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CLIMATE CHANGE ADAPTATION STRATEGIES TO IMPROVE JOWHAR, MIDDLE SHABELLE REGION,
SOMALIA'S COMMUNITY LIVELIHOOD.

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Abstract

What is Somalia? Two of Somalia's biggest challenges are extreme weather and the consequences of climate change. These elements are likely to increase preexisting vulnerabilities and limit the options available to the population for a living, which could hurt Somalia's stability and security in the absence of proactive preventive measures. More frequent and severe floods and droughts have a negative impact on food security and worsen living conditions in Somalia. This has intricately and interconnected ramifications for Somalia's peace and security, including increased migration and displacement brought on by climate change, which will especially affect people whose livelihoods are affected by floods and droughts. A cross-sectional research approach was employed in this study. Both quantitative and qualitative methods were used in the investigation. General information on the issue was gathered from the many stakeholders engaged in the study, and quantitative approaches were employed for data collecting and analysis. Regarding climate change and community livelihoods, the qualitative method is employed. An interview guide was employed in conjunction with questionnaires, which served as the study's major means of data gathering. The research's conclusions demonstrate that disaster risk reduction, relocation to areas with fewer climate-related hazards, raising public awareness of climate change, and afforestation are among the climate change strategies that can be used to enhance the standard of living for local residents in Somalia's Jowhar Middle Shabelle state.

Keywords: Risk management, livelihood, Jowhar, and climate change

1. Introduction

Climate change is the phrase used to describe long-term variations in temperature and weather patterns. Significant volcanic eruptions or fluctuations in the sun's activity might be the source of these variations. However, since the 1800s, human activity has been the main contributor to climate change, mostly as a result of the burning of fossil fuels such as coal, oil, and gas (Connolly-Boutin, 2019).

Given the critical role that climate plays in the construction of natural ecosystems as well as the human economies and civilizations that they are founded on, it is imperative that these phenomena be addressed. The term "climate change" refers to modifications to the climate system brought about by

notable shifts in greenhouse gas concentrations as a result of human activity. Besides the long-term, naturally occurring changes in climate that have been noted.

The two main greenhouse gases that cause climate change are methane and carbon dioxide. These come from, for example, running a car on gasoline or heating a building with coal. Destroying forests and clearing land are other ways that carbon dioxide may escape the atmosphere. Oil and gas activities and agriculture are the two primary businesses that release methane. According to Dube and Phiri (2018), the main industries that produce greenhouse gases include energy, industry, transportation, buildings, agriculture, and land use.

Extreme weather and the impacts of climate change are major threats to Somalia. In the absence of proactive preventive measures, these variables are likely to worsen already-existing vulnerabilities and limit the alternatives available to the populace for subsistence, which might have detrimental effects on Somalia's stability and security. Droughts and floods that occur more frequently and intensely threaten food security and degrade livelihood conditions in Somalia. These events also negatively impact marginalized groups, inflame grievances, intensify competition for limited resources, and exacerbate already-existing tensions and vulnerabilities within communities (Tolosa & Zeleke, 2010). Somalia is the world's second-most climate-vulnerable country. The number of severe weather occurrences in the country has increased since 1990. The peace and security situation in Somalia will be affected in a complex and interconnected way by this, since migration and displacement caused by climate change are likely to grow, especially for people whose livelihoods are affected by floods and droughts.

People living together in the same environment form a community. A human community's identity and level of cohesion can be influenced by a variety of shared and present variables, including intent, beliefs, resources, preferences, needs, hazards, and numerous others ((IPCC, 2012). Securing water, food, fuel, medicine, shelter, clothes, and the ability to obtain the aforementioned necessities while working alone or in a group and utilizing resources (both human and material) to meet one's own and one's household's needs in a sustainable manner while maintaining dignity are all part of a livelihood. Ellis, 2009).

In order to sustain oneself and provide opportunities for future generations to have sustainable livelihoods, a community must possess the capabilities, assets (stores, resources, claims, and access), and activities necessary for a means of subsistence. Additionally, a livelihood must be able to recover from stressors and shocks, maintain or improve its assets, and provide net benefits to other livelihoods both locally and globally as well as in the short and long term (Nnadi, F.N.

2. Climate change tactics that can be used to raise the standard of living in the neighborhood Using Climate Change Adaptation Techniques to Boost Local Incomes*

One important worldwide issue that needs immediate attention and action is climate change. The necessity for quick action is highlighted by the indisputable effects of climate change on ecosystems, communities, and the environment. Putting plans in place to improve community well-being is a crucial component of combating climate change. We will examine the significance of implementing climate

change solutions in this article, as well as how they may improve local livelihoods. The build-up of greenhouse gases (GHGs), such as CO₂, in the atmosphere keeps causing global warming and, as a result, climate unpredictability that affects people's capacity to make a living (IPCC, 2021).

Nonetheless, it is established that rural residents create adaption strategies depending on their personal experiences in the area. For the vast majority of Nigerian families, agro-forestry is one of the best methods for mitigating the effects of climate change and adapting to them, according to Onyekuru & Marchant (2018). Not only does it provide for human necessities, but it also reduces greenhouse gas emissions and supports primary sources of income, food, and energy during crop failure. Additionally, the homes chose upgraded cookstoves, which they saw as a win-win solution for the family because it is both economical and contributes to the reduction of climate change. Furthermore, households are using wetlands more and more, taking advantage of often flooded places to plant flood-tolerant crops and vegetables, as well as employing independent cultural knowledge and practices to lessen the effects of climate change.

Adapting to changing climatic conditions to minimize risks and optimize possibilities is referred to as "climate change adaptation." It means implementing policies that increase the resilience of communities, economies, and ecosystems. By doing this, communities may better prepare for the consequences of climate change and safeguard their means of subsistence (Quinn & Paavola 2017).

It is essential to raise knowledge of climate change if emerging nations are to become sustainable. In underdeveloped nations, a major obstacle to adapting to climate change is a lack of awareness (Mendelsohn et al., 2012). In Somalia, where natural disasters are common, increasing local understanding of climate change is essential as its effects are intensifying both the frequency and severity of natural catastrophes. A person's, an organization's, or a business's level of environmental awareness reveals how they will react to adverse effects on their environment. Enhancing environmental awareness improves the planning and management of natural resources, according to several research conducted in industrialized nations (Nordhaus, 2011).

The Value of Adaptation for Employment

1. Sustaining Agricultural Methods: The primary source of income for many communities is agriculture. Extreme weather events that are occurring more frequently as a result of climate change include heat waves, floods, and droughts. By using drought-resistant crops, efficient irrigation techniques, and sustainable agricultural methods, communities may maintain economic stability and food security.

2. Encouraging Sustainable Sources of Income: Climate change regularly disrupts traditional livelihoods, particularly in places that are vulnerable. Communities may adopt sustainable practices such as eco-tourism, renewable energy initiatives, and nature-based solutions to diversify their sources of income and reduce their dependence on industries that are susceptible to climate change. This saves the earth's resources for future generations and guarantees economic sustainability.

3. Strengthening the Resilience of Infrastructure: Climate change poses a major threat to the infrastructure supporting housing, transportation, and utilities. Investing in climate-resilient

infrastructure helps protect communities from extreme weather occurrences and lessens disturbance to their way of life. Better drainage systems, flood-resistant buildings, and infrastructure for renewable energy sources are a few examples of this type of infrastructure.

4. Promoting Community-Based Adaptation: Local communities must be included in the decision-making process for adaptation to be effective. The knowledge, needs, and experiences of the community can be considered while developing climate change mitigation strategies. This participatory method ensures that adaptation techniques are tailored to communities' specific conditions and improves livelihood results by giving communities greater influence.

3. Technique and Supplement

Whereabouts

The capital of Somalia's Hirshabelle state is Jowhar. In addition, Jowhar serves as the administrative center of Somalia's Middle Shabelle area. It was taken from the Islamic Courts Union and combined with Baidoa to become the joint administrative capital of the Transitional Federal Government. The city is located 90 kilometers (50 miles) to the north of Mogadishu, the country's capital, on a major route.



4. Research Design

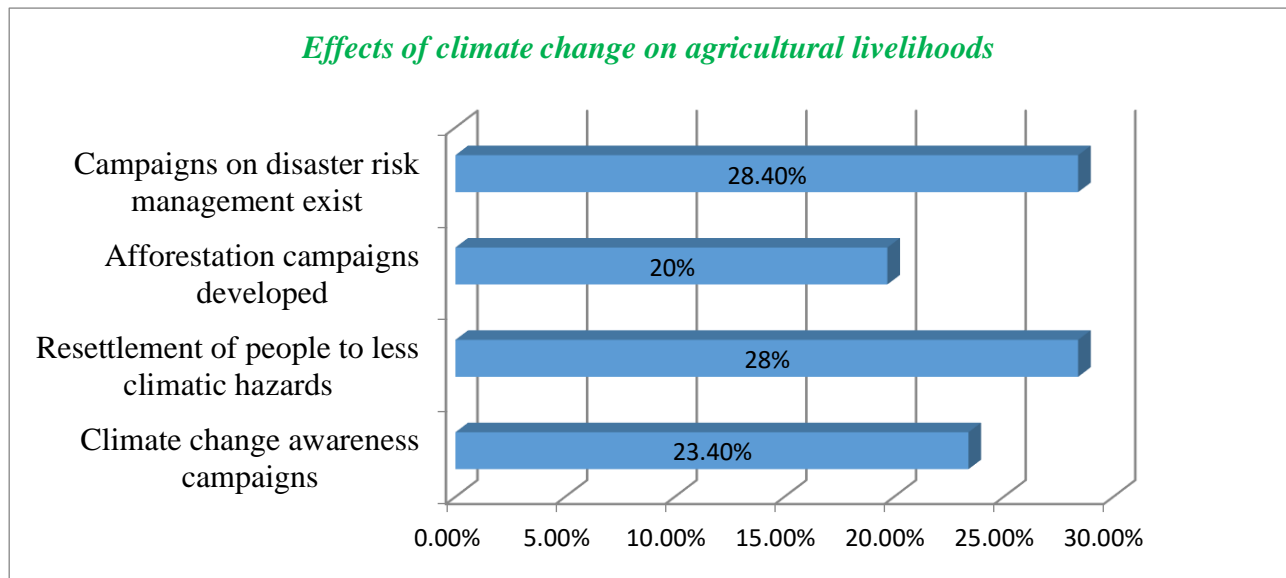
A cross-sectional research approach was employed in this study. Mixed design was also employed in the study. Of the 372 questionnaires that were provided to the respondents, 320 people provided data via surveys. Interviews with top Jowhar district authorities and ten environmental officers who gave qualitative answers to the research were used to get qualitative replies.

5. Data Analysis

The statistical package for social scientists (SPSS) software program was used to evaluate the quantitative data, which included information from the surveys and provide descriptive statistics. The information from the interviews was given textural descriptors.

6. Outcomes

Strategies for addressing climate change that can be implemented to enhance community well-being Middle Shabelle area of Jowhar, Somalia



Source: Field Data, 2022

The study reveals that campaigns on disaster risk management exist, that people agree to resettlement in areas with fewer climate hazards (28.1%), that people agree to campaigns on climate change awareness (23.4%), and that people agree to campaigns on reforestation (19.7%). The above figure illustrates the results of these strategies for improving the livelihood of communities in the Jowhar middle Shabelle region of Somalia. Overall research findings indicate that climate change tactics are being used to enhance the community, which suggests that they are playing a major role in raising living standards in Somalia's middle Shabelle region.

Obstacles facing the most effective climate change mitigation solutions in the Jowhar middle Shabelle area of Somalia

Responses	Frequency	Percent
Poor implementation	67	20.9
Low institutional capacity	99	30.9
Poor Community cooperation	83	25.9
Low concerns about climate	30	9.4
Lack of community awareness	41	12.8
Total	320	100.0

Source: 2022 Field Data

The results of the study demonstrate that considerable obstacles are impeding the most effective management strategies implemented in the communities to mitigate climate change.

We have been unable to mitigate the issues due to environmental changes because of inefficient organizations handling the environment. Low concerns for the people, and limited effectiveness of the community in resources operationalization that hinder the range of activity that limits the prevalence of the community in climate handling mechanisms.

District Environmental Officials, Jowhar district. 08th.08.2022

7. Discussion of Results

The study reveals the following results regarding climate change strategies that can be used to improve the standard of living for communities in the middle Shabelle region of Jowhar, Somalia: campaigns on disaster risk management exist, with 28.4% of respondents agreeing; people should be resettled in areas with fewer climate hazards, with 28.4% agreeing; campaigns on climate change awareness, with 23.4% agreeing; and campaigns on reforestation, with 19.7% agreeing. Overall research results indicate that community improvement through climate strategies is prevalent, suggesting that the condition of climate change strategies used is critical to raising living standards in Somalia's middle Shabelle area.

The results of the study demonstrate that disaster risk management campaigns, population relocation to areas with fewer climate hazards, climate change awareness campaigns, and afforestation campaigns can all be used as climate change strategies to enhance the standard of living for local residents in the Jowhar middle Shabelle region of Somalia. The results are consistent with Afhenkan's (2012) findings. In order to mitigate the effects of dry spells, the communities use agricultural coping strategies such as growing a variety of enhanced cocoa, maize, and cassava hybrids as well as shorter gestation period crops that are also resistant to drought. The Sui FACs have learned the importance of growing trees on their farms to offer shade for the crops and NTFPs via capacity building and sensitization initiatives (ibid). It has been reported that when the supply of important NTFPs, such as

herbal plants, gradually decreased, the people turned to alternative forms of revenue to complement their way of life, such as honey production, snail farming, mushroom cultivation, and rabbit keeping.

8. Wrap-up

According to the study's findings, disaster risk reduction, relocation to areas with fewer climate-related hazards, climate change awareness, and afforestation campaigns can all be used to improve community livelihoods in Somalia's Jowhar middle Shabelle region. As to the study's conclusion, the Jowhar district of Somalia's residents benefit greatly from the implementation of various initiatives, which in turn lead to improved livelihoods.

9. Recommendations

There is a need for improvement of the functionality of environmental protection efforts and policies of the government through enforcement programs. Enhancing Infrastructure Resilience Promoting Green Spaces and Urban Planning, Diversifying Water Resources, Strengthening Early Warning Systems, Promoting Sustainable Agriculture Practices

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