

# Exploration of Indigenous Practices and Knowledge Concerning Natural Hazards and Risk Reduction

Case study: Afar Pastoralists of Ethiopia  
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# A Note from the Author

It's a conundrum: it seems the more I learn, the more my ignorance becomes apparent – and particularly, about traditional Indigenous knowledge. It is a broad and rich field of exploration that I have come to appreciate more though the opportunity of this consultancy.

Here is why, in part: the landscape of Indigenous knowledge seemed narrow when viewed through the small window through which I had initially been exposed. That's not to say that I ever suspected that the knowledge of Indigenous Peoples was not rich. It most certainly is. Rather, my limited, and frankly negative view of the phrase came from my professional experience in the field, where I had too often seen the phrase used as what I considered a placeholder—in meetings, conferences, needs assessments, etc.—for a broader and deeper discussion that should and would happen at some time... but never seemed to happen. To me, it seemed a way to suggest that a deliberative body had given reasonable consideration to the necessity to respect Indigenous Peoples, their experience and their needs without defining what that experience was, what those needs were or how, specifically, they would be met. And too frequently, when reports of meetings or findings of assessments were written, the words used were not the words of the Indigenous delegates themselves; for, more often than not, there was neither a sufficient number of Indigenous delegates assembled, nor was there enough time to discuss various Indigenous perspectives (they are not homogenous), nor were sufficient interpretation and translation resources available, nor... ad infinitum, to accurately represent the many and varied needs of the communities about whom the meetings were convened and the assessments commissioned.

Humankind developed complex societies over thousands of years in a world in which 'disasters' as we know them today did not occur. That is not to say that their exposure to natural hazards was non-existent nor that their vulnerability to these natural hazards was less. The way in which the first humans related to disasters and hazards is likely not too different from conventional beliefs that were widely held until fairly recently: that disasters were considered acts of god(s) or a divine supra-natural force; they were examples of animism. These beliefs endured for many reasons, including the fact that population centers were very dispersed and structural assets less complex than today.

In a not too distant past, beginning in the early 1970's, as death tolls continued to rise dramatically, another school of thought began to take root: it is potentially possible to avoid disasters if we change our approach. The idea of preparedness was born, which further evolved into disaster mitigation and risk reduction. Today it is commonplace to speak in terms of risk management and resilience.

*From a personal interview with Dr. Jean Luc Poncelet, former head of the Pan American Health Organization/WHO Department of Public Health Emergencies.*

## Background

### Traditional Indigenous Knowledge

Understanding Indigenous worldviews and whether and to what extent they lead to reduced risk to natural hazards is at the core of this initiative. In fact, it would be possible to spend a great deal of time discussing traditional Indigenous knowledge (TIK) and the many and varied characterizations that describe TIK (or TEK, Traditional Ecological Knowledge, or other similar terms).

There is value in exploring the many and varied understandings of Indigenous worldviews, cosmology, and the diversity of ideas surrounding the terms. But to dwell too long on definitions, particularly when attempting to explore only a small facet of a much larger cultural experience (in our case DRR), runs the risk of becoming too involved in the frequently contentious discussion over what is meant by traditional Indigenous knowledge and the similarly contentious argument as to whether there is an equivalency between traditional knowledge and “Western Science”, or whether it matters. Without care, in this author’s experience, this discussion can challenge our ability to move the broader conversation forward. That being said, it would be difficult to overstate the importance of an appreciation of the concepts behind the argument. For a richer understanding of the traditional experience and reasons why TIK is such an important issue to many Indigenous people, the reader is encouraged to make the effort to explore the issue. <sup>1</sup>

For the purpose of this paper the term traditional Indigenous knowledge will be characterized using the definition drawn from Peter J. Usher<sup>2</sup> and adopted by the Nunavut Wildlife Management Board (Alaska) in 2009, which captures well the inclusive nature of traditional knowledge (in this case, through an environmental lens):

“[Traditional Ecological Knowledge (TEK)] includes the following four components: factual/rational knowledge about the environment; Factual knowledge about past and current use of the environment; Culturally based value statements about how things should be, and what is fitting and proper to do, including moral or ethical statements about how to behave with respect to animals and the environment, and about human health and well-being in a holistic sense; and information derived from observation, experience, and instruction is organized to provide explanations and guidance.”

<sup>1</sup> For the reader who is interested in further exploring the discussion of TIK, I suggest, as a start, looking at the several definitions of the topic compiled by the National Aboriginal Forestry Association of Canada. Online at [http://nafaforestry.org/forest\\_home/documents/TKdefs-FH-19dec06.pdf](http://nafaforestry.org/forest_home/documents/TKdefs-FH-19dec06.pdf).

<sup>2</sup> Usher, Peter J., Traditional Ecological Knowledge in Environmental Assessment and management. Arctic. Volume 53. No. 2. (June 2000) P. 183-193.

## **Disaster Risk Reduction Terminology (in the Afar context)**

Within the professional community, several key terms are used to discuss disaster risk reduction, including ‘hazard,’ ‘risk’ and ‘vulnerability,’ and more recently, ‘resilience’. Although the terms ‘response,’ ‘relief,’ and ‘recovery’ are not commonly associated with disaster risk reduction (DRR), they do figure in discussions surrounding disaster resilience and are more typically associated with post-event activities.

This following simplified scenario, using drought – arguably the most significant risk in the Afar Region -- as an example, can help to explain these DRR terms.

Drought is a natural hazard (though it can be exacerbated by decisions and actions made by humans). A community is vulnerable if it lacks systems, infrastructure, etc. to deal with the impact of drought; in other words, monitoring, water and crop management systems, augmentation of water supplies with groundwater, increased public awareness and education, etc. The United Nations Office for Disaster Risk Reduction (UNDRR) summarizes the definition of risk as: The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.

The resilience of a community is characterized by its ability to function throughout the event, or at least the ability to restore critical systems soon afterwards, thereby preventing or significantly mitigating disruption to lives, livelihoods and economies (resilience usually is not the result of luck. Rather, it is attributed to the development and implementation of community-specific disaster risk reduction strategies). Maintaining resilience is increasingly difficult in Pastoralists communities in the Afar Region, where extreme economic and environmental costs and losses associated with drought, include herd loss, crop failure, hunger, famine and starvation. There is an existential, threat to the culture of the Pastoralists as well: the loss of their way of living that has been passed down over millennia.

In a broader context, it is also important to understand that Pastoralists, and other Indigenous communities may simultaneously exhibit vulnerability and resilience. The resilience is often from ‘learned strength’ which, in time, may become TIK). That is, individuals and communities, through adversity, are becoming stronger than they originally were, simply as a means to survive daily emergencies and struggles. This is a useful, if new, observation, as it gets away from the assumption that Indigenous Peoples are resilient through some sort of cultural ‘magic’ (i.e., DNA and culture do not confer resilience).

## **Mission to Ethiopia**

Let's look at the experience and what I learned during my visit to Ethiopia, to Addis Ababa, Semera, the capitol of the Afar Regional State and Gurmudale, a pastoralist village outside Semera, which took place over the period of 10 days in June 2019.

Visits to three locations over ten days is an insufficient amount of time to fully understand the Ethiopian Pastoralist culture and its views on disaster risk reduction. My visit was made fruitful, however, thanks to considerable assistance from the staff at the Ethiopian Office of the Asian Disaster Preparedness Center, Mr. Nazareth Fikru Gemta, Program Manager and Mr. Degif Sisay Retta, Finance and Administrative Coordinator. I initially visited Ethiopia's capital city, Addis Ababa, where I interviewed Ethiopian government officials, academic researchers and disaster experts at Non-Government Organizations (NGOs). I then visited community leaders, government and NGO officials in Semera and Gurmudale in the Afar Region. Further, I found and read a number of journal articles specifically dealing with climate change and adaptation in Pastoralist communities, several of which are cited in this report..

## **Pastoralists of the Afar Region**

The Afar Regional State is one of the nine regional states of Ethiopia and is the homeland of the Afar ethnic Cushitic peoples, who also inhabit lands in northern Djibouti and southern Eritrea.

Based on the 2017 projections by the Central Statistical Agency of Ethiopia (the last actual census was 2007), the Afar Regional State has a population of 1,812,002, of which 1,466,000 were pastoralists (approximately 90% of the population). The remainder are agropastoralists, a relatively new way of life promoted by the government and NGOs in an attempt to diversify pastoralists' dependence on livestock production. The culture and livelihood of Pastoralists revolves around herding and husbandry of domesticated animals including, in the case of Afar Pastoralists, goats, sheep, cattle and camel.

Pastoralism has developed over centuries out of the need to constantly adapt to the extreme climatic uncertainty and marginal landscapes of the dry lands and has been practiced for centuries. Pastoralists have sophisticated traditional methods to optimize water and land, moving and selling animals to deal with the effects of drought. Yet, in recent years, the dry lands of the Horn of Africa, of which Ethiopia is a part, have become some of the most vulnerable areas in the world. This is due in part to decades of political and economic marginalization, which has led to an erosion of pastoral assets. The imposition of these forces, over and above the existing environmental challenges, disrupt migration routes and access to dry season grazing areas and

severely hinder pastoralists' abilities to move animals to different pasture, a key mechanism for coping with drought. This is particularly true for poorer pastoralists with smaller herd sizes. Rather than addressing this marginalization and developing and reinforcing adaptive capacities, there has instead been a focus on providing emergency assistance, which has often been either too late or inappropriate, and which has further undermined sustainable development in these areas. (Source: Brief for GSDR 2015 Pastoral Development Pathways in Ethiopia; the Policy Environment and Critical Constraints Mohammed Yimer, Department of Civic and Ethical Studies, College of Social Sciences and Humanities, Arba Minch University)

Traditional knowledge has informed adaptive strategies that Pastoralists use in times of climate-induced stress (see later section on Drought and Climate Change: Existential Challenges to Pastoralists of Afar).

## Risk Reduction Strategies based on Traditional Knowledge

Because of the harsh conditions in the Afar Region, Indigenous Knowledge is alive and in practice on a daily basis. Pastoralist traditions include *Edo* or range scouting where traditional rangeland scouts are sent on a mission to assess weather and other spatially and temporally variable attributes on rangelands; *Dagu*, a traditional communications and information networking, where weather and other vital information is shared among the community; and the *Adda* or the traditional Afar governance system, which analyses traditional weather and other relevant information before community decisions are made.

*Edo* is a traditional rangeland surveillance and assessment of rangeland condition (availability of grass and water) to study or assess the condition of a distantly located rangeland before the whole community, together with its herds, have to move. As any other social activity among the Afars, *Edo* is also organized through the the *Adda* institutional processes. Those selected to undertake *Edo* are most often young and strong males and who have relatively better experience with livestock and rangelands.

Similar systems of employing traditional range scouts also exist in among the Borana pastoralists in Ethiopia (Source: Traditional gender inequalities limit pastoral women's opportunities for adaptation to climate change: Evidence from the Afar pastoralists of Ethiopia, Selam Balehey, Pastoralism: Research, Policy and Practice, (<https://pastoralismjournal.springeropen.com/articles/10.1186/s13570-018-0129-1>))

Much of what I learned about the Dagu system is thanks to the research of Jemal Mohammed associate professor in the Department of Journalism and Communications in the Faculty of Humanities at Bahir Dar University, Ethiopia, with whom I communicated and introduced to the ADPC/Ethiopia staff.

Inherent in Dagu is its irreplaceable role in risk reduction. According to professor Mohammed's study, Dagu exists to take preventive actions against threats, to take full advantage of something and to share experiences and knowledge. As for the first, the delay or absence of seasonal rain, potential for conflict with rival ethnic groups, the possibility of revenge attacks and livestock raids, the drying up of water holes or the breakout of livestock disease are major threats that can disrupt Afars' lives.

According to Professor Mohammed, when the ritual of Dagu is conducted, it goes through stages and takes a broader meaning. When two or more Afars meet, including those travelling in opposite directions, they first exchange Islamic greetings, (i.e. 'assalamu alaykum' ['Peace be upon you!']), accompanied by handshakes and hand kisses. After having sat down together, if they do not know each other, they briefly introduce their names and localities and to which clan they belong. After the brief introduction, they take turns sharing news. The first to go, if he had more than one story would narrate each story consecutively.. While he narrates, the one who asked for the news must listen attentively without any interruption except for an occasional "ihii" or "hayyee" as signals to the narrator that he is listening attentively. Then, the Dagu news teller would accept some questions for clarity, attribution, verification or any other inquiry that is related to the news and clarification would be given. Then it the turn of the other to relate all the news he has followed by questions when the narration is over. This is the ritual of Dagu.

As the Afars are predominantly pastoralists, they move, at least, on a seasonal basis, from one place to another and since the Afar Triangle is hot and dry, with an average annual rainfall of less than 8 inches in some areas, and summer temperatures can reach nearly 120 degrees Fahrenheit, large tracts of the region are virtually uninhabitable by those who are not acclimatized. In order to move in caravans to seasonal grazing places, to know the location of potable water and other essential tasks Pastoralists need to make decisions which rely on the availability of adequate and precise information. In Dagu, an informant who is talking about, for example, an area of pasture he saw while traveling from one place to another in the region is expected to provide a full and precise account of the pasture area, for how long it is likely to be available, how many herds of goats, cattle or camel it will sustain and whether there is any

watering hole and for how long it might be used. Afars crucial factual information for almost every activity in their life. They cannot live without Dagu as recognized in one of their proverbs, “Dagu dina nekela daga medina” (You should not sleep before you hear any news).

An elder from the village of Gurmudale explained the workings of Dagu like this:

*“If in some part of rivers, there is rain, we collect information from that place. You know as I told you yesterday, [through] the Dagu system, we ask suitability rain is, the weather conditions, the pasture, the water availability, all information we gather first. We send a man [see “Edo”. above], the youngest man who can collect information for our locality from the area where the rain is available. Then he collects information and he'll back and we take our livestock to that place. Specifically, the children and the eldest remain in their house with the small people, the small animal in order to use for themselves and the majority of the livestock and the youngest will go to that place in order to feed the livestock, and water, and pasture.”*

## **The Gada System of Governance Practiced by the Oromo**

Though time constraints and ethnic fighting prevented me for traveling to the Omoro Region, I spoke with Omoro Pastoralists and from them learned that the system of governance of the Pastoralists of the Oromo Region has some similarity to the Afar system and also embodies Traditional Indigenous Knowledge. Gada is the traditional system of governance developed from knowledge gained by community experience over generations. The system regulates political, economic, social and religious activities of the community and serves as a mechanism for enforcing moral conduct, building social cohesion, and expressing forms of community culture.

Gada is organized into five classes with one of these functioning as the ruling class consisting of a chairperson, officials and an assembly. Each class progresses through a series of grades before it can function in authority with the leadership changing on a rotational basis every eight years. Class membership is open to men, whose fathers are already members, while women are consulted for decision-making on protecting women’s rights. The classes are taught by oral historians covering history, laws, rituals, time reckoning, cosmology, myths, rules of conduct, and the function of the Gada system.

Numery Abdulhakim is a Project Manager at Mercy Corps, in Addis Ababa. He is also from a pastoralist community in the Oromia Region. When I asked Mr. Abdulhakim about how he thought Gada might play a role in risk reduction he said it does. “...even during those good times, they used to have a very good social safety net kind of protection... natural disaster was

common by then [in earlier times], even though now it is very much exacerbated by the changing climate. But, whenever a natural disaster happens, whenever someone loses his or her herds because of certain unpredictable natural disasters, then they have this social safety net called internal asset redistribution mechanism. The leaders of the Gada system, the elders, the bagada (leader] has council members of different castes. These are the people who would be initiating a risk mitigation kind of practice... So, the clan members will contribute cattle, or sheep, and a goat, and then you pass it on to those victims of natural disasters.”

In 2016 the Gada system of governance was inscribed by UNESCO (11.COM) on the Representative List of the Intangible Cultural Heritage of Humanity.

## **A Brief Discussion of the Government of Ethiopia and its Relation to Pastoralists**

Unlike the adversarial relationship and animosity that characterizes many interactions between Indigenous Peoples and non-Indigenous majority governments and government institutions, Pastoralists in Ethiopia have a respected and protected status (at least in theory) in national law under the constitution.

Mr. Abdulhakim explained that shortly after the Ethiopian People’s Revolutionary Democratic Front took power in the early 1990s a new constitution established that was the first in the country’s history to incorporate the issues of Pastoralists. It also formed a department in the Ministry of Federal Affairs to coordinate and facilitate development in pastoral areas and set up a Pastoralist Affairs Standing Committee in parliament to oversee pastoral development activities in the country. Regional offices in charge of pastoral development have been established in regions where pastoralism is an important production system. Different from the previous two regimes the current government attempted to incorporate pastoral development in its national development plans. Importantly, it provided for pastoralists the right to free land grazing and not to be displaced from their own lands without their consent. The constitution also acknowledged the usefulness of the traditional pastoral knowledge to manage pastoral resources.

The policy document for land use and administration of the Afar Regional State (Land Administration and Use Proclamation No. 49, enacted in 2009) emphasizes "sedentarization" of Pastoralists (also referred to by Mr. Abdulhakim, above) and the establishment of formal institutions to manage land use and administration. Meanwhile, the intention was to retain customary systems that do not contradict the new formal land administration. However, the pastoral development policy of the country does not recognize pastoralists’ environment that is uniquely different from the sedentary farming systems. The policy narrates voluntary settlement while it imposes it in practice. Sedentarization as a policy choice has been perceived as exposing pastoralists to greater ecological risk and vulnerability (source: “Identifying Hot Spots of Critical

Forage Supply in Dryland Nomadic Pastoralist Areas: A Case Study for the Afar Region, Ethiopia”, B. G. J. S. Sonneveld, et al, Land, 2017).

In an attempt to understand the motivation for the government’s actions, in an interview with Mr. Numery Abdulhakim I asked whether there might have been a sinister reason for introducing change or was the new government perhaps trying to modernize, thinking that modernization, through development was the best way to go; that the plans implemented by the government were not an attempt to marginalize the pastoralist society and culture but to improve conditions.

Mr. Abdulhakim responded that he thought it was both, “... the pastoralists, they were so marginalized from the very beginning. They were not really able to get the chance to go to school. So, even the policy makers, whenever they pass decisions or policies, because they don't understand this pastoral way of life, all the policies that were developed in the past were not through the proper consultation of the actual owners [pastoralists].” He further explained, “So the policy's, or whatever were passed, were not with the active engagement of the [pastoralist] stakeholders. So, in that process, it is a perception thing. Because someone in highland [talking specifically about the Oromo pastoralists but representing a nation-wide perception] who doesn't understand pastoralism would be, ‘Okay, is pastoralism a viable way of life? Why should these people continue following the tail of their herds and then don't live the life of the highlanders, the agrarian community?’ You see? It is perception thing. One thing in their thinking, they consider systematic sedentarism would be a kind of, you know, modernizing the lifestyle of these people, but they restrict mobility.

What those outside the Pastoralist culture might not understand, explained Mr. Abdulhakim, is that the mobility of the Pastoralists is an example of traditional Indigenous knowledge,. He argued,

*“Mobility is a coping strategy. It's part of the resource management, so they move around. They have wet season grazing area [for sheep and cattle], and they have dry season grazing area [for goats and camel]. That mobility between the two grazing areas is a kind of traditional balance.”*

Historically, pastoralists have experienced drought seasons and have used their traditional knowledge to mitigate the effects of drought, but compounding the worsening climatic conditions caused by the prolonged drought, there are human-induced effects such as the parching of traditionally Pastoralist’s land stemming from the government’s creation in 2006 of the Tendaho sugar plantation and, particularly, the subsequent building of the Tendaho dam on the Awash River in 2014 to provide water used to irrigate the (non-native) sugar cane plantation

located upstream. Water that once sustained the meager crops cannot now reach the Pastoralist's arid land.

Contemporaneous with the building of the Tendaho dam was the creation and attempted implementation of a "villagization" initiative (also known as Sedentarization). The plan was to force the resettlement of tens of thousands of Pastoralists. Designed in part to mitigate the negative effects of the damming of the Awash River to their lands, the state's purpose of the initiative was to provide enhanced public services it has resulted in significant negative health and environmental consequences resulting from the lack of arable land.

Mr. Abdulhakim then summarized the current status of this earlier effort, now seen as ineffective, "So, to make it something that is useful for the pastoral community -- mind you we have around 15 million pastoral communities who are contributing 60% of the livestock exports of this country -- you cannot ignore this number of [population]. So, we push we push them (the government) back, to go back to scratch, start the bottom up for policy development. To make the long story short, they went through consultative process, talking to these traditional elders, the Gada fathers, elders. And then now, they went through all the process in Afar, in Somali, in Oromia, in Gambela, in Benishangul. Now we have the final, very good pastoral development policy and strategy that was reviewed by the council of ministers and, based on their feedback, it is now pending for endorsement by the Parliament.

## **Into the Future: Drought and Climate Change -- Existential Challenges for Afar Pastoralists**

Historically, pastoralists have experienced drought seasons and have used their traditional knowledge to mitigate the effects of drought, but compounding the climate conditions is the human-engineered disruption of the water flow of the Awash River (dams, dykes and irrigation schemes) for cultivation of non-native sugar cane, that upset the delicate ecosystem.

Pastoralists of the Afar region of Ethiopia possesses a wealth of traditional Indigenous Knowledge that does them little good in an environment where nature and non-indigenous human intervention have conspired to render their Indigenous knowledge nearly useless.

Drought, and climate variability have been a part of the Pastoralists way of life forever (though conditions are worsening, and they are in their 12<sup>th</sup> year of the current long-term drought). Not to say that drought, as a natural hazard, is not taking its toll on the Pastoralists of Afar but they have learned how to deal with it over generations, through the practice of their Indigenous Knowledge. The larger problems, and their ability to continue their traditional practices of mitigation and adaptation stem not only from drought but from human intervention.

Pastoralists have been deeply affected by marginalization, as sedentary societies with poor understanding of their livelihood system have imposed alien social and governance schemes. These uninvited impositions have included the “Villigization” initiative discussed earlier, disruption of their natural systems of irrigation and poorly conceived education and health systems. Continued attempts at “settling” Pastoralists have also disrupted the traditional worldview and generations-long ways of living. It has come to pass that many Pastoralists have adapted to become agropastoralists. Women and young children have stayed in central location while men and older boys tend to dwindle herd sizes.

Disruption of Pastoral mobility also has the potential to trigger food insecurity because the traditionally higher productivity and resilience of mobile systems is compromised. In the process, pastoralist communities question their trust government intervention schemes that, without appropriate consultation with tribal leaders and village elders make more challenging the chances for reconciliation and improvement.

Mr. Girma H/Michael is a senior consultant in the field of Indigenous Knowledge documentation and has worked as director of National Disaster Management Policy and Programming for the then Disaster Prevention and Preparedness Commission and now National Disaster Risk Management Commission. Mr. Michael suggested another vulnerability. According to him, a growing existential challenge to the continuing practice of traditional knowledge in Pastoralist communities is the “advent of modernity” and its influence on the attitudes of the young generation towards traditional systems. It was Mr. Michael’s opinion that young people are moving away from the traditional systems of their parents. He explained that although they still live within the family unit youth are increasingly exposed to businesses around them, and even moving from place-to-place following business opportunities. With respect to risk reduction, he observed that technological and life pattern change has greatly affected the practice of traditional systems among the youth. He highlighted, in particular, the advance of mobile (phone) technology and transportation systems and suggested that there is not yet a strong link between these new technological systems and conventional traditional knowledge systems, particularly as relates to prediction and early warning of drought. And to his knowledge there are no formal engagement of the communities in exploring the benefits of these “modern” systems.

In conclusion, here are characterizations of some of the challenges, described above, that face Afar Pastoralists -- as expressed in the words of Pastoralist elders from the village of Gurmudale (through a local interpreter and development expert, Mr. Nur Mohammed Ali).

*“Now, we are facing many problems now. Before in earlier years, we were healthy, related [compared] to this one. Now, in search of pasture and the water*

*for our livestock, we go long distance ever before. Now, we are going long, long distance before the previous years. The mobility is far, more far away compared to the previous years and we suffer, especially women suffer more than the male, in search of food, going for that. Now, the only able body, the youngest are going to that place and we remain at home. The inable bodies are remain at their home.”*

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*“I cannot exactly predict what will happen. It is act of God, that what I feel the things may be harsh and harsh if this continues in this manner, we are under threat. We don't know whether we are alive or die at that time, but I feel it, the thing is maybe not normal as it was before. If we see it, we will face the problem and the opportunity it comes. The government changes the situation and the plantation in the other range land management is proper for us, things may be positive, but if this continues in the manner like now, it is very harsh for us.*

*“I hope the youngest will face good things and positive things. I will pass before them. I hope that the youngest or the next generation will not face the problem like the problem I face.*

*“No, the forests are already diminished, and the other things are as already mentioned, changed. I hope for the next generation, not for me.”*

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*“You know...in earlier times, due to good pasture and water availability, the body condition of our livestock was good, and we produce good many in exchange in the town. But now, body condition of our livestock is very weak, and we don't have many to go back. There's no many, even the price of our livestock is very, very low. The preference at the town is not for our livestock, he's mentioning. If we bring the livestock to the town, no one can ask it, because the body condition is weak.”*

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*“I am very under fear; I fear for the next generation if things are continue like this. In the earlier time, if it rains once, there was growing of grasses and shrubs and immediately, the change, positive changes means with the rain. But now, if it rains 10 days consecutively now, there is no production, the ground is degraded, the rate of regeneration is almost nil. But in earlier years, I remember if it rains*

*once or twice, there was already regenerating of shrubs and trees. Now, the frequency of the rainfall is from year, if it rains this year, it will rain after one or two year. The variability is very high. Even if it rains, no growing of grass.”*

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*“Traditional trees were used as traditional medicinal trees are now very disappear. That is because of the climate change, absence of rainfall, and many factors, that medicine has now disappeared. But, at that time, it was used traditionally for both livestock and for even human health, we would use a traditional medicine.”*

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