
- [19]. Creswell J.W. (2014). *Research design: Qualitative, Quantitative, and Mixed Methods approach*. London : Sage
- [20]. Saunders, M., P. Lewis, & Thornhill, A. (2007). *Research Methods for Business Students* (5th ed.). Harlow: Prentice Hall.