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Impact Assessment of Recurrent Droughts on Agricultural and Pastoral Communities in Somaliland

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Abstract: **The study focuses on the assessment of the impacts of recurrent droughts on agricultural and pastoral communities in Baligubadle and Gabiley Districts of Marodiheh Region, Somaliland. Many parts of this country with limited water availability pose serious challenges to development. In the year 2008 it estimated that 150,000 pastoralists in the coastal areas were affected. The study adopted both qualitative and quantitative approach. The quantitative data gathered was analyzed using SPSS, while qualitative data was analysed using content analysis, themes, explanations, descriptions and photography. The sample size used was 384 and this was drawn from target population of 14560 respondents based on Solvents formula for sample selection. The findings showed that impact of drought is reflected in a failed harvest of crops and Livestock production. The frequent droughts severely affected them leading to experience food insecurity, limited water for both human and animal consumptions. The highest proportion of the study attributes the causes of the recurrent drought to Natural factor endowment (rainfall scarcity), while others associate it to factors like deforestation, soil erosion. Possible drought tolerance mechanisms were based on variables like relevancy of services, actual service delivered, quality, and quantity.Inconclusion,the objectives of the study were attained, respondents were able to point drought directly by identifying its impacts and effects on livestock and crops in individuals, household and community levels. The study recommends that agricultural extension and veterinary service delivery should receive massive investment and a renewed commitment and vision to generate a fundamental change in the lives of the poor livestock and crop farmers. Most important fall, afforestation, reforestation, agro-forestation and refrain from environmental degradation through forest cover clearance and charcoal burning must be a priority. It also recommends the above areas to be further studied by NERAD and relevant ministries.**

Keywords: **impact assessment, drought recurrent, agricultural, pastoral communities, Somaliland.**

I. INTRODUCTION

Droughts are one of the main weather-related disasters, but have significantly different characteristics from other types of disasters. It is a slow, creeping event, for which neither the beginning nor the end may be clearly defined (Peters, 2003).

The United Nations International Strategy for disaster reduction defined Drought as deficiency of precipitation over an extended period of time, usually a season or more, which results in a water shortage for some activity, group, or environmental sectors. In order to explicitly define drought contingency plan, it is necessary to further provide the various definitions of drought as may be relevant (ISDR, 2012). The severity of the drought depends upon the degree of moisture deficiency, the duration and the size of the affected area. (droughts.tripod.com). Drought is considered a worldwide phenomenon affecting broad regions and causing economic losses and significant damage to human lives (Beran-and-Rodier, 1985). Severe drought in tropical forests can lead to soil water deficits, decreased productivity, and Carbon dioxide (CO2) emissions, and increased mortality rates (Allen, 2010). Droughts accompanied by warmer temperatures can

increase forest respiration, thereby releasing further CO2 into the atmosphere (Adams, 2010). Drought differs from aridity, which is characterized by a dry climate with low precipitation and high evaporation losses. Coordinated actions of the international community are urgent in order to address the root causes of disasters and to significantly increase national, local and community capacities to reduce their vulnerabilities (ISDR, International Strategy for Disaster Reduction, 2007).

Australia drought in 2002, was the most severe drought in last 100 years, it was associated with El Niño1, the irregular warming of the equatorial Pacific Ocean that occurs about once every three to seven years. Most major Australian droughts over the last 100 years are associated with El Niño (Trenberth, 1997).

The Horn of Africa drought crisis of 2011 affected 13 million people, pastoralist and agro-pastoralist communities were the worst affected it mainly affected southern Ethiopia, south-central Somalia and northern Kenya (IFRC, 2012). The pastoralist core of the crisis was a challenge to Governments and humanitarian agencies that have weaker relationships and less developed humanitarian expertise with pastoralist communities than with agriculturalist communities, and that struggle to align necessary cross-border strategies (IASC, 2012). The drought of 2011—the driest year on record in many affected areas—struck deep into an already fragile economy. It ramped up a chronic livelihoods crisis into a tipping point of potential disaster by putting extreme pressure on food prices, livestock survival, and water and food availability. At the root of the crisis was a chronic vulnerability that saw many poorer pastoralist and farming communities facing almost constant crisis and regular shocks of various types (IASC, 2012).

Somaliland is mainly composed of arid lands with poor rainfall distribution pattern ranging from 50 to 500 mm per annum (FAO, 2008). Population vulnerability to disasters is predominantly influenced by variations in climatic pattern (e.g. delayed rains or partial failure of rains, floods, droughts etc.). The structural causes of the high degree of vulnerability of the population (especially pastoral communities) to disasters and the factors affecting them are complex and varied (NERAD, 2011). The total area of the Republic of Somaliland is 137,600 km² with a coastline of 850 kilometres long. Climactically, Somaliland is semi-arid. The country has a warm climate with the average daily temperatures range from 25-35oC. The sun passes vertically overhead twice a year, on 22nd March and 23rd September (NERAD, 2011).

El Niño means “the boy” in Spanish and refers to the infant Jesus Christ (Trenberth, 1997). This expression was originally used by fishermen along the coasts of Peru and Ecuador to describe the warm southward ocean current that typically appears in their fishing area during the Christmas season and lasts for a few months.

Somaliland consists of three main topographic zones, the coastal plains- (Guban) meaning burnt the coastal range- (Ogo), and the plateau- (Haud) (Ingrid Hartmann A. J., 2009). The backbone and the source of wealth of Somaliland’s economy is livestock. About 65% of the Population depends either directly or indirectly on livestock and livestock products for their livelihood. Crop husbandry provides subsistence for about 20% of the country’s population (SLMoNPD, 2009).

In Somaliland droughts are very common, in the year 2008 it estimated that 150,000 pastoralists in the coastal areas had been affected (NERAD, 2011). In 2011, after several years of successive rainfall failures have particularly affected pastoral and agro-pastoral communities, normatively, they have been compelled to travel vast distances to find grazing for their animals and other means of survival. Meanwhile, reduced agricultural productions have led to a dramatic increase in the price of food commodities, particularly cereals (FSNAU, 2012).

This study demonstrates the consequences of recurrent droughts to the development of Somaliland; by investigating the effect of droughts for pastoral and agro pastoral communities in their resilience capacities to prevent and resist the frequent droughts. The general objective of this study was to assess the impact of the recurrent droughts on agricultural and pastoral communities in Baligubadle and Gabiley Districts of Marodijeh Region, Somaliland. Specifically, it sought to examine how the droughts upshots affect the socio-economic development of agro and pastoral communities. Also analyse the main causes of recurrent droughts, and finally, it establishes possible drought tolerance mechanisms and assess the relevancy, quality and distance of service delivery in livestock and agro production.

It is also a reference for many researchers, including students, NGOs, and even other people who have interest on the subject matter. Specifically, the study is benefiting to the following: Government of Somaliland in particular the ministries of Environment, Livestock and agriculture and NERAD. Non-governmental Organizations (NGOs). Researchers on the subject matter will also refer this study for citation.

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2. METHODOLOGY

2.1 INTRODUCTION

This research employed a descriptive cross sectional survey' it added advantage over the other designs because Information is obtained from a sample rather than the entire population at one point in time, within a short span. Surveys are only concerned with conditions or relationships that exist, opinions that are held, process that are going on and effects that are evident. For these advantages of survey design, it was thus deemed appropriate for the study.

2.2 RESEARCH POPULATION

The target populations of this study were agro-pastoral and pastoral communities in Gabiley and Baligubadle respectively. Referring the district profiles; the total households of these Districts are over 14560 households, (110007 in Gabiley and 35608 in Baligubadle).

2.3 DATA COLLECTION METHODS

The researcher collected both qualitative and quantitative data, though; the research shall largely be qualitative by nature and approach. This shall be done using key informants guide, interview schedule, and focus group discussion guide. The researcher employed open and close ended questions. The questions focused on the key issues as rose in the study. Once again, the researcher preferred data triangulation due to the nature of the research and the research questions rose thereof as well as their specific advantages over other tools of data collection at any given rate.

2.3.1 QUESTIONNAIRES

Questionnaires were administered to 348 respondents. Their composition ran across the pastoral, agricultural and agro-pastoral communities in Gabiley and Baligubadle Districts; since majority of the respondent were unschooled the questionnaires were filled as interview schedule; taken by the research and his assistant team. Questionnaires also captured both objective and subjective responses; whereas probing/open ended questions reinforced objective responses by creating clarity.

2.3.2 KEY INFORMANTS INTERVIEW

This section was based on 36 key informants' interviews from National Environment Research and Disaster-preparedness (NERAD), Ministry of Livestock, Ministry of Agriculture, local councils of the target districts, traditional elders, Candlelight (Local organization) and Food Security and Nutrition Analysis Unit (FSNAU). The interviews administered to the key informants selected among the respondents. This method was preferred because the key informants are believed to have the necessary information required of them concerning the situation under study

2.4 VALIDITY OF THE RESEARCH INSTRUMENTS

Face validity was used to verify the accuracy of the research instruments in the study. The researcher established the validity of the instruments by ensuring that the tools designed was pretested. Alongside this, the research instruments were presented to experts from Kampala University and the adviser for scrutiny. The experts read and judge the instruments independently and make recommendations that were considered to design a better instrument which enabled to generate the information needed.

2.5 LIMITATIONS OF THE STUDY

In view of the following threats to validity, the researcher stated an allowable 5% margin of error 0.05 level of significance. Measures are also indicated in order to minimize if not to eradicate the threats to the validity of the findings of this study, extraneous variables which were beyond the researcher's control such as respondents' honesty, personal biases and uncontrolled setting of the study. Therefore a validity and reliability was done to produce a credible measurement of the research variables.

2.6 ETHICAL CONSIDERATIONS

The researcher sought the informed consent of the respondents to participate in this research. However, the researcher explained to the respondents how they have come to be selected for this research, and assured them of confidentiality and clearly indicated to them that the information gathered would be used only for the purpose of this study. Appointments

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made with the respondents to seek for their convenient time and venue for the meetings. The researcher took individual responsibility for the conduct and consequences of the research by adhering to the time schedule agreed upon with the respondents. The researcher also was open and honest when dealing with respondents. The respondents as well assured of getting the feedback about the research out come if need be.

3. RESULTS AND DISCUSSION

3.1 DISCUSSIONS: DROUGHT EFFECTS FOR AGRICULTURE AND LIVISTOCK

This chapter presents the analysis and discussion of findings in line with the study objectives and the items have been arranged section by section within the chapter.

Table 3.1: Primary Income

Respondents Category	Frequent	Percent %
Pastoral	128	36.9
Agricultural	60	17.5
Agro-Pastoral	158	45.6
Total	346	100

Source: 3.1 Primary Data, 2013

The table above shows that, out of (346) respondents, their primary source of income proportion of (45.6%), relies both on agriculture and livestock and (36.9%) rely on livestock only. Others,(17.5%) relied on agriculture (crop production).Therefore, majority of the respondents have livestock and agriculture as their primary source of income, followed by those whose basic income is dependent on livestock alone, and lastly those whose income source is based on agriculture(crop production) alone. This is mainly because the population in this area are dependent on agriculture that is rearing of animals and growing of plants/crops. However due to the weather vagaries and other related problems, the agricultural farmers form the smallest percentage. Nevertheless, the livestock farmers are more than agricultural farmers because the community is typically pastoral, and alongside this, though bad weather affects the livestock farmers their choice of enterprise is more reliable than those dependent solely on agriculture alone. Some farmers preferred both enterprises of rearing animals and growing crops. The reason behind is to diversify the economy in order to stand eventualities which might affect the bases of income or livelihood strategies.

Table 3.2: What are the impacts of the recurrent droughts on agricultural Production in the last twelve years?

	Frequency	**Percent %**
Failed Harvests of crops	134	38.6%
Poor cultivation	72.8	21%
People disappointed for cultivation	110	31.6%
Other	30	8.8%
Total	347	100%

Primary data, 2013

The table in 4.2 above shows that out of 347 respondents from the study area. The highest proportion (134) (38.6%) experience a gross impact of drought as reflected in a failed harvest of crops. This is followed by 72.8, (21%) of respondents who fall in the category of people who have gotten disappointed to a level where they wish to disengage themselves from agricultural activities. The other categories were those who were affected by the long spell of drought forming a proportion of 110, (31.6%) of the respondents. This category of the respondents argued that, they attribute their poor cultivation as resulting from the impact of drought. And 30 (8.8%) of the respondents indicated that, they attribute the low output to other factors like: the dependence of foreign aid like World Food Program (WFP) and other organization's food distribution and absence of Government involvement about this issue. The majority of the respondents argued that, the impact of the drought on agricultural production is felt more when there is a failed harvest than getting discouraged to engage in agricultural production and eleven attribute drought with poor cultivation whereas (30) attribute low agricultural productivity to the other factors.

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Table 3.3: What are the impacts of the recurrent droughts on your livestock for the last twelve years?

	Frequency	Percent %
Livestock Death and Diseases	146	42.1
Production decreased	103	29.8
People disappointed to rear the livestock	73	21.1
Other	24	7.0
Total	346	100.0

Primary data, 2013

The table in 3.3 above shows that out of 346 respondents from the study sample, the highest proportion (146) (42.1%) experienced a gross impact of drought as reflected in a decreased production and product output levels experienced diseases which created livestock death. The other categories were those who were affected by the long spell of drought forming a proportion of 103, (29.8%) of the respondents who claimed that, they got discouraged to rear livestock due to the recurrent droughts that affect quality of the livestock as well as the products and the market. This category of the respondents argued that, they attribute their poor production as resulting from the impact of drought. The majority of the respondents argued that, the impact of the drought on livestock production is felt more when there is a low production and output levels, followed by diseases outbreak, lack of motivation from the farmers side to continue operating under unpredictable conditions and increased livestock deaths, and other external factors than what is within the prescribed factors affecting livestock productivity.

Table 3.4: How does the frequent drought affect your livelihood?

	Frequency	Percent%
Increased Food Insecurity and poverty	237	68.4
Limited water for both human and animal conception	79	22.8
Increased Dependency	30	8.8
Total	346	100

Source: Primary Data, 2013

The table 3.4 above shows that out of 346 respondents from study sample. The highest proportion 237(68.4%) argue that frequent drought severely affects them when they experience food insecurity. This is followed by 18(31.6%) of respondents who fall in the group of 79 who experience the weight of the recurrent drought on their livelihood when there is limited water for both human and animal consumption. The other categories were those who tally at 30(8.8%) of the respondents who fall argued that the effect or impact of drought is severely felt when there are signs of malnutrition and tendency of dependency.

Table 3.5: What do you think are the main causes of the recurrent droughts in your area?

	Frequency	Percent%
Rainfall Scarcity	109	31.6
Soil erosion	61	17.5
Deforestation	103	29.8
Allah Caused	73	21.1
Total	346	100.0

Primary Data, 2013

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Table 3.5 shows that out of 346 respondents of the study sample, the highest proportion 109(31.6 %) attribute the causes of the recurrent drought to natural factor endowment (rainfall scarcity). This is followed by 103(29.8%) of respondents who attribute the causes of drought as resulting from deforestation. The other categories were those 73 (21.1%) of the respondents who content that the causes of recurrent drought is as a result of natural factor endowment where nature rewards different areas differently (Allah's wish), and 61 (17.5%) fall in the group of respondents who attributed the causes of the recurrent drought in this region to manmade factor which brings about soil erosion and depletion.

Table 3.6: What are the best mechanisms that you think can be adapted to prevent the recurrent droughts

	Frequency	**Percent**
Coming up National strategies among coping the challenge	231	66.7%
Digging Dams	91	26.2%
Reforestation	6	1.8%
Create livestock paddocks	18	5.3%
Total	346	100%

Table 3.6 above shows that out of 346 respondents from the sampled population, the highest proportion 231 (66.7 %) fall in the category of respondents who are in support of developing national strategies for mitigating the challenge to come up the best coping mechanisms. This is followed by 91 (26.2%) of respondents who fall in the group who are of the idea of the construction of dams. The other age categories were those proportion who constitute 18(5.3%) of the respondents who fall in the bracket of those who are of the ideas that, livestock paddocks be created as the best copping strategy and another proportion of 6(1.8%) fall in the group who are of the ideas of reforestation as the best copping strategy.

Table: 3.7: Which season (s) in which agricultural productivity is high?

	Frequency	Percent%
Spring	261	75.4
Summer	12	3.5
autumn/Fall	73	21.1
Total	346	100.0

Primary Data, 2013

Table 3.7 showed that out of 346 respondents from the sampled population, the highest proportion 261 (75.4 %) fall in the group of respondents who argue that agricultural productivity is high in spring. This is followed by 73 (21.1%) of respondents who fall in the group who are of the view that agricultural productivity is high in autumn (rainfall season). The other categories were those who constitute a proportion of 12 (3.5%) who claimed that agricultural high in summer.

3.2 QUALITY OF LIVESTOCK AND AGRICULTURAL SERVICE

This study equally examined quality of service delivery for agro (crop production) and livestock farmers to improve on their livelihood, such as service delivery assessment included water services, roads and works services, veterinary services, and agricultural extension services. Water is one of the most essential goods for human survival, to enable sustainable development, animals need water to be available for all the purposes, that is to say water must be sufficient enough in quantity and quality to meet basic human needs, as it is a prerequisite for both better health and sustainable development. The link between water, sanitation and poverty is clear and unequivocal (Khosha and Pead, 2003). Unsafe water sources leads to water-borne diseases and its associated problems like poor crop yields, low animal product production. Besides lack of access to water also affects major activities on which people depend for their livelihoods. The researcher thus wanted to know how accessible water sources were from a set of respondents. Findings are presented in the following tables.

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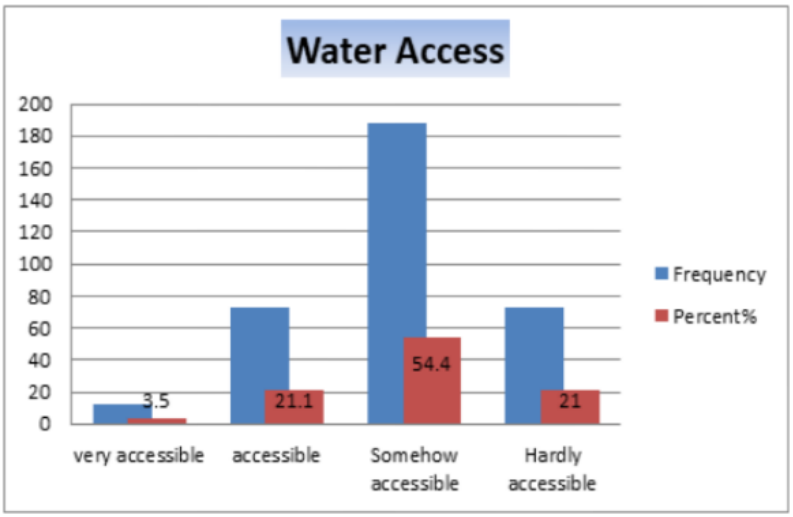

Primary Data, 2013

Figure 3.1

A total of 346 respondents, a proportion of 54.4% respondents maintained that water sources were somehow accessible. While 21.1 % upheld that safe water sources were either accessible or hardly accessible. 3.5 stated that, sources of safe water were very accessible. The 21% respondents who argue that water is hardly accessible maintained that water and sanitation services were not accessible because services have not taken into consideration local cultural practices and beliefs and there are no sensitization services. The Majority of these respondents live far from safe water sources. For example, the researcher observed that Baligubadle and some areas in Gabiley districts have low safe water coverage. The community mainly depends on hand dug wells, which dry up during dry season. Households walk long distances during dry season to find alternative sources of water, which are often contaminated because it is often shared with animals. All the pastoral areas under study have low water coverage (lack access to adequate safe water).

3.3 QUALITY AND DISTANCE OF ROADS

A good quality road facilitates quick movements of goods and services while bad quality roods hamper the movement of goods and services. Lack of all-season roads limits access to markets, non-farm employment, schools and health centers, deepens poverty and increases vulnerability. Additionally, when the respondents were asked about the quality of roads, majority of the respondents argued that quality of roads are generally poor. This is due to the fact that the roads were impassable especially during the rainy seasons. This is even worse off where roads lack connecting bridges, besides the Roads made of poor quality marrow without constant maintained hence most of the roads are in bad state with large potholes making movement of goods and services very difficult. Coupled with the above reason is the poor quality of drainage that allows water to gash across the roads.

From the oral and focus group discussion, respondents argued that roads are the principal means by which vehicles, cyclists and pedestrians get to the areas business, and that they are key growth and sustainability. The community roads have a role to play as far as poverty reduction is concerned. Roads open up the urban and rural population to market their agricultural productions to the local and external sources and efficient road transport facilitates movement of goods from the farm gates to the markets and increase in the sale of goods leads to an increase in savings and incomes. They also argued that routine maintenance of community roads employs the rural population and returns gained from work impact positively on the household income. However, it emerged very strongly from FGDs that road constructions has not been serious consideration and this allegedly discriminated against growth, and development deprived people from enlarging their income base. Apart from the incomes, the respondents argued that feeder/community roads lead to improvement of health, education, social development and open up employment opportunities to the urban and rural communities.

Distance to community roads is very important factor that determines the movement of goods and services. If community roads are nearer to the people, movement of goods and services becomes easier and if community and access roads are far from the communities, movement of goods and services becomes difficult. This actually implies/means that such communities cannot easily acquire other basic social services which tend to be located near road access.

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3.4 RELEVANCE OF ROADS

A great number of respondents upheld that rural feeder roads were very relevant. This is followed by the respondents who maintained that rural feeder road were relevant. While some proportion acknowledged that rural feeder road were somewhat relevant, and a handful others stated that the rural roads were not relevant. This group of respondents maintained that rural feeder road provided by the government were not very relevant because services provided in most cases do not meet the expectation of the service recipient. For example, feeder/community roads were poorly constructed and they were often not maintained.

3.5 ACCESS TO AGRICULTURAL EXTENSION SERVICES

Agricultural extension is the process of bridging the gap between farmers and sources of knowledge or information (Gautam, 2000). This means that information has to be generated at the research centers and universities and then transferred to the farmers by the extension workers. Gautam (2002) further argues that extension services involve learning and training. It is hinged on some beliefs such as helping the farmers to help themselves starting from what the farmers already know.

It is the responsibility of the government to provide extension services to communities where the community members cannot afford. The services provided include Agricultural Extension, Fisheries, and Veterinary service, Community Development, Co-operatives, Forestry and Entomology. However, these services were faced with lots of problems. For example, the number of the staff involved in the extension services was inadequate. Some departments like Community Development and Entomology had two or three extension personnel in the entire region. Inadequate number of personnel strongly affects service delivery to communities, especially the rural poor who have little knowledge in modern agricultural and animal husbandry practices. The low level of district resource base is an obstacle to the facilitation of extension services especially in areas of logistics and capacity building.

In Baligubadle, agriculture is predominantly subsistence with segments of the population constantly facing declining food production. To such a population, access to agricultural extension services is paramount to enable them to produce the required food needed for subsistence. Lack of extension services was associated with ignorance, poor product production and low yields, whereas adequate extension services was associated with increased animal and crop production leading to household food security and increased household income

Table 3.8: Accessibility of agricultural extension services?

	Frequency	**Percent**
very accessible	12	3.5
accessible	73	21.1
somehow accessible	158	45.6
hardly accessible	103	29.8
Total	346	100.0

Primary data, 2013

In the table 3.8 above, the total number and percentage of 346, a proportion of 158 (45.6%) respondents maintained that agricultural extension services were somehow accessible to them. From the oral field interviews, some respondents argued that, they were deprived of agricultural extension services they badly need. Some respondents argued that only communities, which are located at the roadsides, have likelihood of extension service officers reaching them. Whereas 103 (29.8%) of the respondents upheld that agricultural extension services were hardly accessible to them. This group of respondents even did not know what constitutes agricultural extension services. Only 73 (21.1%) of the respondents maintained that, agricultural extension services were accessible to them. The majority of these groups of respondents were ambitious and they had wanted from time to time to involve in demonstration farm institute and in following the agricultural education services provided at any given rate.

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3.6 QUALITY OF AGRICULTURAL EXTENSION SERVICES

Poor crop yields resulting in insufficient food for the household food needs and income to buy other basic needs featured as a course and consequence of abject poverty. The communities perceived lack of knowledge, information, and advice concerning production methods and inputs and conservation as factors contributing to poor yields and consequently poverty. This implies that, there is need for quality extension services by the agrarian communities in order for them to improve on the quantity and quality of their production for them to capture good market attention.

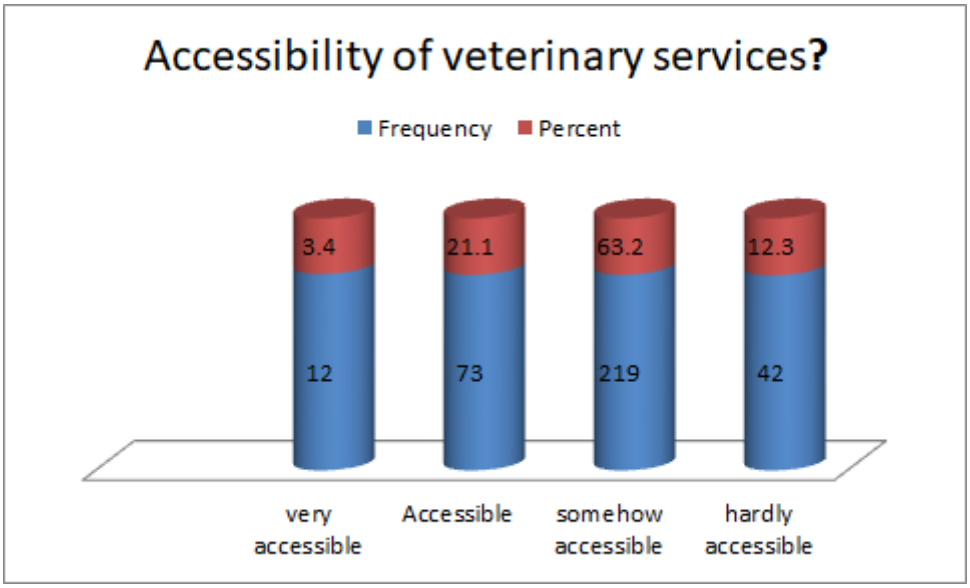
In the table 3.9 above, the total number and percentage of respondents 194 (56.1%) maintained that quality of agricultural extension services was fair. While 127 (36.8%) of respondents stated that the quality of agricultural extension services was poor. And 3(1.8%) of respondents maintained that, the quality of agricultural extension services was good. Only 18 (5.3%) of respondents asserted that the quality of agricultural extension services was very good. This category of respondents was satisfied with crop and animal husbandry services provided by agricultural extension services. The services enjoyed by the respondents included improved seeds, herbicides, veterinary drugs and artificial insemination.

3.7 DISTANCES TO AGRICULTURAL EXTENSION SERVICES

Agricultural or crop and livestock farmers expressed interest that they needed the services of agricultural extension workers. However, they could not access some of the required services as per their expectations. Besides, the agricultural extension services offices; if there is any, are located in capital city which is away from the farmers. This implies that, the resources are limited and Ministry of Agriculture should work very hard to make sure the agricultural extension services provided for reach the clients.

3.8 ACCESS TO VETERINARY SERVICES

Access to veterinary services is very crucial for the rural poor. In the selected districts, access to veterinary services is still far from the rural poor. For example, it has clearly emerged from the focus group discussions that poor farmers lack financial powers regarding access to veterinary services and in many cases they have to seek alternative means but sometimes they end up losing their assets.



Source: Primary data, 2013

Figure 3.2

In the table 3.10 above, Again participants were required to show how accessible veterinary services were to them on a four scale response of “very accessible”, “accessible”, “somewhat accessible’, ‘not accessible”. From the above graph, 219 (63.2 %) of the respondents had somehow access to veterinary services delivery.

The number and percentage of the respondents 73 (21.1%) stated that veterinary services delivery is accessible. For example, where the head quarter is located in easy to reach location, and 42 (12.3%) of the respondents claimed that

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veterinary services were hardly accessible. However, 12 (1.8%) of the respondents who tallied at one upheld that veterinary services are not accessible. This category of the respondents argued that, they don't have access to the required medicines needed for treatment forcing them to turn to private clinics and herbs.

It emerged from FGDs that the uninformed and poor farmers are less likely to use preventive services such as hygiene for the animal especially in cradles, variety of food such as commercial animal feeds, nippier grass, availability of water, vaccinations. When this happens the level of productivity goes low and this affects level of incomes and savings. The researcher also observed that, the formal mechanism for community control of drugs provided for does not appear to be effective.

Table 3.9: What are the characteristics of the good livestock?

	Frequency	**Percent**
Highly productivity (Milk and Meat)	170	49.1
Healthy and physically beautiful	134	38.6
Other	42	12.3
Total	346	100

The table in 3.9 above shows that out of 346 respondents from the study samples, the highest proportion 170 (49.1%) asserted that, the characteristics of good livestock can be seen in forms of high productivity levels like good levels of milk production, tasty meat, good animal weight, high levels of fertility among the animals, increased animal waste products, just to mention a few. This is followed by 134, (38.6 %) of respondents who argued that, characterizes of good livestock takes the following traits: the livestock outlook is healthier, stronger, and more beautiful, high level of activities among the animals such as running around, mating, rarely falling sick, and the like. Over all the respondents had a good perception of the characteristics of good livestock how this characteristics reflect themselves during the drought periods

3.9 RESPONDENT'S OPINIONS FOR GOVERNMENT PERFORMANCE IN PROMOTING:

- **Agricultural sustainability:** majority of the respondents illustrated that there is no government plan or strategy concerning this issue (agricultural sustainability) which is in place now and the government has no capacity to maintain the agricultural development.

- **Livestock sustainability**: Respondents exposed that the government effort amongst this issue is existing but, the capacity is very limit, although the community awareness campaigns, livestock vaccination and other veterinary services is somehow exist other than, the frequencies are very low.

- **Self-reliance:** The self-reliance of the government performance is very low, because there is no enough resource for such operations, after severe droughts reported; the government appealed the international community and NGOs to aid the community and then distributes it.

- **Responsiveness:** most of the respondents underlined the governments responsive to citizen's needs like food production and rearing the livestock is very little these areas are the back bone of the national economy, the NGOs are more responsive then government, some respondents indicated the government resource is very limited and has no capacity to response the citizen's requirements.

- **Information:** the majority of the respondents highlighted that government information sharing and information dissemination is very limit, although it somehow subsists nevertheless, it's very limited.

4. CONCLUSION

The study concludes that drought had impacts and effects on livestock and crops at individual, household and community levels. At the **individual level**, lack of sources of adequate food, the low animal product production, limited income, high level of poverty, frequent death of animals, failed crop harvests, inability to pay bride price, and lack of basic necessities like decent clothing. **At household** consequences of drought were lack of enough livestock and crop production, lack of farm land and implements, in accessibility to veterinary services, and agricultural extension services, limited safe water, poor quality roads, spending most of household resources on food and medical costs, inability to educate and provide

medical care for children, poor feeding grass for animals, malnutrition among children, early ageing, poor social relation and low self-esteem among others. At **community level**, effects of drought on common community property were the rate of dwindling common water points, struggle over common grazing points, dwindling supply of animal products and agricultural produce (crops), lack of finance schemes in addition to lack of markets, to mention but a few. Non-material effects of draughts in the community took the form of irresponsible leaders, limited employment opportunities, poor living conditions as well as ignorance and illiteracy. Others were marginalization of the community, community vulnerability to diseases and corruption.

5. RECOMMENDATIONS

Tackling drought efficiently requires access to governance and basic services, growth in income, support and strategies that focus on empowerment of the poor livestock and crop farmers and those disadvantaged farmers. Drought preparedness also requires long-term commitment, additional resource mobilization and capital formation, and creation of income and maintenance of a clear disaster preparedness budget in the affected areas. The study therefore, recommends that agricultural extension and veterinary service delivery should receive massive investment and a renewed commitment and vision to generate a fundamental change in the lives of the poor livestock and crop farmers. There is need to expand these services including the education and sensitization to communities. Provide clean water sources within easy reach of communities but also educate local communities on risk factors and on protecting water sources. The study recommends further research on assessment of the Efficacy of NERAD and ministry of agriculture in farmer education, the contribution of ministries of livestock to pastoral development and environment in Livestock extension service delivery, and analysis of Government strategies on Disaster preparedness and resilience with specific focus on integration of community copying mechanisms.

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