

Land resource regimes in Zambia: Implications on local food systems

ABSTRACT

Aims: To assess the significance of land resource regimes and their implications on rural food systems in Zambia.

Methodology: Literature review of government reports, legislature, journal articles, books and any published material on land resource governance in Zambia.

Findings: The country's land resources are governed either through statutory or traditional/customary regimes. Statutory governance is characterized by recipients having exclusive ownership rights to utilized resources while customary resources are under traditional authorities and recipients utilizing customary resources have no exclusive ownership to the resources. Land under customary governance is responsible for most of the food produced for rural and urban consumption. Sustainable governance of these land resources translates into sustainable management of food systems. The study identified allocation of exclusive land and resource property rights to local food producers, devolution of powers from the central government to locals, regulation of urban demand for resources, site-based resource governance, promoting conservation agriculture among local producers and building resilience of food systems towards shocks and stressors as means to improve management of land resource for sustainable food systems.

Conclusion: Natural resource governance in Zambia needs to embrace approaches allowing for innovation, diversification and possible intensification in rural food production.

Keywords: Customary, statutory, land, food security, regime, governance mechanisms

1. INTRODUCTION

Governance of natural resources (NRG) entails the exercise of authority and power, decision making processes and local citizenry involvement in these processes. NRG is influenced by institutions and local cultural norms for purposes of enhancing sustainable management and sustainable utilization of natural resources [1]. NRG differs from natural resource management (NRM) which involves the conservation and development of natural resources such as forests, wetlands, fisheries, game preserves and parks. While NRG provides for natural resource regimes through legislature, NRM is the supervision and handling of the natural resources. Effective NRG starts with the central government devolving powers to the locals so that issues affecting them can be managed locally [2].

Human utilization of land and influencing governance regimes exhibit diversity and dynamism in the long term [3]. Depending on the developmental need, traditionally managed land resources could be gazetted to become state owned/managed [4] in order to pave way for developments that may require long term ownership and investment such as mining. A formally gazetted area, such as a forest, could be de-gazetted to allow for such activities as agriculture [5]. This was the case when the government of the republic of Zambia de-gazetted Misaka, Kakolo and Maposa forest reserves in 1998 to provide land for small-scale farmers, Kaniki forest reserve in 2014 to provide farm plots to small scale farmers or Ichimpi Reserve Forest to provide plots for squatters [5; 6; 7]. Granted, gazetting of land resources due to agriculture extensification is one of the causes of deforestation and loss of biodiversity. However the Environmental Management Act of 2011 provides for the president of Zambia to de-gazette land to pave way for other land uses. As the world emphasizes on the need to find effective ways of preventing deforestation and enhancing biodiversity [8], there is a need for effective NRG to ensure political benefits do not outweigh environmental concerns when political actors make decisions over common resources.

Resource governance systems are premised on practices, governing principles and existing institutions that communities adhere to in their utilization of shared resources [9]. This is mostly true with shared resources which are managed communally. Governance is deeply rooted in the cultural traditions of the communities benefiting from the resources. Even in such cases, long term benefits to the host communities only accrue when utilization is sustainable. This ensures that the available resource governance systems are able to respond quickly and flexibly to social and environmental perturbations [10].

The majority of natural resources in Zambia such as land, forestry, fisheries and water are either owned or controlled by the state or traditional authorities. However, these main controlling authorities have allowed for private leasehold and management of certain portions of the resource particularly land which could be placed under private leasehold. Certain resources such as fisheries, forestry, water, game etc. still remain under the control of the state or traditional authorities. These are shared resources utilized for public good. Effective governance of shared resources starts with establishing management regimes strong enough to influence human behavior's ability to attain set goals yet still be operational in the long term, and robust enough to withstand external forces capable of destabilizing the system [11]. However, there is a current increase in privatization of these resources as the trend of individuals leasing land resources increase. Private leasehold of resources is a global trend [12; 3]. Such ownerships increase the active interaction between private and public resource governance institutions.

In spite of the increasing trends in land ownership among the private sector, inhabitants of customary land still remain without legal ownership of the land they inhabit. Considering customary land houses the majority of small-scale farmers than statutory land, it is an important contributor to Zambia's food sufficiency. Zambia has over 90% of the rural population engaged in small scale farming using customary land [13]. These small scale farmers contribute 65%, 75% and 85% of the total maize (*Zea mays* L.), groundnuts (*Arachis hypogaea* L.) and sorghum (*Sorghum bicolor* L.) produced in the country, respectively [14]. Yet the lack of permanency on the land utilized by these farmers could have affected long term investment on such customary land and hence hindered their potential for improved productivity. The aim of this study was to assess the significance of land resource regimes and their implications on rural food systems in Zambia.

1.1 Governance of land resources in Zambia

Land resource governance is at the core of human relationships with processes managing the biological and physical cycles [15]. Currently, communities are facing challenges of rapid change, increased environmental risk, inadequacies in agriculture policies, increased land degradation, cultural and biodiversity loss, livelihood insecurity and chronic hunger among agricultural communities [16]. These factors are important destabilizers of rural food systems. Land resource governance in Zambia starts from the top to bottom placed institutions. The Land Act of 1995 [17] places ownership of land resources in the Presidents hands. This implies that whether the land is statutory or customary controlled, the President is the ultimate authority over governance of such land. As such, the president can sanction either the gazetting or de-gazetting of any land resource upon recommendation from institutions mandated with management of natural resources. Professional bodies such as the Zambia Environmental Management Agency (ZEMA), The Ministry of Lands, Environment and Natural Resources (MLENR) as well as locally placed District/Municipal councils oversee land management issues at different hierarchical levels. Livelihoods are affected by the interplay between policies, institutions, processes and power relations influencing resource governance. The institutions set the policies which dictates processes followed in resource utilization at the local level. These influencing mechanisms are collectively known as governance mechanisms.

1.1.1 Policy

Policy involves standards and principles governing land resource management and utilization. These standards and principles provides guidelines which influence and enforce human behavior for the

purpose of not only managing but also regulating utilization of available land resources. Zambia follows a multi-sectorial system of natural resource governance. Environmental management issues are governed in the framework provided by the National Policy on Environment (NPE) of 2007 [18] and the Environmental Management Act (EMA) of 2011 [19], which are supported by many other policies and strategies developed for other sectors such as the Land Act, Forest Act, the Wildlife Act, the Water Act and the Fisheries Act.

Rural communities have also set up their own guidelines (customary laws) governing the use of their available resources. For example in rural areas of Singani, Choma District, where the locals are smallholder farmers, use of forest resources is mostly restricted to Non Timber Forestry Products (NTFP), with the exception of individuals who encounter crop failures and might need to engage in charcoal production for survival till the next growing season [Chief Singani, personal communication, April 16, 2015]. In this case, permission is sought from the traditional authorities who select particular trees which could be cut and how they should be cut to enhance regeneration. These customary laws within communities are enforced by traditional authorities.

1.1.2 Institutions and Processes

Institutions are organizations mandated with the responsibility of overseeing access, management and utilization of land resources. In Zambia, this responsibility lies with the Ministry of Lands, Environment and Natural Resources (MLENR) which oversees policy implementation and regulations governing resource conservation, utilization and ensuring resource sustainability. The ministry has departments within different districts. However, the EMA of 2011 also provided for the establishment of the Zambia Environmental Management Agency (ZEMA) which is charged with ensuring sustainable management and protection of the environment [19]. This body is responsible for implementation of activities of all ministries and conservation authorities relating to the environment.

A 'process' in land resource governance is an established practice or procedure that dictates how resources are utilized or managed [1]. Processes provide methods of conversion of policies by institutions into practice at different levels. Processes in resource governance regulate practices of access and use of land resources, decision making, conflict resolution, innovation and capacity building. They can also help in enhancing principles which can direct the design of governance institutions and establish their legitimacy, transparency, accountability and inclusiveness [20]. For example, before one can have absolute ownership to land in Zambia, there are established procedures which lead to issuance of a title deed that proves ownership. Similar but different procedures are established for other natural resources. Processes ensures that these governance institutions exhibit functional and structural integration, capability, and adaptability and serve as a platform for developing governance monitoring and evaluation instruments which are crucial for self-assessment and external audit purposes as regards NRG performance [20].

2. STATUTORY VS. CUSTOMARY MANAGEMENT OF LAND RESOURCES

Natural resources in Zambia are either under state management or are managed customarily by traditional authorities. Land is the most important natural resource in Zambia as it forms the basis for local livelihoods [21]. Zambia has 47% of its total available land classified as arable and useful for crop production [22], but only 15% of this arable land is currently used for crop production [23]. Difficulty in accessing some of this arable land due to lack of infrastructure such as roads has prevented its exploitation. Most of the accessible land in opened up areas has been occupied and is being used for agriculture. The rapid population growth and the ease of entry into the agriculture industry has resulted in increased pressure on the opened up lands. The rest of the land is either gazetted as National Parks, Game Management Areas or forests. Some of the available arable land is not used for arable agriculture as it is located in remote areas and would require heavy investment such as roads and public services to make it accessible and usable to smallholder farmers [24]. Patterns of distribution of land within the customary tenure are still largely unknown [25].

Arable agriculture is the mainstay for the majority of households in Zambia [26]. At least 80% of the farming households in Zambia are smallholder farmers [27]. These smallholder farmers represent over 90% of the rural population and 88% of the farming population in Zambia [28]. Most of these farmers are resource-poor farmers who depend on customary land for their livelihoods [29]. Most of these farmers, however, conduct their agriculture on traditional land which they do not have titles to.

Land in Zambia is held under the control of the president and can be leased to citizens over a period of ninety-nine years through the Ministry of Lands [19]. However, very few smallholder farmers manage to acquire such statutory land due to costs and legalities involved in acquisition. Hence most farmers opt for traditional land which is easier to acquire through traditional authorities. Ownership of traditional land, however, is not transferred to farmers and remains under the control of traditional authorities [25]. The lack of land ownership by farmers makes it difficult for smallholder farmers to introduce long term projects on land which they have no absolute ownership to. Statutory and customary resource governance differs in the resource ownership rights attached to each. State land is usually open to private lease unlike customary land. While traditional authorities have the mandate over customary land tenure, they are usually powerless in state land tenure, hence not always eager to approve change of land tenure systems. Conversions of customary land to state land means traditional authorities relinquishing their power and this often undermines the authority traditional leaders have over the land [30]. Customary land tenure often discourages huge private and long-term investment due to its lack of security because of weak personal ownership schemes. The hazy security nature of the customary land tenure system makes it difficult for investors to plan in the long-term. Often this has resulted in traditional land being less developed.

Traditionally managed resources can change tenure to statutory when gazetted. Whenever the potential for a developmental project is identified on land under customary tenure, ZEMA consults with the traditional authorities responsible for that particular resource before sanctioning the project. Both parties have to agree before a particular developmental project would be sanctioned. A failure on either party to agree often results in the project not taking off. On the other hand, if a consensus between parties is reached, the resource in question is gazetted. ZEMA still has the authority to overrule traditional authorities if the sanctioned project is deemed to poses adverse impacts on the environment. De-gazetting of a resource happens if a formerly restricted resource gets encroached. For example, a forest encroached for smallholder agriculture can be de-gazetted and converted to agriculture land.

The enactment of the Land Act of 1995 coincided with the increase in cases of customary land resources being converted into leasehold tenure. The exacerbated rates of conversion have been due to the Act affirming such conversions. Section 8 (1) of the Land Act of 1995 states that, "... any person who holds land under customary tenure may convert it into leasehold tenure not exceeding ninety nine years on application" [30]. Furthermore, section 8(2) provides for foreign companies or government to obtain any land as long as the individual or institution proves that they are investors and obtains a presidential consent which is issued by the commission of lands. This highlights political will or interference as another cause for change in resource governance. It is this clause which provided for the settlement of many white commercial farmers who were forced to leave Zimbabwe between 1999 and 2008, to settle in Zambia. The land on which these farmers were settled had to be state land to allow for long-term secure investment.

Land resources have also changed governance regimes whenever a valuable mineral resource is discovered on customary land. In such cases, a cost-benefit analysis of converting the land from its current use to a mining area would often be conducted and based on the results, the land could either be gazetted or not. Traditional authorities responsible for the land under which the resource is situated would often have to give consent before the project is implemented. Other developmental projects such as construction of a national stadium, schools, hospitals, shopping malls have all resulted in a change in tenure of the land resource affected.

3. HOW ARE LOCAL FOOD SYSTEMS AFFECTED BY THE LAND RESOURCE REGIMES IN ZAMBIA?

Global environmental change, biodiversity loss, land degradation, change in hydrological regimes, change in climatic patterns due to anthropogenic greenhouse gas emissions, growing demand for food both in rural and urban communities have had consequences on food security and food systems [31]. These are governance issues which affect both livelihoods and resource security. The purpose of every form of resource governance is to achieve economic and food sustenance at the same time sustainably managing available resources. The state of how healthy a community's food system will be in the long-term is measured by its current vitality and sustainability [32]. Designing simple sustainable local food systems rooted and sustained locally can provide the stability and vitality necessary for improving economic viability, social equity and ecological protection at a local level. Hence resource regimes should improve availability, access and utilization of resources and do so sustainably.

3.1 Food availability

Customary land tenure is the most common form of land acquisition in most rural areas of Zambia. Agriculture is the mainstay for the majority of households in communities under customary tenure. These communities are the food producers hence production is their most important attribute of food availability. Households have to either depend on their produced food for sustenance or engage in exchange at agriculture markets or with other farmers who have what they need [33]. Rural households in Zambia represent subsistence farmers who are perpetual producers of the staple crop for consumption and occasionally selling off their surplus [34]. Hence the size of land available to them determines the amount of their produce and eventually their food availability and income. Increase in production for these households is largely due to agriculture extensification rather than intensification, hence the bigger their land, the higher their crop production [35].

Urban based communities in Zambia are largely individuals engaged in formal and informal employment or are manufacturers. These urban communities are not direct food producers and mostly inhabit planned state lands. Unlike most lands under customary tenure, most state lands are serviced by government controlled utility companies. On the other hand, customary lands are mostly under-developed. Occupants of these land face challenges due to a lack of property rights which includes rights to lease and use of the land resources they occupy [3]. Unlike state lands of which individuals or institutions have leasehold to their property, land resources under customary tenure remains under the control of traditional authorities. This impedes enhanced productivity as ownership of property rights is cardinal to staking comprehensive ownership claims of land by indigenous people and instituting innovative production approaches.

For most urban communities (communities on titled state land), food production is not the most important component in their food system. Food distribution and exchange are more important. Since these communities are not agriculture oriented, they depend on the food produced by rural farmers (both smallholders under customary land and commercial farmers under state land) which reaches them through exchange markets. The interplay in food availability from production to exchange involves effective management of the source of food which for the locals is customary land. However, it is the urban communities who provide markets for the rural farmers. Increased urban demand results in increased production among the rural communities. Atteridge [36] reported that charcoal consumption is very high in urban areas of Zambia, particularly Lusaka. However, this charcoal is never produced in the urban areas of Lusaka. It's a product from the surrounding rural areas and only transported to Lusaka. The existence of markets in urban areas is a driver of over-exploitation of forests in surrounding rural areas.

3.2 Food Utilization

The variants of food utilization affected by land resource governance are the nutritional value of food produced and food safety. The nutrient content such as calories, vitamins, proteins and micronutrients [37] derived from food can only be satisfied if a diverse variety of food is produced. The available land for

food production plays a major role in both the amounts and diversity of food to be produced. Even agriculture intensification might in some cases give way to some degree of extensification to satisfy the nutritional requirements of a divergent population. For example, livestock rearing involving cattle, goats or sheep requires large pieces of land. The land requirement for such kind of livestock rearing in Zambia is more likely to be found under customary rather than statutory tenure. However, the lack of legal ownership to such lands is a factor in the reduced number of people venturing into such production [23]. Land ownership is also a factor in crop diversification as it discourages increased varieties of crops cultivated for the satisfaction of a variety of individuals with different nutritional requirements [25].

3.3 Food access

The ability to access quality food in preferred quantities is a function of price, income and individual preference [38]. While political governance might affect all the variants of food access, land resource governance mostly affects levels of income and preferences. Prices for particular commodities may either be set by the government (as is the case for maize) or maybe determined by the interaction of market forces. In rural societies, the same socio-political capital influence regulations governing land resource use [38] to some extent may affect food access.

Incomes for most rural households are generated from their agriculture activities. Maize being the country's staple crop has dominated smallholder agriculture for decades [35; 39] and as such has been the major source of income for these farmers. Generally, maize production has been on the increase since 2006/2007 agriculture season [35], particularly for farmers selling to the Food Reserve Agency (FRA), which is a government institution that buys maize at a higher flow price than private buyers [40]. In a system where agriculture extensification is the main form of yield increase rather than intensification [35], the amounts of land allocated to the farmers has a direct effect on their incomes just as does property rights attached to the land they work. Farmers with smaller pieces of land might find it difficult to extensify and diversify. On the other hand, a lack of property rights to the land discourages innovation on the land. This can have an effect on both the quantity and quality of the produce, as well as the sustainability of household incomes.

Food preferences for different individuals are influenced by social and cultural values and norms besides the geographical location [41]. Local cultures encouraging sustainable resource utilization will likely shape individual food preferences [41]. The influence of local customs and geographical location on food access is seen in the distribution of production and consumption of cassava in Zambia. In the northern parts of Zambia, farmers produce and consume cassava while in southern Zambia the crop is hardly cultivated [42] let alone consumed. A perceived lack of taste has been cited as a reason for southerner's dislike for cassava. In the northern parts where the crop has been cultivated for centuries, such perceived lack of taste is hardly a deterrent to cassava cultivation [39]. Decades of cassava consumption has made the northerners identified with cassava contrary to the southerners' perceptions [41].

4. LAND RESOURCE GOVERNANCE FOR SUSTAINABLE LOCAL FOOD SYSTEMS

Governance of sustainable food systems is a case of sustainable management of the land resources which determines availability, utilization and access of food to both producing and non-producing communities. Most of these land resources are under customary tenure of which governance would involve rethinking the whole social-political system from policy to mechanisms set at local household levels. Below are suggestions for creating a robust governance for improving food systems:

4.1 Rethinking resource rights

There is a direct correlation between responsible ownership of a resource and property rights attached to the resource [43]. This implies that effective resource governance depends upon successful management of property rights and rights to resource ownership. These rights are central to comprehensive claims of local people who are the food producers [3]. They are often motivated to engage in long-term projects on land of which they have absolute ownership and have freedom to try out innovative approaches for

improving food production. This produces sustainable food systems which are resource efficient, productive and adaptive to changing demands [44].

4.2 Devolution of powers

A study conducted by Hiron [45] on Ghana reported how decentralization has been viewed as an effective means to managing land resources. However, he recognized the importance of engaging traditional authorities if the decentralization process would succeed [45]. In Zambia, current resource governance regimes involve a top-down approach [18] with policies affecting local communities being run at national or even district level and expecting to work in different areas of the country and at all levels of society. However, communities have different social and economic dynamics and management using a one-size-fits-all approach has been a factor in lack of success recorded in resource management over time [2]. For example, the Farmers' Input Support Programme (FISP) in Zambia is a case in point. FISP is a government funded subsidy programme which provides subsidized inputs such as maize and rice seeds, basal and top dressing fertilizer to beneficiary farmers [40]. The distribution of fertilizer does not currently take into account the differences in soil management required for different farmers [40]. For example, while soil in some areas might benefit from the application of chemical fertilizer, other areas might require other forms of soil management such as lime (CaO) for acidic environments [41]. Investing in a soil analysis and zoning research would provide necessary information as to what areas requires particular interventions.

A bottom-up management style will entail development and implementation of policies and approaches enabling locals to make decisions on resource utilization and management. It gives chance to host communities to participate in decision-making and in the selection of the priorities to be pursued in their local area [1]. While this approach could prove useful in NRG, it could be more effective when its considered not as alternative or opposed to top-down approaches, but rather used in sync in order to achieve better overall results. This has a higher chance of success as the people utilizing the resources and affected by depletion of these resources at a lower level are charged with the responsibility of making decisions directly affecting them. The locals possess knowledge of local systems [46] besides their tacit indigenous knowledge achieved over time [47; 48] which is vital to achieving sustainability in food security. Devolution of power by the government should involve a genuine commitment to transfer decision-making, access to benefits and legally recognize the rights of the locals, inclusive of local structures and opportunities to enhance land resource based livelihoods [[2].

4.3 Regulating urban based demand for exploited resources

The commercial interplay involving urban demand for resources and rural people's ability to supply the resources has been a major factor in over-exploitation of rural based resources particularly forests [24]. Forest encroachment and charcoal production are major culprits in forest exploitation. Empowering local management of these resources as well as cheaper and efficient energy provision for urban communities would highly reduce forest over-exploitation [49]. Research into large-scale migration to green energy should be high on the governance agenda. Enhanced urban agriculture could also help reduce food demand from surrounding rural area.

4.4 Encouraging conservation agriculture (CA) techniques among local producers

In recent decades, policy frameworks, practitioners and communities have given increased emphasis on conservation and restoration issues whether its involving forests [50], land or climate change. Global climatic changes affect smallholder food production [51] and national food security. Recent CA Studies in Zambia [52; 53] have confirmed that the practice increases smallholder farmer resilience towards impacts of global climatic changes as well as improve yields produced. The CA package to smallholder farmers involve a series of sound land husbandry practices which minimize soil disturbance, keep soils permanently covered with organic matter and sequentially rotate crops [54]. The practice not only improves soil fertility but also helps farmers increase their harvest. However, there has been a reported low rate of adoption of CA among smallholder farmers in Zambia [55] with many blaming the labor

intensive nature of the practice (basin CA) [41]. Encouraging CA among the local producers helps promote agriculture intensification, restoration and discourages encroachment into new lands hence reduced forest degradation.

4.5 Access to enough land to ensure food security

Even though the amount of land under customary tenure in Zambia is still not well known [24], most of this land is inaccessible to smallholder farmers and is not used for food production [23]. Efforts in improving access to these lands are necessary for increased production. Securing rights to these lands will provide the needed motivation for improved production and innovative agriculture.

4.6 Land wrangles and conflict prevention

Land wrangles are common place. Reduced or restricted access to land leads to intensified competition for available land [2]. Lingered historical grievances, claims to access rights, tenure insecurity and unequal distribution of land are common causes of tension which can lead to violent altercations [56]. Trends in population growth, climate change, environmental degradation, land use and resettlement patterns are all potential for conflicts as demands increase and competition for land increases [56]. Conflicts generally arise with the risk of 'losers' getting displaced. Conflicts are a hindrance to production and needs to be prevented. Clearly defined tenure rights to resources particularly in customary areas would reduce wrangles and prevent conflicts.

4.7 Building resilient food systems

Evans [57] identified five factors necessary for building resilient food system; assets, institutions and entitlements, knowledge and information, innovation and flexibility of foresight. Building resilience will therefore involve ownership of assets by individuals and communities and this could be in form of resources such as land or means to ensure livelihoods. Innovative institutional management is crucial in management of social-ecological systems [58]. This is because institutions and entitlements are central in ensuring individual rights to resources and access to assets for improved production. Knowledge and information in form of early warning systems, weather forecasts and extension services will ensure improved farmer productivity and resilience to shocks and stresses. Innovation encourages flexible and adaptable systems which can quickly respond to change. It provides an adaptation pathway for response to shocks and stressors [59]. It can also allow smallholder farmers to change farming systems to adapt to the felt climatic change whether in the short-term or long-term. Ownership to resources encourages long-term innovation among smallholder farmers. Knowledge and information is crucial to developing flexibility and foresight. Tacit knowledge accumulated through experience over time is crucial to building resilience among smallholder farmers [60].

Altieri [61] reported that the developing world's 1.4 billion resource poor farmers inhabiting marginal, risk-prone environments are yet to be touched by modern agriculture technology. The low levels of agricultural technological advancement among smallholder farmers means that resilience based on natural resource capital is more likely for these farmers as it provides them with a wider choice of resource components especially in more complex agro-ecological systems [62]. This enables these farmers to diversify their production systems enhancing their adaptation. This is because diversifying farming system makes them less vulnerable to shocks and hence enhances farmer adaptations to changed global conditions [63]. A simple agro-ecological system is less vulnerable to the impacts of variability and tends to be driven by specialized local farmers able to access local resources. This facilitates adaptation by local farmers by increasing resilience to shocks.

5. TOWARDS A SUSTAINABLE MANAGEMENT OF LOCAL NATURAL RESOURCES

Local natural resource governance (including land resources) begins with the identification of governance mechanisms operating at a local level (Figure 1) which influence resource utilization and livelihood value

394 [1]. These mechanisms could be policies, institutions or processes influencing access to particular
395 resources. Governance mechanisms can be identified at all levels, including village level where traditional
396 governance structures are set up to regulate resource use. Local regulations and rules governing
397 resource use at village level can pass for policy. Some traditional institutions may fall within or outside
398 state structure [2] of which a distinction need to be made. Next is to establish natural resources and
399 livelihood values and challenges related to access. This entails identifying all the livelihoods dependent
400 on the available local natural resources and constraints related to access and utilization.

401 Natural resources in an area can then be identified as either conservational and/or consumable ones.
402 While conservational resources also have consumable value, for management purposes these need to
403 have restricted access while consumable ones sustain local livelihood. Regulating use of conservational
404 resources can help prolong resource use and enhance sustainability. It can also help evaluate how
405 governance is influencing and impacting on production, access and utilization of the available resources.
406 An identification of opportunities to strengthen sustainable use of these resources can then be made. The
407 purpose is to improve on the existing governance style while conserving some natural resources and
408 enhancing livelihoods. This can be done by assessing areas requiring improvements such as information
409 flow, increased innovation in production, improved resilience through crop diversification or methods of
410 assessing livelihood indicators designed to measure long-term impacts. Implementation of the observed
411 weaknesses in local natural resource governance should result in local natural resources being utilized
412 for sustainable livelihoods anchoring sustainable food systems. Possible areas of natural resource
413 governance assessment could be land and natural resource ownership, natural resource access and
414 management, and natural resource service provision.

415 Various forces operational at local level can impact natural resource governance. NGOs, international
416 agencies, entrepreneurs, beside government structures tend to influence and in many instances
417 undermine traditional structures necessary for local level governance. Hence devolution of state powers
418 is a cardinal step towards local resource governance. Existing gender, age or economic stratification
419 within communities have the potential to influence the nature of resource control and could be sources of
420 conflict. Rules and regulations developed locally can be enforced to ensure equity within the community
421 and towards resource access. This would ensure equitable access and utilization of natural resources for
422 sustainable food system governance.

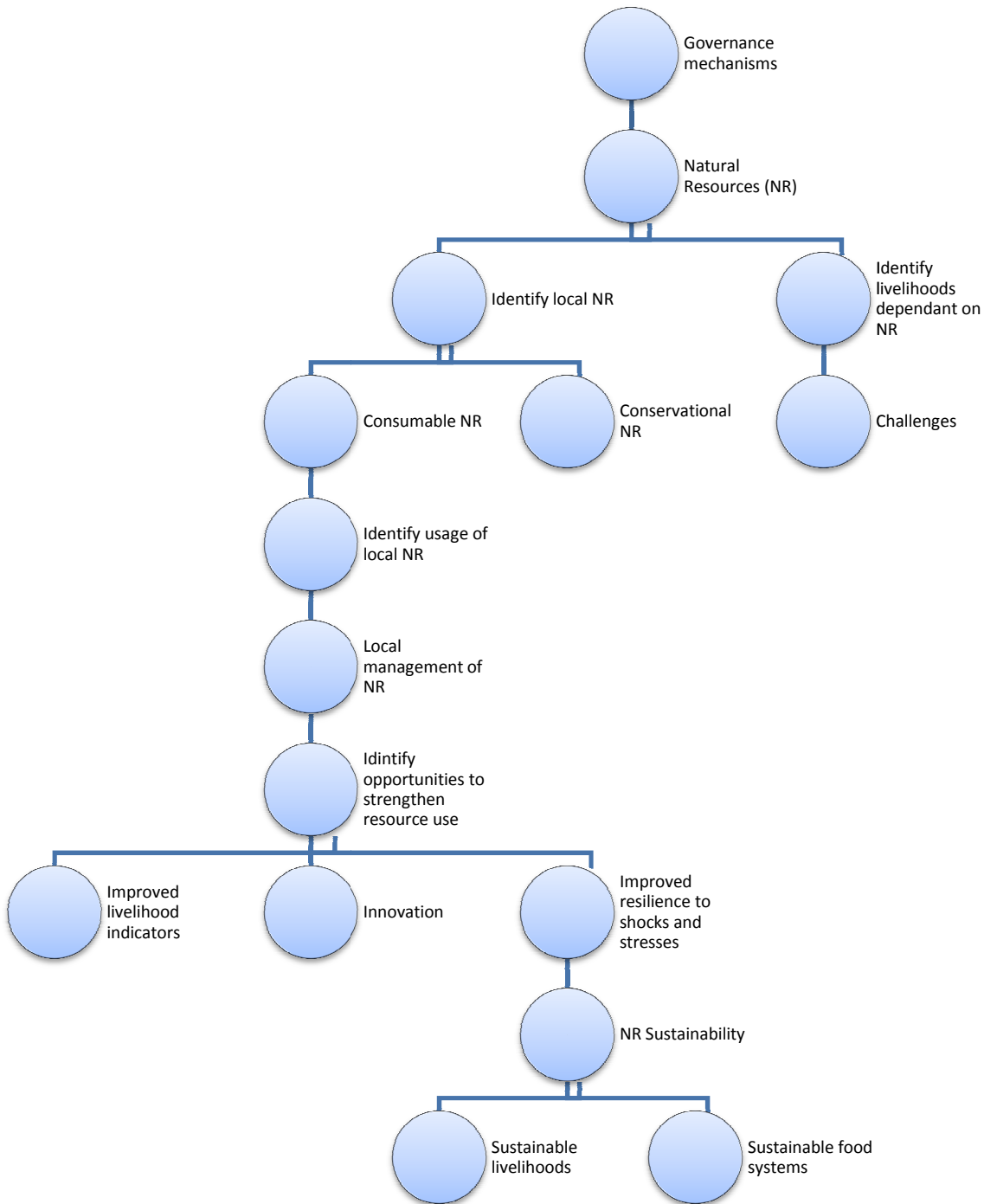


Fig. 1. Sustainable management of natural resources at local level

6. CONCLUSION

Land resource regimes in Zambia are either statutory or customary. Statutory managed resources have clearly defined property rights while customary resources are traditionally managed with individuals utilizing the resource not having exclusive rights to it. Most customary managed land resources are in

rural areas and it is these resources that most food producers utilize. Urban state lands are mostly inhabited by non-food-producers. GNR in Zambia has followed a top-down approach where one-size-fits-all by having a single policy produced at national level guide resource management at all levels down the chain. This strategy has been inefficient as different factors and dynamics have hindered efficiency resulting in below potential production for many customary resource owners. The system can be improved by developing strategies which sync both bottom-up and top-down approaches. This entails that while legislature could be developed from the 'top', the locally affected communities could suggest strategies that could work for their communities. This would be a more efficient management style as it would handle site specific issues. Identified governance issues to improve system performance include rethinking property rights to allow customary land owners to have exclusive leasehold of their land resources. To improve sustainability of food systems, resource governance should encourage innovation and long-term investment, devolution of powers involving management of resources to the locals, regulation of urban demand for resources and building resilient food systems.

Most small scale farmers in Zambia inhabit customary land which they use for food production. The lack of absolute property rights to the land resources they inhabit could have discouraged their long term investment. This could have resulted in below potential utilization of the land resources. In conclusion, land resource governance needs to embrace approaches allowing for innovation, diversification and possible intensification in local food production.

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