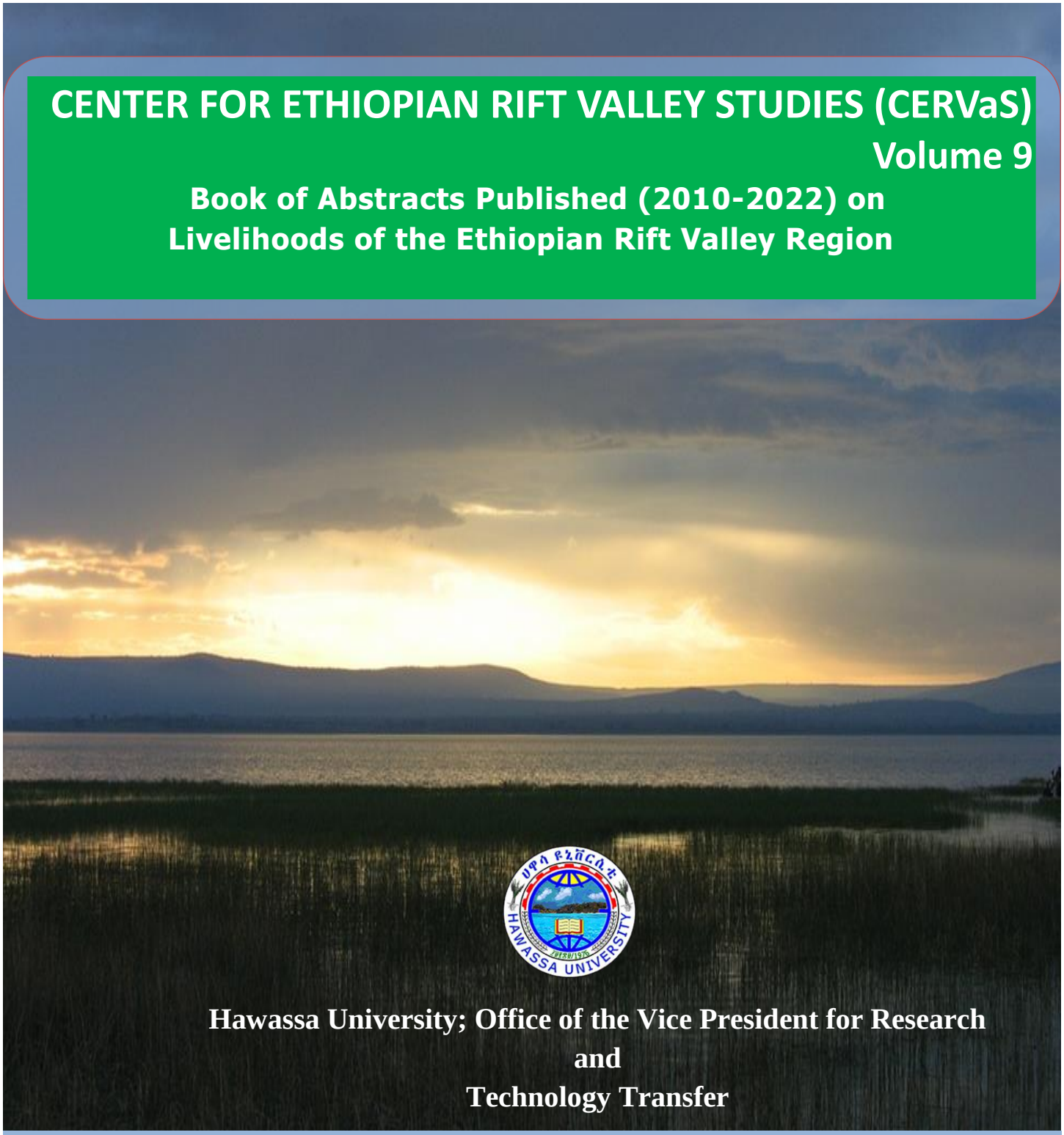
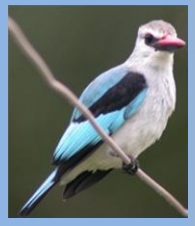
CENTER FOR ETHIOPIAN RIFT VALLEY STUDIES (CERVaS)

Volume 9

Book of Abstracts Published (2010-2022) on Livelihoods of the Ethiopian Rift Valley Region



Hawassa University; Office of the Vice President for Research and Technology Transfer



"Joining Hands to Reverse the Alarming Situations"

Table of Contents

Social Perception Towards Impact of Soil Erosion and Drought on Livelihood of Smallholder Farmers in Shashemene Wereda, West Arsi Zone, Oromia, Ethiopia

Yadeta Teshome Negasa

Hawassa University Wondo Genet College of Forestry and Natural Resource Department of Natural Resource and Environmental Studies www.iiste.org

Abstract

Soil erosion derived soil/land degradation is becoming the overriding agricultural problems of Shashemene woreda (table 2). Any rainfall occurrence is creating overland flow that results in loss of fertile topsoil. The research has been intended to investigate social perception of impact on soil erosion and drought on livelihood of smallholder farmers in Shashemene Wereda, West Arsi Zone, Oromia Regional State. Questionnaires were prepared for face to face personal interview and focus group discussion. Further data was collected through field observation to the real conditions found on the ground. Social perception data analysis has been done on Percentage bases. The climate data was analyzed using standard rainfall anomaly. Figures and tables were prepared by excelling Microsoft. Rainfall quantity of the site shows serious decline since 1997 (figure 2). The study area was vulnerable to drought to moderate risk level (figure 3) indicating prevalence of agricultural water scarcity. The subsistence farming system of smallholder farmers in the research site was explored negative impact on soil erosion and drought on their livelihood through its pressure on agricultural production. Lack of relevant education, prevalence of traditional tillage, topographic position, soil texture (sandy soil), small land holding size, absence of soil and water conservation measures, large family size, expensiveness of fertilizers versus reduction of households' purchasing power have intensified poverty that led to food aid. Most of the time shortage of food commences in social instability. Scope of the problem is expanding timely affecting natural resources and the precious human life. To terminate such solemn and burning social problems; coordinated, relevant and focused efforts should be made through training and provision of material support to the community.

Keywords: food shortage, bad year, low rainfall, vulnerability, poverty

Negasa, Y. T. Social Perception Towards Impact of Soil Erosion and Drought on Livelihood of Smallholder Farmers in Shashemene Wereda, West Arsi Zone, Oromia, Ethiopia. Journal of Natural Sciences Research, Vol.8, No.9, 2018

Impact of water harvesting ponds on household incomes and rural livelihoods in Minjar Shenkora district of Ethiopia

Akalu Teshome[1] Enyew Adgo[2]Bancy Mati[3]

1 Amhara Agricultural Reseach Institute. P.O. Box +527, Bahir Dar, Ethiopia, e-mail: akalu_firew@yahoo.com
2 Bahir Dar University, P.O. Box 1289, Bahir Dar, Ethiopia, e-mail: enyewadgo@gmail.com
3 Improved Management of Agricultural Water in Eastern & Southern Africa (IMAWESA) P.O. Box 39063-00623 Nairobi, Kenya, e-mail: b.mati@cgiar.org
https://doi.org/10.2478/v10104-011-0016-5

Abstract

This paper presents the findings of the socio-economic impact of household-level water harvesting technology. Before water harvesting was introduced, onions were not grown in the area due to lack of seedlings. Thus onion seedlings were grown on 100 m^2 plots using water from the ponds in the dry season, then sold or planted under rainfed conditions during the rainy season. The results obtained show that the average net income from onion seedlings was 155 US$ per 100 m^2 plot, while those from bulb onions grown rainfed in the field was 1848 US$ per ha, making the contribution to farmer incomes by onions alone about 2003 US$ per year which is higher than from rainfed teff and wheat combined.

Keywords: Socio-economic assessment, onions seedlings, net incomes, rainfed agriculture, water harvesting

Teshome, A., Adgo, E., & Mati, B. (2010). Impact of water harvesting ponds on household incomes and rural livelihoods in Minjar Shenkora district of Ethiopia. *Ecohydrology & Hydrobiology*, *10*(2-4), 315-322.

The role of fishery in livelihood security of fishing communities around lake Ziway, Eastern Showa Zone, Oromia Regional State, Ethiopia

Ignatius Mberengwa1 and Zelalem Bacha2

1 teaches at Bindura University of Science Education, Zimbabwe
2 is a researcher.

Abstract

This study assesses the role of fishery in livelihood security of fishing communities in and around Lake Ziway. It is based on a sample of 125 households randomly selected from seven landing sites of the Lake. Focus group discussions, key informant interviews and personal observations were used to collect data for the study. The study results show that fishing technology on Lake Ziway is artisanal in nature and makes use of traditional rafts and wooden manual boats. The majority of the fishermen are part-time who are also engaged in multiple activities such as cereal production and livestock rearing to sustain their livelihoods. The study also shows that fish contribute to livelihood security by both serving as a major food item and by providing cash income ultimately used for the purchase of a variety of goods and services. Major challenges that impinge on the activity include backward and antiquated fishing equipment, reduced catch of targeted species, increased distance to fishing sites, limited access to credit, and lack of developed processing technology among others. Thus, if some or all of the challenges are tackled, fishing can become an economic pillar of livelihood security in the study area.

Keywords: livelihoods security, livelihood assets, artisanal, fishing communities, Lake Ziway, Ethiopia.

Mberengwa, I., & Bacha, Z. (2011). The role of fishery in livelihood security of fishing communities around lake Ziway, Eastern Showa Zone, Oromia Regional State, Ethiopia. *Journal of Business and Administrative Studies*, *3*(2), 61-88.

Effects of Salinity on Producers' Livelihoods and Socio-economic Conditions; The Case of Afar Region, Northeastern Ethiopia

Getinet Belay Wondim1, Ashenafi Worku Daba1* and Asad S. Qureshi 2

1Ethiopian Institute of Agricultural Research (EIAR), Werer Agricultural Research Center, Werer, Ethiopia,
2Irrigation and Water Management, International Center for Bio saline Agriculture (ICBA), Dubai, United Arab Emirates.

Abstract

This study was done to assess the effects of salt-affected soils on the livelihoods and socio-economic conditions of the farming communities in Afar National Regional State, Northeaster Ethiopia. Primary data were collected from 102 sample respondents selected using multi-stage sampling techniques from Amibara and Dubti districts. Descriptive statistics (mean, frequency, percentage) and inferential statistics (t-test and Chi-square test) were employed to analyze the quantitative data. The results of the study showed that in the study areas, the farming communities have been negatively impacted by soil salinity. According to the study, soil salinity has made deterioration of both livestock rearing (reduced in number) and crop production (low to complete loss) activities, which in turn lead to livelihood vulnerability of the household. The results of the study showed that due to soil salinity, land less ness and food insecurity have becoming the common manifestation of the areas under study. Hence, the quality of irrigation water used for irrigation, the land leveling problem and the method of irrigation water application have to be given due attention to halt further expansion of soil salinity. On the other hand, wider promotion and popularization of proven practices as well as innovating new ones need to be strengthened. Trainings and awareness creation on soil and water management practices could also be taken as an immediate solution.

Keywords: Salinity, Effect, Livelihoods, Socio-economic, Farming communities, Afar, Ethiopia

Wondim, G. B., Daba, A. W., & Qureshi, A. S. (2020). Effects of salinity on producers' livelihoods and socio-economic conditions; the case of Afar Region, Northeastern Ethiopia. *Journal of Sustainable Agricultural Sciences*, *46*(3), 35-46.
http://jsas.journals.ekb.eg/

Challenges to Rural Livelihoods: A Case Study of Chichu, Gedeo, Southern Ethiopia

Daniel Gebretsadik Ayele

Dilla University, Ethiopia

Abstract

The aim of this article is to understand the livelihood challenges of farming households from an insider perspective. The empirical data upon which the author draws was gathered through repeated periods of ethnographic fieldwork carried out in 2017 with 36 participating farming households in the community of Chichu in Gedeo, Southern Ethiopia. Observation, interviews, and focus group discussions were used to obtain the required primary data. This study has also benefited from various secondary sources. As the study shows, climatic change, land scarcity, limited livestock production, limited finical capital, limited non-farm income, livelihood displacement, and marginalization of women are major livelihood challenges facing farmers in the Chichu community. Thus, a holistic approach is necessary to mitigate the constraints that threaten farmers' livelihoods.

Keywords: Agroforestry, climate change, land scarcity, rural livelihood, Chichu community.

Ayele, D. G. (2019). Challenges to Rural Livelihoods: A Case Study of Chichu, Gedeo, Southern Ethiopia. *Journal of Rural and Community Development*, *14*(2).

Livelihood Diversification among the Pastoral and Agropastoral Groups in the Upper Awash Valley, Ethiopia

Shimelis Beyene

Department of Anthropology, Institute for Ethnic Studies, University of Nebraska-Lincoln , 930 Old father Hall, Lincoln, NE 68588-0368, USA

Abstract

This study explores variations in livelihood diversification among three pastoral or agropastoral groups in the Awash Valley, Ethiopia. The data were derived from a survey of 596 households randomly selected in 31 kebeles (subdistricts) and from participatory rural appraisal exercises in nine kebeles. The indigenous peoples of the study area have traditionally depended on livestock for their livelihoods. In the last few decades, however, pastoralists' engagement in non-pastoral activities has become increasingly common as modern development schemes convert the rangelands into non-pastoral productions. Yet, the patterns of diversifications differ among the three groups. The Afar, who still enjoy a relatively large number of livestock per household have the least diverse portfolio, but when diversified, activities tend to be lucrative such as irrigated agriculture or well-paying or high-status jobs. By contrast, the Kerreyu and Ittu, with fewer livestock holdings per household, are engaged in more diversified income generating activities. Some of these activities, however, tend to be low-return, often with potentially negative environmental and socio-economic consequences. This study demonstrates that the pattern of livelihood diversification among the study groups is related to the household level livestock holding, which, in turn, may be related to the amount of rangeland and economic options available to pastoralists. Policy and development interventions need to consider these variations.

Keywords: Non-pastoral Income, Afar, Ittu, Kereyu, Land Dispossession, Range Degradation, Poverty

Beyene, S. (2012). Livelihood diversification among the pastoral and Agropastoral groups in the upper Awash Valley, Ethiopia. *Journal of Human Ecology, 39*(3), 241-253.
https://doi.org/10.1080/09709274.2012.11906516

Dynamics of land use/land cover: implications on environmental resources and human livelihoods in the Middle Awash Valley of Ethiopia

Mathias Tesfaye Abebe, Mekonnen Adnew Degefu, Mohammed Assen & Asmamaw Legass

Environmental Monitoring and Assessment **volume 194**, Article number: 833 (2022)

Abstract

Quantifying the recent LULC changes and associated impacts on pastoral and agro-pastoral livelihood systems is important since the effects of LULC changes on environmental resources and human livelihood are not fully understood in our study area. This paper analysed the trend of land use/land cover (LULC) dynamics and its implications on natural resources and human livelihood in the Middle Awash Valley, Central Ethiopian Rift Valley. For the purpose, Landsat imageries of thematic mapper (1987), enhanced thematic mapper (2002) and operational land imager and thermal infrared sensor (2016) were employed and analysed using Remote Sensing and Geographic Information System (GIS) software and techniques, and qualitative data analysis had been performed as well. The results showed that cultivated land expanded at a rate of 2.6% year^{-1}, whereas forestland and grassland shrunk at a rate of 1.2% year^{-1} and 2.4% year^{-1}, respectively. The invasive *Prosopis juliflora* has been expanded from 3.7% in 1987 to 37.9% in 2016 at a rate of 1.2% year^{-1}. The introduction of both small- and large-scale commercial irrigation farming and the implementation of villagization programme focused on transforming pastoralists into sedentary lifestyles. Consequently, irrigation farming, launching of villagization, climate variability as in series of droughts, construction of water dam and the rapid expansion of *Prosopis juliflora* were the major drivers of LULC changes in the study area. Although we found some positive developments such as improvement on infrastructural and social services (e.g. school and domestic water supply), income diversification and ecological benefits from *Prosopis juliflora* (e.g. saline soil treatment, carbon sequestration and soil erosion control), there were a range of negative impacts resulting from LULC changes in the study area. LULC changes reduced quality of rangeland resources as the ecologically and economically valuable indigenous tree and grass varieties were significantly degraded. As a result, the traditional pastoral livelihood system has been much vulnerable with the LULC dynamism of the study area. Furthermore, the implementation of the villagization programme has brought socioeconomic impacts on the community and challenges on the ecology, e.g. changing productive rangeland to irrigation crop farms. Our research results, thus, suggest the urgent need for relevant policy interventions in support of the pastoral livelihoods and landscapes with the modification in the implementation of villagization as well as irrigation farming programmes and its better management and controlling *Prosopis juliflora* expansion in the study area.

Keywords: LULC dynamics, *Prosopis juliflora*, Pastoralism and agro-pastoralism, Ecological and livelihood impacts, Remote sensing, Ethiopia

Abebe, M.T., Degefu, M.A., Assen, M. *et al.* Dynamics of land use/land cover: implications on environmental resources and human livelihoods in the Middle Awash Valley of Ethiopia. *Environ Monit Assess* **194**, 833 (2022). https://doi.org/10.1007/s10661-022-10498-7
DOIhttps://doi.org/10.1007/s10661-022-10498-7

Participatory Forest Management for Improving Livelihood Assets and Mitigating Forest Degradation: Lesson Drawn from the Central Rift Valley, Ethiopia

Gonche Girma1, Yoseph Melka2, Amare Haileslassie3, Wolde Mekuria3

1Ethiopian Environment and Forest Research Institute; P. O. Box 24536 code 1000, Addis Ababa, Ethiopia; gonchegirma90@gmail.com
2Hawassa University, Wondo-Genet College of Forestry and Natural Resources; P. O. Box 128, Hawassa, Ethiopia; yosef.melka@gmail.com
3International Water Management Institute (IWMI); East African and Nile Basin Regional Office, P. O. Box 5689, Addis Ababa, Ethiopia; a.haileslassie@cgiar.org, w.bori@cgiar.org

*Corresponding author: Wolde Mekuria

Abstract

The study was conducted in Heban Arsi district, Central Rift Valley, Ethiopia to investigate the contribution of PFM to improving household's livelihood assets and mitigating forest degradation. Data were gathered using household surveys, observation, key informant interviews and focus group discussions. The livelihood assets framework was used to organize data, and the effects of PFM on household's livelihood assets was evaluated using propensity score matching method and Probit model. The qualitative data was analyzed using topic coding and building categories, themes, and patterns of relationships. The results suggested that PFM contributed to the improvement of the five livelihood assets and mitigation of forest degradation. The overall contribution of PFM to the livelihood assets showed skewed structure, suggesting that the improvements deviate from sustainability. The existing institutional structure including bylaws contributed a lot to strengthen PFM. Yet, it is crucial to strengthening the protection of forestlands through improving rule enforcement and commitments of both formal and informal institutions in managing forest resources. Also, sustaining the extraction of wood and non-wood forest products and the benefits from as well as integration of other interventions in PFM areas such as the provision of improved cook stoves, solar PV and biogas could help reduce forest degradation, improve the sense of ownership among local communities and sustain PFM activities. Further, expanding capacity building trainings and improving access to market could play a great role in sustainably manage forest resources through increasing the participation of local communities in decision making processes.

Keywords: Climate adaptation, Climate change, Environmental degradation, Institutions, Institutional structures, Livelihood assets, Sustainable development

Mekuria, W., Girma, G., Melka, Y., & Haileslassie, A. Participatory Forest Management for Improving Livelihood Assets and Mitigating Forest Degradation: Lesson Drawn from the Central Rift Valley, Ethiopia.

Rural Livelihood Vulnerabilities, Coping Strategies and Outcomes: A Case Study in Central Rift Valley of Ethiopia

Sime G 1&2* and JB Aune2

1 Department of Biology, College of Natural Sciences, Hawassa University, PO Box 05, Hawassa, Ethiopia
2 Department of International Environment and Development Studies (Noragric), Norwegian University of Life Sciences (NMBU), 1432 Ås, Norway

*Corresponding author email: abigiag@yahoo.com

Abstract

Extensively vulnerable mixed rain-fed farming system is the underlying mainstay of livelihoods of farmers in the central Rift Valley of Ethiopia. This study aimed to assess determinants of farmers' livelihood vulnerabilities to shocks, their coping strategies and outcomes. Cross-sectional data were collected from farmers, agricultural experts, and other development workers through formal and informal focus group discussions, key informant interviews and complemented by field observations. Results showed that natural, institutional, and physical factors are the overriding determinants triggering rural livelihood vulnerabilities to frequent food shocks. Particularly, unpredictable rainfall timing and severity, and ineffective early warning system had practically escalated livelihood vulnerabilities to food shocks. Farmers varied in their assets and socioeconomic capabilities, including wealth status, livestock and poultry holding size, farm size and its soil fertility status, participation in local social networks, and financial capital and access to credit facilities. Farmers also varied in their vulnerability to encountering food shocks and capability to coping. Strategies practiced by households to increase livelihood resilience to rainfall variability include selection of appropriate crop variety, selection of appropriate calendar for planting, intercropping, crop rotation and indigenous in situ rainwater harvesting. Sharing grains among households themselves, selling small ruminants, engaging in off-farm activities and migration were key ameliorative strategies to handle small-scale and temporary food shocks. While institutional interventions with Food Aid and Safety Net programs were commonly used as the underlying coping strategies for severe and large-scale food shocks. The livelihood outcomes were characterized by continued endeavors to avert the inappropriate land management system, to adapt to the recurrent drought and dry spells, and to improve the inadequate early warnings condition for seasonal agro-meteorology. Therefore, authors suggest concerted efforts of stakeholder institutions and local communities to improve the livelihood outcomes that should enhance household capabilities, activities, assets and accesses; reduce vulnerabilities to shocks; and ensure sustainable agricultural production system in central Rift

Valley of Ethiopia.

Keywords: sustainable livelihood approach, asset, rainfall variability, food shock, outcome, semi-arid Ethiopia

Sime, G., & Aune, J. B. (2019). Rural livelihood vulnerabilities, coping strategies and outcomes: A case study in central rift valley of Ethiopia. *African Journal of Food, Agriculture, Nutrition and Development*, *19*(3), 14602-14621.
DOI: 10.18697/ajfand.86.16815

Role of action research in reducing farmers' livelihood vulnerability: A case of Gotu-Onema, central rift valley, Ethiopia

Tefera Belay1*, Belaynesh Zewdie1 and Girma Abera2

1Wondo Genet College of Forestry and Natural Resources, Ethiopia. 2College of Agriculture, Hawassa University, Ethiopia.

Abstract

The livelihood of farmers in Gotu-Onema, central rift valley of Ethiopia has been vulnerable for recurrent drought and other socioeconomic stressors. It is getting worse despite disciplinary research and technology transfer efforts to reverse the situation. As a result of this failure, an action oriented research has been implemented between 2004 and 2009 using 64 selected pilot farming households with the objective of reducing household vulnerability through institutionalization of agricultural input supply and participatory variety development. In addition to continuous assessments semi-structured surveys were made to understand initial livelihood context and impact of interventions. The process has been managed to be participatory where farmers prioritized their problems and actions were taken accordingly. The results of the study show that farmers' livelihood has been improved during the first consecutive three seasons despite drought caused productivity setback in the fourth season. Pilot farmers have been able to follow cropping calendar and other appropriate farming recommendations. Moreover, social learning as a result of the action research has led to the establishment of cooperative to ensure sustainable input supply and market. By the end of the project period, farmers have been technically and institutionally equipped to better respond to the causes of vulnerability.

Keywords: Vulnerability, action research, livelihood, Gotu-Onema.

Tefera, B., Belaynesh, Z., & Girma, A. (2012). Role of action research in reducing farmersâ€™ livelihood vulnerability: A case of Gotu-Onema, central rift valley, Ethiopia. *Journal of Agricultural Extension and Rural Development, 4*(15), 417-422.
DOI: 10.5897/JAERD12.026

Effects of Small Scale Irrigation on Household Income and Its Implication for Livelihood Sustainability in the Drought Prone Central Rift Valley of Ethiopia

Engdasew Feleke1, 2, Engdawork Assefa1 & Tesfaye Zeleke1

1 Center for Environment and Development Studies, College of Development Studies, Addis Ababa University, Ethiopia.
2 Department of Geography and Environmental Studies, College of Social Sciences and Humanities, Hawassa University, Hawassa, Ethiopia.

Abstract

Smallholder rainfed agriculture is the mainstay for the majority of the population in Ethiopia. However, its performance is very poor, particularly in drought-prone areas. Hence, small scale irrigation has been introduced to averse the negative effects of climate variability. This research aims to examine the impacts of small scale irrigation on income and its implication on rural livelihood sustainability. Data were collected using a household survey questionnaire and focus group discussions. Descriptive statistics and the Heckman two-step model were used to analyze the data. Participation in irrigation significantly and positively affects the amount of household income. However, the contribution of irrigation on household income has a limited role to support the sustainability of livelihood in the time of chronic drought in which irrigators were in food aid like non-irrigators. Creating market access, credit provision, better extension service, introducing gender-friendly irrigation, and expanding irrigation command area needs policy priority to sustain the economic benefit of irrigation.

Keyword: Small scale Irrigation, Determinants, Income, Heckman Two-step, Livelihood Sustainability, Central Rift Valley, Ethiopia.

Feleke, E., Assefa, E., Zeleke, T., & Hawassa, E. (2020). Effects of Small Scale Irrigation on Household Income and Its Implication for Livelihood Sustainability in the Drought Prone Central Rift Valley Of Ethiopia
Journal of Sustainable Development in Africa, *22*(1), 2020, 104-131.

The Contribution of Ecotourism for Sustainable Livelihood Around Nech Sar National Park, Ethiopia

Aramde Fetene1* , Tsegaye Bekele2 and GBG. Pananjay K Tiwari1

1. Debre Markos University, Department of Natural Resources Management, P.O Box 269, Ethiopia. Email: aramdefetene@yahoo.com
2. Associate Professor, Hawasa University, Planning and Programming Office, P.O. Box 05, Hawassa, Ethiopia Email: bekele57@yhoo.com

*Corresponding Author: Aramde Fetene; Email: aramdefetene@yahoo.com

Abstract

Protected areas are biodiversity conservation centers and major tourism assets for a nation, particularly for developing countries like Ethiopia through providing sustainable benefit to the local community while supporting for the maintenance and rehabilitation of the protected areas themselves. A study was made at Nech Sar National Park which is one of the protected areas of Rift valley areas in Ethiopia. The objective of this study was to assess the contribution of ecotourism for local livelihood which may be used as an input for sustainable management of protected areas. A three month data of visitors‟ information on the tourists date of arrival, place of stay, their origin of country, and number of tourists, days of stays in Arba Minch and Nech Sar areas, and whether they are with a tour group or independent visitors was collected on a daily base from November 1, 2007 to January 31, 2008. The results showed that a total of 2728 tourists visited Nech Sar National Park between 1 November, 2007 to 31 January, 2008 for a three consecutive months and hence about $25,169 was collected only from park entrance fee. The income generated has a significant input for the park management and livelihood improvement of the surrounding community. In Arba Minch, several stakeholders obtained various benefits through providing hotel accommodations, transport, communication, tented camps, lodges, labor and generally in trade activities. With respect to the place of stay in Arba Minch, many tourists took accommodation in Swayne‟s, Bekele Mola and Tourist Hotels, respectively. Out of the total tourists arrived in Arba Minch during the study period, 33.5% were stayed in Swaynes Hotel, 22% in Bekele Mola Hotel, 10.4% in Tourist Hotel, 4.7% in Arba Minch Hotel, 4.3% in Abysina Pension, 2.5% in Haleluya pension and the rest in different residences and tented camps. The amount of money derived from the visitors for accommodation ranges from US$8 to US$40 which was only for bed rent per day per person. Income from food items and selling of local materials was also significant which makes a difference on the livelihood improvement of the community. With respect to the origin of tourists, the highest number of tourists was coming from Europe (64.8%) followed by Africa (14.3%) and North America (6.6%). The remaining tourists were coming from Latin America, Australia, Canada,

Far East, and Middle East. The results showed that Europe has highest visitors of protected areas in Ethiopia which might be a reflection of its economic development and technology advancement. This has also an implication for creation of Global partnership for the development of protected area governance. The benefit derived from protected areas in terms of ecotourism is a vital component of sustainable livelihood development. Ecotourism is an important industry in creating self employment opportunity for the local community and greater partnership for sustainable management of National Parks. The contribution for the national GDP of the country is also considerable. Therefore, any decision made in developing tourism should pay attention to the preservation of cultural and traditional values of the community at large. Instead of forcing the people to go out from the park by force, it is better to create a partnership with local people for effective management and sustainable benefit sharing from the National Parks.

Keywords: Ecotourism, Livelihood, Protected Area, Nech Sar National Park, visitors, Ethiopia

Fetene, A., Bekele, T., & Tiwari, G. B. G. (2012). The contribution of ecotourism for sustainable livelihood around Nech Sar National Park, Ethiopia. *Int J Environ Sci*, *1*, 19-25.

Pastoralists and livelihoods: A case study from northern Afar, Ethiopia

D. Tsegaye a, *, P. Vedeld b, S.R. Moe a

a Department of Ecology and Natural Resource Management, Norwegian University of Life Sciences, P. O. Box 5003, 1432 ÅS, Norway
b Department of International Environment and Development Studies, Noragric, Norwegian University of Life Sciences, P. O. Box 5003, 1432 ÅS, Norway

Abstract

The changing contexts in the drylands of Africa in which pastoralists operate pose potential negative effects for the livelihood sustenance of pastoralists. We examined present livelihood adaptations among Afar pastoralists in north eastern Ethiopia through a household survey. With an average per capita income of 1.20 USD a day (PPP-adjusted in 2006), all households surveyed in the study area fall below the international 2 USD a day poverty line. Most Afar pastoralists have become increasingly involved in farming and non-farming/non-pastoral activities, but do not display a total detachment from traditional mobile herding. Pastoral households are still less likely to diversify their livelihoods, while semi-pastoral and agro-pastoral households keep livestock more as an additional insurance against failure in other livelihood activities such as farming. This indicates combining livestock production and farming has improved or at least constrained declines in livelihood outcomes. Our quantitative findings are congruent with the general patterns of pastoral livelihood contraction occurring in the region even if a substantial group of pastoralists continue to engage in keeping livestock. These findings are highly relevant in a management context, suggesting more encompassing, and locally adapted policy and development strategy rather than a wholesale abandonment of support to pastoral livelihood styles.

Keywords: Afar people, Arid, Income diversification, Livelihood adaptation, Pastoralism, Sedentarisation, Semi-arid

Tsegaye, D., Vedeld, P., & Moe, S. R. (2013). Pastoralists and livelihoods: A case study from northern Afar, Ethiopia. *Journal of Arid Environments, 91*, 138-146.

Grants Vs. credits for improving the livelihoods of ultra-poor: Evidence from Ethiopia

Getaw Tadesse & Tadiwos Zewdie

IFPRI, Eastern and Southern Africa Office, Addis Ababa, Ethiopia

Abstract

Reaching the ultra-poor and enhancing graduation have long been challenges in many social protection programs. This paper compares the behaviors and performances of most vulnerable, ultra-poor and risk-averse households, who have been granted cash transfers for livelihoods investment, with the behaviors and performance of credit recipients, who are relatively better-off and willing to take credit risks. Using data from the Ethiopian pilot program, we tested if freely provided cash is used less efficiently as the sunk cost hypothesis portrays. Our data revealed that credit recipients indeed perform better than grant recipients. However, when we control wealth and other household characteristics, grant-based investments perform better than credit-based livelihood investments. Grants were allocated more likely to the planned investment than credits and the performances of the former is higher than the latter, both with and without controlling the intensive knowledge supports provided to grant recipients. The result is consistent and robust across different estimation approaches. This implies that the sunk cost hypothesis is not an important disincentive in livelihood grants. We concluded that livelihood grant (asset transfer) not only helps to reach the excluded ultra-poor but also to improve the effectiveness and productivity of rural livelihood investments. We further explained the possible reason for the superiority of grant over loan and its implication on graduation and program costs.

Keywords: Livelihoods, Asset transfer, Social protection, Ultra-poor, Sunk cost, Ethiopia

Tadesse, G., & Zewdie, T. (2019). Grants vs. credits for improving the livelihoods of ultra-poor: Evidence from Ethiopia. *World Development, 113,* 320-329.

Smallholder farmers' livelihood vulnerability to climate change-induced hazards: agroecology-based comparative analysis in Northcentral Ethiopia (Woleka Sub-basin)

Amogne Asfaw[a] Amare Bantider[b] Belay Simane[c] AliHassen[d]

[a]Wollo University (Department of Geography and Environmental Studies), Dessie, Ethiopia
[b]Addis Ababa University, College of Development Studies (Center for Food Security Studies), Addis Ababa, Ethiopia
[c]Addis Ababa University, College of Development Studies (Center for Environment and Development Studies), Addis Ababa, Ethiopia
[d]Addis Ababa University, College of Development Studies (Center for Rural Development Studies), Addis Ababa, Ethiopia

Abstract

Background

Due to its climate-sensitive agricultural system and low adaptive capacity of the subsistence farmers, Ethiopia is cited among the countries experiencing frequent drought and highly vulnerable to climate change associated impacts. Micro level vulnerability assessment, in the context of a changing climate, has a paramount significance in designing policies addressing climate change induced effects. Assessing vulnerability to climate change is important for defining the risks posed by the change and it provides a starting point for the determination of effective means of promoting remedial actions to minimize impacts by supporting coping strategies and facilitating adaptation options targeted at specific context.

Methods

We employed cross-sectional survey research design has to examine the extent of livelihood vulnerability of 384 randomly selected smallholder farmers from three agroecologies which was supplemented by interviews. Livelihood vulnerability index, using integrated indicator approaches and principal component analysis, has been used. Chi-square test, F-test and t-test were used to examine association and mean differences among three agroecologies and between cropping types in terms of different attributes.

Findings

Overall, smallholder farmers living in kolla agroecology were found to be the most vulnerable to climate change induced hazards followed by dega. In terms of type of cropping season, belg dominated areas were relatively more vulnerable than those residing in meher dominated areas. Different biophysical and socio-economic attributes contributed their own role both for exposure, sensitivity and adaptive capacity differences among smallholder farmers farming in different agroecologies and different types of cropping seasons.

Conclusion

We recommend that interventions undertaken to lessen the impact of climate change should be targeted to the factors which contribute to high extent of sensitivity and for those which could enhance the adaptive capacity of smallholder farmers. Specifically, we suggest that resilience-building adaptation interventions like expansion of small-scale irrigation, accessing of micro-finance service, early warning and timely information, extension support, non-farm sources of income, training and skill development, expansion of infrastructure have to be promoted thereby increase the adaptive capacity of subsistence rainfed-dependent farmers to withstand the vagaries of the climate variability risk. Moreover, disparities in the same agroecology have to be addressed properly in livelihood vulnerability discourse.

Keywords: Vulnerability, Livelihood vulnerability index, Adaptive capacity, Rainfed agriculture, Exposure, Sensitivity

Asfaw, A., Bantider, A., Simane, B., & Hassen, A. (2021). Smallholder farmers' livelihood vulnerability to climate change-induced hazards: agroecology-based comparative analysis in Northcentral Ethiopia (Woleka Sub-basin). *Heliyon*, *7*(4), e06761.

Degradation of Wetlands and Livelihood Dependence on Lake Abaya-Chamo Wetland,Southern Ethiopia.

Tariku Zekarias (tarezekarias@gmail.com), Arba Minch University https://orcid.org/0000-0003-4468-6924
Vanum Govindu, Arba Minch University
Yechale Kebede, Arba Minch University
Abren Gelaw, Arba Minch University

Abstract

Background

Abaya-Chamo and other wetlands of Ethiopia provide multiple ecosystem services, the wetlands are extremely affected by various anthropogenic factors. The unsustainable use of wetlands stems from the negligence of users about wetland degradation and limited policy attention by decision-makers. This study was aimed at analyzing the livelihood benefits of Abaya-chamo lake-wetland and the driving forces of its degradation. Data were gathered using a questionnaire survey of 384 households (selected via systematic random sampling), focus group discussion, and interview and field observation. Percentage, regression, etc., was used for data analysis.

Results

It was found that Abaya-chamo lake-wetland offers fish, lumber, firewood, fodder, irrigation water, farmland, rainfall, recreation, tourism, aesthetic, carbon sinks, air quality and climate regulation, etc., services to local people. Farm expansion, sedimentation, irrigation, invasive plants (e.g. emboch), open access and overuse of resources, lack of legal framework and rapid population growth were the main causes of the wetland degradation. Applying the lakes' salty-water for irrigation is expected to lead to chemical land degradation in the next few decades. The invasive emboch-plant results in dwindling aquatic resources (e.g., fish), loss of economic and tour benefits, and change in local climate, thereby depleting the lake water, and the dissolved O2 and CO2 storage capacity of the lake-wetland rapidly.

Conclusions

The lakes' salty-water based irrigation are expected to result in chemical land degradation to the extent of abandoning crop farming in the next few decades unless some actions are taken. Thus, the government should devise clear policy and legal framework about sustainable management of wetland resources.

Keywords: wetland degradation, livelihood services, overuse of resources, Abaya-Chamo lakes, etc

Zekarias, T., Govindu, V., Kebede, Y., & Gelaw, A. (2021). Degradation of Wetlands and Livelihood Dependence on Lake Abaya-Chamo Wetland, Southern Ethiopia.
DOI: https://doi.org/10.21203/rs.3.rs-157738/v1

Balancing people's livelihood and conservation aims: the Nechisar National Park in southern Ethiopia

Genaye Tsegaye 1,2 , Stefaan Dondeyne 2 , Abraham Mariye 3 , Miet Martens 2 , Jan Nyssen 4 , Seppe Deckers 2

1 Department of Natural Resources Management, Arba Minch University PO Box 21, Arba Minch, Ethiopia
2 Departments of Earth and Environmental Sciences, KU Leuven Celestijnenlaan 200-E, 3001 Leuven, Belgium
3 Ethiopian Wildlife Conservation Authority, Nechisar National Park PO Box 65, Arba Minch, Ethiopia
4 Geography Department, Ghent University Krijgslaan 281 (S8), BE-9000 Gent, Belgium
Nechisar National Park

Set along Lake Chamo and Lake Abaya in Ethiopia's southern Rift Valley, Nechisar National Park is renowned for its stunning landscape and wildlife. Vegetation varies from dense evergreen forest were groundwater oozes out at the base of the escarpment, over shrub and woodland on the rocky hills and mountain slopes, to the vast grasslands on the Nechisar plains. The park is home to large mammals such as zebra, grant gazelles, kudu and the endangered Swayne's hartebeest. Lion, leopard and spotted hyena are still present, but being wary of people are seldom seen (Clark, 2010). The park is of great economic importance. On the one hand, by conserving the wildlife and the landscape, the park attracts national and international tourists. On the other hand, the natural resources in the park are important for people's livelihood.

Tsegaye, G., Dondeyne, S., Mariye, A., Maertens, M., Nyssen, J., & Deckers, S. (2013). Balancing people's livelihood and conservation aims: the Nechisar National Park in southern Ethiopia. In *Livelihood 2013: Sustainable livelihood in the tropical drylands* (pp. 118-119).

The influence of mechanized farming and industrialization on the Oromo people, their traditional livelihood strategies and their environment in Ethiopia

Lenin Kuto1, Ayehu Bacha1, Amanti Baru2

1Department of Oromo Folklore and Literature, Jimma University, Jimma, Ethiopia
2Department of Sociology, Jimma University, Ethiopia

*corresponding author): leninkuto@gmail.com

Abstract

This article discusses the influences of mechanized farming and industrialization on the Oromo traditional livelihood strategies and environment. Both qualitative and quantitative research approaches were employed for the study, specifically, observations, interviews, focus group discussions, case studies and surveys were used for data collection. The study revealed that, the traditional livelihood strategies of the Oromo and their environment are highly affected by mechanized farming and industrialization in the study area. These include the loss of crop land, the loss of pasture land, the loss of forest, the loss of water resources and other environmental damage. Moreover, it was found that people are not consulted in most cases about land expropriation for mechanized farming and industrialization; more often than not the community had no involvement at all. The whole process of land transfer was not disclosed to the local people and as a result, their traditional livelihood strategies were affected. The relationship between mechanized farming and industries, and local communities is not always harmonious. The community perceives industry and mechanized farming as their enemies. Consequently, mechanized farming and industries are kept safe by security forces. Correct environmental use by the local people in general and appropriate land use in particular is broken; fair water use is also ignored. Therefore, rather than favouring a few exploitative investors, the Government should empower the local community

Keywords: industrialization, mechanized farming, Oromo people, traditional livelihood

Kuto, L., Bacha, A., & Baru, A. (2018). The influence of mechanized farming and industrialization on the Oromo people, their traditional livelihood strategies and their environment in Ethiopia. *Environmental & Socio-economic Studies*, *6*(2), 29-39.

Local community perceptions toward livelihood and water–energy–food nexus: A perspective on food security

Zinabu Wolde1,2 Wu Wei1,3 Wang Kunpeng1 Haile Ketema1,2

1 College of Land Management, Nanjing Agricultural University, Nanjing, China
2 College of Agriculture and Natural Resources, Dilla University, Dilla, Ethiopia
3 Joint Engineering Research Center for Rural Land Resources Use and Consolidation, Nanjing, China

Abstract

While water–energy–food (WEF) nexus is a major livelihood sources for local community, its security issues grow continually and there is limited information on how nexus resource management is effective at delivering livelihoods and food security. These difficulties are related to the lack of local community knowledge of the use and exploitation of water, energy, and food resources; this limited awareness leads to trade-offs, especially in local and marginalized areas. On the basis of data collected from a local community through a survey-based approach, this study examines local community perception of nexus resources and their contribution to livelihoods. The results indicate that community perceptions of nexus resources can be understood through social, natural, economic, human, physical, and environmental livelihood indicators. According to our findings, the perception of nexus resources is based on the benefits of individual resources rather than their interlinkages. This could be the result of community perceptions of a particular nexus resource from three nexus sector, that is, food. Food is the center of nexus resources for the community in the study area. This indicates, that there is a missing link between cross-sectorial resource utilization and management, and full-scale adoption of the WEF nexus to enhance living conditions. Our findings suggest that there is a low understanding of WEF nexus resource use and management, and the livelihood benefit of individual nexus resources is the primary focus in the studied community. From these results, we recommend more action to be taken by the government and other stakeholders to improve the local community perception of nexus resources for their livelihoods.

Keywords: food security, livelihoods, local community, nexus, water–energy–food

Wolde, Z., Wei, W., Kunpeng, W., & Ketema, H. (2020). Local community perceptions toward livelihood and water–energy–food nexus: A perspective on food security. *Food and Energy Security*, *9*(3), e207.

Causes, indicators and impacts of climate change: understanding the public discourse in Goat based agro-pastoral livelihood zone, Ethiopia

AdemeMihiretu[a], Eric NdemoOkoyo[b], TesfayeLemma[b]

[a]Associate Researcher, Socioeconomic and Agricultural Extension, Sekota Dry-land Agricultural Research Center, Ethiopia
[b]Senior Lecturer, School of Rural Development and Agricultural Innovation, Haramaya University, Ethiopia

Abstract

This study assessed the perceived causes, indicators and impacts of climate change by disaggregating farmers in to adaptor and non-adaptor groups in Goat based agro-pastoral livelihood zone of Ethiopia. The collected quantitative and qualitative data were analysed in descriptive statistics, linear regression, anomaly index, Likert rating scale and conceptual narrations. The findings demonstrated that an increasing temperature and a decreasing rainfall trends were perceived by farmers across the study decades. Higher deforestation rate, rash natural resource exploitation, poor soil and water management rehearses and alarming population growth in descending order were identified as climate change causes. Livestock and crop yield decline, livestock/human diseases epidemics and death, as well as recurrent conflicts due to grazing land were its associated impacts. The status and nature of climate change causes, indicators and impacts were however significantly diverse within similar awareness groups. To mitigate its adverse impacts, the farmers were thus applied livestock, crop and non-agriculture related adaptation strategies. Shortage of finance and eligible household labor combined with the absence of climate related information, training and extension services were hindered farmers to take any measure to the climate change. Therefore, to encourage the farmers' responsiveness, the finding underlines the importance of supplying applicable as well as legitimate natural resource exploitation system, followed by access to climate related information, awareness rising trainings, credit and input delivery services at local and community level.

Keywords: Abergelle district, Adaptation strategies, Climate change, Climate change perception, Rainfall anomaly index

Mihiretu, A., Okoyo, E. N., & Lemma, T. (2021). Causes, indicators and impacts of climate change: understanding the public discourse in Goat based agro-pastoral livelihood zone, Ethiopia. *Heliyon*, *7*(3), e06529.

Degradation of wetlands and livelihood benefits of Lake Abaya-Chamo wetland, southern Ethiopia

TarikuZekarias, Vanum Govindu, Yechale Kebede & AbrenGelawPhd

Abstract

Abaya-Chamo and other wetlands of Ethiopia provide multiple ecosystem services, the wetlands are extremely affected by various anthropogenic factors. The unsustainable use of wetlands stems from the negligence of users about wetland degradation and limited policy attention by decision-makers. This study was aimed at analyzing the livelihood benefits of Abaya-chamo lake-wetland and the driving forces of its degradation. Data were gathered using a questionnaire survey of 384 households (selected via systematic random sampling), focus group discussion, and interview and field observation. Percentage, regression was used for data analysis. Multiple linear (binary logistic) regression model was applied to evaluate the impact of household-related independent variables on the dependent variable. It was found that Abaya-chamo lake-wetland offers fish, lumber, firewood, fodder, irrigation water, farmland, rainfall, recreation, tourism, aesthetics, carbon sinks, air quality, and climate regulation, services to local people. Farm expansion, sedimentation, irrigation, invasive plants (water hyacinth), open access and overuse of resources, lack of legal framework, and rapid population growth were the main causes of wetland degradation. Applying the lakes salty-water for irrigation is expected to lead to chemical land degradation in the next few decades. The invasive emboch (water hyacinth) plant results in dwindling aquatic resources (e.g., fish), loss of economic and tour benefits, and change in local climate, thereby depleting the lake water of the lake-wetland rapidly. The lakes salty-water-based irrigation is expected to result in land degradation to the extent of abandoning crop farming in the next few decades unless some actions are taken. Thus, the government should devise a clear policy and legal framework about sustainable management of wetland resources.

Keywords: Wetland degradation, Livelihood support, Overuse of resources, Lake Abaya-Chamo

Zekarias, T., Govindu, V., Kebede, Y., & Gelaw, A. (2021). Degradation of wetlands and livelihood benefits of Lake Abaya-Chamo wetland, southern Ethiopia. *Current Research in Environmental Sustainability, 3*, 100060. https://doi.org/10.1016/j.crsust.2021.100060

Contributions to the livelihoods of fishermen and determinants of fish production from Lake Tana and Rift Valley Lakes, Ethiopia

Kidanie Misganaw, Brook Lemma

Abstract

This study aimed to identify determinants of fish production by fishermen living around Lake Tana and the Ethiopian Rift Valley lakes, specifically Lakes Ziway, Hawassa and Chamo over a course of one year production (2019). The study areas were selected purposively due to their higher total annual fish catches and fish contribution in the local and urban communities around fish production areas and cities of Bahir Dar, Ziway (Batu), Hawassa, Arbaminch and Addis Ababa. A total of 450 fishermen were randomly selected for this study. The data were gathered through the use of structured questionnaires and analysed using both descriptive and econometric analytical methods. Ordinary Least Square (OLS) estimation method of linear regression technique was used to test the determinant factors. Fishing is the first major source of income, accounting for 67%, 73%, 68.9% and 59.3% of fisher's livelihoods, respectively in Lakes Tana, Ziway, Hawassa and Chamo, respectively. Linear Ordinary Least Squares Regressions analyses showed that income of petty trades, the number of reed boats, gillnets, land owned for crop production and fishing trips were the determinant factors significantly influencing the volume of fish produced. The study further suggested that education and training, alternative income-generating activities, increased ownership of land owned, improving access to credit services, efficient government support and better-organized cooperatives should receive due attention to improve fish production and sustainably manage fish resources in Ethiopia.

Keywords: Fish; Fishermen; Lakes; Production Lakes Tana; Ziway; Hawassa and Chamo.

Misganaw, K., & Lemma, B. (2022). Contributions to the livelihoods of fishermen and determinants of fish production from Lake Tana and Rift Valley Lakes, Ethiopia. *Ethiopian Journal of Biological Sciences*, *21*(1), 69-90.

Dynamics of land use/land cover: implications on environmental resources and human livelihoods in the Middle Awash Valley of Ethiopia

Mathias Tesfaye Abebe, Mekonnen Adnew Degefu, Mohammed Assen & Asmamaw Legass

Abstract

Quantifying the recent LULC changes and associated impacts on pastoral and agro-pastoral livelihood systems is important since the effects of LULC changes on environmental resources and human livelihood are not fully understood in our study area. This paper analysed the trend of land use/land cover (LULC) dynamics and its implications on natural resources and human livelihood in the Middle Awash Valley, Central Ethiopian Rift Valley. For the purpose, Landsat imageries of thematic mapper (1987), enhanced thematic mapper (2002) and operational land imager and thermal infrared sensor (2016) were employed and analysed using Remote Sensing and Geographic Information System (GIS) software and techniques, and qualitative data analysis had been performed as well. The results showed that cultivated land expanded at a rate of 2.6% year^{-1}, whereas forestland and grassland shrunk at a rate of 1.2% year^{-1} and 2.4% year^{-1}, respectively. The invasive *Prosopis juliflora* has been expanded from 3.7% in 1987 to 37.9% in 2016 at a rate of 1.2% year^{-1}. The introduction of both small- and large-scale commercial irrigation farming and the implementation of villagization programme focused on transforming pastoralists into sedentary lifestyles. Consequently, irrigation farming, launching of villagization, climate variability as in series of droughts, construction of water dam and the rapid expansion of *Prosopis juliflora* were the major drivers of LULC changes in the study area. Although we found some positive developments such as improvement on infrastructural and social services (e.g. school and domestic water supply), income diversification and ecological benefits from *Prosopis juliflora* (e.g. saline soil treatment, carbon sequestration and soil erosion control), there were a range of negative impacts resulting from LULC changes in the study area. LULC changes reduced quality of rangeland resources as the ecologically and economically valuable indigenous tree and grass varieties were significantly degraded. As a result, the traditional pastoral livelihood system has been much vulnerable with the LULC dynamism of the study area. Furthermore, the implementation of the villagization programme has brought socioeconomic impacts on the community and challenges on the ecology, e.g. changing productive rangeland to irrigation crop farms. Our research results, thus, suggest the urgent need for relevant policy interventions in support of the pastoral livelihoods and landscapes with the modification in the implementation of villagization as well as irrigation farming programmes and its better management and controlling *Prosopis juliflora* expansion in the study area.

Keywords: LULC dynamics, *Prosopis juliflora,* Pastoralism and agro-pastoralism, Ecological and livelihood impacts, Remote sensing, Ethiopia

Abebe, M. T., Degefu, M. A., Assen, M., & Legass, A. (2022). Dynamics of land use/land cover: implications on environmental resources and human livelihoods in the Middle Awash Valley of Ethiopia. *Environmental Monitoring and Assessment*, *194*(11), 1-22. https://doi.org/10.1007/s10661-022-10498-7

Modeling the Vulnerability of Livelihood Systems to Drought along Livelihood Zones in the Northwestern Escarpment of the Ethiopian Rift Valley

Jemal Nasir Ahmed [a], Engdawork Assefa Tilahun [a], Tesfaye Zeleke Italemahu [a], Eskinder Gidey Sintayehu [c], & Befikadu Esayas Amphune [d]

a Center for Environmental and Development Studies, College of Development Study, Addis Ababa University, Addis Ababa, Ethiopia;b
c Department of Land Resources Management and Environmental Protection (LaRMEP), College of Dryland Agriculture and Natural Resources, Mekelle University, Mekelle,
d Department of Geography and Environmental Studies, Wolaita Sodo University, Sodo, Ethiopia

Abstract

Drought is becoming a common problem for farmers in the Northwestern Escarpment Ethiopian Rift Valley's three studied livelihood zones (LZs). Droughts wreaked havoc on the community's livelihood systems regularly. It lefts the community food insure and repeatedly disturbs their ecosystems. As a result, the current study used meteorological, spatial, and socioeconomic data from the area to assess the community's drought vulnerability. Each variable of drought vulnerability was normalized as proxy indicators to calculate exposure, sensitivity, and adaptive capacity indexes. From the results, the Raya valley livelihood zone (RVLZ) is relatively more drought vulnerable (0.65) than the Tsirare catchment livelihood zone (TCLZ) (0.63) and Alagie-Ofla livelihood zones (ALOFLZ) (0.60). The RVLZ has a less adaptive capacity than ALOFLZ but more susceptibility and higher exposures to drought risks than the two LZs. Besides, the TCLZ has less adaptive capacity than the two livelihood zones, with more vulnerability and exposure to drought risks than ALOFLZ. The highest levels of exposition and susceptibility synergy with low resilience have aggravated the vulnerability to drought in all study LZs. Livelihood zone-based interventions and climate-smart farming are thus necessary for all LZs to reduce possible drought risks and transfer vulnerable communities into high adaptive capacities.

Keywords: Adaptive capacity, drought vulnerability, exposure, livelihood system, livelihood zone, sensitivity

Ahmed, J. N., Tilahun, E. A., Italemahu, T. Z., Sintayehu, E. G., & Amphune, B. E. (2022). Modeling the vulnerability of livelihood systems to drought along livelihood zones in the Northwestern Escarpment of the Ethiopian Rift Valley. *Papers in Applied Geography*, 1-35. https://doi.org/10.1080/23754931.2022.2068352

Analyzing Trends and Drivers of Land Use and Land Cover Dynamics in Drought-Prone Livelihood Zones of the Northwestern Escarpment of the Ethiopian Rift Valley

Jemal Nasir Ahmed [a,b] Engdawork Assefa Tilahun [a], Tesfaye Zeleke Italemahu [a] , Eskinder Gidey Sintayehu [c] & Said Mussa Said [d]

a Center for Environmental and Development Studies, College of Development Study, Addis Ababa University, Addis Ababa, Ethiopia;b
c Department of Land Resources Management and Environmental Protection (LaRMEP), College of Dryland Agriculture and Natural Resources, Mekelle University, Ethiopia
d Department of Statistics, College of Natural and Computational Sciences, Mekelle University, Ethiopia

Abstract

The current study looked at the patterns and causes of land use and land cover (LULC) dynamics from 1985 to 2019 in three drought-prone areas of the Ethiopian Rift Valley's Northwestern Escarpment. Spatial data, focus group discussions, and key informant interviews were used to study the trends and causes of LULC dynamics. For Landsat image processing, ERDAS Imagine 2015 was used, and for LULC change analysis, ArcGIS 10.8 was employed. From the result, fast LULC exchange occurred in all study LZs throughout the study years. Raya Valley LZ (RVLZ) is, however, more highly shifted than Allagie Ofla LZ (ALOFLZ) and Tsirare catchment LZ (TCLZ). From the total area, only 17.7, 28.3, and 23.2 percent of RVLZ, ALOFLZ, and TCLZ persisted over the study years, respectively. The LULC change in the studied LZs was driven by population pressure and recurrent droughts. The research area's local ecosystem services have been disrupted by these changes, which have impacted the livelihood system of the local community. Consequently, the government should reform the appropriate land use policy, which benefits local farmers and their ecosystems. In addition, farm activities must be environmentally friendly to increase farmland productivity.

Keywords: Driving forces, Landsat images, livelihood zone, LULC dynamics, key-informant interviews

Ahmed, J. N., Tilahun, E. A., Italemahu, T. Z., Sintayehu, E. G., & Said, S. M. (2022). Analyzing Trends and Drivers of Land Use and Land Cover Dynamics in Drought-prone Livelihood Zones of the Northwestern Escarpment of the Ethiopian Rift Valley. *Papers in Applied Geography*, 1-30.