

Climate Resilient Indigenous Community Self-Help Practices in Oromo Gadaa System: The Cases of Sikkoo-Mandoo Oromo in Oromia, Ethiopia

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Abstract

Climate resilient livelihood is used to mitigate the adverse climatic effects. The farmers' livelihood vulnerable to extreme climatic events were recorded in study area. Hence, this study was aimed to investigate climate resilient indigenous livelihood practices in Oromo *Gadaa* system. Data were collected by 69 respondents' interview and literature review and analyzed by descriptive statistics. Indigenous early warning, conflict settlement, and community self-help were the climate resilient livelihood practiced in study area. Majority of farmers have been used indigenous early warning information forecasted by *Raagaa Wogii*. Tree ring, sediments layer, and wind direction have been used to know and predicts extreme climatic event in indigenous early warning system. In alleviating climatic effects of conflict, *Gadaa* system have allocated the responsibilities of every individual in indigenous conflict prevention and resolution. The *Sadii walii dhoksuu*, *Sadii walii obsuu*, *Sadii walgorsuu* and *Araaramuu* have been the conflicts prevention mechanisms settled by conflicting parties. The *Ilmo-limmoo*, *Qora*, and *Gumaa* have been conflict resolution techniques mainly settled by *hayyuus*, *Ambaa Gadaa* and *Abbaa gadaas* through hearing the causes in detail. *Seera siiqqee* has been used to settle the conflicts between man and woman whereas *Guula* has been the resolution mechanisms of political conflict. The community self-help practices: *Ameesa dabarsu*, *Dabaree kenuu*, *Gegawo-gegesaa*, *Soruu*, *Hirphuu*, *Gumaata*, *Liqii*, *Qabdo qabuuf*, *Qote-qotii*, *Sanyii kennuu*, *Woliif Tiksuu*, *Dhoofsisuu*, *Daboo*, and *Edir and/or Ekub* have been indigenous climate resilient livelihood used in *Gadaa* system. Majorities of community self-helps have been the responsibilities of members in their clan, friends and families. So, the indigenous early warning system, conflict settlement and community self-help practices should legalized and used at a regional level. The evidences, reliability and effectiveness of the indigenous early warning system need further study.

Keywords: Climate resilient, Conflict settlement, Early warning, Spiritual leader

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1. INTRODUCTION

1.1. Backgrounds of the study

Climate change is change in mean of climatic parameter over a long period of time. Climate change adaptation through traditional climate resilient livelihood is as basic as culture that controlled and utilized profitably for maintenance of social and environmental order (Jetu, 2012). Africa are suffering the worst climatic effects from the world's externality to the impacts of climate change. Climate change is extraordinary extended intensity of droughts and floods in Africa that altering climatic patterns and its extremes events adversely affecting African ability to grow and develop, political stability and social security. It also contributing to oceanic acidification and an increase in surface water temperatures around the African continent negatively affecting fish stocks and small-scale fishing communities (WISP, 2010; NMA, 2012 and Viste, et al., 2012).

In Africa impacts of extreme climatic events on economic sectors: food production and supply chain of agriculture, forestry and energy are severing food security (Desalegn et al., 2004). The Horn of Africa the recurrent livestock losses have plunged around eleven million people's livelihoods into crisis and triggered mass migration of pastoralists out of climate-affected areas (CIGI, 2010). The development of climate projections for Africa is evolving rapidly. Traditional African societies apply indigenous climatic forecast in administration of the impacts of extreme climatic events (Berisso, 2018). Ethiopian climatic impacts have been minimized by using traditional and improved early warning system. It is important that relief efforts and humanitarian responses should timely and well-coordinated during mitigation (Macharia and Kirema, 2016).

Territory and natural resources are the major sources of conflicts inducing extreme climatic events for which the violent and the peaceful category of conflict resolution mechanisms and community self-help can be a solution. The violent includes war and duel, whereas the peaceful includes avoidance, burying the conflict in the symbolic process, negotiation, mediation, arbitration and adjudication (Stark, 2011 and Abate, 2016). A number of studies have attributed conflicts to the huge scale competition for scarce resource. Alike government teams have established state institutions up to local level to represent households. In this regard, Oromo have indigenous institutions and livelihood practices for climate change adaptation (Huho and Ngaira, 2012). Such well respected institution among all Oromo society is known as Oromo Gadaa system. It has judicial committee

who have the power to oversee the conflicts and impose decisions on it (Watson, 2001). The Oromo traditional administrative and justice system has operating within the institutional context of Gadaa system. The conflicts settlements and community self-help have been managed by Gadaa officials in line with the Oromo indigenous laws (Jetu, 2012). Even though the climate change resilience of community livelihood in study area has not been studied yet, these traditional practices are still functioning with inevitable changes. So, this study examines the climate change resilience of traditional community livelihood practices in Gadaa system.

1.2 Statement of the problem

Ethiopian extreme climatic events can be expressed in terms of the temporal and spatial variability of the hotness and precipitation (Desalegn et al., 2004 and Mekonnen, et al., 2017). Searching for water and grazing in dry season with little concern for wise use can results in competition and conflicts (Berhanu and Beyene, 2015). Such conflicts are also reducing the adaptive capacity of farmers and releasing greenhouse gases to extreme climatic events. Agricultural areas of study area has climatic problems whose impacts can be minimized by using traditional and modern early warning system, conflict settlement and community self-help livelihood. Historical alleviation techniques of extreme climatic events in the major parts of Oromia were not well investigated yet. In addition, indigenous climate resilience livelihood in the Oromo Gadaa system in general and that of study area in particular are relatively less studied. Thus, this study was attempted to bridge these missing gaps through investigating the climate resilient indigenous livelihood practices in Gadaa system.

1.3 Objectives of the study

1.3.1. General objectives

The general objective of this study was to investigate the climate resilient indigenous livelihood practices of Sikkoo-Mandoo's Gadaa system in selected zones of Oromia regional state.

1.3.2. Specific objectives

- To determine the early warning system to the climatic extreme used by farmers in study area.
- To identify and describe the conflict prevention and resolution mechanism in Gadaa system.
- To investigate the climate resilient community self-help livelihood practices in Gadaa system

1.4. Research questions

- What were those early warning system used by the majority of farmers in study area?
- What were those existing conflict prevention and resolution mechanism in Gadaa system?
- What were those climate resilient community self-help livelihood practices in Gadaa system?

2. MATERIALS AND METHODS

2.1. Description of the study area

The survey of indigenous early warning to extreme climatic events, conflict settlement and community self-help in Oromo *gadaa* system were conducted in selected districts of Arsi, East Shoa and West Arsi administrative zones of Oromia regional state. Elevation, annual temperature and rainfall of study area ranges from 1600 to 1900 m a.s.l., 18 to 27 °C and 600 to 2400 mm respectively. It has sandy, silt and clay soil types (NMA, 2012). The land use and land cover of study area is mainly cultivated, settlement, pasture, forest, and mountainous (MOA, 2008). It is geographically located in between latitude of 5°48'5" to 9°8'20" N and longitudes of 37°24'20" to 40°44'20"E in Ethiopia. According to CSA, (2012) the householders in study area live on subsistence rain feed agriculture: animal raring and crop production. The main crop grown are wheat, burley, teff, maize, sorghum, vegetables and fruits whereas those of livestock are cattle, sheep, goat, horse, mule and donkey.

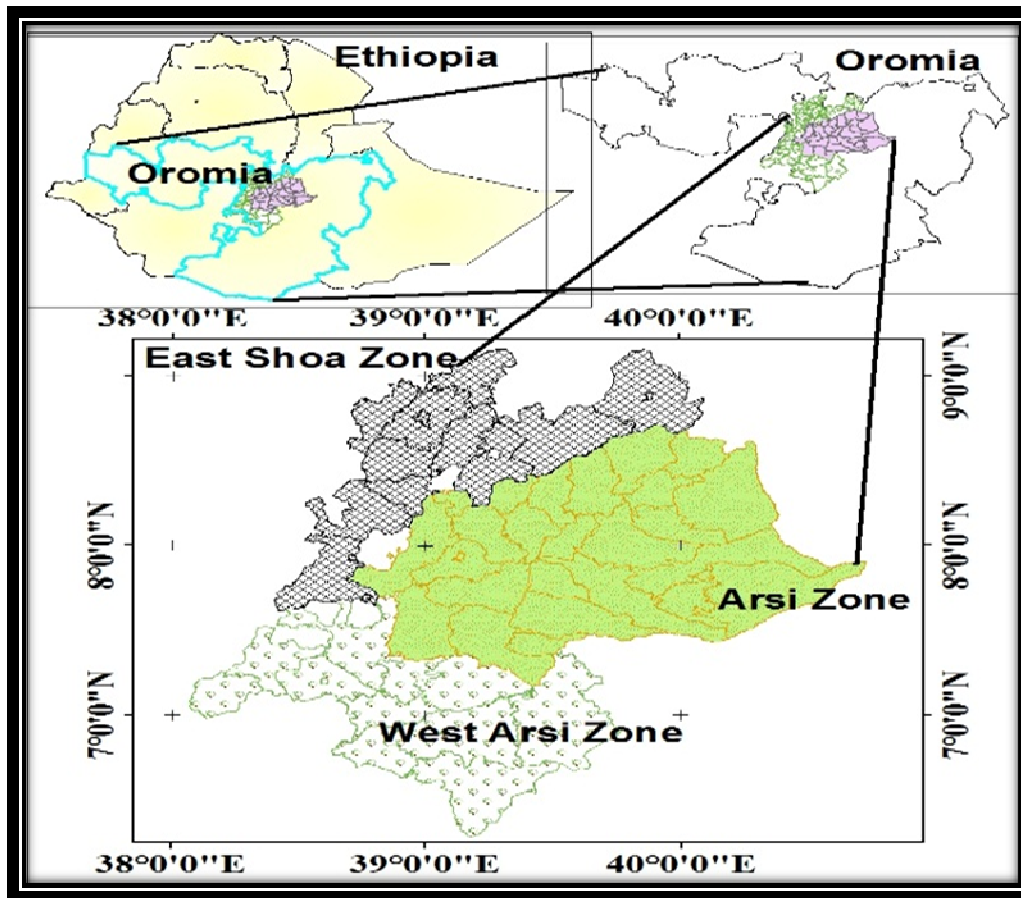


Figure 1: Geographical map of study area

2.2. Sampling techniques

2.2.1. Site selection:

The area, where the *Sikkoo-Mandoo's* Gadaa System and cultural norms are practiced, were taken into consideration during site selection. Hence, three zones: Arsi, East Shoa and West Arsi zones were purposively selected from thematic area of Arsi University. *Gadaa* system is indigenous leadership which has preserved the culture of the Oromo. Selection of research site was focused to area where the institution of Gadaa system found and availability of data source for the intended research. The Diksis, Tiyo and Ziway Dugda districts from Arsi zone; Adami Tulu Jido Kombolcha and Adama districts from East Shoa zone and Aje and Kofale districts from West Arsi zone where *Abbaa Gadaa*, who is the chief leader in gadaa system, live were purposively selected. Hence, the same criteria and procedures was used to select sample kebeles, or the lowest administration level in Ethiopia, from the districts. To select sample kebeles, consultation with culture and tourism office at districts level were also made to identify the kebeles' where chief leader in *Gadaa* system live.

2.2.2. Determination of sample size

To determine the sample size, the researcher was used the following formula. As for key informants' selection, the researcher was included nine experts of culture and tourism at zone level and fourteen leaders of *Gadaa* system as a sample since their number is manageable. The homogenous nature of the householders have made the researcher to estimate sample of respondents at 5% margin of error by using the following equation (Zar, 2010).

$$n = KI + \frac{N}{1 + Ne^2}$$

Whereas;-



- n = sample size
- KI = number of experts and leaders in *Gadaa* system
- N = number of total knowledgeable householders
- e is level error at 95% confidence interval

2.2.3 Techniques and procedures of respondents selection

The respondents were who lived in the area for long time and thus have knowledge of the area, culture, history and environment. The experts in government organization, leaders in *Gadaa* system and knowledgeable householders were selected and used as sources of data. First of all discussion with responsible government office were conducted to identify the experts working on related position and/or knowledgeable on Oromo *Gadaa* system for the study. Accordingly, total of nine experts in government organization: three experts from each of three zones were purposively selected as respondents. After that discussion with experts were done to identify the *Abbaa Gadaa* (chief leader) and *Abbaa Sa'aa* (leader of economic pillar) in Oromo *Gadaa* system. Hence total of fourteen leaders of *Gadaa* system: one *Abbaa Gadaa* and one *Abbaa Sa'aa* from each of seven districts were purposively selected. They were then used as a bridge through which the research reached at the intended community members and householders. Finally, householder selection followed two steps sampling procedures: the first step was conducting discussion with leaders of *Gadaa* system, total of 63 knowledgeable householders were identified from study area and listed as source of data. Then from the list, 54 householders were randomly selected while only 46 were availed and interviewed. The householders in study area have similar culture and norms of *Gadaa* system. As a result, it was unnecessary to look for more samples from study area.

2.3. Methods of data collection

Primary data was gathered from sampled respondents by employing 69 respondents' interview. The questionnaire were designed to address data on socio economic characters, local readership, and role of local leadership in climate change resilience. To accomplish this, sorts of checklist and/or guiding questions were used. Secondary data was gathered from all relevant sources such as government office, internet and webs/blogs. They was obtained through the review of different published and unpublished literatures & documents like reports, researches, magazines, journal articles and books.

2.4. Methods of data analysis

In analysis the study was utilized Microsoft excel and Statistical Package for Social Science' (SPSS) software version 22 for the generation of result outputs. Collected data was analyzed by qualitative and quantitative data analysis techniques. To analyze the quantitative data the study was apply descriptive statistical tools such as measures of centrality (e.g. mean values and variances). Qualitative data was analyzed after the interpretation of listening, transcription and organization of the opining from the respondents. Finally, the results was summarized and expressed by using figure and table.

3. RESULT AND DISCUSSION

3.1. Early warning to the extreme climatic events

The prediction and early warning of extreme climatic events can alerts community to ensure their adaptive capacity in controlling the adverse impacts of the extreme events. Oromo have indigenous astronomical calendar, climatological, geological, trees' physiological and other entity's metaphysical views which reasonably linked to the environmental events they perceived. According to respondents the traditional early warning system has been moderated the impacts of adverse climatic events on communities' livelihood via climatological proxy, detection and prediction. The major source of early warning information (EWI) used by highest number of farmers were traditional indigenous early warning information disseminated from *Raagaa Wogii* (the spiritual leaders in *Gadaa* system) than modern early warning system disseminated by medias. Because within the community there is an emerging effort to find more accessible, suitable and easily understandable climate projections for their decision to use. Few farmers were not follow any early warning information to reduce the adverse impacts of climate change. The finding was also articulated associated indicators remarked as evidences. *Raagaa Wogii* are a spiritual leaders in *gadaa* system who mainly predicts climate variability from the ring of trees stem, thickness of deposited sediments, and direction of cloud and wind movement in each season. The future drought have been predicted from the frequency of past drought that can be obtained from the thickness of developed trees' stem ring and deposited runoff sediments in a year. The developed trees' stem ring and deposited runoff sediments in one year have similar color. The number of thin tree's rings and/or deposited sediments from 40 of them in total shows the number of drought in five *Gadaa* period (four decades). In this regard, out of 40 observed tree's rings and/or deposited sediments eleven are relatively thin means eleven drought were occurred in five *Gadaa* period/40 years. Supporting this finding Berisso, (2018) showed that since 1985 famine, the Ethiopian government was strengthened infrastructural and logistical assessment capacity and early warning to ensure food security in pastoral and agricultural areas. Negassa (2013) also reported that the traditional forecasters named *Ayyantu* recently being followed by development practitioners in their climate change impacts controlling efforts while councils of elders represent the needs and interests of the community. Similar indigenous knowledge of early warning to extreme climatic events in this finding was also reported by Abate (2016) from southern parties

of Ethiopia.

Table 1: Source of early warning information to communities in *Gadaa* system

No	Sources of EWI	N	Mean	SE	SD	Min. value	Max. value
1	Raagaa Wogii (spiritual leader)	69	4.1039	0.03500	0.30713	4.00	5.00
2	Medias like: TV, Radio and etc	69	4.0649	0.21427	1.88021	0.00	5.00
3	DA (experts at local gov't office)	69	3.2597	0.07255	0.63666	3.00	5.00
4	No follow EWI at all	69	2.1039	0.06292	0.55213	0.00	4.00

0=not used, 1=used by very few, 2= by few, 3= by moderate, 4=used by many & 5=used by all

3.2. Conflict settlement mechanisms in Oromo *Gadaa* system

Conflicts are most influencing factors that accelerates human vulnerability to extreme climatic events mainly by reducing their adaptive capacity and releasing greenhouse gases to atmosphere. Such effects can thus reversed by the indigenous mechanism of conflict prevention and resolution. Oromo *Gadaa* system is the indigenous knowledge, belief, culture, leadership and institution used in inter- and intra-ethnic conflict prevention and resolution even though it was threatened under the influence of Amhara ruling elites for around 1.5 centuries. It was deliberately detested and distorted as backward views and bad practices to devastate Oromo's identity and intellectual leadership. This study was investigated the existing indigenous knowledge of Oromo in conflict prevention and resolution. *Safuu* is a moral norms and values that deals with respect good will and forbid wrong customs to maintain mutual relationship of societies within intra and extra-terrestrial. Whereas *Seera* is the fundamental rules and regulations in Oromo *Gadaa* system. *Safuu Seeraa* is laws, moral and ethical norms in Oromo *Gadaa* system that protects the economic, environmental, sociocultural and political rights of human being as humanity irrespective of his/her ethnic groups. As indicated by the respondents, elders at different level responsible to reconcile the parties in conflict. When it is too difficult for elders to settle the conflict they call for the involvement of leaders at different level in *Gadaa* system such as: *Hayyuus*, *Ambaa gadaa*, *Haadha siiqee*, *Abbaa Gadaas* and/or spiritual leaders. The *Jaarsummaa* is dealing with conflict within Oromo and/or other ethnic group living and/or having a case with Oromo. The *Sadii walii dhoksuu*, *Sadii walii obsuu*, *Sadii walgorsuu* and *Araaramuu* are conflicts prevention mechanisms settled by two parties without anyone interference. *Ilmo-limmoo* is the responsibility of relatively unharmed person or groups to help the harmed one in any costs to control the effects without waiting for order from leaders. *Araarsuu* and *Qora* are also other indigenous mechanism of conflict resolution conducted by either two groups of *hayyuu ollaa* or *Ambaa Gadaa* by dealing and solving the cases and related causes from a base. *Gumaa* is a duty of *Abbaa gadaas* and Spritual leaders to help *hayyuus* and *Ambaa Gadaa* at different level in hearing the cases and its causes from two parties and their Ollas in detail and make decision based on the level of crime.

Worra Gumaa is Families between whom there are blood feuds caused by killing of.

Seera siinqeef qanafaa is also commonly used by women to protect their rights and to participate in every issues in their environment. Although, the laws in *Gadaa* system are in the form of unwritten constitution, its rules and regulations have been transferred from generation to generation through oral and practices. For instance, people full rights to *guula*, means their political rights to resign from his political party (*gogeessa*) and join another *gogeessa* by using the principles of *Gadaa* System have been transferred from generation to generation both through oral and practices. Some of this indigenous mechanism of conflict resolution of *Sikkoo-Mandoo* (Arsi) societies in Bale zone of Oromia region were also reported by Birhan and Bekele (2016). In line to this finding many other traditional mechanism of conflict settlement of Oromo were reported by many others scholars: *ilaaf-ilaamee*/negotiation (Abebe, 2001 and Zelalem and Endalcachew, 2014); *jaarsa araara* system means reconciliation through elders and *Jaarsummaa* system/mediation (Amenu, 2018); *Gumaa* is blood price to settle homicide, (Gemechu, 2002 and Gowok, 2008), *Qalluu courts* is court of spirit possessed person named *Qalluu* who assists the conflicts to negotiate, or through arbitration (Lewis, 1984b and Morton, 1975), women use law of *seera siiqqeef Caacuu* to protect their right through their representatives called *shanee* even without witnesses testifying to the case (Bartels, 1984). The Oromo's mechanism of conflict prevention and resolution were also reported by many other researchers (Watson, 2001 and Dejene. 2013). Similar to that of Oromo *Gadaa* system, indigenous conflict settlement: in Wolayta is *Gondaro* (Berhane, 1992), and in Sidama is *ostracization* (Hamer, 1972), and in Gurage is *Yagoka* (Shack, 1969). Likewise, Evans-Pritchard (1940) documented that the leopard skin chief have a power of mediating the conflicts in the *Nuer* of the Sudan. *Bawku* in Ghana (Bukari, 2013) and *Meta* in Western Cameroon were also executing their fellow villagers, kinsmen and friends for their wrong doings. A troublesome member of a community is denied clan protection, and is thus isolated from societies.

Table 2; Mechanism of conflict induced extreme climatic effect management

Terminology	Relative meaning	Actors:Responsible person
<i>Safuuf Seera</i>	Laws, moral and ethical norms in <i>Gadaa</i> system	<i>Abbaa Gadaas</i>
<i>Jaarsummaa</i>	Dealing with conflict	Individual to leader
<i>Sadii walii dhoksuu</i>	Secretiveness for three time is mostly used to prevent conflict in family (<i>Mattii</i>) to neighbors (<i>Ollaa</i>)	Two parties
<i>Sadii walii obsuu</i>	Threeness tolerance to prevent conflict in family, peasant associations (<i>Arada/Dheeda</i>) to district (<i>Eelaas/Maddaa</i>)	Two parties
<i>Sadii walgorsuu</i>	One another counsel for three time is mostly used to prevent conflict in family to <i>gosa</i> (Clan)	Two parties
<i>Araaramuu</i>	Negotiation is mostly used to prevent conflict	- Two parties
<i>Ilmo-limmoo</i>	Helping harmed person in any case	Criminal
<i>Araarsuu</i>	Mediation is mostly used to solve conflict at all	<i>Hayyuu ollaa</i>
<i>Qora</i>	Arbitration is mostly used to solve conflict at all	<i>Ambaa Gadaa</i>
<i>Daadhii buudaa</i>	Mediation is mostly used to solve conflict at all	<i>Ambaa Gadaa</i>
<i>Gumaa</i>	Reimbursement	<i>Abbaa gadaa</i>
<i>Wonteeff woraana</i>	Defends env'tal resources from destroy.	
<i>Siinqeef Qanafaa</i>	The power of womens in <i>Gadaa</i> system, institutionalized and women formed parallel organizations of their own which actively excluded men.	<i>Haadha siiqee</i> (women)



Figure 2: When *Abbaa Gadaas* and *Haadha Siinqee* are settling the conflicts

3.3. Climate resilient community self-help livelihood practices in gadaa system

Climate resilient livelihoods are the climate change adaptation strategies used to control the adverse impacts of extreme climatic events by exploiting beneficial opportunities. The adaptation strategies to extreme climatic events used in study area were recorded in all types of farmers' livelihoods. Community self-helps is one of the livelihood mechanism in *Gadaa* system that has been used to solve livelihood problems of Oromo society. As climate resilient livelihoods, the respondents were listed total of sixteen community self-help practices those have been experienced in *Sikkoo-Mandoo* Oromo societies. These sixteen practices of community self-help livelihood were then classified into six groups based on their actor named: those managed by *Ambaa Gadaa* who is the chief leader in *gosa* (clans), by members of their clan, both by friends and family, by family, by friend and by neighbors. Majorities of community self-helps are the responsibilities of members in their clan, and friends/families (table-3). *Ameesa dabarsu* is the ways in which communities helping one another through lactating caw transfer to the one who have no lactating caw. The farmer who have many lactating caws transfers

one to the poor farmer in their clan to let him use milk and its products. *Dabaree kenuu* is the ways in which rich farmer in the same clan helps poor farmers through caw transfer to share its calves. The poor farmer receive 1/3 of caw's calve whereas 2/3 of calves and mother caw would returned back and owned by rich farmer. *Gegawo-gegesaa* is the duties of female's clan in donation of house material, land and/or livestock for pair at the date of their marriage. *Dhoofsisuu* is the responsibilities of men's families in donation of land and/or livestock for pair within a week of their marriage. *Horii soruu* is the ways in which rich people freely give livestock to the poor farmers in their clan. It is also freely restocking livestock of person/groups in their clan whose livestock were treated by drought, flooding or any other disasters. *Hirphuu* is the ways in which grain for food and/or livestock for raring are given to pro-poor from members of his clan. *Dikee hirphuu* is the ways in which friends/families helps one another by sharing animal waste for use. *Gumaata* is the technique in which friends and/or families supports injured person/groups mainly by donating cultural food until they repaired from hurt. *Liqii* is the ways in which friends/families helps one another by providing credit for the one in problem. *Qabdo qabuuf* is constructing house for the person in problem such as elder, women, disable and militaries. *Qote-qotii* is the technique in which rich farmers who have many oxen but not human labor for agricultural practice and the poor one who have no ox helps one another in ploughing. The poor farmers uses to plough his and the rich farmer farmlands by using rich farmer oxen. Thus they solves one another problems by collaborating oxen and human labor in farming. *Sanyii kennuu* is the ways in which friends/families helps one another through germplasm exchange. *Woliif Tiksuu* is the ways in which friends/families helps each other by flocking livestock for one another. *Daboo* is helping one another by working in group mainly during agricultural practices, housing and fencing. *Edir* and/or *Ekub* is a saving group in which members can get credits from the association for adaptation purposes whenever crop production failed by extreme climatic events. Inline to this finding Jalata (2012) was illustrated how Oromo *gadaa* system organized Oromo society around socio-political, economic, cultural and religious institutions by preventing disasters and promoting relative peace, security, sustainable development, and political sovereignty. In consistence of this finding the role Ethiopian mutual support systems in climate change adaptation was also reported by (WISP, 2010; Boru, 2012; Nigatu, 2013; and Getahun, 2016). Likewise, the role of indigenous knowledge in climate change adaptation strategy in different parties of Ethiopia was also elaborated by Dejene (2013) and Abate (2016). Alike *Abbaa Gadaas* in our case, Huho and Ngaira, (2012) and John, *et al.*, (2018) also proposed the involvement of the highly experienced, knowledgeable and skilled persons in proper management of valuable land resource while used for common good as part of risk management.

Table 3: Indigenous community self-help livelihood used in adaptation to extreme climatic event

Adaptation strategies	Relative meaning of inborn terminology in Oromo <i>Gadaa</i> system	Actors: Responsible person
<i>Ameesa dabarsu</i>	Lactating caw transfer for milk and its product aid	Members of their clan
<i>Dabaree kenuu</i>	Livestock transfer to share 1/3 of its Calves	Members of their clan
<i>Gegawo gegesaan</i>	Livestock gift during wedding by female family	Members of their clan
<i>Horii soruu</i>	Restocking	Members of their clan
<i>Hirphuu</i>	Crop/Livestock donation for pro-poor	<i>Ambaa Gadaa</i> or clan
<i>Dikee hirphuu</i>	Sharing animal waste for use	Friends/ Family
<i>Gumaata</i>	Reparation or Compensation when injured	Friends/ Family
<i>Liqii</i>	Credit for person in problem	Friends/ Family
<i>Qabdo qabuuf</i>	Housing the person in problem	Friends/ Family
<i>Qote qotii</i>	Exchanging Ox labor by his labor in farming	Friends/ Family
<i>Sanyii kennuu</i>	Seed or Germplasm exchange to be sown	Friends/ Family
<i>Woliif Tiksuu</i>	Flocking livestock for others	Friends/ Family
<i>Dhoofsisuu</i>	Land/Livestock donation for marriage by male family	Family
<i>Daboo</i>	Helping others by labour	Friends
<i>Edir and Ekub</i>	Traditional Saving group	Neighbors

4. CONCLUSION AND RECOMMENDATIONS

The Oromo have indigenous knowledge on the management of environmental disasters and risk through climate resilient livelihood practices. The indigenous climate resilient livelihood practices in study area include: early warning, conflict settlement, and community self-help practices. Majority of farmers have been used indigenous early warning information predicted by spiritual leaders than that of modern prediction disseminated by Medias. Because of relatively inaccessibility, complexity and difficulties of the science of modern climatic projection for

farmers to use. *Raagaa Wogii* are spritaul leaders in *gadaa* system predicting extreme climatic events from the ring of trees, thickness of deposited sediment layer, and direction of wind movement. An eleven thin per 40 tree's rings and/or deposited sediments means eleven drought were occurred in five *Gadaa* period/40 years.

Conflicts are accelerating human vulnerability to extreme climatic events by releasing greenhouse gases to atmosphere. Its effects can however alleviated by the community based conflict settlement. Oromo *Gadaa* system have indigenous knowledge, institutions and role players on conflict prevention and resolution as indicated by orally transferred unwritten law, moral and ethical norms called *Safuuf Seera*. *Jaarsummaa* is used to settle the conflict among Oromo and others ethnic group having a case with them. *Sadii walii dhoksuu*, *Sadii walii obsuu*, *Sadii walgorsuu* and *Araaramuu*, are conflicts prevention mechanisms enforced by two parties without anyone order. *Ilmo-limmoo* is the responsibility of unharmed party to help the harmed party in cost of controlling the effects whereas *Araarsuu* and *Qora* are duties of *hayyuu* to deal related causes from a base and solve the cases. *Gumaa* is solved by *Abbaa gadaas*, *Ambaa Gadaa* and *hayyuus* at different level by hearing the cases and its causes from two parties and their Ollas in detail to make decision. *Seera siinqee* is duties of women to protect their rights and to take party in every issues in their communities.

The sixteen practices of climate resilient community self-help livelihood have been managed at six community level namely by: leaders in *Gadaa* system, members of their clan, friends/family, family, friend and neighbors. The *Ameesa dabarsu*, *Dabaree kennuu*, *Gegawo-gegesaa*, *Soruu* and *Hirphuu* were the indigenous community self-help livelihood enforced by members of their clan. *Dikee hirphuu*, *Gumaata*, *Liqii*, *Qabdo qabuuf*, *Qote-qotii*, *Sanyii kennuu* and *Woliif Tiksuu* were the ways in which friends/families helps each other during extreme climatic event. *Dhoofsisuu*, *Daboo*, and *Edir* and/or *Ekub* have been the responsibilities of men's families, friends and neighbors respectively to help one another. Therefore this indigenous early warning system, conflict prevention and resolution, and community self-help livelihood practices ought to scaled up to legal level and used at a regional level in order to mitigate extreme climatic events. Further study and modernization of the evidences, reliability and effectiveness of the indigenous early warning system are also very important.

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