Effects of Climate Variability on Wild Edible Plant Products a Coping Strategy applied by Pastoralists of Northern

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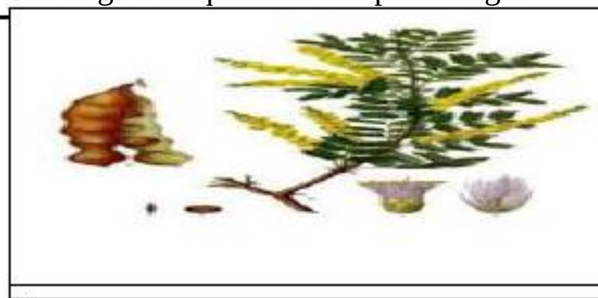
Introduction: Climate variability is one of the major challenge for the dryland ecosystems which comprise more than 80% of Kenya. IPCC (2014) gives indicators of climate variability as extended droughts, floods and conditions that result from periodic El Niño and La Niña events. According to Huho and Mugalavai (2010) as many as 28 droughts have been recorded in the past 100 years, at an increasing frequency. The enormous changes due to unreliable rainfall means forage is affected as the ground remains dry and nothing grows. Livestock productivity goes down and sometimes the livestock die in large numbers. As a result of this the pastoralists have developed a set of indigenous strategies and mechanisms that enabled them to deal with multiple threats, variability and environmental changes. Their mechanisms have helped them to survive and effectively use the harsh and highly variable environment. Some of these strategies are ecologically-based, while others depend upon socio-economic and cultural mechanisms (Eriksen, et al., 2008). One of this strategy is relying on wild edible plant products namely fruits, vegetables and seeds which is ecologically based. This coping strategy appeared to have worked well since time in memorial. But to what extent this strategy has been affected by severe and frequent droughts attributed to climate variability was not known. Therefore, this study was initiated which aimed at investigating the extent at which wild edible plants as a coping strategy has been affected by climate variability in Isiolo County. This study was guided by three objectives namely; to identify the wild edible plants relied on by the pastoralist of Isiolo County, to examine the extent at which the wild edible plants have been affected by climate variability and lastly, to identify if there were wild edible plants which had emerged due to the effects of climate variability.

Picture 1: Dead cattle due to droughts

Materials and Methods: This work was conducted in Kambi Odha, Kambi Bule and Kambi Garba villages of Isiolo County and it focused on the Borana pastoralist community who are the majority. This study applied; household interviews, focus group discussions and key informant interviews to collect data. Data were analyzed using of both qualitative and quantitative methods. Qualitative data were presented by description of reality as provided.Quantitative data derived from the household interviews were edited, coded and analyzed using the Statistical Package for Social Sciences (SPSS) version 20 spread sheets. Descriptive statistics were run to give frequencies and percentages

Picture 2: Pastoralists stranded as a result of food and water shortage

Results: The findings of this study revealed that pastoralists of Isiolo County, have been relying on some wild edible plants during the drought period. In answering a question on whether there were traditional fruits, vegetables and roots eaten by the pastoral communities of Isiolo County, 86% of the respondents indicated that there were, while 14% said there are none.



Picture 3: Gum *Arabica* is also eaten

Types of edible plants used: *Deka* (Grewia *tembensis), mader (Cordia gharat), qurqura* (Zizyphus *khona* (Hyphene *coriaceae), domog* (Grewia *tenax), bejelo* (Lannea *alata),* and *madeer* (Cordia *sinensis). mauritiana), jaj jab (Berchemia),* ogomdi *(Grewia Villosa)* and *kumude (Lannea alata).* Some of these plants produce fruits which are eaten by the pastoralists during periods of droughts and famines. Others, such as *mader (Cordia gharat)* produce edible fruits and gum which is usually eaten. *Urbu (Acacia tortilis)* produce pods which are boiled and eaten. While Plants such as *iddi hiddi* (Solanumscabrum), *Sumalele (Mormodica trifoliolata)* are eaten as vegetables.

Picture 4: *Acacia Tortillas* pods as human and livestock feeds

Edible fruits, vegetables and seeds which have disappeared: This study revealed that climate variability had affected the availability of some wild edible plants as evidenced by (88.5%) of the respondents who stated that some plants have disappeared. The plants which have disappeared include *kumude (Lannea alata), sumalele* (Mormodica *trifoliolata) and urbu (Acacia tortilis).*

Picture 5 and 6: Pastoralists showing some wild edible plants

Discussion, conclusions/Implications]: The results of this study indicated that wild Edible plant products were occasionally used as food by the Borana of Isiolo County. The respondents indicated that during Droughts and famine periods pastoralists gathered wild foods such as fruits, roots, tubers, leaves and seed on a regular basis. This study revealed that the wild plants have been affected by climate variability and some of the Plants have disappeared. The respondents also reported that the distance travelled to gather these plants had increased greatly. This Study came up with two recommendations that is, the need to train livestock keepers on appropriate Coping strategies which are sustainable and also training the pastoral community on the best methods of conserving the available wild edible plants in their locality.

Wild plants which have emerged: This study revealed that there are some plants which have emerged and this was supported by 63% of the respondents and also by focus group discussants. The plants which has emerged included; Biscuit *Mjinga (Prosopis juliflora), gurbi (Acalypha sp), anno (Euphorbia trucalli), leuceana* (Leucocephala)and*caliandra(Calothyrsus).* According to the participants all these plants were not suitable for human consumption. However, the participants were of the opinion that they were good for livestock apart from *Prosopis juliflora* which was perceived as being harmful to both human and livestock.

Involvement in gathering wild edible plants: This study indicated that collection and gathering wild edible plants was mainly undertaken by women as indicated by 70% of the respondents. 20% of the respondents stated that it is the work of children, while 10% of the respondents indicated that men also collected edible plants. See Figure 1:

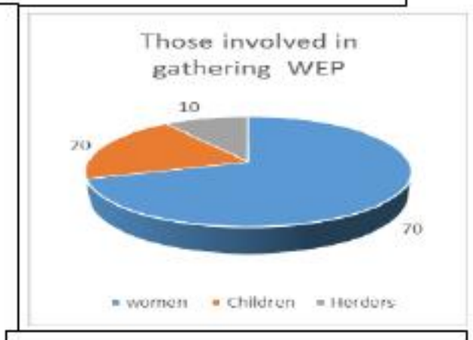


Figure 1: Involvement in gathering WEPs

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