

FACTORS OF SOCIAL VULNERABILITY TO CLIMATE VARIABILITY IN COASTAL COMMUNITIES OF AKWA IBOM STATE, NIGERIA

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Abstract

Climate variability causes adverse social effects which negatively impinge on the well-being of people, particularly, the rural dwellers. However, there is inadequate information on the isolation of vulnerability factors of the rural dwellers to adverse social effects of climate variability to help develop robust mitigation and adaptation measures. A total of 90 households were sampled, using closed and open-ended questionnaire for data collection. The data were analyzed using descriptive statistical tools, and factor analysis using principal component approach, to isolate critical factors. The result of data analysis revealed that 52.7% of the respondents were women, most of the respondents (80%) were between the ages of 60-80 years and majority (64%) had no formal education. The result of factor analysis revealed that 17 factors influence social vulnerability namely: local resources inaccessibility, climate information/communication source, social capital/social safety net, climate knowledge barrier, population increase, the age of residents, gender inequality, tribal issues/public assault/insecurity and infrastructure inaccessibility. Others include loss of properties and accommodation, mobility, environment/social discrimination, a local institution, income /employment replacement, cultural constraint, family structure, and disability. Based on these findings, all relevant agencies, community organizations and public-spirited individuals should join hands to provide the disadvantaged households with safety nets towards helping communities in any geographical context of their vulnerabilities. Effort must be made to enhance allocation of resources to maintain healthy safety nets. New modalities will have to be sought and developed so that vulnerable women and men can directly receive the benefit safety net practices to reduce household vulnerabilities to weather shocks and stresses.

Key words: Social Vulnerability, Climate Variation, Rural dwellers, Akwa Ibom State, Nigeria

Introduction

Social vulnerability is the degree to which an area, people or their physical structures (properties), economic assets (sources of livelihoods) and general welfare are exposed to loss, injury or damage caused by the impact of a hazard (Chambers and Northon, 2009). This definition emphasizes the social dimension of vulnerability, in contrast to the predominant view of vulnerability to the impacts of climate variation which concentrate on the physical dimension of the issue. Social vulnerability explicitly focuses on those demographic, social, economic, political and cultural factors that increase or attenuate the impacts of hazard events on the local population. Individuals in a community often vary in terms of education, gender, wealth, health status, access to credit and information and technology, formal and informal (social) capital, political power and so on; these factors are also responsible for the variation in vulnerability level (Cutter, 2007). Social vulnerability

is constructed rather than determined by the society because of institutional and economic changes. The inability to manage stresses is produced by inequality, unequal access to resources, poverty, poor infrastructure, lack of representation and inadequacy of social security, early warning, and planning. These factors translate climate vagaries into suffering and loss. The damages associated with climate events transformed into differentiated outcome because of social structure. The poor often live in unsafe flood-and-drought prone urban or rural environments; lack insurance to help them recover from losses, and have little influence to demand governments provide protective infrastructure, temporary relief or reconstruction support. This explains why a socioeconomic variable is used to identify the adaptive capacity of individuals based on their internal characteristics.

Hewitt, (2010) argues that social vulnerability to climate variability is the key dimension to the constitution of vulnerability and this parameter shift emphasizes the remote or underlying rather than the proximate or immediate causes of vulnerability. A social vulnerability perspective focuses attention on the characteristics of populations in terms of social, economic, demographic, political and geographic factors that shape abilities to anticipate future events, respond to warnings, and to cope with the recovery from disaster impacts.

Research Method

The study was carried out in Akwa Ibom State of Nigeria. The state has 31 Local Government areas, from where samples were chosen using a multi-staged sampling procedure. In the first stage, 3 coastal Local Government Areas (LGAs) were purposively sampled based on their extent of coast lines. In the second stage, 10% of the villages from each of the selected LGAs were randomly selected. In the third stage, 10% of the households were randomly sampled from each selected village to give a sample size of 90. Descriptive and inferential statistical tools such as frequency counts, percentages, mean, and rank were used to analyze collated data.

To isolate the factors influencing the social vulnerability of rural dwellers, a list of perceived factors was generated using a 4-point Likert scale of Strongly Disagree (1) Disagree (2) Agree (3) and Strongly Agree (4). The respondents were asked to respond to questions bothering them considering their experiences. Scores were thereafter computed using factor analysis of principal component approach. Two focused group discussions – 1 male and the other female - were also held in each of the selected villages.

Results and Discussion

The sex distribution of the respondents as seen in Table 1 reveals that 52.7% were female while 47.3% were males. The dominance of female folk in the study area can be attributed to the migration of men to source for alternative employment opportunities in cities. It, therefore, implies that with variation in climate, more women are likely to be impacted because they outnumbered the men in the study area. The result is presented in Table 1 disagrees with the findings of Umoh *et al* (2013) who reported that both

men and women are impacted upon equally by the impact of climate variability in their communities.

Table 1 shows that majority (50.0%) of the respondents were married while 11% were single, 9% and 30% were separated and widowed respectively. The high percentage of married respondents is consistent with Ekong (2003) who noted that getting married is highly cherished among rural dwellers in Nigeria with intentions of using these women for unpaid family labour. The high percentage of 'married' marital status places some limitations on the majority of the respondents in the study area because married women are directly or indirectly controlled by certain conditions placed by their husband. The effect of the male domination makes them feel inferior and unable to participate in activities affecting their lives. A female respondent assert that 'when disaster strikes, we cannot relocate without the consent of our husbands.' The percentage of widowed (30%) respondents in the study area are linked to a high mortality rate among men who get drowned in the high sea during a fishing expedition in the coastal parts of the State. The percentage of the separated per the Focus Group Discussion is attributed to the loss of habitation during the period of flood making couples to be completely helpless as they must relocate to non-affected areas. One of the women has this to say 'during economic hardship as a migrant, our husbands move from rural areas to cities to exploit perceived economic opportunities and indirectly abandon us at home to take care of children, the elderly or sick family members and sometimes remarry other women outside our community.'

Table 1 also reveals that 80.0% of the respondents were aged between 61-80 years, 18.7% were aged between 41-60 years, 1.0% were less than/or equal to 40 years, while 0.3% were 20 years and below. Eighty percent of the respondents who were within the age range of 60-80 years were believed to be economically inactive because of their health challenges which made them reluctant to accept new knowledge or involve in adaptation planning to minimize their level of social vulnerability to climate variation.

The level of education among rural dwellers constrains their ability to understand and react to climate information (HSCEE, 2010). The results from Table 1, Item 4 shows that 64.7% of the respondents

had no formal education; 23.7% had primary education, 11.0% had a secondary education while 0.67% of the respondents read up to tertiary level. This implies that majority (64.7%) of the respondents will be more vulnerable to climate variation because of their inability to access, read and understand literature on weather information, as affirmed by Martins (2010), who noted that the least educated members of the community cannot access or act upon different hazard information for preparation to recover. Item 5 on Table 1.1 shows that 22% of the respondents were farmers while, trading, artisan, and salaried jobs constituted 29.3%, 40.0% and 7.0% of the primary occupation of the respondents respectively. Other occupations such as boat mending and water transportation constituted 1.7% of the respondents' primary occupation. The result reveals that 40.0% of the respondents were artisans engaging in multiple but low income generating activities. These activities are usually lost during disasters and thus increase their vulnerability while reducing their resilience.

Table 1 shows that 95% of the respondents had a monthly income ranging from N1,000-20,000, 3% earned monthly income ranging from N20,001-N40,000 while 1% of respondents earned monthly income ranging from N40,001-N60,000. The result suggests that 95% of the respondents with low-income earnings (1,000-20,000) had less or no financial resources to reduce their social vulnerability. This agrees with Blaike *et al* (2010) who opined that households with less access to resources are more economically vulnerable to immediate and subsequent climate variability impacts.

Data from Table 1 shows that most (52.2%) of the respondents had a household size within the range of 11-15 persons. Respondents' with a household of 6-10 members represented 38.3%, while, 9.3% of the respondents had small household sizes of 1-5 persons. Household size of the respondents is quite high. It can be deduced that household size increases because of

constant flooding that destroys residential apartment resulting in population displacement. Some respondents especially the coastal dweller pointed out that 'when disaster strikes we lose our houses and plead with neighbours to accommodate us.'

The housing quality is closely tied to respondent's personal wealth. That is the reason some rural dwellers live in poorly constructed houses that are susceptible to strong rainstorm and flooding. Table 1 shows that 79.9% of the respondents lived in mud houses made of thatch roof while 8.3%, 5.7% and 6.3% of respondents lived in zinc roof, mud with zinc and cement with zinc respectively. The finding implies that the respondents are mostly poor as noted by Bolin *et al* (2008) that the rural poor live in substandard and over-crowded houses prone to the spread of diseases and impact of disaster because of the adverse economic situation.

Locations of the building of respondents are extremely important in determining people's exposure to social impacts of climate hazards. Table 1 also indicates that 68.6% of the respondents lived in the upland area while 31.7% lived in the coastal area.

Table 1 shows that 19.9% were people with disabilities. The result of the finding reveals that respondents with disabling impairments cannot access safe areas when water level increases because of the nature of the assistive devices as such their social vulnerability increases.

Factors Affecting Social Vulnerability to Climate Variation

Sixty (60) items were initially generated and validated during the instrument construction phase to reflect the objective of the study. The items were then subjected to factor analysis using principal component approach, to reduce the number of items to major and sizeable significant number of factors using Eigen value criterion of ≥ 1 to select the underlying dimensions of the original 60 items.

Table 1: Distribution of Rural Dwellers based on their Socio-economic Characteristics

Item	Selected Variables	Frequency n=300	Percentage %
1	Sex		
	Male	142	47.3
	Female	158	52.7
2	Marital Status		
	Single	33	11.0
	Married	150	50.0
	Separated	27	9.0
3	Age (years)		
	1-20	1	0.3
	21-40	3	1.0
	41-60	50	18.7
	60-80	240	80.0
4	Educational status (years of formal schooling)		
	0	194	64.7
	1-6	71	23.7
	7-12	33	11.0
	13-16	2	0.67
	7-12		0.67
5	Primary Occupation		
	Farming	66	22.0
	Trading	88	29.3
	Artisan	120	40.0
	Salaried job	21	7.0
6	Income Level (N)		
	<1-20,000	289	95.3
	20,001-40,000	9	3.0
	40,001-60,000	4	
	60,001-80,000	1	
7	Household Size (No of persons)	4	1.3
	1-5	1	0.3
	6-10	27	9.0
	11-15	11	3.7
8	Housing Type		
	Thatch roof	239	79.7
	Zinc roof	25	8.3
	Mud with Zinc	17	6.3
9	Location of Building		
	Low lying land	15	5.0
	Flood plain	19	6.3
	Close to seashore	56	18.7
		210	70.0
10	Health Status		
	Not physically challenged	240	80.0
	Hearing/speech impaired	12	4.0
	Visually impaired	19	6.3
	Amputee	8	2.6
	Hypertensive/diabetic patient	21	7.0

Source: Field data, 2016

The instrument was first subjected to KMO and Bartlett's test to check for the tenability and sustainability of the instrument and to confirm the appropriateness of the data. Given that the aim was to identify the minimum number of factors that would account for the minimum portion of variance of the original items, principal component analysis was selected (Nunnally, 1978), to reduce the number of factors where the Eigen value is greater than 1 and a cumulative percentage of variance explained being greater than 50, were the criteria used in determining the number of factors were extracted (Table 2) and explains 67% of the variance in the data for social vulnerability to climate variation.

In other to obtain a clearer picture of the structure, the initial solution was rotated, no prior assumption in terms of factor dependence was made and

consequently an oblique rotation was applied to the data. Based on the sample size, the criterion for the significance of factor loading for extracted common factors was stipulated to be greater than the absolute value of 0.5. Commonality was also examined in order to assess how much variance of each item was accounted for by the extracted factors and to shed light into the possible elimination of items (given the lack of accepted guidelines, a cut-off value of 0.5 was used).

The solution presented in (Table 2) leads to the following conclusions:

- (a) All the statements met the commonality criterion.
- (b) The loadings associated with most the statements were above the 0.5 specified criterion.

Table 2: Rotated component matrix of significant dimension of social vulnerability to climate variation

S/N	STATEMENT	Commonalities Extraction	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12	Factor 13	Factor 14	Factor 15	Factor 16	Factor 17
1	My household does not have credit/farm input benefits from government	.645																	
2	My household does not benefit from training in alternative livelihoods	.682																	
3	My household does not have right to emergency relief from government	.624	.536																
4	We have been taught by extension agent on how to observe weather for early signal	.555		.533															
5	I do not listen to radio for weather information	.651		.572															
6	I do not watch television for climate information	.634		.764															
7	We are always informed about weather problem by my neighbour	.729																	
8	My household does not have equal opportunity to climate information	.739																	
9	Our community- based project has been swept away by flood	.778			.593														
10	Our neighbours refuse to accommodate us	.756			.528														
11	Our friends do not share their farmland with us	.672			.626														
12	Government agencies do not provide relief materials for us after flood	.620			.603														
13	NGO agencies do not assist us with micro-micro-loans to start up small scale business before, during and after flood	.528																	
14	We have lost contact with our friends and relatives	.587				.581													
15	I cannot easily draw government attention to my hazard situation	.642																	

16	My household has not been trained on weather forecast	.711																	
17	I do not understand climate signals because of the language used	.683																	
18	I do not understand climate warning /signals	.610				.630													
19	My household experience heat-stress because of squatting space	.585																	
20	Our dwelling places appliances and securities for our welfare	.600					.576												
21	Our children delay our movement during flood because of their tender ages	.625																	
22	Elders in my household are reluctant to leave their forefather's properties	.694						.585											
23	I have low income to cater for my family needs	.631							.534										
24	Women do not have right to cultivate any land except it is given to them by men.	.631							.583										
25	I am not always invited to my community meeting because of my sex (woman)	.685																	
26	Women opinion is not sought nor accepted in community	.610																	
27	Older people in my family with hearing impairment increases burden of evacuation	.613																	
28	I cannot seek safety because of caring for the young and old people in my family	.670																	
.29	Our young girls suffer abuse from men of the new community	.627								.603									
30	I do not understand the dialect of the new community we are squatting	.707									.593								
31	Our farm produce is wasted due to inability to evacuate	.631								.	.587								
32	No medium to contact our customers to sell our farm produce	.671									.673								
33	Our road is blocked because of flood	.718										.590							
34	Many families within our community are now living in rented apartment	.681										.508							

35	We do not have good vehicles to help us during hazard	.671											.603						
36	My house is close to flood plain area	.680												.680					
37	We are blocked from productive land in the community	.583													.761				
38	We are discriminated from equal use of community resources	.820														.820			
39	We live in area of the community prone to flood	.790																	
40	Our voice is not heard and recognized	.732																	
41	Our local leader does not inform the leader about our situation	.683														.654			
42	We are not carried along in the community matters	.605																	
43	We benefit from government interventions	.744														.703			
44	We do not give our women equal opportunity in politics	.695														.615			
45	We do not give our women equal opportunity in politics	.726																	
46	I cannot easily replace my damaged properties after flood	.699															.533		
47	I cannot quickly construct my settlement after flood	.625															.572		
48	I am jobless I cannot recover from flood risk	.764															.764		
49	I do not have different income source In case of flood attack	.685																	
50	I do not have money to start small business	.625																	
51	It is against our tradition to leave forefather's dwelling places	.658																	
52	We must respect our cultural identity because it is roots and pride	.716																.603	
53	We do everything possible for our tradition not to disappear	.665																.593	
54	We do protect our culture for the next generation	.675																	
55	The elderly and the disable in my household are discriminated during	.706																.626	

	government interventions																		
56	There more elderly and dependent persons in my family	.711																	
57	My household lack financial assistance for medical services to recover from flood	.687																	
58	My family are ignored when relief materials are shared	.657																	
59	We do not have wheelchair and clutches to remove the disable family members	.757																	.570
60	The disabled family members lack assistance during evacuation	.637																	
	DIAGNOSTIC STATISTICS																		
	Eigen Values	12.995	3.762	2.581	2.333	2.129	1.851	1.710	1.564	1.542	1.494	1.407	1.291	1.225	1.194	1.173	1,070	1.051	
	% of variance	21.658	6.270	4.302	3.888	3.548	3.085	2.849	2.607	2.571	2.490	2.346	2.152	2.041	1.991	1.955	1.752	1.752	
	Cumulative %	21.658	27.928	32.230	36.118	39.667	42.751	45.601	48.205	50.779	53.268	55.614	57.766	59.809	61.798	63.753	65.535	67.287	
	Extraction Method: Principal Component Analysis																		
	Rotation Method: Varimax with Kaiser Normalization																		
	a. Rotation converged in 17 iterations																		

Source: Field data, 2016

Table 3: Result of the Tenability and Sustainability of the Instrument for Social Vulnerability to Climate variation.

KMO and Bartlett's			
Test			
Bartlett's Test of Sphericity			.846
	Approx. Chi-Square	8320.671	
	Df	1770	
	Significance	.000	

Defining the Underlying Dimensions of Social Vulnerability

Based on the result of factor analysis on Table 2, seventeen composite factors were mutually exclusive and major patterns were generated by factor analysis procedure. These factors are discussed below:

Factor 1: Local Resource Inaccessibility

Literature suggests that inaccessibility to community resources is an important dimension of social vulnerability, as it relates to the manner local populace are ranked into a class based on their wealth (Birkmann, 2012). This factor more than any other explains 21.7 percent of the total variance. This result agrees with Passel's report in 2005 that poorer households (low class) are not equally able to access the resources and opportunities because of certain disparities in the economic and political processes, that upper class or wealthy citizens are custodians of community resources.

Factor 2: Climate Information/ Communication

Lack of affordable, accessible and relevant information source contribute to social vulnerability. It explains 6.2 percent of the variation. It was observed that respondents depend on their personal weather observation, experience in their neighborhood as well as a local institution because of irregularities and untimely delivery of information from advanced media which they caption 'fake stories' or 'fly news'. Their belief is attributed to the fact that weather forecast from radio and NTA stations do not apply in the localities.

Factor 3: Social Network / Safety Net

This component explains 4.3 percent of the variation. The finding agrees with Coleman (2008) that displaced population finds it difficult to re-organize and re-establish their former family ties and

relationships. Some respondents express their feelings that flood obstructs social activities such as a wedding, children dedications, and funerals. This situation weakens social capital, loosen social bond with loved ones resulting in psychological stress on the respondents. Huq and Koher (2008) maintained that loosed network and lack of access to social gathering make people feel lonely especially the elderly populations. Meanwhile, Davis (2010) believes, a social safety net if put in place would help to avoid post – disaster famine and assist affected households and communities in protecting and rebuilding their assets.

Factor 4: Climate Knowledge

Education is linked to socioeconomic status, and it accounts for 3.8 percent of the variation among rural dwellers. Non-educational attainment in the study area makes community members be vulnerable to climate hazard as they lack the ability to understand the warning and recovery information. The result of the finding is consistent with Huq and Koher, (2008) who reported that the schooling of children is affected by floods as it is impossible to hold and attend classes during submerged conditions. That wherever the school building is not submerged, the school tends to become the “front –line” flood shelters for uprooted families.

Factor 5: Population Increase

Population dislocation and community disruption negatively affect village habitation. When a community or household experiencing the impact of flood relocate to an- affected area, there is bound to be population influx leading to increased risk of diseases and pollution of sanitation systems. It explains 3.5 percent of variance among the rural dwellers.

Factor 6: Age of Resident

Age is highly correlated with social vulnerability and explains 3.0 percent of the variation. As people get older, there is also an increment in health challenges and these are aggravated during periods of dislocation or loss of livelihood due to climate variation. The result support Huq and Koher, (2008) who asserted that the elderly population suffers various health problems due to adverse consequences of climate variability such as hearing impairment, cognitive challenges, increase in blood pressure (hypertension), etc. This affects their ability to respond and recover

from disaster. Meanwhile, Morrow (2009) posited that children especially the youngest age group cannot protect themselves during a disaster because they lack the necessary resources, knowledge, or life experiences to effectively cope with the situation.

Factor 7: Gender Inequality

This factor explains 2.8 percent of the observed variation. The result is consistent with (RVCC, 2007) which reported that women suffer more from the impact of disaster because of their distinct socially constructed roles as mothers and family caregivers. Ahmed (2007) has it that, during extreme conditions, when natural sources of water for instance, stream dries up, and women must walk long distances on foot daily in search of drinking water. The report reveals that significant proportions of these women are pregnant and lactating mothers. He further added that women especially in the coastal area enumerated their experiences during constant flooding over menstrual hygiene management resulting in genital injury, bleeding, infections and other complications.

Factor 8: Tribal Issues, Public Assault, and Insecurity

This component explains 2.6 percent of variation among respondents. Literature reveals that people who lose their habitation during floods are completely helpless without any source of income as they move out to non-affected areas. In their new shelter as a migrant, they lose the physical social security they once enjoyed at their native villages. This, in turn, put them into diverse kind of adverse social circumstances; young girls who take shelter on embankments are in constant dangers of sexual harassment and assault from boys and men of that community. Often young women are lured into prostitution by professional gangs, with the promise of jobs elsewhere (Huq and Koher, 2008). The result also agrees with Dunning (2012) who noted that people who do not speak the language of their host community, for instance, have difficulty in understanding and responding to warning and evacuation order.

Factor 9: Infrastructure Inaccessibility

This factor explains 2.5 percent of the variation. The result concurs with Vogt (2005) who emphasized that inaccessibility to critical infrastructures such as roads, shelter, and telecommunication increases social vulnerability. He stressed that local road network

poorly maintained make several routes impassable. Some areas are cut off and blocked from the other part of the community including market which would facilitate income security.

Factor 10: Properties/ Accommodation Lost

This component explains 2.4 percent of the variation among rural populations. The result is in line with Patosalmi (2000) who stressed that flood 'sweep off' farmland leading to loss of crops and income. Buildings particularly, thatch houses are said to be destroyed by flood in the upland or sea level in coastal communities. He further stated that loss of property is more difficult to replace, especially for poor households. Some fishermen explain their bitter experiences during a fishing expedition with sea pirate attack in the high sea where their boat engines and other tools are stolen and destroyed.

Factor 11: Mobility

This component explains 2.3 percent variation among respondents. The result of the findings agrees with Quarantel, (2010) who posited that transportation out of evacuation zone is problematic for people who do not have vehicles. In coastal regions, people's movement is distorted by sea level rise as locally made canoes cannot be paddled in the high sea, they are victims of water-related diseases and cannot access medical facilities and personnel in upland areas leading to the trauma of non-pathogenic conditions of hypertension and strokes. IPCC (2007) opine that people with disabilities have mobility constraints when an emergency hits, they have difficulty in reaching safe areas.

Factor 12: Environmental / Social Discrimination

This factor explains 2.2 percent of the variation. The result agrees with Grainger (2009) who noted that the benefits of economic development are not shared equally among inhabitants of a country. This results in discrimination and social exclusion. And this is also true in rural communities.

Factor 13: Local Institution

This factor explains 2.0 percent of the variations among local dwellers. Weak or corrupt institutions will lead to inefficient and inadequate responses to disaster events, with calls from government assistance being delayed and aids not necessarily going to those whose need is greatest. This support O'Brien (2007) who reported that poor leadership, lack of

independence and decision- making power constrain rural populace as their voices, needs and aspirations are not incorporated into government projects and this increases sensitivity for poorer households.

Factor 14: Income /Employment/Replacement Ability

Flood impact seriously on livelihood source, paralyze economic activities; thereby exacerbate inequality in the economic status, access to adequate food and resources in the study area. It explains 1.99 percent of variance among the rural population. The resulting support Putente (2009) who asserted that local population involve in resources extraction economies such as fishing, forestry, crop cultivation, and livestock rearing suffer great loss and unable to reconstruct their settlement when impacted by a hazard event.

Factor 15: Cultural Constraints

This factor explains 1.95 percent variation. The result is the same with World Bank (2006) who maintained that the loss of traditional knowledge has made elders to suffer disrespect from the younger generation as the knowledge they bear is no more accurate as it used to be. This result also agrees with Filiberto (2013) who reported that elderly people become more frustrated as their ethnic cultural identity suffers from the risks of extinction because of climate related hazards.

Factor 16: Family Structure

Large family size impedes evacuation when disaster strike and this effect increases social vulnerability. Families caring for sick relatives have less time, money and energy to invest in activities that might mitigate the impacts of external hazards, to help them recover from hazard events and be better prepared for them in the future. McGuire (2007) confirms that large and dependent family members: children less than 18years of age, elderly and disable members require financial support, transportation, medical care during a disaster and this affect resilience to recover from the hazard. This component explains 1.78 percent of variability among respondents.

Factor 17: Disability

This variable explains 1.75 percent of variation among rural dwellers. The finding is synonymous with World Report on Disability (2011) that, people with disability are left behind in degraded environment when emergency hits, and are separated

from their families and friends leading to devastating hardship on them, and they lack social connections necessary to take advantage of resources that would speed their recovery from disaster. KeH and Sherrer, (2009) confirm that disasters and its aftermath have a huge impact on persons with disabilities because of loss of assistive devices such as wheelchairs, crutches, white cane or hearing aids.

Conclusion

1. All relevant agencies, community organizations and public-spirited individuals should join hands to provide the disadvantaged households with safety nets towards helping communities in any geographical context of their vulnerabilities. Effort must be made to enhance allocation of resources to maintain healthy safety nets. New modalities will have to be sought and developed so that vulnerable women and men can directly receive the benefit safety net practices to reduce household vulnerabilities to weather shocks and stresses.
2. Policy makers and development partners should collaborate with agricultural extension workers, meteorological office, and community – based agent to create awareness on climate information forecast and dissemination through available and accessible communication methods such as radio using local dialect, town criers, drama, newsletters, community workshop/seminars and educational programmes to improve community understanding of climate variation and enhance their adaptive capacities.
3. Diversification of income is an effective means of reducing vulnerability by spreading risks. Less dependence on natural resources will help to reduce social vulnerability to severe flooding and drought. Rural dwellers need to be effectively sustained and engaged in some value-added economic activities that will reduce food insecurity, increase employment opportunities and income and permit people to accumulate assets, which will improve their ability to cope with future shocks without falling deeper into poverty.

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