

ASSESSMENT OF THE SUSTAINABILITY OF LIVELIHOOD CAPITAL ASSETS OF PASTORALISTS IN THE NORTH EAST ARID ZONE OF NIGERIA

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ABSTRACT

Assessing the sustainability of livelihood capitals of pastoralists need an in-depth analysis. Apart from being exposed to unpredictable environmental dictates, pastoralists continued to be victims of state policies and project intervention. In order to arrive at strategies for enhancing pastoralists' livelihood assets, this study assessed the sustainability of livelihood capitals assets of pastoralists in the North East Arid Zone of Nigeria. Cluster along with purposive sampling techniques were used in the selection of villages while snow balling sampling was used to select respondents. Interviews were conducted with 91 pastoralists' household heads. The livelihood capital assets of pastoralists were assessed using the Macqueen (2001) matrix. Data from this study show that natural capital asset, physical asset, relation of trust and access to wider institution and educational assets of pastoralists are unsecured. The only sustainable financial asset is livestock worth which serves as source of income, savings, investments and insurance. Hence any threat to livestock will have serious blow on the livelihoods of pastoralists. The study suggest negotiating access to grazing land, water and forest resources as way to improve the constraints to natural resource access among pastoralists.

Keywords: Livelihood, Pastoralist, Sustainability, Access, Assets

Introduction

Pastoralism is among the most important economic activities in the Sahelian zone that provide over 16 million people a livelihood (Berger, 2003). Livelihood change among mobile pastoralists is a recognised phenomenon (Greenough, 2007). Apart from being exposed to the vagaries of unpredictable environmental dictates, pastoralists have continued to be victims of inappropriate state policies and project interventions. "Indeed, they are probably the most marginalized producing group in Nigeria

terms of policy attention beyond the rhetoric of failed livestock development projects" (Iro, 2008). All these impact negatively on rural livelihoods, food security and socio-political security problems. At the producer level, indications are that producing families are progressively being impoverished as a result of factors that have led them to either de-stock or abandon livestock production entirely (PARE, 2006). There are numerous incidences of impoverishment and livelihood change in

pastoral societies following transformations in land use (Broackington, 2004)

Despite the importance of land in determining the sustainability of livelihood of a pastoralist, land is a factor over which pastoralists still have limited access and control (Nori, 2007). The balance of power between pastoralists and farmers gradually shifted in favour of farmers (Leonard and Longbottom, 2000). Shettima and Tar, 2008 cited power as what pastoralists lack (Shettima and Tar, 2008). *"When conflicts occur between farmers and pastoralist, the states appear to listen (only) to farmers, thus leaving the pastoralist helpless and defenceless victims"* (Hussein, 1998). The extent of pastoralist political powerlessness is evident in Hadejia - Jama'are wet land where rules governing the trespass of animal are made and enforced by farmers with inherent bias against pastoralists (Shettima nad Tar, 2008).

The definition of 'livelihood' has been extensively discussed among academicians and development practitioners. There is a consensus that livelihood is about the ways and means of making a living (Chambers and Conway, 1992; Carney, 1998; Francis 2000, 2002; Eliss, 2000). The most widely accepted definition stems from the work of Robert Chambers and Gordon Conway (1992): a livelihood comprise of the capabilities, assets (including material and social) and activities required for means of living (Caney, 1998). Eliss (2000) suggests a definition of livelihood as 'the activities, assets and access that jointly determine the living gain by an individual or household'.

Assessing the sustainability of livelihood capitals of pastoralists therefore, need an in-depth analysis. This is what this study sets out to do with respect to North East Arid Zone of Nigeria. Such knowledge is very useful for various stakeholders working in pastoral areas in indicating appropriate actions to improving

the well being of the pastoralists. Enhancing pastoralists livelihood is central in any policy aimed at preventing pastoralists- farmers conflicts over the use of natural resource.

Study Area

The North-east arid zone of Nigeria occupies limited area west of Lake Chad and covers North-eastern parts of Borno and Yobe States. It lies between latitude 12°00 to latitude 13°28 and longitude 09°45 to longitude 12°00 12°30. (Fig. 1). The region is aptly described as the major wetland in the semi-arid Sahel corridor, supporting some 11 million people (FAO, 2004). The region consists of the plain land; it falls within the extensive landscape of Borno plain that stretches from Gumel in Jigawa state through Nguru. Adams and Hollis (1987) noted that, dominating the relief, soils and ecology of the whole area are fixed dune fields, low sand hills varying in height from 10 to 30m and in width from 300 to 400m, running in a NE-SW direction, sometimes reaching several kilometres in length.

The main inland drainage in the study area is river Yobe and its tributaries which cover a distance of about 400 kilometers. The climate of North East Arid Zone of Nigeria is a tropical, with definite wet and dry seasons. The area experience uniform weather; the rainfall has its peak in August. The mean rainfall in the study area is about 443.94mm. The study area has tropical vegetation and is characterised by scattered shrubs, thorns such as Acacia Albida (*Gawo*), Acacia Nilotica (*Gabaruwa*), Tamrindus (*Tsamiya*), Baobab (*Kuka*) and cummiphora spp. The tree mostly found are xerophytic in nature while the grasses are seasonal grasses which dry up during dry season. It is a region of short grasses (such as Aristida spp. and Chlons spp.) and small, often thorny trees with small leaves (Acacia Senegal and Greia spp.) (Omotoye, 2002). However, the natural vegetation of this region has been seriously tempered mainly due to

anthropogenic factors. Floodplains provide important dry season pastures, exploited in

particular by partly nomadic pastoralists (Adams and Hollis, 1987).

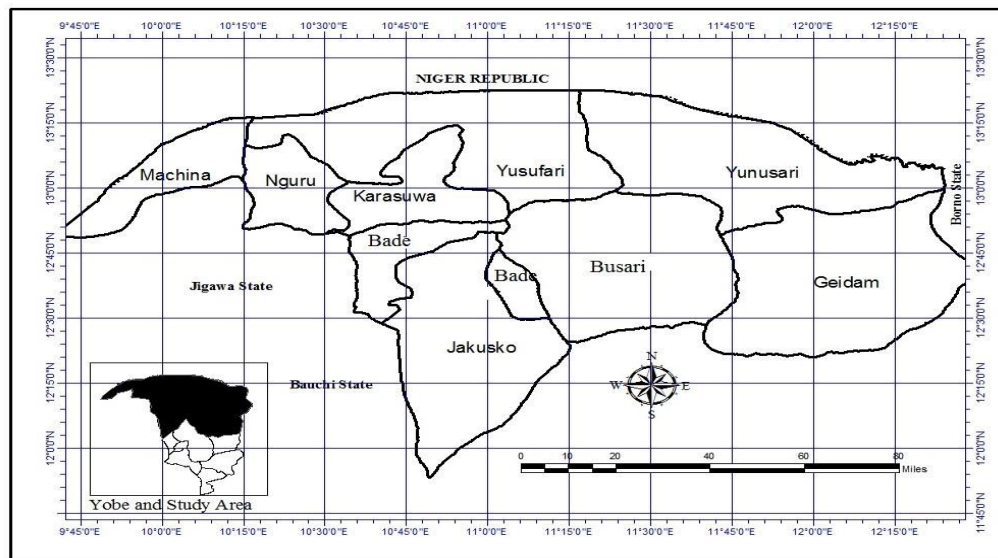


Fig. 1. The Study Area

Agriculture has a unique position in the economy of the region. Farming is subsistence, basically for consumption purpose. It is estimated that pastoralism, in its various forms, provides the means of livelihood to large per cent of the population of the area. In contrast to other regions in Africa, transhumance pastoralism is a dominant livestock production system in West Africa, this is due to a complex set of factors, the most important of which is that the region is characterised by mono-modal rainfall increasing from north to south (De Leeuw, 2009). This includes raising of cattle, sheep, camel and goats.. It was estimated by the Yobe State Ministry of Animals and fisheries that the study area has about 6,000,000 goats, 7,000,000 sheep and 5,000,000 cattle.

Method and Procedure of Data Collection

Cluster along with purposive sampling techniques were used in the selection of villages. The area was divided into twenty clusters upon which four clusters were selected on the basis of certain criteria. The first cluster zone is an area that contains Grazing Reserve while the second cluster zone is an area sharing a common boundary with the Niger Republic. The third and the fourth cluster zones are areas that facilitate year-round cropping and a major cattle route leading to the south that passes through the study area respectively. In each zone, pastoralists were selected using snow ball sampling. A few mobile pastoralists were identified and used to link the researcher to other members of the pastoralists network. Both primary and documentary sources of data were used in addressing objectives of this study. For primary sources, information were obtained through household survey, focus group discussion, oral histories and Geo- coded

transect walk. These methods were complemented with personal field observation of land use practices.

In zone one, two, three and four, 30,21,24 and 16 pastoralists were selected for interview. A total number of 91 respondents were interviewed. The level of saturation at each zone was arrived when no other names were given by the members of the mobile pastoralists network. The interviews were conducted with the head of household, but if he or she was unavailable then another member of the family

judged to have detailed knowledge of livelihoods was interviewed. Where such person was not available, the household was revisited at a more convenient time. Focus group discussions were undertaken at water points and markets. These separate and independent settings were selected to encourage participants to feel comfortable, ease access and reduce any inconveniences the interview might have caused them. Eight FGDs were conducted with pastoralists in eight settlements/sites (two in each zone).

Table 1: The sites and number of Focus Group Discussions conducted

S/N	Zone	Village/Sites	No. of FGDs	Number of Participants
1	Zone A	Balturam Water point	1	12
		Waganga Water point	1	10
2	Zone B	Kachallari Market	1	11
		Kotufa Water point	1	12
3	Zone C	Jawa Market	1	12
		Dachia Market	1	10
4	Zone D	Boso Water point	1	9
		Kallari Water point	1	12

Transect walk basically involves systematic walking with local people through the area they use and observing, asking questions and listening (Waters- Bayer and Bayer 1994). In this study transect walk was done in the company of key informants. Transect walk was conducted at each of the four selected zones. The targeted points are water points, stock routes, grazing site and farm land area. At each walk, encroachment of stock route, available water points, access to water points and grazing sites were observed and explanations were sought from the stake holders. To confirm what was reported during interviews of respondents, personal field observation was carried out to gather data from live situations of what was taking place in situ. Throughout the field work observations were made by the researcher on land use practices surrounding water points, infrastructure provided at grazing reserves, nature of access to pastoral resources and environmental degradation due to grazing practice. Sustainable livelihoods (SL) framework

was used in generating and analysis of data for sustainability of livelihoods. The study adapted a version of the sustainable livelihood approach, which emphasizes assets endowment, for understanding vulnerability, options, strategies and outcomes (DFID, 1999). Qualitative data generated was analyzed using constant comparison or grounded theory while quantitative data generated through household survey was analyzed using statistical analysis programme (SPSS 16.0).

Results and Discussions

Livelihood Capitals of Pastoralists

The natural assets of pastoralists consist of the grazing land, forest and natural water points. While access to these remain necessary for survival of pastoralist, transect walk and field observation reveal that pastoralists do not have secured access to grazing land, forest and water points. Where they have access, tenure is inadequate. This study reveals that inadequate grazing land and water points that undermined

pastoralist livelihoods accounts for incessant conflict between them and their host communities. Fabusoru (2007) noted that when grazing land is adequate to pastoralists, they can manage other resources and sustain their livelihoods.

The social capital refers to formal and informal social relationships, including their degree of trust, reliability and adaptability. Fabusoru (2007) noted that it includes social status and social privileges accruing from social networks. Pastoralists have effective social network that minimises risks in times of stress. These social networks enable them to explore areas of abundant resources and avoid areas vulnerable to diseases and conflicts. It also offers them opportunity to good market. Findings from key informant interview reveal that social network among pastoralists had reliably influenced the security of their livelihoods. Pastoralists protest for their rights and against injustice through these social networks. In case of deprivation or injustice, pastoralists may sanction market or town.

Information about grazing land and available water points is usually gathered through social networks and interactions. However, degree of trust is more among pastoral groups than between them and their host communities. The poor relationship and degree of trust between pastoralists and host communities increase the vulnerability of pastoralists as revealed by key informant interview and validated by focus group

discussions. The poorer the degree of relationship and trust between a pastoral group and host communities, the lower the access to resources of the pastoral group as resources are mainly under the control of the host communities.

The human assets of pastoral household include skill, knowledge, labour and good health to pursue livelihood. In the study area, findings from key informant interview, focus group discussion and transect walk show that pastoral human capital is characterised by skills to take decision on issues related to household. The pastoral household is headed by the most elderly person in the household, who takes decision on all matters related to livelihoods. Head of household usually explore and decide areas of grazing, migration and market. Households head in pastoral societies usually had knowledge on security of livelihoods. Data from transect walk and field observation reveal that herders boys handle grazing and livestock caring.

The pastoralists are blessed with skills assets for controlling herds and knowledge of agro-ecological dynamics, resource availability, livestock diseases and its traditional cure and knowledge of climatic pattern for understanding climatic conditions(see box 1). In periods of crises and stress, pastoralists have knowledge of coping strategies to recover from shock and stress.

Box 1: Pastoralists knowledge asset

We used our indigenous knowledge detect whether there will be enough rain or drought. And from direction of wind movement, we can know changes in different seasons

Interview with pastoralist during transect walk

The physical assets comprise the basic infrastructure and producer goods needed to support livelihoods (DFID, 2000). Normally the physical assets of pastoralists include clinics, veterinary clinics, nomadic schools, shelter, boreholes and wells. Data generated from

transect walk and field observation show that pastoralists lack physical assets compared with settled population. In the whole study areas, there is no functional veterinary clinic in grazing reserve, no borehole dedicated to pastoralists, no functional nomadic school and their shelter

is constraint through physical isolation, lack of communication and security.

The financial assets of pastoralists is the livestock, both in terms of stock and flows. Pastoralists have no other financial assets like cash at hand, cash at bank and remittance that can help them to recover from shock or stress. When a pastoralist lost his livestock, he goes bankrupt. Pastoralists have poor knowledge of alternative income generation activities and due to their lack of education, cannot identified investment opportunities outside the pastoral economy.

Assessment for sustainability of livelihood capital assets of pastoralists

The livelihood capital assets of pastoralists were assessed using the Macqueen (2001) matrix for assessing assets and determining livelihood sustainability. Macqueen provided five levels of livelihood security (unsustainable, constraint, sustainable, progressive and abundant) and its

indicators. Livelihoods that falls under sustainable, progressive and abundant levels are considered secured while those that fall under unsustainable and constraint levels are unsecured. Macqueen livelihoods assessment matrix is provided in Appendix 1.

Data in table 2 show that the natural resource assets of pastoralists are unsecured. About 16.5%, 6.6%, 3.3% and 86.8% of pastoralists have their grazing land, water point, farm land and forest resource assets are unsustainable respectively. Grazing areas are degraded by over grazing and desertification; water table has dropped due persistent drought and flow of River Yobe reduced due activities at upstream. Also 81.3%, 89%, 96.7% and 13.2% of pastoralists grazing land, water point, and farm land and forest resource assets respectively are constrained due to poor access to natural resource capitals respectively.

Table 2 Natural Capital Assets of Pastoralists

Type of Asset	Responses	F	%
Grazing land asset	Unsustainable	15	16.5
	Constraints	74	81.3
	Sustainable	02	2.2
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
Water point asset	Unsustainable	06	6.6
	Constraints	81	89.0
	Sustainable	04	4.4
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
Farm land asset	Unsustainable	03	3.3
	Constraints	88	96.7
	Sustainable	0	0.0
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
Forest resource asset	Unsustainable	79	86.0
	Constraints	12	13.2
	Sustainable	0	0.0
	Progressive	0	0.0
	Abundant	0	0.0

	Sub Total	91	100
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Where they have access, the tenure is usually limited and conditional. Natural water points are surrounded by farm, hence inaccessible to animals. Stock route are encroached by farmer making movement of stock to available grazing areas nearly impossible. Grazing reserves are converted to large scale farms by influential politicians.

Forest resources are limited by government policies. The establishment of Dagona wild life conservation area resulted in limited access of

forest resources to pastoralists in the study areas.

Data in table 3 show disparity among the indicators of social assets of pastoralists' livelihood security. The networks and membership assets are secured. Data Generated (table 3) shows 86.8% and 80.2% of pastoralists have their network and membership assets sustainable, while 13.2% and 19.8% network and membership assets are constraint

Table 3 Social Assets of Pastoralists

Type of Asset	Responses	F	%
Network asset	Unsustainable	0	.0
	Constraints	12	13.2
	Sustainable	79	86.8
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
Membership asset	Unsustainable	0	.0
	Constraints	18	19.8
	Sustainable	73	80.2
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
Relationship of trust asset	Unsustainable	85	93.4
	Constraints	6	6.6
	Sustainable	0	0.0
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
Access to wider institutions asset	Unsustainable	70	76.9
	Constraints	21	23.1
	Sustainable	0	0.0
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100

Source: Field work by researcher 2010

Contrary to general belief, pastoralists are social people and have highly effective networks among themselves. These reliable networks ensure security of their livelihoods. They participate in religious activities with defined

social status and recognition to Islamic scholars among them.

Pastoralists have local organisations through which to seek for rights and privilege.

In case of deprivation of rights, they sanction a host community through social stick “*fulaku*”. Majority of pastoralists have secured skill assets. Table 3 indicated that 52.7% of pastoralists have sustainable skill assets, while only 34.1% and 13.2% have constraint and unsustainable skill assets. Pastoralists have in-depth knowledge of detecting patchy resources to ensure livelihood strategies and coping mechanism. Other skills assets of pastoralists include indigenous knowledge of climatic pattern and livestock physiology and productivity. Pastoralists have local skills of breeding to ensure productivity. Ability to pursue livelihood requires good health. Despite the erratic environmental conditions characterising pastoralism, pastoral households have good health condition. Majority of pastoralists’ (90.01%) health asset is sustainable while only 9.9% is constraint. Contrary to the belief that poor health facilities of pastoralists may lower their health status, pastoralists used

their local knowledge in health care and prevention.

Pastoralists’ girls and women are productive and hence responsible for the sustainability of women among pastoralists household. Data in table 3 shows that about 82.4% of women productivity among pastoralists household are sustainable while only 17.6% are constraints. Women and girls involved in milk processing and marketing and fetching water. In times of crises, women care for animals while men go for war.

Physical assets are vital in ensuring alternative and complementary resources such as health care, market exchange, water among others (Nori, et al. (2005). Table 4 show that physical assets of pastoralists are not secured. Among pastoralists households 83.5%, 97.8% and 98.9% have unsustainable shelter, farm implements and house utilities respectively, the remaining 16.5%, 2.2% and 1.1% of pastoralists’ shelter, farm implements and house utilities respectively are constraint.

Table 4 Physical Assets of Pastoralists

Type of Asset	Responses	F	%
Shelter	Unsustainable	76	83.5
	Constraints	15	16.5
	Sustainable	0	.0
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
Farm implements	Unsustainable	89	97.8
	Constraints	2	2.2
	Sustainable	0	0
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
House utilities	Unsustainable	90	98.9
	Constraints	1	1.1
	Sustainable	0	0.0
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100

Source: Field work by researcher 2010

Generally, pastoralists have limited ownership of physical capital, especially compared to more settled communities. The low level of physical assets of pastoralists is associated with their constant mobility.

Table 5 shows that financial assets of cash at hand, cash at bank and remittance of pastoralists are unsustainable while only

livestock worth is sustainable. In essence, any threat to livestock worth that serves as source of pastoral income, savings, investment and insurance will have serious blow to entire pastoral financial capital. Inability of pastoralists to have cash at hand, cash at bank and remittance increased their vulnerability.

Table 5 Financial Assets f Pastoralists

Type of Asset	Responses	F	%
Cash at hand	Unsustainable	88	96.7
	Constraints	0	0.0
	Sustainable	0	3.3
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
Cash at bank	Unsustainable	90	98.9
	Constraints	1	1.1
	Sustainable	0	0.0
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
Remittance	Unsustainable	79	86.8
	Constraints	10	11.0
	Sustainable	2	2.2
	Progressive	0	0.0
	Abundant	0	0.0
	Sub Total	91	100
Livestock worth	Unsustainable	1	1.1
	Constraints	11	12.1
	Sustainable	61	67.0
	Progressive	14	15.4
	Abundant	4	4.4
	Sub Total	91	100

Source: Field work by researcher 2010

Conclusion

The ability to pursue different livelihood strategies is dependent on the basic material and social tangible and intangible assets people have in their possession. Data from this study shows that natural capital asset, physical asset, relation of trust and access to wider institution and educational assets of pastoralists are unsecured. The only sustainable financial asset is livestock worth which serves as source of

income, savings, investments and insurance. Hence any threat to livestock will have serious blow on the livelihoods of pastoralists. The unsustainable livelihood assets of pastoralists need to be improved. This can be achieved through educating, encouraging and giving access to micro- credits by pastoral groups. This will reduce effects of shock and facilitate restocking that serves as financial asset to

pastoralists. Unsustainable social assets due to relationship of trust and access to wider institution should be improved through involving traditional and religious leaders on need for respecting and supporting means of livelihood of resource users, farmers and

pastoralists. Exchanges and visits among groups can also improve the social asset while constraints to natural resource assets should be improved through negotiating access to grazing land, water and forest resources.

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Appendix 1: Livelihood indices

	Unsustainable	Constrained	Sustainable	Progressive	Abundant
Score	0	5	10	15	20
Livelihood Assets Components					
Financial (Cash at hand Investment worth, cattle)	Destitute – not enough money for basic essentials	Lack of credit and finance restricts livelihoods to subsistence despite other assets	Sufficient finance to purchase non- essential items given absence of other constraints	Enough finance to overcome restrictions in other capital assets	Rich-sufficient wealth to overcome any shortage in other capital assets
Physical (Infrastructure building and housing)	Isolated – insufficient infrastructure to access necessary resources for survival	Physical isolation and lack of communication restrict livelihoods to subsistence despite other livelihoods	Sufficient infrastructure to improve condition through trade given absence of other restrictions	Infrastructure sufficiently good to allow alternative livelihoods options despite restrictions in some areas	Connected - access to products and services so easy that livelihoods opportunities are abundant
Natural (Grazing resources water and agricultural land)	Degradation – land failure due to irrevocable degradation of land resources	Restriction to grazing Land, water and land due to land tenure systems	Enough land resources for crop production and grazing to allow cash sale or grazing access given absence of restrictions	Land and grazing resource surpluses are sufficient to overcome restrictions in other areas	Verdint – natural resources so plentiful that adequate livelihoods are guaranteed
Human (Educational status health status and household labour)	Uneducated - education and skills so limited that opportunities to survive cannot be taken	Lack of education and training restricts options to other livelihoods despite other assets	Enough education and skills to develop non- subsistence opportunities given absence of other restrictions	Skills and education are sufficiently in demand that other livelihoods restrictions can be overcome	Educated – skills and training offer more than one livelihoods opportunity
Social (Networks and cosmopolitene-ss)	Oppressed – institutions persecute or fail to protect livelihoods	Social organization so weak that it restricts livelihoods options despite other assets	Social networks allow the development of organized support structures for non-subsistence activities given absence of other restrictions	Social structures sufficiently strong to compensate for restrictions in other areas	Supported – social structures offer varied employment and income generation