

**ENVIRONMENTAL POLICY IMPLEMENTATION IN UGANDA: EXTENT TO WHICH THE DECENTRALIZED NATURAL RESOURCES MANAGEMENT PROCESS INCORPORATES SYSTEMS THINKING**

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**ABSTRACT**

This article examines environmental policy implementation at local government level. The aim was to assess decentralized components that Uganda embraced to improve natural resources management, and ensure effective and capable sustainable institutions. We collected primary data from key actors represented by Kalangala district local environment committees, because this District is currently experiencing a rapid change of the agrarian system from a natural forest tree dominated smallholder agroecosystem to plantation agriculture. Though Uganda apparently embraced a decentralization policy, our results revealed inadequate inclusiveness and sustainability in environmental governance. Each sectoral component was largely implemented independently. Thus, excluding many decentralized components in the environment policy implementation, hence a systemic failure in the sustainability process. This result is likely to impede desired sustainable development. We recommend application of systems thinking for any policy implementation because of sectoral components in systems that function, and impact on others in the process of sustainable development.

Keywords: Environment policy; Decentralization; Systems thinking; agroecosystem; Ecological integrity; Sustainability

## INTRODUCTION

Environment policy in Uganda is the umbrella for all other sectoral policies like agriculture, forestry and health, because of the multiple components within the environment. Each component relates to a sector, whose policies guide actions. As such, the environment policy supports other sectoral policies especially agriculture on which Uganda's economy mostly survives. Its aim is to design principles and guidelines, which enable sectoral components and related institutions to perform with minimal threats to the environment. Therefore, environmental sustainability requires two things; first, effective and capable sustainable institutions as guided by Sustainable Development Goal (SDG) 16. Second, environmental policy principles that ensure sound natural resource management hence sustainable agroecosystems<sup>1</sup>. For effective policy implementation that would cause environmental sustainability, the government of Uganda embraced decentralization<sup>2</sup> in 1997.

### Decentralization

This aimed at addressing the urgent need to improve natural resource governance which had been a problem in the previous regimes (Hartter & Ryan, 2009; Oosterveer & Van Vliet, 2010). Uganda's decentralization policy embraced the principle of inclusiveness to solve natural resource problems rather than centralized governance, where few individuals take decisions towards natural resource management. Sustainability requires the leadership of a multiplicity of actors (Sachs, 2012), ). Therefore, from the district to the village level, local governments, village councils and committees have the mandate to monitor, and manage natural resources. Similar to a bottom-up policy implementation by groups, agencies and expert bodies by Sabatier (2007), decentralization involves the same stakeholders. Nevertheless, without having stakeholders in the entire process, provides no chance to learn from mistakes, which would be perceived as 'experiential learning' by Kolb (1984,p.21), and a process not an outcome (Eksvård, 2009). Policy implementation as a learning process starts from the formulation stage and having all concerned stakeholders on board, thus providing a concrete experience. This makes them active policy implementers, and is a holistic integrative process which creates more knowledge. Kusters (2015) refers to it as the landscape governance involving networks and dynamics. However, even if taking a holistic integrative approach is crucial, probabilistic theories argue that the more agencies involved in policy and program activities, the harder it is to implement them (Pressman & Wildavsky, 1984). This is because more agencies increase the complexity of decision-making and implementation (John, 2012). Nevertheless, agencies' inclusion in the policy process, as seen from Sabatier (2007), increases chances of accepting a policy and reducing implementation obstacles. Besides, the wide range of knowledge is crucial for producing robust policies that would be sustainable in the future. Often, policies fail because they lack an interdisciplinary or multi-sectoral and systems perspective, and in that case, they appear alien to those meant to implement them (Namanji, Francis, & Ssekya, 2016). Alternatively, some programs and projects benefit a few groups, but cause lasting damage to the natural ecosystem.

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<sup>1</sup>An agricultural system, including humans and plants, also understood as an agricultural ecosystem.

<sup>2</sup> A system of governance where the central authority distributes administrative functions within areas [called districts in Uganda].

Therefore, for Uganda, decentralization was a positive step towards managing natural resources. However, it is not yet clear whether decentralized governance inclusion of multiple actors implies prior consideration of all multiple components of a system. Furthermore, the role of decentralized governance in escalation or reduction of forest degradation which is currently over 30 million hectares (NFA, 2015), is not well understood as much as Uganda has decentralized governance and a robust set of environment principles. Probably something that would ensure sustainable and reliable agroecosystems is lacking at policy implementation. Policy formulation research indicated that the environment management policy was not implemented as planned (Namanji et al., 2016). So, where are the policy implementation gaps? With all the uncertainties towards sustainable agroecosystems, we assess the environment management policy process with the help of an Institutional Analysis and Development (IAD) framework Clement (2010) and systems theory (Capra, 1996; Eksvård et al., 2014; Hammond, 1997; Jenny & Russel, 2001; Laszlo & Krippner, 1998). Therefore, in order to identify the policy implementation gaps for which we later provide possible prescriptions, we use the systems theory and IAD framework.

### The IAD Framework

In natural resource management studies, the IAD Framework is one of the various frameworks that support decentralized natural resource management Clement (2010). In the context of this article, the IAD framework is the most relevant. According to this framework, development policies, including that for the environment, would deal with a complex system that involves the interaction of multiple components like social, political, ecological and economic. Thus, it is a complex process with a broad range of sectors, disciplines and actors (Figure 1).

All actors have designated positions within which they perform, and inclusively control assigned actions. Figure 1 illustrates how to solve natural resource management problems arising from consequent power struggles of various actors (Bryant & Bailey, 1997; Clement, 2010 ; Ribot & Peluso, 2003). This is through encouraging participation, Chambers (2010) and coordinated efforts of all concerned actors (Figure 1).

The IAD framework translates into a system when there is viable cooperation and collaborative governance as argued by Apostolopoulou and Pantis (2010), as well as bricolage at all levels (Cleaver, 2002). The policy implementation process is effectively and sustainably coordinated across all government levels. Central and local governments support each other, and there are effective institutions which support sustainable activities. Therefore, each of the working parts in the system plays its role. For example, the central government is instrumental in setting a conducive environment and firm institutions for a constitutional collective choice and operational arena for policy formulation (IFAD, 2011). In addition, an operational arena would enable local governments to effectively enforce, monitor, and regulate resource utilization. It is crucial to discover whether Uganda's decentralization process creates this environment in the policy implementation process. According to Sabatier (2007, p.31), '*theories focus on a framework and make specific assumptions that are necessary for an analyst to diagnose a phenomenon, explain its processes, and predict outcomes*'. The IAD framework is a complement to other theories, for example, the systems theory (Capra, 1996; Eksvård et al., 2014; Hammond, 1997; Jenny & Russel, 2001; Laszlo & Krippner, 1998), because it contributes to better understanding of the systems theory.

## Systems theory

Based on Sabatier's argument, we want to utilize systems theory to focus on the IAD framework, in order to assess effectiveness of decentralized natural resource management towards sustainable development in Uganda. The main reason for systems theory is that it deals with complex systems and interactions within a system such that, focusing beyond our immediate system broadens our understanding of the entire system (Checkland, 1981; Eksvärd et al., 2014; Oner & Saritas, 2005). Since environment issues are complex, and the IAD framework indicated solving these at multiple governance levels, this complexity is the driving force to utilize systems theory through systems thinking<sup>3</sup> as illustrated in the systems architecture for Kalangala district ecosystem, in Figure 2.

In multidisciplinary scholarly such as Armitage et al. (2015); Eksvärd (2009); Kusters (2015); Morin (1992); Steyaert and Jiggins (2007), decentralization is congruent to the systems thinking approach, and is inclusive. However, systems-thinking goes beyond because, it recognizes the complexity of nature and environmental cross-cutting issues, which interact at all levels within the system (ibid). This interaction is valuable for sustainable decentralized natural resource management because, stakeholders are able to understand the complex connectivity of nature and set management plans that would ensure sustainable systems. In this way, while decentralization in Uganda stops at involving a multiplicity of actors in the process, systems-thinking goes further to understand the complex connections and how to deal with all components in the system to achieve sustainable ecosystems.

For instance, is it enough to put in place all the necessary institutions to effectively monitor natural resources, without consideration of inclusiveness, equity and sustainability? Or to devolve natural resource management power to local people who are neither facilitated nor aware of the environmental law?

Previous research such as Arkesteijn, van Mierlo, and Leeuwis (2015); Armitage et al. (2015); Checkland (1981); Clement (2010); Eksvärd (2009); Eksvärd et al. (2014); ICSU (2010); Laszlo and Krippner (1998); Wolf (2011) show the role of systems-thinking. These authors also indicate that a systems approach would deal with various interactions within the system to ensure sustainable use of resources for environmental sustainability, and sustainable development as is also articulated (United Nations Development Group, 2010). Therefore, in this article, we on the one hand, use systems thinking as a critical approach to assessing environmental policy implementation in Uganda. On the other hand, argue that apparently, embracing systems-thinking within decentralized policy implementation would probably lead to Sustainable agroecosystems, Eksvärd et al. (2014), through ecological integrity.

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<sup>3</sup>Complex interactions in which actors use various knowledge for a holistic understanding of the ecosystem in a manner that will promote its long-term sustainability

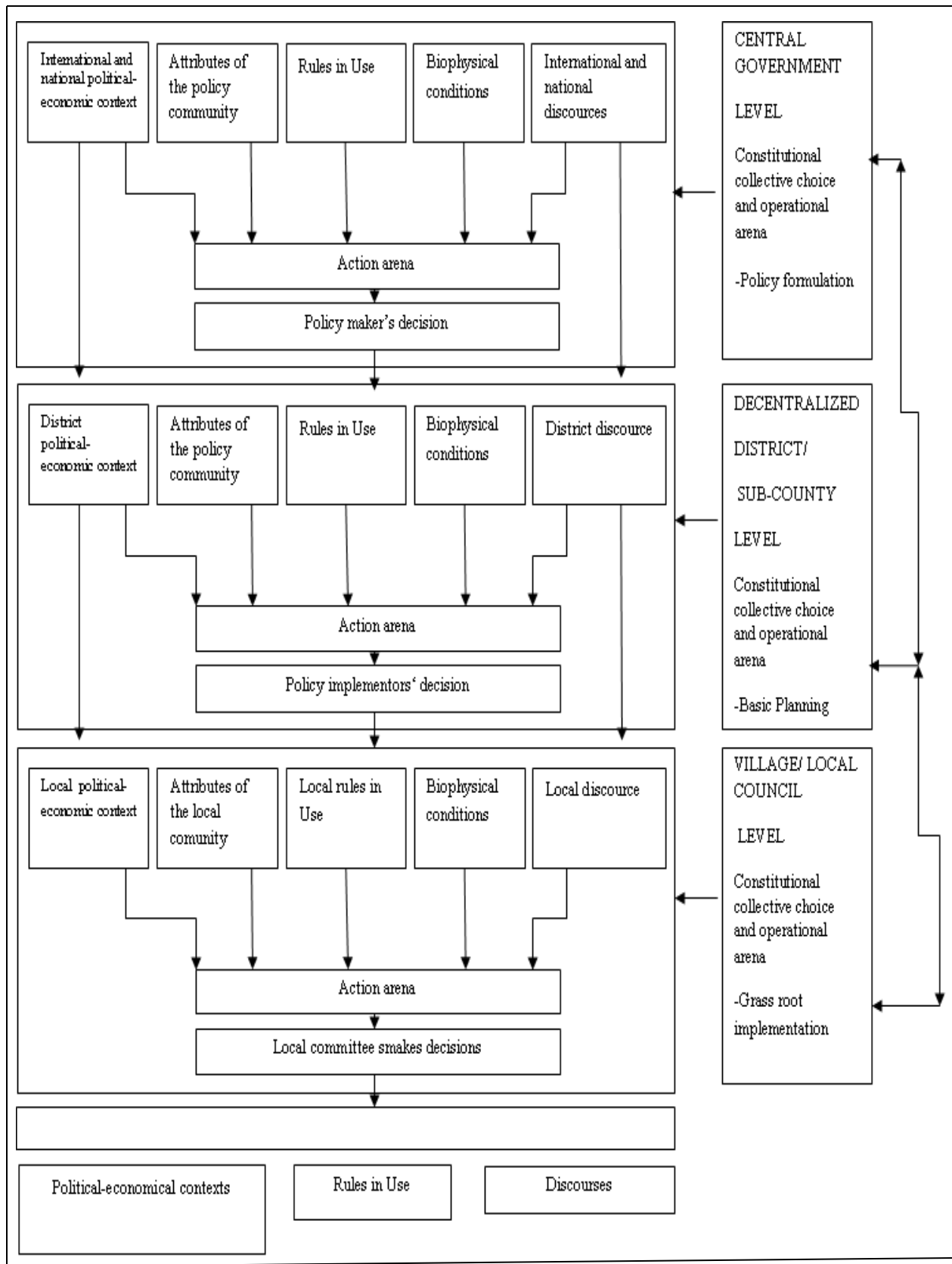


Figure 1 Multilevel mode of governance source: Modified from (Clement, 2010)

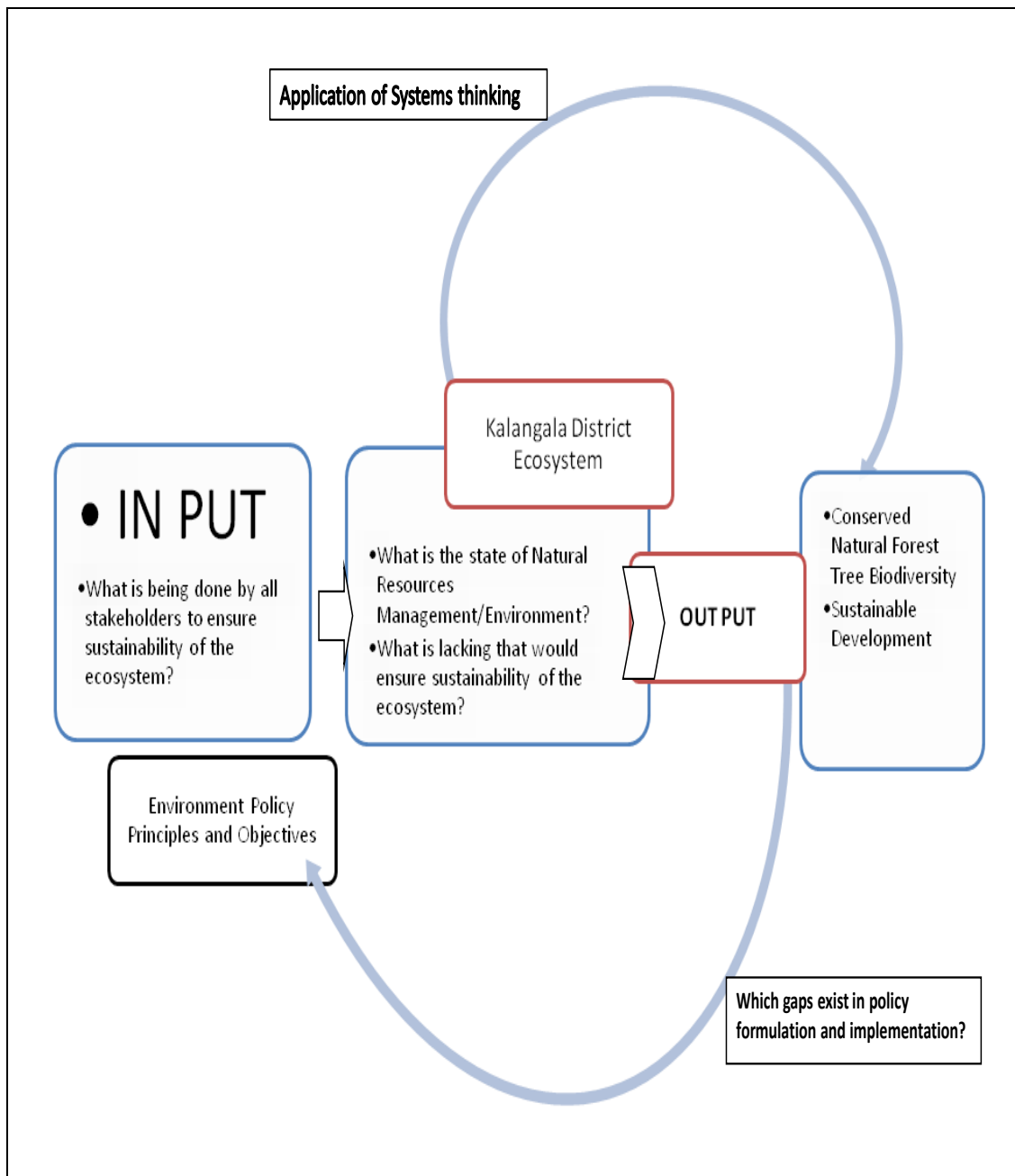


Figure 2: Systems thinking architecture for Kalangala District Ecosystem

### Ecological integrity as undermined by policy process gaps

Ecological integrity is the basis for sustainability of the environment, agroecosystems, and development. All natural resources management systems work towards having sustainable agroecosystems with a variety of components which function interactively. However, the starting point for ecological integrity and sustainable agroecosystems is in the policy process. This is because ingenuity in policy interactions fails to favour sustainable agroecosystems since it creates avenues for natural resources degradation. For example the lack of systems-thinking in policy implementation negates inclusiveness, and leads to degradation of natural forests with their rich biodiversity. As such, it favours monoculture agrarian systems, hence disregarding achieving sustainable agroecosystems. As seen earlier, Uganda took a positive step to embrace decentralization in managing its fragile natural resources. However, reports from the National Environment Management Authority (NEMA) indicate that degradation is escalating NEMA (2000;2006;2008;2010;2014). This implies that, as much as decentralization could be a good approach, there could still be some missing aspects within the components which, if taken care of, would help to improve natural resource management towards sustainable systems. Sustainable systems are self rejuvenating and promote an inclusive strategy. Such an inclusive strategy promotes development activities that meet today's needs without compromising the capacity of future generations to meet their needs (Brundtland, 1985). Sustainable systems therefore cause sustainable development which derives from the realization that the earth's life-support systems need to be safeguarded. It is on these systems and their eco-services that current and future generation depends (Ibid). "Sustainability focuses attention...on the ability of humans to continue to live within environmental constraints"(Robinson, 2004,p.2).

Therefore, our research questions are; which decentralized components did Uganda embrace to improve Natural Resource Management (NRM)? What is missing within these components at policy implementation that would undermine sustainable NRM? These are patterns of behaviour of Kalangala district ecosystem as illustrated in the Systems archetype in figure 3. To answer these questions, we first, identified principles of the local governments' system from the previous and current Uganda Constitution 1995 and 2015, and the Local governments Act (2010), where decentralization is one of the principles of the local governments' systems. Secondly, at the grassroots level, where policy is implemented, we assessed the performance of decentralized components to identify gaps. Section 2 provides detailed methods used in this assessment.

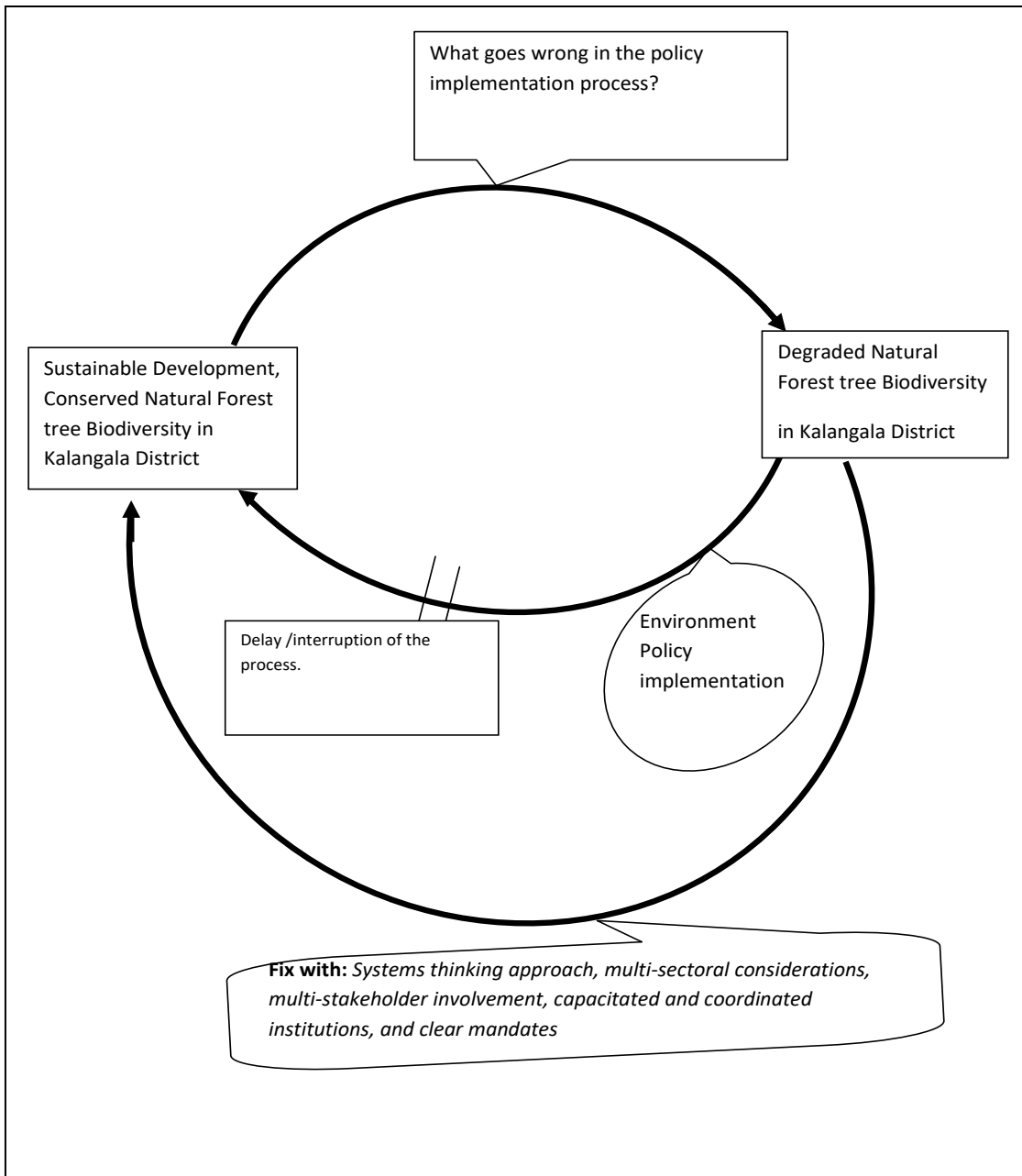


Figure 3 Systems archetype to conceptualize the systems dynamics of Natural Resources Management in Kalangala district. Authors' original diagram



## **MATERIALS AND METHODS**

We reviewed the Uganda Constitution (1995), chapter 11 article 176 (2), and (2015), chapter 11 article 178 respectively, as well as the Local Governments Act (2010), chapter 243. These policy documents guide the decentralization of the local government system. We assessed components of the decentralized local government system. This section presents the study scope, research strategy and its limitations, sampling procedures, data types and collection methods, as well as data analysis.

### Study scope and strategy

We conducted this study in Kalangala district, Ssesse Islands, in Southwestern Uganda. The district is composed of 84 islands, widely scattered in Lake Victoria. We conducted in-depth interviews at the district headquarters and in Bujjumba County, with three sub-counties which included Kalangala Town Council, Mugoye, and Bujjumba. Within each sub-county, we interviewed key respondents and committees responsible for policy implementation at local councils (villages). In addition, we made observations at specific policy implementation sites. Thus, we studied case phenomena in their natural setting (Biggam, 2008). We employed a case study research strategy. We chose this strategy because we wanted to purposively observe further, probe deeply, and to conduct an intensive analysis of each case, given the complex nature of environment issues.

### Sampling procedure

We applied a stratified sampling design, with four levels which included district headquarters, County, Sub-county, as well as village communities represented by environment committees. At the district headquarters, we selected top administration and programme managers. These were from the Natural Resources Department comprised of the Environment, Lands and Survey, Forestry and Wetland Management offices, and were directly responsible for implementing environmental policies. Of the 12 officers, we randomly selected 10 which included 4 females and 6 males. At the county level, Kalangala district has two counties Bujjumba and Kyamuswa. Using a ballot, we randomly selected Bujjumba. This county has three sub-counties (Kalangala Town Council, Mugoye, and Bujjumba). We selected all the three sub-counties. From each sub-county, we purposively selected two local environment committees. This was based on the distance from each other and their active involvement in implementing the environment policy, as reported by the district environment officer. Though the district environment office had earlier formed seventeen local environment committees at the village level, nine were active at the time of this study. To ensure data collection from key individual respondents, we purposively selected two active local environment committees from each sub-county. These included Lutoboka and Mwena from Kalangala Town Council, Kitundwe/Lyabalega and Kitooke from Bujjumba Sub County, Mutambala and Senero from Mugoye Sub County. There were five members of each committee, making 30 key respondents at this level, 11 females and 19 males. The near complete census of officials and local environment committees imply that findings based on these methods would represent a true picture of the environment policy implementation status in Kalangala district.

### Data types

Data comprised of both primary and secondary. Primary data gathered at the district and lower local government levels included assessments of the decentralization components meant to facilitate natural resources management. According to the Uganda Constitution (2015) and the Local governments Act (2010) some decentralization components included devolving and transferring of power and responsibility to the people at appropriate levels; coordinating of functions, powers and responsibilities at all levels/sectors; peoples' participation and democratically controlling decision making; providing a sound financial base for implementing activities; mandating local government units to plan, initiate and execute policies and programs; and local governments monitoring policy projects and programs.

In addition, the Uganda Constitution chapter 15 article 245 (a, b, c) provides for the state to protect the environment from degradation, and to promote sustainable development as well as environmental awareness. We chose to assess the level and ability of local governments to create environmental awareness. In addition, effective natural resource management requires sound institutions (Cleaver, 2002). Therefore, we also assessed institutions for their effectiveness in facilitating policy implementation.

In all assessments, we categorized data into two manageable themes and created subthemes for each theme. The first theme was the institutional set up to facilitate environment policy implementation in the decentralized natural resources management framework. The sub-themes were:

- i) environment committees' awareness on environmental policy,
- ii) ability of local environment committees to create awareness on environmental protection,
- iii) policy programmes provision,
- iv) mandate for environment committees to implement policy,
- v) financial facilitation to implement environmental activities, and
- vi) available institutions to support and accomplish needed strategies.

The second theme was multi-sectoral and multidisciplinary nature of the policy implementation process. The subthemes were:

- vii) the level of sectoral involvement and inclusiveness,
- viii) the participatory level of actors in the decentralized implementation process, and
- ix) power relations in the decentralized implementation process.

Since the research implemented a case study strategy, the main primary data collection technique was face-to-face guided interviews. We used questionnaires with a five-point Likert scale. Discussions, additional observations, digital live photos and voice recorders were also used.

Secondary data was from reviews of the Uganda Constitution (1995,2015), Local governments Act (2010), and various states of environment reports from NEMA (2000;2006;2008;2010;2014). Other literature included scholars' work in which a diversity of actors implement programs and policies related to natural resources (Bastiaensen, Herdt, & D'Exelle, 2005; Henly, 1993; Leach & Fairhead, 2001; North, 1990; Vedeld, 2002; Vira, Dubois, Daniels, & Walker, 1998), and on systems-thinking,

decentralization and natural resource management (Holland, 2007; Namaalwa, 2006; Turyahabwe, Agea, Tweheyo, & Tumwebaze, 2012).

#### Data analysis

We employed both qualitative and quantitative analytical methods to assess environment policy implementation gaps which limit sustainability of natural resources at the local government level in Kalangala district. We analyzed qualitative data within organized themes to optimally bring out the meaning of the collected information (Renner & Taylor-Powell, 2003). Under each theme, we asked specific questions to provide focus for data analysis. We quantified some qualitative data, and analyzed it with Statistical Package for Social Scientists software version 18. We performed descriptive analysis to generate frequency distributions. We used Pearson chi-Square for comparisons between local and district environment committees with  $p < 0.05$  taken as statistically significant. We organized the data into manageable units, synthesized and put it in patterns. We compared secondary data and primary data findings to assess the policy implementation. We used tables and charts to illustrate scores, percentages, and frequencies. The major limitation of the study was the question of reliability, since interviews rely on personal opinion and can therefore easily bias results. However, this was handled first, by interviewing a large sample of key concerned environment committees at both the district and local village levels. Secondly, we used other instruments like observations and an in-depth questionnaire to key respondents, thus allowing the collection of authentic views on each theme.

### **RESEARCH RESULTS AND DISCUSSION**

Management gaps at environmental policy implementation in Uganda as reported in NEMA (2000;2006;2008;2010;2014) showed that as much as Uganda has a robust set of environmental objectives and principles, the systems-thinking approach was lacking in the decentralized natural resources management. Components of the decentralized natural resources management assessed in Kalangala district were either constraining or favourable for sustainable environmental policy programs implementation within the institutional set up and in multi-sectoral nature.

Theme 1: Institutional set up to facilitate environment policy implementation

#### Environment committees' awareness on environmental policy

Results in table 1a) show that 70per cent (21respondents) of the local environment committee members compared to 20per cent (2 respondents) of the district environment committee members were unaware of the environment policy; 26per cent (8 respondents) compared to 50per cent (5 respondents) had moderate awareness. However, 3per cent (1 respondent) compared to 30per cent(3 respondents) of local and district environment committee members respectively were well aware of the policy. All differences were statistically significant at  $p < 0.05$ . Though the level of awareness about the policy is higher at the district, one would expect all environment committee members to be well aware of the environment policy to effectively perform natural resources management for sustainable agroecosystem and sustainable development. These results represent an obvious shortcoming in orientation and training of environment committee members at both levels. Thus undermining Sustainable Development Goal 4, which provides for equitable and inclusive quality education and life-long learning opportunities for all.

#### Ability of local environment committees to create awareness on environmental protection

Results showed that both local and district environment committees were not well aware of the environment policy (Table 1a). As a consequence, ways and extent to which committees created awareness were rated low due to limited facilitation and inadequate knowledge on environment policy objectives and principles (Table 2). This was exhibited especially at the local environment committee level, where the majority members were minimized as a result and could not create awareness. The major cause for the low level of knowledge at local environment committees was that members were often not included in the policy formulation process. Thus, it seemed apparent that a multi-stakeholder approach and inclusiveness are important in the entire process. This enables actors to learn from their mistakes, a concept referred to as experiential learning (Kolb, 1984).

#### Policy programme provision

In the table (1b), findings on the one hand, show that 77per cent (23 respondents) of local environment committee members were not aware of any policy programme aimed at ensuring efficient decentralized natural resources management in Kalangala district. On the other hand, 30per cent(3 respondents) of the district environment committee members acknowledged this issue. In addition, 7per cent (2 respondents) of the local compared to 70per cent (7 respondents) of the district environment committee members said that the policy provides quite well for programs aimed at regulating environment degradation, a statistically significant difference at  $p < 0.05$ . By comparison, it is significantly clear that at the district level, members are more oriented with regard to the environment policy and are able to identify decentralized natural resources management programs aimed at its efficient implementation.

#### Implementation mandate

Results in table (1c) show varied responsibilities of decentralized natural resource management actors. Thus, 13 per cent (4 respondents) of local compared to 0 per cent of the district environment committee members recognized no mandate to implement the environment policy. Furthermore, 60per cent (18 respondents) at the local compared to 20per cent (2 respondents) at the district environment level felt a limited mandate. However, 7per cent (2 respondents) of local compared to 20per cent (2 respondents) of district committee members recognized a moderate mandate, while 20per cent local compared to 60per cent district committee members (6 and 6 respondents respectively) felt a strong mandate. Generally, there was a significant difference between the mandate of local and district environment committee members to implement the environment policy. The limited mandate of the local environment committees is attributed to the limited stakeholder inclusiveness and involvement, participation and coordination, which reduces awareness, provides limited authority, and promotes inadequate facilitation of decentralized natural resources management. Besides those, there were tendencies of top political officials overriding, and being supported by district administrative units, in spite of the fact that decentralization of natural resources devolved power to local environment committees. According to Clement (2010), the different working parts as actors should have designated positions, designed to perform assigned actions and having control of those actions. In spite of the observed systems failure of decentralized natural resources management to implement objectives and principles of the environment policy, there was provision for facilitation of the process.

### Financial Facilitation

In the table (1d), results show the extent of environment committees being facilitated to carry out their duties. While 77 per cent (23 respondents) of the local environment committee members reported receiving no facilitation to implement environment policy activities, 30 per cent (3 respondents) of the district committees were facing the same dilemma, yet 20 per cent and 50 per cent of local and district environment committee members, respectively, said they had limited facilitation. Furthermore, 3 compared to 20 per cent of local and district respectively, had moderate facilitation (1 and 2 respondents respectively). None of the environment committee members either at local or district levels expressed having been well facilitated to carry out environment related activities. Generally, there was very limited facilitation to environment committee members to implement environment related activities. However, there were institutions to support decentralized environment policy implementation.

### Institutions supporting committee members to fulfil decentralized strategies for environmental policy implementation

Respondents reported institutions, which the central government had put in place to support them, fulfil each of the above-mentioned strategies. Those most frequently mentioned were the National Environment Management Authority (NEMA), National Forestry Authority (NFA) and the Police as described in respective subsections below.

Generally, results showed that institutions backstopping decentralized natural resources management have a low level of performance, give priority to investment and social services, and are subject to bribery and corruption. These factors all lead to conflict between conservation and sustainable development. The observed inadequate coordination of institutions is fostered by the absence of an inclusive and sustainable mechanism to ensure efficiency of sectoral and local authority agencies' responsibilities as well as activities related to sustainable natural resources management. These similar gaps were identified by other scholars where, on various occasions programmes are implemented independently of local authorities because of institutional and organizational failures (Apostolopoulou & Pantis, 2010; Engel & Palmer, 2011; Nelson & Agrawal, 2008).

Table 1a, b, c, and d: Committee members' level of policy awareness, program awareness, implementation mandate and facilitation

Questions	Responses	Local Environment Committee	District Environment committee	P value
<b>1a)</b>	Unaware	70	20	.007
How aware are you of the environment policy?	Moderate	26	50	.008
	Well Aware	3	30	.002
<b>1b)</b>	Not at all	77	30	.000
How well does the environment policy provide for programs implemented in this district aimed at regulating environmental degradation?	Moderate	17	0	.000
	Quite well	7	70	.000
<b>1c)</b>	None	13	0	.028
To what extent do you have the mandate to implement any of these programs towards effective management and control of the exploitation of natural resources in this district?	Limited mandate	60	20	.020
	Moderate mandate	7	20	.005
	Strong mandate	20	60	
<b>1d)</b>	Not at all	77	30	.021
To what extent have you been facilitated to do your job?	Limited	20	50	.025
	Moderate	3	20	.006

Source: Primary data. All figures are in percentages

### **National Environment Management Authority (NEMA)**

A total of 14 respondents mentioned NEMA. 43per cent (6) of those respondents who mentioned NEMA said that first, it had low performance because they were not on the ground to support the decentralized natural resources management, particularly local environment committees. Secondly, NEMA was reported to have less autonomy, as the reason why natural forests tree biodiversity was being degraded. Due to high degradation of natural resources, members suggested the urgent need to restore the lost natural forests tree biodiversity, and central government to provide an enabling environment for NEMA to carry out its duties as an autonomous institution, as well as to train local environment committees.

### **National Forestry Authority (NFA)**

At the same time, 12 respondents mentioned NFA. Of those, 50per cent (6) respondents said NFA had low performance in the decentralized natural resources management, while 42 per cent (2 respondents) said there was moderate performance. Reasons for the low performance were that NFA's stake was mostly in gazetted forests; had limited authority since sometimes central government overrides by giving priority to investors other than NFA which is a decentralized natural resources management backstopping institution; and that NFA has not been able to reach some natural forest areas, in Kalangala District. This has increased the rate of natural forest destruction and hence the failure of the decentralized natural resource management. Members suggested that "NFA works with other private natural forest owners other than having a stake in only gazetted forests" (Interview). They also called for "more enforcement by recruiting foresters and merging NFA with the district forest service" (ibid), though there was the police as an enforcement institution.

### **The Police**

Twenty out of thirty environment committee members mentioned the strategy of engaging the police. Out of those, 60per cent said police had low performance in decentralized natural resources management because it was constantly bribed by NFA officials to protect timber loggers. Besides, their knowledge on environmental issues was limited, and so they had little passion for implementing the environment policy. The police were reported to be slow in performing their duties and to rarely interact with the grassroots. Respondents suggested a special well-trained police unit purposely for environmental policy implementation. It was also proposed to involve stakeholders in decision making processes, and to support on-going decentralized natural resources management activities instead of waiting to address mistakes. This is a manifestation of lack of systems inquiry and systems-thinking in decentralized natural resources management. It is an indicator of ingenuity, and lack of inclusiveness and cohesion in partnerships between central and decentralized governance. The obvious result would be unsustainable natural resource management as was submitted by many actors in the policy implementation process.

Table 2: Environment committees' level of ability to create environmental protection awareness

* Level Cross tabulation				<b>Level</b>		<b>Total</b>
				Local Environment Committee	District Environment Committee	
To	what	Not at all	Count	3	0	1
degree	has the	Low awareness	Count	13	0	4
committee		Moderate	Count	60	70	25
created		awareness				
awareness	of	High awareness	Count	23	30	10
environmental						
protection?						

Source: Primary data. All figures are in percentages



In conclusion, findings on the theme ‘institutional set up to facilitate environment policy implementation have generally shown that there is a weak institutional capacity of the decentralized natural resources management to implement the environment policy. This is exhibited by the limited knowledge on environment policy, the limited mandate of environment committees to implement the policy, and the lack of facilitation to carry out activities to support implementation of environment policy activities. In addition was the low performance of available institutions as results have exhibited. More than ten years later, these field results conform to the secondary findings from the various state of environment reports (2000/01, 2006/07, 2008, 2010 and 2014) as issues affecting sustainable environment management. Note that a strong institutional setting as shown by Cleaver (2002); Sachs (2012) forms the foundation for successful implementation of development policies and programs. Therefore, based on the above findings, decentralized implementation of the environment policy in Kalangala district fails to take into account the relevant systems components. This promotes continuous degradation of forest resources, leading to loss of ecological integrity and to unsustainable agroecosystems on which all living organisms survive.

## Theme 2: Multi-sectoral nature of the environment policy implementation process

The subthemes explored in this second theme included the level of sectoral involvement, the participatory level of actors and power relations in the policy implementation process as presented below.

### Level of sectoral involvement

Some sectors mentioned under this subtheme were fisheries, health, education, and tourism, and were all mandated to work with NEMA. For most of these sectors, the level of involvement was moderate. There were no reports of involvement of the private sector. However, low involvement of the private sector, is presented as one of the limitations of the Millennium Development Goals (MDGs) (Saith, 2006). Furthermore, ecological integrity and sustainable development, requires collaborative governance, inclusion of civil society in environmental management activities, embracing the private sector and facilitating win-win solutions (Apostolopoulou & Pantis, 2010). From the systems-thinking perspective, sectoral involvement and interaction, as presented by ICSU (2010) improve multi-sectoral participation and networking (Figure 4).

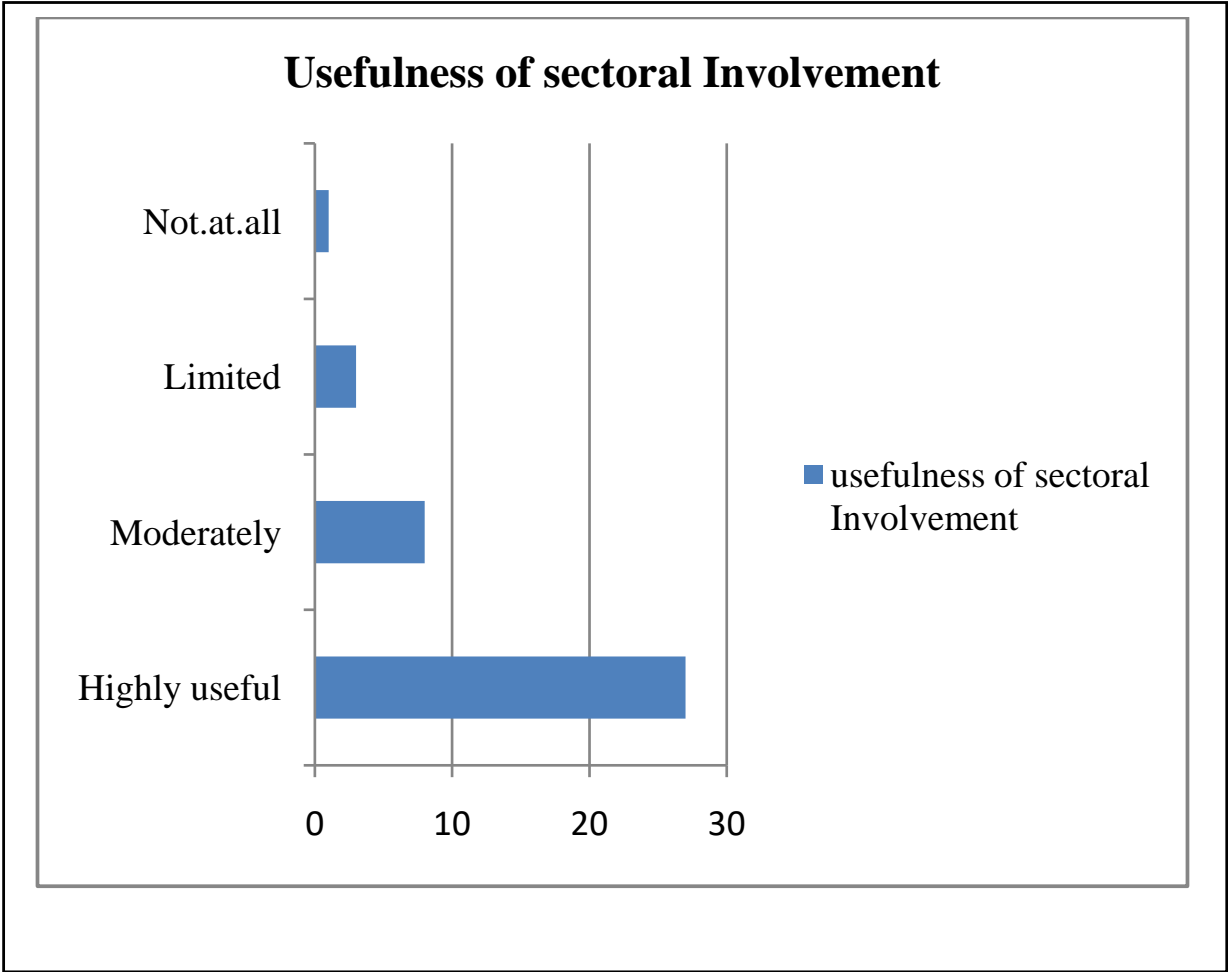


Figure 4: Usefulness of sectoral involvement N=40

### Participatory level of actors in the implementation process

Frequencies of specific responses indicated a moderate rate of participation among respondents as shown in figure 5.

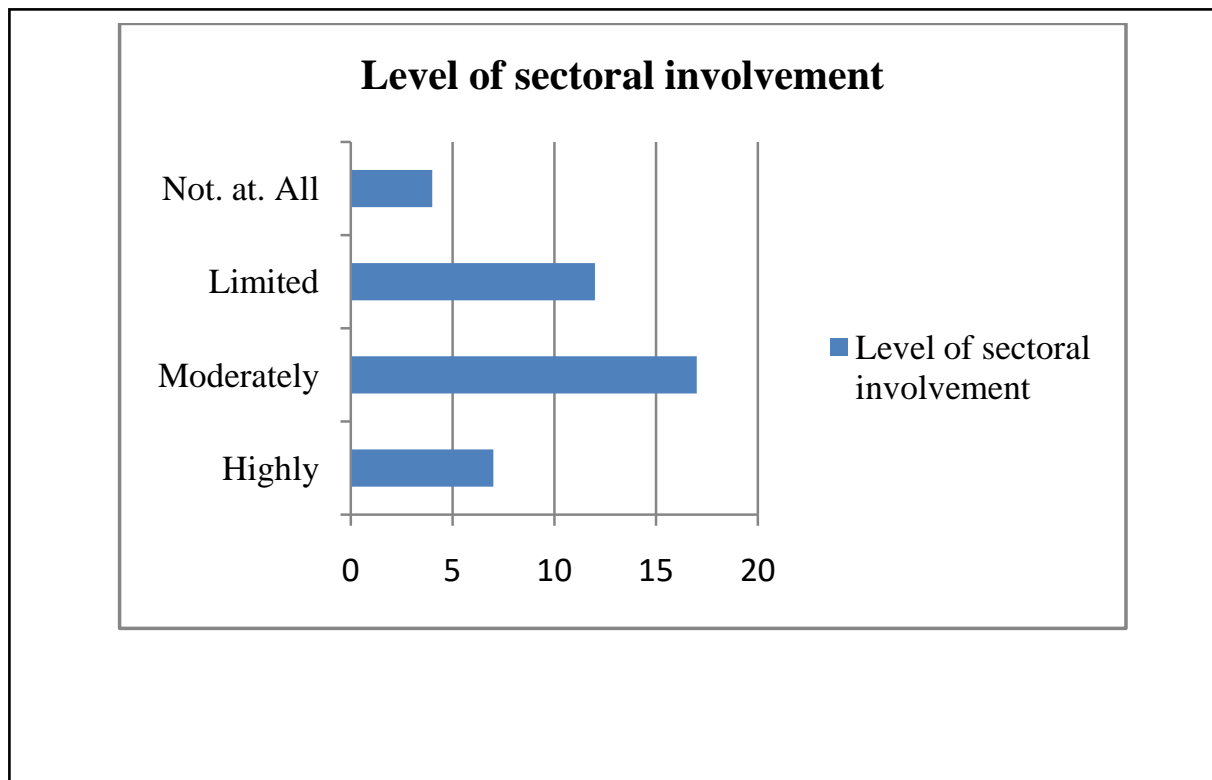


Figure 5: Participatory levels of actors in the policy implementation process

Respondents mentioned low motivation as the major cause of moderate participation in decentralized natural resources activities. Other causes included corruption in the system, power relations especially when men look down on women because they are less powerful, and lack of participation by women because of other household chores. Even though women were less represented in the survey, our field observation was that those who took part were more active, and willing to volunteer though they expressed sadness because of not being facilitated. These results are in line with what Marianna and Natalia (2016) found out on gender and emotions in an environmental game. Other challenges included first, gaps in coordination of the decentralized natural resources management to bring all actors together. Secondly, underestimating talents of environment committee members, and thirdly conniving with local council leaders to abuse the implementation of the environment policy due to friendship and nepotism. At the same time, the police and local council members were not adequately trained on their duties. However, effective natural resource management calls for participation and coordinated efforts of all concerned actors, set as a firm ground for solving environment policy implementation challenges as was also reported by Chambers (2010).

### Power relations in the implementation process

Results in figure 6 indicate that 43per cent of decentralized environment committee members do not relate well with the central government officials, as compared to moderately good relationships with local people and other sectors. Similar findings were in the state of environment reports and by Hartter and Ryan (2009). These show the presence of poor communication between the central government, local governments, and the grassroots levels. As a result, many decisions for decentralized natural resources management took place without the knowledge and participation of local governments, thus rendering decentralization meaningless. This was exacerbated by lack of strong enough institutions to remedy the situation Bazaara (2003); (Hartter & Ryan, 2009; Nelson & Agrawal, 2008; Oosterveer & Van Vliet, 2010; Titeca, 2011), and by inadequate financial facilitation for enforcement and intervention.

Other observations

In spite of the two themes presented above, respondents made additional comments that were worth our attention. These included decentralized natural resources management programme activities, and strategies.

Decentralized natural resources management programme activities at the district to facilitate environmental policy implementation

Among the activities in place for curbing environmental degradation, tree planting was the most frequently mentioned with 23 out of 30 committee members. It was followed by forest preservation and prevention of polythene litter. The frequent mentioning of tree planting and forest preservation send a signal that committee members were concerned about the failed decentralized natural resource management which caused the current natural forest tree biodiversity loss that needs immediate attention. However, as much as the environment committees were interested in improving implementation efficiency, the unavailability of appropriate tree seedlings was reported as a major challenge in the tree planting programme.

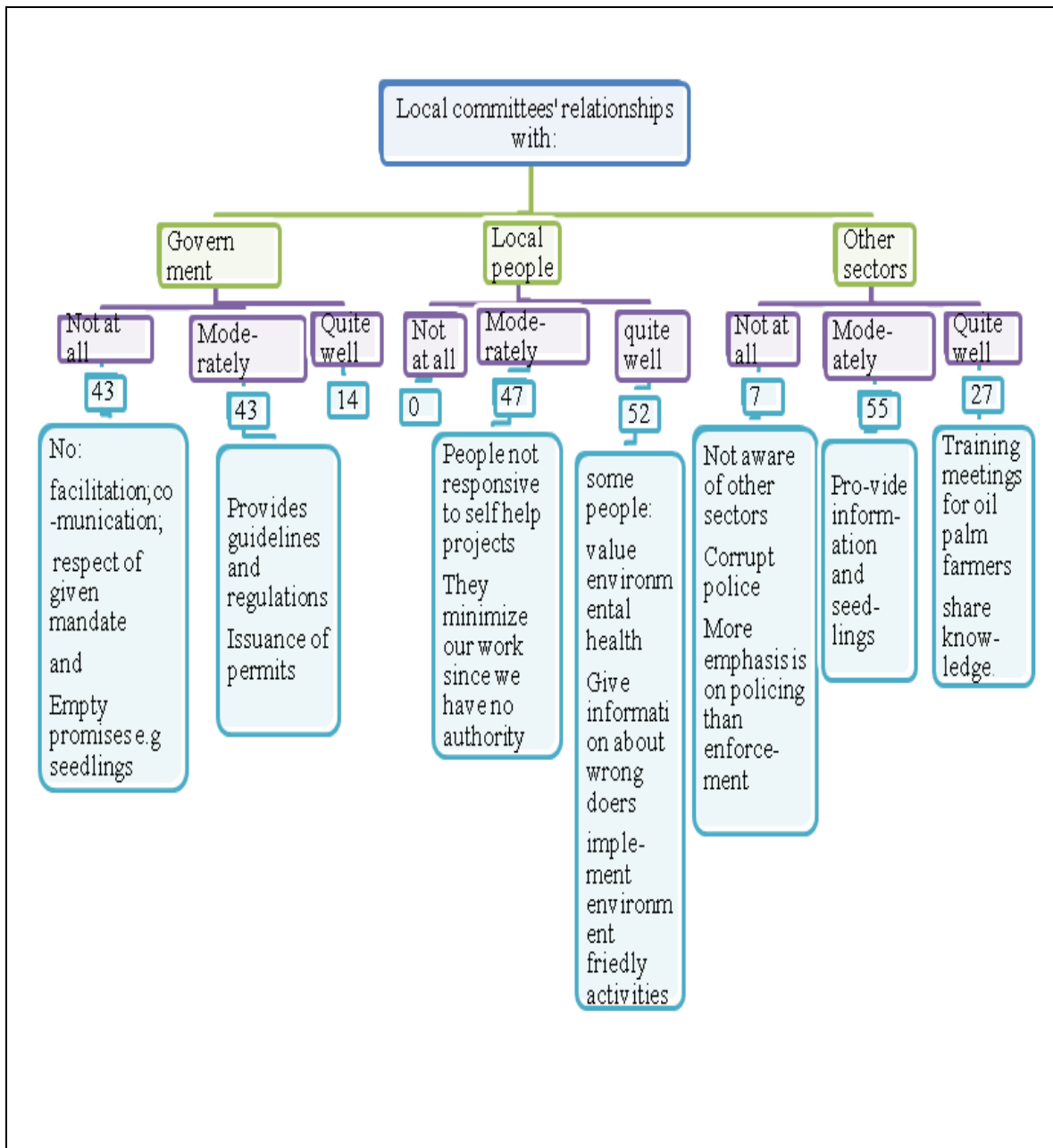


Figure 6: Power relations in the policy implementation process: all numbers are in percentages Source: original diagram with primary findings.

### *Decentralized natural resources management strategies for effective environment policy implementation*

Respondents reported the most common decentralized natural resources management strategies for effective implementation of the environment policy. Those mostly mentioned were lobbying and advocacy for environmental conservation and sanitation with a frequency of 16, followed by community policing with 12, and compliance assistance with a frequency of 10. Others were village meetings, village radio, local leaders' active participation, commanding/forcing participation, political leaders' involvement, applying the polluter fine principle, monitoring staff performance and staff technical committee meetings. The most common reason for tree planting lobbying was that majority respondents witnessed the high rate of natural forest tree biodiversity loss to timber logging and large scale oil palm plantation agroecosystems. Moreover, replacing the lost natural forests can only be successful when it is done as an inclusive concerted effort, with a bottom-up approach, at a landscape level, and with meaningful participation (Cleaver, 2002; Kusters, 2015; Sabatier, 2007).

The identified decentralized natural resources management strategies were then rated in terms of relevance, effectiveness, and flexibility. Results showed that lobbying and advocacy for environmental conservation and sanitation within communities were the most relevant, effective and flexible. This is likely to have been caused by small communities, thus using community announcements to mobilize stakeholders or a one-to-one approach was found easiest. This is in line with Cleaver (2002) and Merrey and Cook (2012) argument that natural resource management is more effective when there is the use of socially embedded institutions. The authors present the notion of 'institutional bricolage' which suggests collective action founded on existing institutions, styles of thinking and sanctioned social relationships, which make the process more inclusive Merrey and Cook (2012, p.8)

## **CONCLUSION**

This article has unearthed a multiplicity of implementation gaps. Identified gaps in decentralized institutional governance, coordination and facilitation led to failure in implementation of the environment policy. This poses threats to sustainable systems and development in Kalangala district. This article showed that sustainable systems require ecological integrity through sustainable natural resources management. Sustainable development happens with a multi-sectoral consideration where there is inclusive governance, linking agencies, institutions, and structures as well as networks on environment programs (Griggs et al., 2013; Sachs, 2012). The systems-thinking approach that missed in the decentralized components would have played a role in bridging identified policy implementation gaps. Therefore, the need for a systems thinking approach is highlighted because it would provide avenues for a multiplicity of stakeholders not just to participate but also to interact meaningfully throughout the environment policy process. This is important for building functional and effective institutions that provide access to rights, resources and opportunities for optimum participation. Furthermore, it promotes bricolage or negotiation as was also reported by Cleaver (2002); Merrey and Cook (2012) in multi-sectoral arenas and at all multilayered governance levels, and is key to the creation of awareness.

Previous research by Namanji et al. (2016), reported inadequate institutions, participation and coordination to guide the processes of policy formulation in Uganda. Results of the current research have also shown that much as Uganda embraced a decentralized natural resource management, its practical results seem minimal due to ineffective institutions to regulate and enforce policy implementation.

In this article, we answer earlier raised research questions. i) By reviewing the Uganda Constitution (1995, 2015) and the local governments Act (2010), we identified decentralization components. ii) Through interviews, we identified policy implementation gaps including first, ineffective institutions to enable local governments and other stakeholders to exercise the authority devolved to them; secondly, lack of meaningful interaction, effective relations, and participatory implementation platforms to properly implement environment policy, strategies and related activities towards managing natural resources; thirdly, inadequate political will and capacity in the decentralized natural resources management process, majorly due to lack of facilitation; fourth, the lack of access to environmental information; fifth, local environment committees had a very limited mandate, thus were ineffective in managing natural resource strategies. Consequently, much as decentralizing natural resource management is a good practice, it has not led to the anticipated success in Uganda. It retards sustainable development, and therefore fosters the systemic failure that the Uganda government wanted to overcome in 1986. This threatens Uganda's achievement of SDGs by 2030.

From these findings, therefore, the environment policy implementation in Kalangala district fails to take into account the relevant components of the system. If decentralization goes beyond by incorporating systems-thinking approaches that cater for cross-cutting issues, this could probably be a step towards environmental health, conservation of natural forest tree biodiversity and sustainable agroecosystems. For a systems-thinking approach would first, enable identification of gaps in policy planning and implementation as a learning process guided by Kolb (1984). Secondly, have a holistic understanding of the entire process and at the landscape level (Kusters, 2015; Wolf, 2011). Third, ensure meaningful inclusion of institutions and stakeholders who share knowledge and are able to engage in bricolage Cleaver (2002); Merrey and Cook (2012), at all levels and having required facilities/ resources for environmental governance.

Since environment is a generic issue, but with many field forces hindering its success, our suggestion for further research is to do a force field analysis in which we can explore these challenges in comparison to other studies done elsewhere, so that we examine how policy implementation has been operationalized in the field and develop a systems-thinking checklist to inform environment policy implementation and operationalization.



Figure 7: Map of Uganda showing the study area

Source: <http://www.worldatlas.com/webimage/countrys/africa/ug.htm> Cited on 26/08/2016



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