

## **SOCIAL CAPITAL AND COMMUNITY RESPONSES TO NATURAL RESOURCE MANAGEMENT IN THE LUANGWA VALLEY, ZAMBIA**

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### **ABSTRACT**

This study evaluated social capital in a Community Based Natural Resources Management (CBNRM) in the Luangwa Valley, eastern Zambia. It assessed the relationships between social capital and community responses and how this has transcended through multi-dimensional dynamics of the local community as influenced by emergent internal and external factors. Qualitative field data was collected from six traditional Chiefdoms using generic semi-structured questionnaire surveys, focus groups, and key informant interviews. Multi-Criteria Decision Analysis was conducted to determine progression of the social capital from the six selected criteria parameters. We determined that weaknesses in local leadership, conditions for entrenched corruption, and losses in human capital were the key determinants of the change in growth of social capital. For furtherance of social capital, it was posited that additional capacity development through training and awareness creation was needed, institutions of power for natural resources management were to be re-aligned in recognisance of local traditional leadership, and power and authority were to be devolved beyond structural requirements to local communities. This study underpinned that social capital embroidery should form the backbone for the implementation of community-based natural resources management to provide a remedial solution to conservation challenges. Future studies are required to further investigate the relational role of innovations and indigenous knowledge in enhancing social capital.

**Keywords:** Social Capital; CBNRM; Local Community Responses; Governance; Sustainability; Resilience; Robustness

### **INTRODUCTION**

Social capital presents itself as a gateway to the understanding of social perspectives of CBNRM. It is defined as features of social organization, such as trust, norms (common rules), commitment, reciprocity, sanctions, infractions, connectedness, and networks, that improve efficiency of the society and facilitates collective action (Putnam, 1993; Pretty, 2003; Sekhar, 2007). Social capital is viewed as relevant for collective action (Pretty, 2003; Ballet, Sirven & Requier-Desjardins, 2007; Mehra, 2008) and implementation of CBNRM programs. Members of the community sometimes maximize their returns by adopting “moral hazard” and a free riding approach where communities do nothing to contribute to the well-being of the society (Nyhus, Osofsky, Madden & Fisher, 2005). However, social capital still remains an institutional solution that communities use to solve the free-riding problem (Ballet, Sirven & Requier-Desjardins, 2007). It works through the use of values in relational or cognitive manner and the use of structural assemblages and practices of institutions in formal or informal set-

ups. Complementarity of these cognitive and structural features in the social capital is crucial as the determinant of the effectiveness of the social capital (Mehra, 2008).

Social capital has been, in the past, viewed in isolation to the paradigm of CBNRM. In principle, CBNRM follows the framework of effective management (Smit, Cronjé, Brevis & Vrba, 2007), where management refers to the processes of planning, organizing, leading, and controlling resources of the organization to the pre-determined stated organizational goals. These attributes of the social capital are important to CBNRM. For instance, the merits of the CBNRM, as reported by Blaikie (2006), are: to contribute to poverty reduction through local labor and investment; to promote the use of local knowledge and local technologies, which help to preserve these; to facilitate decision-making by the local people, hence creating accountable and democratic local institutions; to enforce the use of natural resources by the local people, who have a stake in its protection; and to provide a better solution to conservation, than fencing off natural resources and excluding people from them, which creates the resource use conflicts and, consequently, negative attitudes.

Although CBNRM was intended to improve the collective action in natural resources management, there are flaws in the integrative approaches to adaptive management. Several examples exist to this effect in Zambia and the Southern African sub-region. Locally, contributing to policy advocacy in Zambia, Simasiku, Simwanza, Tembo, Bandyopandhyay & Pavy (2008) observed governance flaws of Game Management Areas (GMAs) through the community institutions, such as Community Resources Boards (CRBs) and Village Action Groups (VAGs). Elsewhere, both the theory and practice of the CBNRM in ecological and social perspectives have been found to have flaws (Berkes, 2004; Fabricius, 2004; Blaikie, 2006). Barret, Brandon, Gibson & Gjertsen (2001) further attributed these failures of CBNRM to flaws in structure and function of community institutions. Agrawal & Gibson (1999), Kremen, Merenlender & Murphy (1994), Ostrom, Burger, Field, Norgaard & Policansky (1999), and Barret, *et al.* (2001) postulated that communities fail to make strong institutions because they do not have adequate authority; capacity to manage access to resources; creativity to innovatively construct the rules, monitor their compliance, and enforce them; to provide adequate incentives for conservation efforts; and to resolve emerging conflicts. As a result, the local communities inevitably reverted to instruments, such as rules from outsiders, such as government and other recognized advocates, which are challenging to sustain (Barret *et al.*, 2001; Agrawal & Gibson, 1999). These drawbacks have led conservationists to consider measures to rectify setbacks confronting the CBNRM programs.

In addressing these setbacks, many models have been developed mainly based on organizational structure and functioning. The intra-organizational structures, for instance, are sustained with varying levels of power, responsibility, and authority. The functional tenets operationalizing the structures through the management process include defined and functional governance, rights, roles, and responsibilities of entities of the structures. It has been suggested by Ostrom (2005) that the community response options can be enhanced by relationships within such polycentric structures, which could also improve the outcomes of responses to disturbances and crises. Such responses, according to Walker, Holling, Carpenter & Kinzig (2004) and Folke, Hahn, Olsson & Norberg (2005), are premised on the existence of effective leadership in various organizational structures and taking advantage of the social memories of the social-ecological systems. In some cases, leadership for planning, organizing, leading, and controlling may fail, resulting into management failure. Substantive transformation may be required

to maintain or transform social capital in a weakening leadership environment. Limited modifications, if applied, may simply increase control costs in cases of management failure (Pimbert, 2004). Drawing on Pimbert's observations, it can be further advanced that appropriate adaptive governance plays a key role as a mediating variable for responses in institutional context.

According to Lee (2003), adaptive governance involves a polycentric form of social coordination in a self-organizing fashion by voluntary individuals and other social entities. Self-organizing takes the form of social networks with teams and actor groups founded on knowledge systems and experiences (Folke, *et al.*, 2005). For old societies and communities, self-reorganized responses to changes or dynamics can emerge (Gadgil, Berkes & Folke, 1993). Nevertheless, Anderies, Janssen & Ostrom (2004) contended that the robustness of a social-ecological system may persist, but may, at given temporal scale, collapse drastically due to certain disturbances or crises in the system. These voluntary individuals and social entities achieved their coordination activities in social networks that may give rise to alternative approaches maintaining or transforming the existing social-ecological systems (Gunderson, Light & Holling, 1995).

Ownership of natural resources, such as wildlife, is one challenge. The rules related to ownership of wildlife are not well defined. During the pre-colonial era, stewardship of natural resources was under traditional leadership. Later, the ownership of the natural resources, including wildlife, shifted from community owned to state and the current legislation in the majority of African countries only reduced the ownership to user-rights of the natural resources (Jones & Murphree, 2004). Consequently, wildlife management faced bottlenecks in attempting to devolve the authority and powers to the local communities within the CBNRM framework. A major challenge with the granting of user-rights is the capacity of the communities to negotiate their bill of rights, as often only partial authority and powers are given by the state (Murombedzi, 2001). In due course, authority and power become stratified horizontally within the communities, congruent to the perceived influence and wealth differentiation. Allocation of proprietary rights usually remove the manipulative elements expressed by Blaikie (2006) that are embedded in the participatory processes of CBNRM and their decentralized decision-making to give power to the local people by influential members of the local communities, such as traditional Chiefs conniving on the outsiders' agenda. These include direct control of natural resources, particularly wildlife. The social leverage in conservation depends on the ownership of the property, such as wildlife, and dictates the extent of the community responses to the problems they face.

Over decades, commercial market linkages have emerged and increased on a large scale to support financial sustainability among the impoverished local communities (Little & Brokensha 1987; Lewis, 2007). Based on such external influences, it is contended that traditional management systems could be losing their grip on their social controls (Barret *et al.*, 2001). Recognizing the important role that the community plays in the natural resource management, some researchers, such as Jones & Murphree (2004) and Tongson & Dino (2004), have deemed the renewal of community structures imperative. Winklerprins (1999) and Berkes, Colding & Folke (2000) also supported integration of the local technical knowledge on natural resources.

Evolution of community participation can, therefore, be expressed through co-management of natural resources, which has been widely debated in the context of engaging local communities and legitimizing their participation. The question of how

far this co-management can materialize is still on the platform of discussion (Jones & Murphree, 2004). Whereas it is generally agreed that local communities' livelihoods need to be sustained to encourage their participation in the natural resource conservation (Barrow & Murphree, 2001; Hulme & Murphree, 2001). Costs associated with living with the natural resources, such as wildlife, are believed to outweigh the benefits (O'Connell-Rodwell, Rodwell, Rice & Hart, 2000; Hulme & Infield, 2001; Dalal-Clayton & Child, 2003; Jones & Murphree, 2004). These are the challenges that the social capital would avidly deal with.

The Luangwa Valley in eastern Zambia, was used for implementation of theories and policy framework related to CBNRM. At the time of inception, the thrust of CBNRM was to reverse depleting wildlife in the area due to poaching (Lewis, Kaweche & Mwenya, 1990), which had gone beyond the local subsistence demand as the economic forces exerted from the emergent demand in trade in wildlife products in the urbanizing towns were on the rise (Jachmann, 1998; Leader-Williams, Albon & Berry, 1990; Leader-Williams, 1996). Historically, local communities of the Luangwa Valley co-existed obstinately with natural resources, including wildlife, but have, in recent times, undergone transformations largely influenced by outsiders; firstly by the colonial masters and the elites, then the government and the NGOs. The once robust traditional authority and culture were diluted by the colonial governance and foreign religions, such as Christianity and Islam. Natural resources were then alienated from the local communities and access to natural resources utilization regulated and muzzled around outsiders. Despite traditional leadership and local populace being denied ownership, the local communities remained committed to conserving the resources under open access regime. The area continued with the stifled social capital within the independent state and local governance systems, as legislation and policy design was based on the theory of avoiding the Hardin's (1968) tragedy of the commons. Education and religion moderated the stocking of the social capital. Like in many areas surrounding the protected areas, increased human populations (Wittemyer, Elsen, Bean, Burton & Brashares, 2008) also continued posing a great threat on the resource base in the Luangwa Valley. Thus, CBNRM ushered a formal revival of local community participation in co-management. This followed the state failures to meet its mandate to sustainably and cost-effectively conserve the natural resources in the light of increased natural capital dependence by the local communities and the failing economy to support conservation programs, which started way back in 1970s. This paper examines social capital in a Community Based Natural Resources Management, in eastern Zambia for the intervening period, 1911 to 2010, and suggests that further studies be required to enhance social capital.

## **METHODS AND MATERIALS**

### **Study Site**

The study area was Lupande Game Management Area (4, 840 km<sup>2</sup>) in Luangwa Valley, eastern Zambia (Fig. 1).

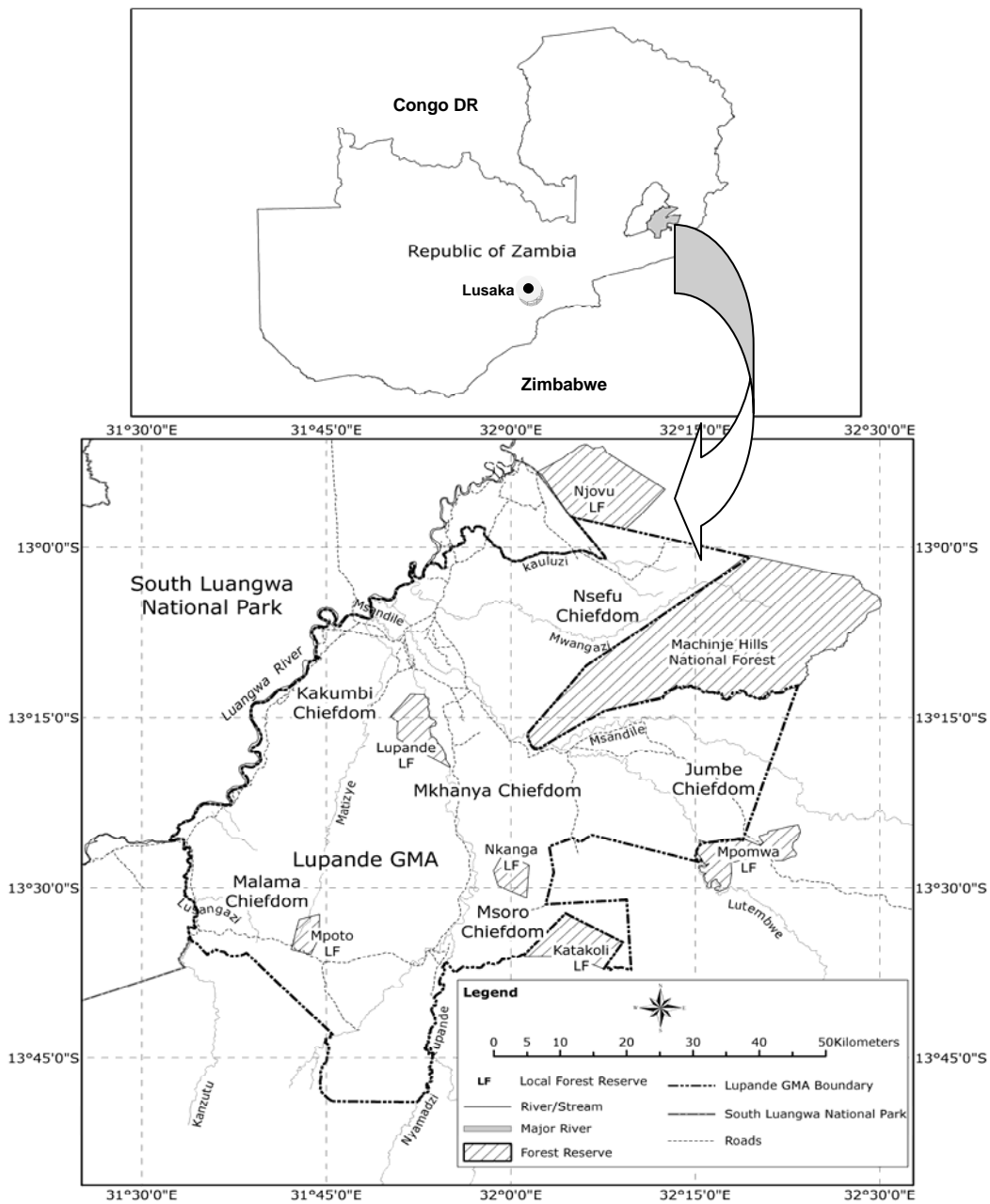


Fig. 1: Geographical location of Lupande Game Management Area in eastern Zambia.

This study covered 81 villages in six Chiefdoms of Jumbe, Kakumbi, Malama, Mkhanya, Msoro, and Nsefu (Fig. 1) of the Kunda tribe, with an estimated total population of 45,000 inhabitants.

### **Data capture protocols**

Qualitative field research methods, which were largely non-quantitative in nature, were used. This enabled us to establish relationships between various concepts and themes from a limited sized population sample of 108 respondents (Strauss & Corbin, 1998). It provided an in-depth understanding of the social perspective of the chosen theme.

Data sources included literature review of databanks kept by Zambia Wildlife Authority at Mfuwe, Chilanga and Lusaka. Field data in Lupande area was collected between August 2008 and December, 2010 with the help of six field assistants. A generic semi-structured questionnaire survey was administered to 108 respondents and the focus group interviews were also conducted to seven (7) interest groups in accordance with protocols suggested by Düvel (1987); Saunders, Lewis & Thornhill (1997) and Bradburn, Sudman & Wansink (2004). The same key questions were administered to each of the respondents, who had historical perspective of the issues under discussion in English or vernacular. Attention was paid to the social capital and the community responses aspects, but not necessarily to the facts, particularly insofar as temporal context of social capital was concerned.

### **Statistical Analyses**

Multi-Criteria Decision Analysis (MCDA) was conducted to express the perception of the various stakeholders on the progression of the social capital. Six criteria parameters were defined, scored (0-10 nominal ranking), and aggregated into grand scores indicative of levels of the social capital in the six traditional Chiefdoms in the Lupande area during the first generation CBNRM (1984-1999) and second generation CBNRM (2000-2010). The first generation was the foundation era for CBNRM, largely characterized by initial experimentation of the community based projects and sub-authorities. The second generation was characterized by streamlined governance systems and legal legitimization of the community based conservation of natural resources.

## **RESULTS AND DISCUSSION**

### **Evolution of the Social Capital in the Luangwa Valley**

The social capital in the Luangwa Valley changed from the pre-colonial era to contemporary times. The dynamics in the social capital caused transformations and re-organization in institutional arrangements as influenced by events at the national scale (Fig. 2).

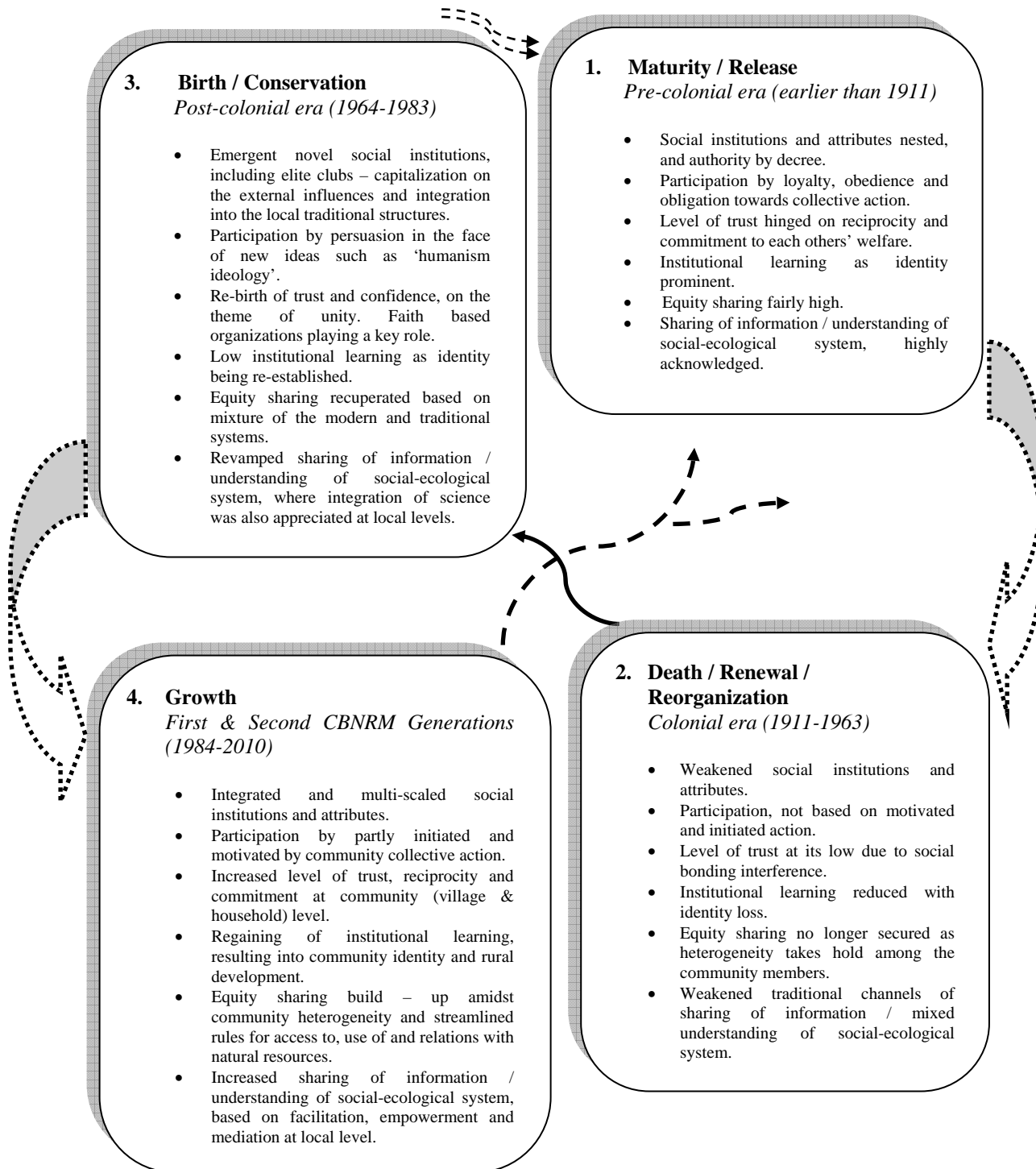


Fig. 2: Reconstructed phases of social capital of CBNRM in the Luangwa Valley, Zambia from pre-colonial era to 2010.

### **Pre-colonial era (Before 1911): Maturity / Release Phase of the Social Capital**

High stocks of social capital in the pre-colonial era were preserved in what was more or less a closed social sub-system (Fig. 2). Although the social institutions were well established at base levels in a horizontal pattern, there were limited vertical networks outside the community. Authority was largely, by decree, exercised by the traditional leadership. Collective actions by the members of the community during that phase were ensured through expressions of loyalty, obedience, and undertakings of obligations by individuals of the community. These expressions were the sources of trust in posterity among the members, breeding reciprocity in times of adversaries and triumph. Community members as such were expected to remain committed to the welfare of each other. The beneficitation was the lower transaction costs to generate private and public goods and services for the communities and their members. Such setup had, however, an opportunity cost of long time lags for amalgamation of community members with unison vision.

Communities created institutional learning with identity, demonstrated in the sanctions given to non-compliant members or rewards due in reciprocity fashion. This prevented infractions in the community. Expectations of the integrity were high. Problems of open access to the common pool resources existed, but individuals of the community were given fair opportunities to equity sharing of the resources. Within the community boundaries, defined per Chiefdom in the Luangwa Valley, information was adequately shared through various nested social networks, for different mixtures of groupings. The understanding of the social-ecological system was conveyed through these social nested networks via oral and action expressions, including artisanal and other works of art. The advent of colonial rule tested the resilience and robustness of such a system in the face of the unprecedented disturbances, changes, and surprises to the full-fledged social capital.

### **Colonial era (1911-1963): Death / Renewal / Re-organization Phase of the Social Capital**

During the colonial era, a coercive power of the colonial rule weakened the stocks of the built-up social capital in the Luangwa Valley (Fig. 2). Various social networks were weakened by not only novel external influences, but the very society identity being internally questioned and undermined. The style of life in the local communities was viewed by the colonial masters and the elites as virtually inferior and primitive. The stocks of social capital were at the brink of collapse. Social institutions and attributes that flourished during the pre-colonial times were obliterated. Some influential members of the communities became allies of the new governance structure. Cold wars were wedged among the members of the same community. Collective action was characterized by coercive mandates and not motivation or initiated actions by the local communities, themselves.

The conditions for continued growth of the social capital were not provided. For example, the levels of trust consequently abridged due to the interfered social bonding. Introduction of the poll tax coerced males to seek wage employment. The emergent force for the use of money, as opposed to the bartering system, came into play and members of the community left their households in search of what was viewed as lucrative life in urbanizing areas. Cultural and traditional religious beliefs and practices were undermined and largely abandoned. The society lost its recognition and cultural identity. Lessons from other areas were blocked by the colonial governance system and became uncommon to enable the bridging or linking of the



social networks. The once more or less homogenous community was fragmented into a social-cultural heterogeneous society, with the equity sharing no longer observed among the members. The colonial era marked the beginning of the alienation of land and other natural resources, including wildlife from people. With the vanishing of the nested social networks, traditional channels of sharing of information and the consequential common understanding of the social-ecological system weakened. Against all these adversaries, some stocks of social capital resonated and were kept latently in the background within the social memories of the entrenched social curators. The social curators perspired for the conditions to revive the social capital. The advent of the Christianity and Islamic belief systems soothed the loss of the social capital, but only to a lesser degree at the time as such beliefs occasionally crashed with the traditional norms. Some form of freedom was still required to revive the social capital.

### **Post – Colonial era (1964-1983): Birth / Conservation Phase of the Social Capital**

In the post-colonial era, opportunity was availed to revive the social capital. Institutional arrangements re-organized themselves in response to the emergent integrative social organization. Novel social networks and actor groups fused into traditional setups, imparting their influence. New stocks of the social capital were formed with local participation that was based on persuasion from political philosophy of ‘humanism ideology’, which was based on African socialism. Combined with a contribution by the faith-based organizations, trust was inculcated in the local communities and confidence was regained that fostered the collective action for rural development.

These reversal strategies resulted in traditional, institutional learning being revitalized and social identity being restored (Fig. 2). Equity sharing was recuperated based on a mixture of the modern and traditional systems. This was in the face of land and other resources, including wildlife, that still remained alienated from the local populace. However, the new adaptive governance structure was anchored in not only traditional norms, but also modernism and conveyed through dynamic leadership and policies. The sharing of information and the new understanding of the social-ecological system were revamped by way of integrating science and traditional social and indigenous technical knowledge. Growth of the social capital was further triggered by deliberated enforcement of the social-ecological system with its legitimization through the first generation of CBNRM that transcended into the current CBNRM generation.

### **First and Second CBNRM Generations (1984-2010): Growth Phase of the Social Capital**

Luangwa Valley is considered to be the birthplace of the first generation (1984-1999) of CBNRM in Zambia (Fig. 2). The first generation of CBNRM legitimized the social capital by initially devolving limited authority and power to the local communities. Integrated and multi-scaled social institutions and attributes were established. Local governance structures, called Area Development Committees (ADCs), were formed in Lupande area (Fig. 1), acting on a sub-authority basis. In structure and practice, the cultural elements at the local levels were revived during the first generation of CBNRM. The alternative to leadership by the Chiefs and traditional leaders was agitated in favor of the village based institutions (called Village Action Groups - VAGs), which were democratically elected and accountable. During the first generation of CBNRM, in the Lupande area and elsewhere, the commercialization (value adding for maximizing financial benefits) of wildlife and other resources gained ground. Opportunistic proliferation of NGOs and projects also helped to empower the local people.

The second generation (2000-2010) aimed at further empowering local communities, who were also considered primary resource producers (Fig. 2). Democratization of the governing structures, such as CRBs, structures that replaced the Sub-Authorities and ADCs, was achieved through enactment of national wildlife legislation that also accommodated natural resources other than wildlife. Advocacy for decentralization of the natural resources management also emerged in this era. This emphasis could not be fully achieved in the absence of the national CBNRM policy framework. Nevertheless, social connectedness and networks in the second generation of the CBNRM increased at horizontal levels within the local communities as well as vertically with the regional structures, national structures, and international non-governmental organizations (for example, the World Wide Fund for Nature, the World Conservation Union, the United Nations Development Program, and the Wildlife Conservation Society). Faith Based Organizations also strengthened their involvement in transforming social capital through knowledge and technology transfer.

Participation by the local communities increased and was characterized by the bottom-up decision-making, broad-based stakeholders' consultations, information sharing, and community initiated actions. Collective action through increased trust, reciprocity, and commitment among the community members was restored. On these premises, institutional learning resulted in the improved community identity and rural development. Equity sharing was built-up amidst community heterogeneity and streamlined rules for access to, use of, and relations with the natural resources. For instance, the wildlife revenues generated from Lupande area was reinvested and, in 1996, the local communities in Lupande area were allowed to retain all the revenues generated in the area on condition that the utilization of the funds for projects were to be done according to the laid down guidelines for accountability, transparency, and within the democratic environment. Among the many projects were crop raiding interventions, such as solar powered electric fencing in Malama (Fig. 1) and *Capsicum* (chilli) growing in crop field buffers, as well as *Capsicum* fencing against elephants in Jumbe, Kakumbi, and Nsefu Chiefdoms (Fig. 1). Others included social amenities in forms of clinics and schools. Due to involvement of various players, sharing of information, and the new understanding of the social-ecological system, encompassing traditional and modern systems, has been further enhanced based on facilitation, empowerment, and mediation at base level. Community extension services paradigms by the wildlife authority shifted from generalized community to targeted personalized interactions to make it more effective. In sum, at the growth phase, depending on how the social capital may be harnessed, it may be collapsed altogether or transformed into new state (Fig. 2). The discursive findings in Figure 2 were discussed in accordance with the proposition by Holling (1973; 1995) that the resilience be viewed in four phases or cycles of simply birth (conservation), growth, maturity (release), death, and renewal (re-organization).

### **Comparative Analysis of First and Second CBNRM Generations stocks of Social Capital**

Social capital of local communities in the Luangwa Valley in the first and second CBNRM generations is given in Table 1, which depicts an analysis by use of selected indicators applied across six Chiefdoms. Whereas social capital was indicatively on the increase in Kakumbi, Malama, and Mnkhanya Chiefdoms; in Jumbe, Msoro, and Nsefu Chiefdoms the social capital indicatively constricted. With the exception of indicator 1 (social institutions and their attributes) and indicator 3 (level of

trust), all other indicators showed an increase in the levels of social capital stocks. Variations are also reflected in each of the indicators across the Chiefdoms, as discussed in detail below.

Indicator 1: Traditional social networks in Lupande included the kinships and clans, cultural groups, village action groups, timber associations, and fish associations. Non-traditional social networks typically involved links of the local community groupings with the development projects and government agencies. In all the six Chiefdoms, there was decline in the growth of social institutions and their attributes. Lupande’s social capital was deeply rooted in traditional setups, which were not legitimized by way of legislation of CBNRM programs. There was also low technical and administrative capacity by the community leaders to negotiate social capital by taking advantage of external entities with the means and expertise of technologies and scientific and technical information that would compliment traditional means. In addition, there was high reliance on the rules from outside the local communities that lacked enforcement at the base levels due to low capacities within the local communities to generate and enforce local rules (by-laws) over time. Low capacity was evident in local governance structures of the local communities to initiate and maintain new relationships with other local governance structures and external organizations. As a result of non-alignment of the traditional structures with natural resources management structures and the district councils, traditional structures had their powers and authorities usurped and consequently, monitoring of the rules and sanctions was not effective.

Table 1: Rankings of stocks of social capital in two CBNRM generations of Luangwa Valley, Zambia.

Indicator	Kakumbi		Jumbe		Malama		Mnkhanya		Msoro		Nsefu		Total 1999	Total 2009
	1999	2009	1999	2009	1999	2009	1999	2009	1999	2009	1999	2009		
1	6.64	5.42	7.00	5.50	6.76	5.62	7.00	5.14	6.80	5.70	6.92	4.88	1054	824
2	5.61	6.39	5.52	6.71	5.30	6.25	5.48	6.15	5.65	6.20	5.88	5.71	809	904
3	5.35	5.15	5.57	5.19	5.35	5.15	5.92	4.81	5.65	5.30	5.78	4.57	806	723
4	5.26	6.09	5.52	4.48	5.15	5.25	5.44	5.96	5.60	5.45	5.43	5.26	787	803
5	5.35	5.32	5.05	5.10	5.45	5.40	5.00	5.26	5.05	5.15	5.17	5.42	757	771
6	4.85	6.76	4.71	6.29	5.05	6.15	4.89	6.54	5.45	5.85	4.96	6.50	740	954
Total	1137	1205	708	704	668	682	924	926	684	673	832	789	4953	4979

Indicator 2: Participation increased in all the Chiefdoms, except for Nsefu Chiefdom. Participatory management, as a principle reflecting transparency and accountability, was slacking in the Nsefu Chiefdom. Although necessary base community structures, such as VAGs, existed, meetings and communication were irregular. At the CRB level, meetings were so far apart that they no longer invigorated participation and follow-ups. The existence of “elite capture”, which was perceived to internalize information and benefits to elites, negated active participation among the local communities, particularly in Nsefu Chiefdom. The other challenge was inadequate capacity among the leadership, including CRBs for

management and financial administration, which was negatively impacted on the growth of social capital. This challenge is coupled with inadequate actual engagement, empowering, and facilitating of the community processes by the Wildlife Agency after the formalization of benefit sharing and formation of the CRBs. For the local community action groups, delegation of responsibility did not adequately answer the proprietary issues of wildlife. Jones & Murphree (2004) observed that responsibility had to be linked with the authority and entitlements of full proprietorship if it was to provide the right incentive package for committed and effective management. Sichilongo (2003) studied significance of CRBs in Zambia and recommended that more capacity through deliberate investment and political will was required in order for CRBs to achieve their full potential.

Indicator 3: The level of trust portrayed by the local community members, local action groups, and external organization declined over the two generations of the CBNRM in all the six Chiefdoms. Within the local communities, the individuals lost trust over their mouthpieces, who were the “community elites” and influential individuals that were increasingly viewed as manipulative and corrupt. However, cohesive bonding, among the local community members, was strong, particularly in family lines and clans.

On the other hand, various attributes were associated with the loss of trust among the local community groups, such as VAGs and different associations. Local community associations and VAGs were deemed inadequate to resolve the challenges confronting the local communities, exacerbated by external factors, such as economic hardships and un-quelled poverty.

Local community members had lost trust for external organizations. Lupande area was once a beneficiary of household dividends “*tyolela*” accrued from wildlife revenues, which was short lived and discontinued due to the insignificant net benefit reaching the households. Although, the intentions were good to deliver revenue and benefit to wildlife producers and reduce the costs associated with the production of wildlife such as wildlife crop raiding, the approach proved none viable. New initiatives, which did not provide household dividends “*tyolela*” were, however, met with resistance from the local communities due to perceived difference in the approaches. For instance, in the Malama Chiefdom, upon introduction of Community Markets for Conservation (COMACO) program, a program aimed at exploring synergies between agriculture, markets, and conservation, the local community demanded its removal from the Malama Chiefdom because the program did not have components associated with household dividends “*tyolela*”. Local communities also anticipated that externally funded organizations would provide material and technical assistance to them.

Indicator 4: There was an increase in institutional learning between the first and second generations of the CBNRM. The increase, particularly, was in Kakumbi, Malama, and Mnkhangya Chiefdoms and the decreases in Jumbe, Msoro, and Nsefu Chiefdoms. The locational differences in institutional learning were attributed to various intensities of extension services as Kakumbi, Malama, and Mnkhangya Chiefdoms, which were epicenters of outreach projects in the Lupande area. In Kakumbi, the community governance structures were advanced in initiating and implementing their own controls to natural resources utilization of benefits from fisheries, water, grass, forestry resources, and crafted cultural based enterprises. In Malama and Mnkhangya Chiefdoms, there were several strides made for the community involvement in dealing with wildlife management

and conflict resolution, including solar-powered electric fencing against elephant invasions. The rest of the Chiefdoms trailed behind in taking leading roles to build the social capital based on an interaction with external organizations and active learning by implementing CBNRM programs. Therefore, institutional learning was enhanced by building both bridging and linking social capitals for the local community organizations, groups, associations, and cooperatives.

Indicator 5: Equity sharing improved over the two generations of CBNRM across the Lupande landscape, except for the Kakumbi and Malama Chiefdoms. The local community institutions in the Kakumbi and Malama Chiefdoms were engrossed in service and revenue delivery during the first generation, including “*tyolela*”. As such, they lagged behind in building capacity in the new participatory CBNRM that was an inculcating sense of responsibility over their land resources and agitating local solutions to the challenges facing the local communities.

Indicator 6: In all the six Chiefdoms, sharing of information and understanding of social-ecological system improved over the two generations of CBNRM. During the second generation, the emphasis shifted from the focus on the benefit delivery to encompassing more of information processing and dissemination with the help of the Wildlife Conservation Society (WCS), the South Luangwa Area Management Unit (SLAMU) and the South Luangwa Conservation Society (SLCS) to the target local social units. The tailing effects of information provision contributed to the improved local community participation, equity sharing, and institutional learning.

### **Social capital & CBNRM: “Federalizing” power and authority – future prospects for positive responses**

Building and maintaining of the social capital is as far articulated as a vehicle for natural resources management. But at what scale and how? It is posited that local responses are best done by the local communities, themselves, at base level. In Lupande, three tier hierarchical governance structures existed for wildlife management: Lupande Local Leaders Committee (LLC), ADCs, and VAGs. The LLC constitutes of six Chiefs, area members of parliament, councilors, Zambia Wildlife Authority (ZAWA) representatives, and Mambwe District Council Secretary. The six ADCs, which since 2000 were replaced by CRBs, comprised of a respective Chief, ZAWA representatives (Secretariat), and representatives from VAGs. Forty-two Village Development Committees (VDCs) in the VAGs elected chairpersons from constituencies of about 220 households. The VAGs were delegated power to allocate the revenues from wildlife for development projects in the area. They also ensured implementation of projects and monitored their progress. These projects included the implementation of crop protection measures against wildlife raiding. Crop protection projects encompassed *Capsicum* fencing against elephant crop invasions in Jumbe, Kakumbi, and Nsefu Chiefdoms, and electric fencing in Malama Chiefdom. Others were the building of schools and clinics.

The local communities directly participated in the decision-making and acted collectively while taking accountability and responsibility for their actions to their society. Accountability and effectiveness stemmed from the macro-economics of beneficiation and responsive governance at the lower community organization. Village-based organizations formed polycentric units for the collective action to benefit many households. On these accounts, the principles of devolution of authority and power at a lower scale were tested and confirmed affirmative at the local governance unit.

Controls by community, themselves, rooted in the social capital. The local level organizations at the village level, rather than at the larger community level, became more accountable and effective, resulting in more tangible rural development and an increased beneficitation at the local level. For external legitimization of local governance structures, legislation of community participation at the lowest levels was necessary. Various households interacted among themselves while taking advantage of bridging social capital. VAGs, particularly, in respective Chiefdoms, also took collaborative and cooperative actions, which helped to bridge social capital. Bridging social capital constituted local social networks of cooperative, collaborative, and coordinated actions, with other external groups, to achieve the interest of the local communities. Linking social capital, which links community structures, with government and other external entities, also grew. The building of the social capital was perceived by local communities as effective insurance and the defense instrument against adversaries, such as poverty and food insecurity (Collier, 1998; Woolcock & Narayan, 2000; Pretty, 2003). However, more capacity building through training and awareness creation is required and needs to be sustained to evolve various forms of social capital. For instance, the need to forge local communities that can effectively negotiate (Agrawal & Gibson, 1999; Jones & Murphree, 2004) has ever been of relevance to building linking social capital. Capacity building could take a form of social participatory learning that could include organized tours to the community groups that have exemplary examples, organized workshops, and seminal presentations for leaders and monitors of social capital. The use of functional demonstration sites and innovations of communication technologies would also be of help. Capacity building can be further facilitated by linking social capital, involving the broader existing and potential networks with external organizations, such as Wildlife Conservation Society (WCS), Wildlife and Environment Conservation Society of Zambia (WECSZ), SLCS, and World Wide Fund for Nature Conservation (WWF).

There is need to align institutions of power for wildlife management as they relate to district councils, traditional leadership, and community based institutions, which were reflected by Kapungwe (2000). Traditional governance structures that transcend from the Chief and *indunas* to village headmen were antithetical to wildlife management structures and district councils' functions. However, convergence of the governance structures takes place at the base levels of traditional and wildlife management structures; the villages, which is constituted of households. It is at these base levels that the social capital has taken root.

In accordance with the new institutional economics and public choice theory, participation of the local communities would be limited by internalized transactional costs. The stronger institutions become potentially viable, as opposed to the weaker ones that pervasively inhibit the weaknesses (Cleaver, 1999; Ribot, 2002). The social capital in Luangwa has been building insofar as the village level organizations existed and, invariably, at household level. This complies with environmental subsidiarity, implying exercising of preponderance of freedom for decision-making by the local institutions (Handy, 1994; Ribot, 2002; Cumming, 2004). This is also based on fiducial responsibility on the local institution and the command of trust and faith among the local community members.

The need to devolve power and authority beyond structural requirements into processes is crucial. Murombedzi (2001) and Dalal-Clayton and Child (2003) argued that only a partial bill of rights were given by the state on ownership in the community-based governance units. Drawing on their insights, active participation of individual members of the local community, such as the six Chiefdoms in Lupande area, will, to a large extent, depend on the amount of rights the community can access. The limitations to how far effective the participation by the local people goes are dependent on extent of ownership or proprietorship. Proprietary rights are also likely to remove the manipulative elements expressed by Blaikie (2006). Manipulative elements are embedded in participatory processes of CBNRM that relay power to local people by influential members of the local communities, such as traditional leadership, which connive on the outsiders' agenda. These include direct control of natural resources, particularly wildlife. The social leverage in conservation will depend on the ownership of the property, such as wildlife, and would dictate the extent of community responses to the problems they would face, including crop raiding.

### **Relationship between social capital and mitigation measures innovations**

Wildlife crop raiding, viewed as a disaster, disturbance, and crisis to the local farmers, is the basis for mitigation measures innovations. Members of the local community, local kinships, or local community groups play a role in generating social capital, giving rise to various innovations. Social capital creates conditions for mitigation measures innovations and, subsequently, produces improved and novel counter-measures. These innovations often require fusion of knowledge and integration of the local traditional knowledge and scientific knowledge through the participatory methods, which have been key in fostering resilience of the elements of social – ecological systems (Winklerprins, 1999) through experimentation and innovations, as the local communities surmount disturbances and crisis. For this reason, Wilson (1998), Winklerprins (1999), Max-Neef (2005), Balmford and Cowling (2006), and Cowling & Wilhelm-Rechmann (2007) reiterated and demonstrated the need to incorporate an understanding of human interaction with nature and how nature was valued by the local people in order to foster reinforcing or changing them to the benefit of conservation.

Communication to the local communities of the scientific knowledge can be challenging, but requires targeted intensive extension work by the service providers. Capacity by the local community to negotiate and ably incorporate scientific knowledge has, thus, been the crucial element of participatory approaches at planning and implementing in the Lupande area. It takes a long span of time and considerable resources. It is recommended that a hoard of investments, especially by the external development organizations, in building various forms of social capital, focus on supporting the local farmer access and links with external organizations that are a resource of information and innovations for local farmers, plus links with other contemporary farming associations, cooperatives, and groupings. The networks and links of the social capital need to be casted further than the bounds of kinship groupings, as the informal and kinship networks may not be commonly utilized to broadcast knowledge and knowledge intensive technologies and innovations (Kiptot, Frazel, Hebinck & Richards, 2006).

### **The Contemporary Determinants of Change of social capital in the social-ecological system of Luangwa Valley**

The state of social-ecological system is determined by the emerging forces impacting it. The emerging forces may bring about changes. Jones and Murphree (2004) deduced from the lessons and directions of CBNRM, as conservation mechanism

in southern Africa, that change and evolution were expected in social organizations as they experiment, innovate, and surmount or succumb to challenges. The determinants of the change are likely to transform the system, or rather weaken its resilience, to the very system. Whether virtual or actual, resilience or robustness is an essential element of a progressive social-ecological system. For the purpose of this article, we restrict the discussion to organizational determinants of change, as these are considered relevant to the context of organizational or institutional responses to crisis, disturbance, or surprises. Therefore, in discussing the social capital and mechanism responses by local communities, such as in Luangwa Valley, it is tempting, even prudent, to examine the social-political sources of the crises and disturbances that would perpetuate the situation and, consequently, isolate the counter-approaches to resolve them.

Drawing on the insights of systems progression by Anderies, Janssen & Ostrom (2004), reflection was made on suggestion that robustness of the social-ecological system may persist, but may, at a given point in time, collapse drastically due to certain disturbances or crises in the system. Gunderson & Holling (2002) highlighted a possible collapse of different social-ecological system components at varying rates and spatio-temporal scales. Whereas the social capital, as a key element of the social-ecological system in Luangwa Valley, persisted, there are examples of evidence of a collapse of social-ecological systems elsewhere. For instance, with introduction of the cash crops in Shipibo of the lowland of Peru, local farmers rapidly shifted from traditional practices under subsistence cropping (Behrens, 1989), abandoning their indigenous knowledge systems. Figure 2 has shown that over the multi-temporal scales of the reconstructed phases of the social capital of CBNRM in the Luangwa Valley, the social capital reached its growth stage.

The evolution of the social capital in Luangwa Valley renders much to the role of cultural curators, who have assisted to preserve much of the social capital over years in the background of adversaries. In the intervening time, opportunities were availed for reviving pervasive social capital, using both the internal and external legitimization to sustain it.

Internal legitimization involved local community based commitments. Local structures for co-management of natural resources within well defined boundaries of CRBs and VAGs, with democratically elected memberships, were formed. Community members were encouraged to directly and actively participate in decision-making in the local forms of governance. However, these social units (CRBs and VAGs) needed the support of policy and legislation to function effectively. Contrary to the expectations of the local communities to have more sanctioned authorities and powers over natural resources, ownership over natural resources has been retained by the state and only partial use rights have been reduced to the local communities. Despite these limitations, local social units have remained in relationship with government institutions, which link with hierarchy on the needs of the local communities.

The challenges and shortcomings in respect to forging sustainability of CBNRM from a social systems perspective are numerous. Some drawbacks have been highlighted by several researchers and workers (for example, Berkes, 2004; Blaikie, 2006) but the sources of the drawback still remain elusive. Whereas the factors determining sustainability of the social systems in CBNRM may be generic, they can, in fact, vary tremendously from one site to another. The current key drivers of the change in the social capital for Luangwa Valley were identified as: Leadership; Conditions for entrenched corruption; and



Functional human capital (skills and experiences) at base levels. The experience of the Luangwa Valley indicates that the drivers of change have largely been abrupt emergent external influences. Currently, the growth of the social capital has been stunted due to intrinsic elements in the human capital-leadership, conditions for entrenched corruption, and drained skilled personnel at the base level.

Leadership: Community leaders lost virtual but not symbolic respect among their subjects, the local communities, due to their focus on personal gains. It is widely contended that traditional leaders in the Luangwa Valley use their dictatorial tendencies to influence even the democratically elected natural resources management leadership. Loss of credibility has affected the trust and commitment among the local communities, consequently reducing the effectiveness of the devolution of authority, rights, and power to the community levels. Customarily, within the traditional setup, Chiefs, their traditional advisors (Traditional Council), and headmen may not be held responsible for their actions. This kind of leadership is autocratic in nature. On the other hand, the Zambia Wildlife Authority and other partners have been viewed by the local communities as portraying themselves as superior to the local communities, rather than being equal partners in the co-management of the natural resources. The state and traditional hegemony become antithetical to the devolution principles. Disapproval of local community, if not reversed would negate benefits of co-management, which, in principle, would take bottom-up approach. The disapproval proposes that the sense of inculcating innovations among the local communities may be counteracted.

Conditions for entrenched corruption: Community based governance has been challenged by the perceived corruption that is viewed to have been entrenched in the traditional and other community leaderships, including the legally established community based organizations – CRBs. Various forms of corruption (petty, grand, and political) have been cited to have occurred among the local leadership. These alleged and actual corruption tendencies undermine the growth of the social capital, which is based on trust and collective responsibility. For example, traditionally, the patron-client exchange of gifts between the traditional leadership and the subjects, including outsiders, are allowed particularly when the latter are requesting any favor or indulgence by the Chiefs, *indunas*, or headmen. These gifts have been occasionally taken as favorable conditions for corruption. Strengthening of targeted extension services and Faith Based Organization's outreach programs are likely to yield positive outcomes against corruption, thus redressing social capital at base level.

Functional human capital (skills and experiences) at the base levels: Deliberate training programs in ecosystem management and other essential elements, such as financial management, have been conducted to local community members. For example, village scouts engaged alongside ZAWA operatives, have been trained in basic resource management and monitoring. Local farmers have been trained in many courses, including crop and food security (crop raiding mitigations, and others). Furthermore, the limited tenure of the elected members on the community structures, such as CRBs, has also posed negative impacts as the institutional memory would be washed away on their wholesome departure in their respective portfolios, at the expiry of tenure. Retention of trained and skilled local community members has been weak. Therefore, for various reasons, purposefully withholding of these trained members of the local communities and other experienced members within their communities has not been achieved, resulting in "brain-drain" of the social capital. Consequently, the link between the human capital and social capital is likely to be further weakened (Adam & Roncevic, 2003). Human capital plays a critical

role in building the social capital. The latter internalizes the essential information and other benefits from human capital in the society.

## CONCLUSION

The social capital finds a place in influencing community responses to disturbances in the natural resources. Intervention aimed at building and sustaining various facets of social capital would require isolating the sources of the disturbance and mitigating against them. If the stakeholders were to address the problems and not employ the symptomatic approaches, as advocated by Jackson, Mosojane, Ferreira & van Aarde (2008), there would be need to pay more attention to the social capital aspects and develop them appropriately in a holistic manner. As such, the social-ecological system would sustain resilience and robustness or appropriately transform into a desirable state. Invariably, the social capital stocks would require to be measured regularly, *se* every ten years, for monitoring purposes. Indication of resilience of the social capital to disturbances and crisis, caused by either internal or external factors, is a more useful tool for measuring efficacy of the CBNRM. As such, degeneration in the social capital driven responses to the disturbance, such as wildlife crop raiding, is likely to give rise to increased disturbances.

The local organizational structures and processes of the social capital in the Luangwa Valley, from the pre-colonial times to date, have periodically gone through transient phases of destruction and re-organization. During these turbulences, some social capital elements have been sustained and new opportunities pursued, rendering social capital growth. For instance, traditional mitigation counter-measures against wildlife crop raiders evolved through the times. Different forms of social capital, bonding, bridging, and linking, among others, were enhanced. Nevertheless, new determinants of changes in the social capital have been identified. They are: Leadership; Conditions for entrenched corruption; and Functional human capital (skills and experiences) at the base levels. These determinants need to be addressed firmly if the social capital is to be enhanced. The determinants may not be constant with time, but they may change and so may the discursive emergent forces (internal and external factors). Ascribing to the concept of resilience, adaptive management and governance should be the norm for building social capital. Building of the social capital encompasses maintenance of skills transfer and absorption, enabling policy and legislative environment, functional local base governance structures with viable horizontal and vertical social connectedness (informally and formally), and processes, including respect to laid down guidelines for accountability and transparency, and within the democratic environment.

Community responses to mitigate the disturbances and crises, which occur in a dynamic and complex social – ecological system, should therefore, be integrative and holistic in nature. This supports the contention by Hill, Osborn & Plumptre (2002) that to concentrate solely on an ecological or economic evaluation of the situation is not appropriate because the way local communities comprehend and perceive themes and issues influences their responses to a particular situation. The ecological, social – political – cultural, economical realities are assimilated into the lifestyles and practices by the local communities by the use of experiences and networks.

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