

Community Training and Sensitization as a Flood Mitigation Strategy Influencing Household Livelihood in Nyando Flood Plains, Kisumu County

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ABSTRACT

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The purpose of the study was to investigate the influence community participation in training and sensitization on household livelihood in Kano Plains in Nyando Sub-County, Kisumu County. The study adopted descriptive survey design and targeted household heads in Nyando plains, village elders and chiefs of the locations under study, local government authority representatives, District Disaster management officer representative in Nyando and the NGOs. A sample size of 385 was sufficient for a target population of 11,050. Multistage sampling was used to sample locations and sub locations while proportional sampling was used to sample the number of selected household where the households were grouped into different classifications. The sample size was 370 household heads plus 15 officers were working in Nyando flood plains. Purposive sampling was used to identify the 4 village elders and 4 chiefs, 1 Sub-County Local Authority Management Officer who represented the government, 1 Disaster Management Officer, and 5 managers from the NGOs. Questionnaires for household heads and interview schedules key informants were used for primary data collection. The study found that majority of the households had never attended training and sensitization programmes concerning floods with 42.1% and that the training and sensitization received was not of high quality (60.6%). The study found a strong positive correlation $R = 0.582$ which was statistically significant as $p < 0.01$ ($p < 0.001$) between community participation in training and sensitization and household livelihood and that community participation in training and sensitization accounts up to 33.8% ($R^2 = .338$) of variance in the outcome. The study concluded that community participation in training and sensitization influenced household livelihood. However, trainings and

sensitization programmes were not regularly done due to financial constraints to facilitate the trainings. The study recommends that more training and sensitization should be conducted to the communities in flood prone areas on how to mitigate floods to ensure improvement of their household livelihood.

Keywords : Training and sensitization, livelihood, flood mitigation, coping strategies

I. INTRODUCTION

Floods presently affect an estimated 520 million people per year in the whole world, resulting in estimates of up to 25,000 annual deaths, people left without homes, flood related diseases, crops and livestock damage (WallingFord, 2005). The flood mitigation strategies adopted have not yielded enough in terms of household livelihood. Although all East African countries have flood mitigation policies, their laws are still raw based on formulation and implementation (Bakibinga-Ibembeet.al, 2011).

The term household livelihood is whereby the households living in an area develop ways and put into use strategies to enable their survival and enhance their livelihood (International Recovery Programme, 2005). Livelihoods are also shaped by the changing natural environment. The quality of soil, air and water: the climatic and geographical conditions, the availability of fauna and flora and the frequency of natural hazards all influence livelihood decisions (IRP, 2005).

When floods occur, there is a likelihood of people in the lower plains of Nyando leaving their plain underdeveloped hence endangering their livelihood. It is therefore difficult to get basic needs such as food throughout the year. When communities participate in flood mitigation strategies, they stand to benefit and they can be able to appreciate the assistance from the professionals, the government, NGOs, the international communities in trying to mitigate floods

(Cottlel, 2005). Similarly Associated Programme on Flood Management (2008), asserts that nobody can understand the local situation and needs better than the local communities themselves hence the needs of the community should be enhanced by developing linkages among communities, government, national disaster management agencies and donors focusing on recovery from floods (Bazarragchaa, 2011).

II. LITERATURE REVIEW

Awareness can be raised through education and regular training particularly in areas exposed to infrequent hazards. Flood hazard maps depicting flood prone areas, evacuation routes and safe shelter can play a critical role in awareness building. Women and children should be included in education strategies as they are disproportionately affected by floods. Outreach efforts should be made to minorities and ethnic group, as their mobility may be limited or affected owing to cultural, social or economic constraints (APFM, 2011). This concurs with International Strategy for Disaster Reduction (2004), who asserts that Public or community awareness strategy exists to stimulate a culture of disaster resilience and safety.

The central government engaged KRCS to carry out capacity assessment for the county government in high risk counties, in terms of their preparedness and ability to provide first line of response. The results of the capacity mapping informed training of the county

government's first responders by KRCS, a total of 40 participants per county were trained, Kisumu County involved where Nyando Sub County is situated (KRCS and KCS, 2016). The number trained to train others is very small compared to the counties in Kenya and those counties which are regularly affected by floods. Hence a gap exists on community participation in training and sensitization and its influence on household livelihood.

Empowering the local communities through, training and sensitization would lead to improved decision making. It should also be emphasized that participatory approaches in community development should be applied that is through institutionalizing of community interest groups (CIGs) as an entry point.

Sensitization and citizens action initiative is a response to the quest for solving the gaps towards community resilience (India Water Partnership, 2012). A study in Nyando revealed that not only the transmission of knowledge that is necessary but also a change in ways of thinking about flood protection. Of the survey done on household in Nyando, the greatest challenge of sensitization was lack of funds that represented 20.1%, followed by reliance on government 19.8%, then negative attitude and literacy level 16.1% (Okayo, Odera and Omuterema, 2015). This creates a gap as far as training and sensitization in Nyando is concerned. Where is the community in terms of participation in training and sensitization? Their livelihoods seem to be in danger from the findings.

In Nyando plains during the 2010 floods, the Kenya Red Cross response team together with the district health office. Nyakach district offered health education to the 47 families with a total population of 175 people in the evacuation centre. The sensitization centered on educating the displaced group on keeping proper hygiene practices in the evacuation centre. The hygiene practices highlighted to the group encompassed environmental hygiene, food hygiene and personal hygiene. Besides, Kenya Red Cross demonstrated on how to treat water by use of water

purifiers (Kenya Red Cross, 2010). Sensitization was done to a section of the community who were most hit after the floods but the rest were not sensitized hence a gap as far as influence of community participation in training and sensitization as a flood mitigation strategy on livelihood is concerned.

In Nyando flood plains, students in Kanyika Primary School were sensitized on floods by their teachers. They were taught about signs of impending floods such as frogs, croaking in different manner and the appearance of different species of birds. They were also taught to climb to higher grounds in case there is flooding (Telewa, 2011). There seem to be little done as far as training and sensitization is concerned on floods and that is why the community of Nyando continues asking for assistance from the government. The question is, does the training and sensitization improve the livelihoods of Nyando? The study seeks to investigate the influence of community participation in training and sensitization on livelihood.

III. METHODOLOGY

The purpose of the study was to investigate the influence community participation in training and sensitization on household livelihood in Kano Plains in Nyando Sub-County, Kisumu County.

The study adopted descriptive survey design and targeted household heads in Nyando plains, village elders and chiefs of the locations under study, local government authority representatives, District Disaster management officer representative in Nyando and the NGOs registered in the flood prone area. According to Krejcie and Morgan (1970), a sample size of 385 was sufficient for a target population of 11,050 (Kenya National Bureau of Statistics, 2010).

Multistage sampling was used to sample locations and sub locations. From the sub county 30% of the

locations were used to get the number of locations, then the ruffle was used to get the names of the locations, to get the sub locations, 30% was used to get the sub locations, a ruffle was used to get the selected sub locations (Taylor, Sinha and Taposh, 2008). Then proportional sampling was used to sample the number of selected household where the households were grouped into different classifications (Castillo, 2009). The sample size was 370 household heads plus 15 officers were working in Nyando flood plains at the time of survey study, which is equal to 385 sample size. Purposive sampling was used to identify the 4 village elders and 4 chiefs, 1 Sub-County Local Authority Management Officer who represented the government, 1 Disaster Management Officer, and 5 managers from the NGOs in the study area for the interview.

Questionnaires for household heads and interview schedules key informants were used for primary data collection. Descriptive analysis was used to analyse quantitative data including mean, standard deviation and variance to describe a group of subjects (Oso and Onen, 2009). Qualitative data was analysed using phenomenological approach. The alternative hypothesis was tested as:

Ha: There is a significant relationship between community participation in training and sensitization and household livelihood.

The regression model equation used was; $Y = \beta_0 + \beta_1 X_1 + \epsilon$

Where;
 livelihood, β_0 = Population
 regression constant, $\beta_1 X_1$ = Community participation in management of the water shed and ϵ
 term = the model error

IV. FINDINGS AND DISCUSSIONS

Out of 385 household heads and key informants who were given questionnaires and interviews, 377 returned the questionnaires giving a response rate of 97.9%. The respondents were mainly female (57.6%) with male participants being 42.4%. Majority of the household heads were married (44.1%) with 31.1% widowed while 4.7% were divorced or separated. The study also found that the household heads mainly had high school education (58.1%) with a significant majority (33.9%) having primary education.

To achieve the main objective, household heads in Nyando flood plains were asked to react to several statements in the questionnaire intended to describe the status of community participation in training and sensitization and household livelihood. The following table displays the feedback from the respondents on a ten type likert items, regarding how community participation in training and sensitization influence household livelihood.

Table 4.1 : Descriptive Statistics for indicators of T & S as a FMS and household livelihood

Training & Sensitization	SA	A	N	D	SD	Mean	STDev
I always attend training on flood mitigation strategies	3 (0.8)	34 (9.4)	82 (22.6)	134 (36.9)	110 (30.3)	2.13	0.981
The training I attended was very important in regard to flood mitigation strategies	10 (2.8)	24 (6.6)	86 (23.7)	153 (42.1)	90 (24.8)	2.20	0.979
I was trained on how to unblock culverts and waterways due to massive chunks of litter	14 (3.9)	47 (12.9)	70 (19.3)	161 (44.4)	71 (19.6)	2.37	1.057
I was trained on how to prepare for any flood event	18 (5.0)	23 (6.3)	99 (27.3)	146 (40.2)	77 (21.2)	2.34	1.037

I was sensitized on how to maintain the dams and dykes to avoid bursting when it rains	18 (5.0)	56 (15.4)	95 (26.2)	113 (31.1)	81 (22.3)	2.50	1.143
Interacting with community members trained in flood mitigation strategies has helped me prepare adequately	35 (9.6)	57 (15.7)	109 (30.0)	105 (28.9)	57 (15.7)	2.75	1.183
Since I received training in flood mitigation strategies there has been a difference in flood cases	19 (5.2)	21 (5.8)	59 (16.3)	184 (50.7)	80 (22.0)	2.21	1.021
A big number of us in this community have received training on flood mitigation strategies	11 (3.0)	28 (7.7)	170 (46.8)	60 (16.5)	94 (25.9)	2.45	1.051
The training we always receive is of high quality in terms of flood mitigation strategies hence it has helped us a lot	6 (1.7)	52 (14.3)	85 (23.4)	145 (39.9)	75 (20.7)	2.36	1.016
The training and sensitization done is inadequate to prepare us to deal with floods in the community	47 (12.9)	187 (51.5)	14 (3.9)	66 (18.2)	49 (13.5)	3.32	1.287
Mean of means						2.46	1.075

N = 363; percentages in parenthesis ()

The study found that community participation in training and sensitization as a flood mitigation strategy influence household livelihood. Specifically, majority of the households had never attended training and sensitization programmes concerning floods with 42.1% strongly disagreeing while 24.8% disagreed with the statement to that effect. Further, 27.3% of the household heads were neutral with regard to this statement. Similarly, majority of the participants (60.6%) strongly disagreed that the training and sensitization received was of high quality. The overall mean for the 10 items on the training and sensitization scale was 2.46 ± 1.075 , indicating that there was a general disagreement among the participants with all the positive statements on training and sensitization.

It was evident from the findings that community participation in training and sensitization is low hence endangered household livelihood. The community usually attends training and sensitization if they are assured of relief support a situation which hinders community participation. Training in term of unblocksculverts and water ways due to massive

chunks of litter has not been done by the government, NGOs, international leaders or local leaders. Training and sensitization for any flood event, maintaining sensitization of the dams and dykes to avoid bursting when it rains was realized to be a gap since it was not done and therefore there was need to train and sensitize communities in flood prone areas on community participation in flood mitigation strategies. Interacting with the trained community member, the number trained is low and the quality of training and sensitization wherever it's done its low, which was attributed to lack of funds by the respondents. This was supported by Okayo, Odera and Omuterema (2015), who asserted that in Nyando flood plains the greatest challenge of training and sensitization was lack of funds that represented 20.1% followed by dependency on the government 19.8%, then negative attitude from the community and literacy by the community members 16.1%. Community participation in training and sensitization is necessary if the Nyando livelihood is to improve. The government to avail funds for training and sensitization to the leaders concerned with proper monitoring and evaluation done to ensure every community member benefits. Communities should participate in these training and sensitization programmes through creation of awareness. The

government to create a policy which ensures every community member participates in flood mitigation strategies before, during and after floods.

Regression analysis was conducted to establish whether there was a relationship between community

participation in training and sensitization on household livelihood during flooding events. Regression output is shown in Table 2.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.582 ^a	0.338	0.336	4.974		
Model	Sum of Squares		Df	Mean Square	F	Sig.
1	Regression	4564.351	1	4564.351	184.467	.000 ^b
	Residual	8932.382	361	24.743		
	Total	13496.733	362			
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
		B	Std. Error	Beta		
1	(Constant)	16.997	1.1		15.455	0
	Community Participation in Training & Sensitization as a FMS	0.589	0.043	0.582	13.582	0

a. Dependent Variable: Household Livelihood

b. Predictors: (Constant), Community Participation in Training & Sensitization as a FMS

The study found a strong positive correlation $R = 0.582$ which was statistically significant as $p < 0.01$ ($p < 0.001$) between community participation in training and sensitization and household livelihood. The regression model of community participation in training and sensitization accounts up to 33.8% ($R^2 = .338$) of variance in the outcome which cannot occur by chance alone. Hence, for household livelihood to improve, community participation in training and sensitization is very necessary. The ANOVA shows that linear regression is a good fit for data with $F(1,361) = 184.467$ which is statistically significant as $p < 0.001$ ($p < 0.05$) which confirms the findings, hence community participation in training and sensitization influence household livelihood in Nyando flood plains.

When testing the hypothesis the regression equation model predicted household livelihood from community participation in training and sensitization such that $Y = 16.997 + 0.589X$ with the constant being statistically significant. Hence alternative hypothesis, there is a significant influence of community

participation in training and sensitization on household livelihood and therefore the alternative hypothesis was accepted and the null hypothesis rejected.

V. CONCLUSIONS AND RECOMMENDATIONS

The study concluded that community participation in training and sensitization influenced household livelihood. However it was found out that the trainings and sensitization programmes were not regularly done due to financial constraints to facilitate the trainings. Planning also arose as an issue as the trainings which were planned in Nyando flood plains were not mainly targeting flood events but gave priorities to other issues like trainings on HIV and AIDS. At the same time it was found that the community living in Nyando flood plains did not attend trainings and sensitization programmes whenever they heard that they deal with flood events. They could only attend if they knew that the government or the NGOs are going to give them food, Non Food Items or money. However they were in agreement that if the community participates in

training and sensitization as a flood mitigation strategy, there will be improved household livelihood. The study recommends that more training and sensitization should be conducted to the communities in flood prone areas on how to mitigate floods to ensure improvement of their household livelihood. Further, Governments, NGOs and other international bodies should organize and support the community to mitigate floods in order to enhance their livelihood.

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