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Original article

THE IMPACTS OF FLOODS ON FOOD SECURITY IN HODAN DISTRICT, MOGADISHU-SOMALIA USING A CROSS-SECTIONAL STUDY.

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Abstract

Background

Flood incident affects the source of income and the ability of individuals and households in the communities to purchase and consume food with the daily required energy intake which increases food insecurity, unavailability of staple food, and malnutrition. Flood increases the inability of plants to absorb essential nutrients necessary for proper growth, flooding leads to the erosion or loss of the nutritional status of crops planted in the communities, the washing away of farmlands has led to chronic, long-lasting food insecurity in the communities. Thus, a juxtaposition of Somalia's poverty level and vulnerability to climate-induced flooding threatens food security in the country.

Methodology

The study was carried out in Hodan district, Mogadishu- Somalia. A total of 160 persons were targeted. The cross-sectional study design was used for this research. The survey design is preferred because surveys are relatively less costly, easily accessible, and useful in describing the characteristics of a large population and making the results statistically significant even when analysing the variables. This study used simple random techniques to select samples without bias from the target/accessible population.

Results

The impact of floods on food security on average is rated to a mean of 3.5 which is relatively high.

Conclusion

The level of floods that effects on food security result indicated that is generally rated very high level by the overall mean (overall mean=3.33)

Recommendation

The study has been able to demonstrate that flooding induces food insecurity leading to changes in food consumption patterns, and this flood-induced food insecurity arises as a result of the destruction of farmland, disruption of sources of livelihoods, and rise in food prices which significantly affect food availability, accessibility and utilization over time.

Keywords: Food Security, Floods, Agricultural Production, Households, Poverty.

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Background of the study

Flooding is generally a condition of complete or partial inundation of normally dry areas due to overflow of tidal or inland waters or from abnormal and rapid accumulation of runoff (Jeb and Aggarwal, 2008). The incident of flood leads to acute food insecurity which affects the livelihood of residents in the communities. Flood incident affects the source of income and the ability of individuals and households in the communities to purchase and consume food with the daily required energy intake which increases

food insecurity, unavailability of staple food, and malnutrition.

Flood increases the inability of plants to absorb essential nutrients necessary for proper growth, flooding leads to the erosion or loss of the nutritional status of crops planted

Deficit (LIFD) countries due to the high prevalence of undernourishment especially among agricultural households (2018). Thus, a juxtaposition of Somalia's poverty level and vulnerability to climate-induced flooding threatens food security in the country. Food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2012).

Food security in the above context consists of four dimensions; food accessibility, availability, utilization, and stability, and these dimensions must be fulfilled for food security objectives to be realized. A state of food security entails that: adequate food is available; all people have physical and economic access to the food they require; availability and access are ensured over time (stability), and the food is efficiently utilized. Attaining food security requires not just attaining an adequate level of good nutrition and food consumption, but maintaining this level at low risk over time (FAO, 2012). Food insecurity, on the other hand, exists even if one of these conditions is not met or there is any negative shift (e.g., caused by flooding) in any of these dimensions of food security. This study aims to document the impacts of floods on food security in Hodan district, Mogadishu-Somalia.

Methodology

Study Area

The study was carried out in Hodan district, Mogadishu-Somalia.

Study Population

A total of 160 persons were targeted. The district coordinator of the ministry of Agriculture and Irrigation combined respondents in one place then the researcher administered the questionnaires to get the information.

Sample Frame

- ✓ **Inclusion Criteria**
- Students doing environmental science, Agriculture and Animal science departments.
    - Those willing to participate in the study.
- ✓ **Exclusion Criteria**
- Farmers living outside Hodan district

in the communities, the washing away of farmlands have led to chronic, long-lasting food insecurity in the communities. Somalia has been listed among the 51 Low Income Food

Study Design

The cross-sectional study design was used for this research. The survey design is preferred because surveys are relatively less costly, easily accessible, and useful in describing the characteristics of a large population and making the results statistically significant even when analysing the variables.

Sampling Method

This study used simple random techniques to select samples without bias from the target/accessible population

Data Collection Tools/Research Instruments

Data collection tools for this research were survey questionnaires.

Data Processing, Analyzing, and Presentation.

The researcher administered the questionnaires to the respondents to respond to each of the questions which relate to the impacts of floods on agricultural production and food security in the Hodan District of Somalia.

The researcher employed percentages and frequencies to analyse the results of the questionnaire using Statistical Package for Social Science (SPSS).

Ethical Consideration/Issue Research

The researcher notified and obtained the consent of the traditional rulers of each sampled community before the reconnaissance and final surveys.

Reliability and Validity

Validity covers collecting data in the actual area of investigation, Validity is a measure of what is allocated to be measured (Taherdoost, 2016).

Content validity is used to check whether the instrument adequately covers all the content that relates to the variables under observations (Heale and Twycross, 2015). The researcher ensured that the instrument was valid by checking all the items and ensuring that they were measuring all the variables under observation. The researcher also ensured that the appearance of the

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questionnaires was related to the respondents and didn't contain any unnecessary graphics and items that were not part of the study. The questionnaire was submitted to the experts at the Department of environmental science and their advice was taken into consideration to construct a more reliable instrument.

Reliability is the consistency of the instrument in measuring the construct (Drost, 2011). Therefore, a pilot study was carried out in which the questionnaire was managed to a different population from that of the study before it was administered to the actual population of the study to test for reliability. The questionnaire was piloted in the Beledweyne district. A sample of 30 respondents was used for piloting to test for reliability which is more than 10 percent of the total sample which is sufficient. According to (Connelly, 2008), 10 percent of the total sample is sufficient to test the reliability of the instrument.

Results

The findings of the profile of the respondents indicated that the majority of the respondents were aged between 21-30 years (38.6%), and the sample was dominated by males (65.8%) over females (34.2%). The majority of them had a primary school (44.7%), whereas the majority of them were married (42%) Majority of the respondents were employed people indicating the percentage of (61%).

The respondents were asked to rate the extent to How (level) floods impact on food security is high or low by indicating the extent to which they agree or disagree with each question, and their responses were analysed by using SPSS and summarized by using means, interpretation, and rank as indicated in table 1

Table 1: How (level) floods effects on food security in Hodan district, Mogadishu- Somalia.

No.	**The impacts of floods on food security.**	**Scales**		
	Question	**Mean**	**Interpretation**	**Rank**
1.	Households or residents find it difficult accessing food after every flooding incident	3.5	Very high	1
2.	Flood leads to the scarcity of food in the communities	3	High	2
3.	The washing away of farmlands have led to chronic, long-lasting food insecurity in the communities	3.75	Very High	**3**
4.	Flood increases food insecurity, unavailability of staple food and malnutrition	3.45	Very High	**4**
5.	The washing away of farmlands reduces the probability of eating healthy foods that can enhance the livelihood of the community	3	High	**5**
6.	The incident of flood leads to acute food insecurity which affects the livelihood of residents in the communities	3.5	Very High	**6**
7.	Flood incident affects the ability of individuals and households in the communities to purchase food	3.15	High	**7**
	Grand Average	**3.33**	**Very high**	

Flood effects on food security:

this variable was operationalized by using seven items and the respondents were asked if they agreed or not with the

statements under investigation, their responses revealed that each one has its average, rated very high level with overall mean (mean= 3.33), implying that the effects of there is very, effects of floods to food security in Hodan district, Mogadishu- Somalia.

Households or residents find it difficult to access food after every flooding incident:

This variable was measured by using one item and the respondents were asked if they agreed or not with the above statement under investigation, their answers released that there is an impact by floods on food security in average rated (mean3.5).

Flood increases food insecurity, unavailability of staple food, and malnutrition:

One item was used to measure this construct. Therefore, the answers of the respondents revealed that they agreed there are threats to food security, and the impacts of floods on average rated (mean=3.45).

The incident of flood leads to acute food insecurity which affects the livelihood of residents in the communities:

In this variable, the items were measured to use, respondents declared there are great effects on food security by floods with an average (mean of 3.5).

Discussion

The study documented the effects of floods on food security to be at a very high level with an overall mean (mean= 3.33), implying that the effects of floods on food security are very high in Hodan district, Mogadishu-Somalia which agrees with the study carried out by Reed et.al. (2022) who found out that the effects were very high. This relationship could be because all the studies were carried out in Africa. This could be true for other parts of Africa generally in areas with heavy rainfall which exposes them to floods, especially during the rainy seasons.

Conclusion

Flooding was found to cause negative shifts in all dimensions of food security by reducing crop harvest, decreasing income, destroying roads, collapsing food/ farm storage facilities, reducing labour demand, polluting streams, reducing meal frequency, affecting the quality and quantity of food eaten as well as increasing food prices in Hodan district, Mogadishu- Somalia. Consequently, flooding was found to have a statistically significant negative effect on food security.

the level of floods which effects on food security result indicated that is generally rated very high level by the overall mean (overall mean=3.33)

Limitations of the study

The first challenge was the lack of security in the research area to assess the effects of floods on agricultural production and food security.

Recommendation

The study has been able to demonstrate that flooding induces food insecurity leading to changes in food consumption patterns, and this flood-induced food insecurity arises as a result of the destruction of farmland, disruption of sources of livelihoods, and rise in food prices which significantly affect food availability, accessibility and utilization over time. Thus, the following are suggested for further studies;

- Relationship between vulnerability to flooding and food insecurity in other regions with emphasis on how flood extent influences crop yield since crop yield could not be integrated into the survey used for our analysis due to lack of data.

- The role of food prices as a determinant of household food security is to test the robustness of this study's findings.

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List of Abbreviations

FAO: Food and Agriculture Organization

SWALIM: Somalia Water and Land Information Management
WFP: World Food Programme
IFAD: International Fund for Agricultural Development
USDA: United States Department of Agriculture
IPCC: Intergovernmental Panel on Climate Change
UNEP: United Nations Environment Program
USAID: United States Agency for International Development
OECD: Organization for Economic Co-operation and Development
IDP: Internally Displaced Person
GIS: Geographic Information System
MCDA: Multi Criteria Decision Analysis
GDP: Gross Domestic Product
FVI: Flood Vulnerability Indices
UN: United Nations
LIFD: Low Income Food Deficit (countries)
HFIAS : Household Food Insecurity Access Scale

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Conflict of interest

The author declares no conflict of interest.

Author Biography

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References

1. FAO (Food and Agricultural Organization) (2009). Climate change and bioenergy challenges for food and agriculture, FAO, Rome, Italy,
2. Reed, C., Anderson, W., Kruczkiewicz, A., Nakamura, J., Gallo, D., Seager, R., & McDermid, S. S. (2022). The impact of flooding on food security across Africa. *Proceedings of the National Academy of Sciences*, *119*(43), e2119399119.
3. Jeb, D.N. and Aggarwal, S.P. (2008) Flood Inundation Hazard Modeling of the River Kaduna Using Remote Sensing and Geographic Information Systems. Journal of Applied Sciences Research, 4, 1822-1833.
4. Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. International Journal of Academic Research in Management (IJARM), 5, 18-27. https://doi.org/10.2139/ssrn.3205035
5. Heale, R., & Twycross, A. (2015). Validity and Reliability in Qualitative Studies. Evidence-Based Nursing, 18, 66-67. https://doi.org/10.1136/eb-2015-102129
6. Drost, E.A. (2011) Validity and Reliability in Social Science Research. Education Research and Perspectives, 38, 105- 123.
7. Connelly, L.M. (2008) Pilot Studies. MEDSURG Nursing, 17, 411-412

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