

Can New ICTs Facilitate Women as Key Actor in Disaster Risk Reduction? Narratives from Southern Bangladesh

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The cooperation of respondents of the study and suggestions from the participants of the Conference "Planet under Pressure 2012", London is acknowledged. Thanks to Mr. Haseeb Md. Irfanullah and Mr. SM Alauddin, for their valuable comments.

Abstract

It is evident that new ICTs can facilitate better access to information which ultimately contributes taking life saving decision and managing critical situation. This paper talks about how women's access to new ICTs facilitate better decision in reducing disaster risk and challenging the traditional view 'men as decision making agent'. Natural disaster is regular phenomenon in Bangladesh. Southern part of Bangladesh is more prone to disaster than any other districts. In 2007, divesting cyclone Sidr and in 2009 Aila caused serious damage to livestock and human life. The study reveals that due to lack of information regarding coping mechanism during and after disaster increases magnitude of damage and loss. Moreover, it is also found that when women access to information through new ICTs, they take decision or at least influence husband providing whatever information they had on disaster risk deduction. Even though, women faced some practical problems, but they preferred to move to shelter centre during disaster to minimize losses. The paper found ICTs equipped women as key drivers of disaster risk reduction at grassroots of Bangladesh.

Key Words

Southern Bangladesh, ICTs, Access to Information, Decision Making, Shelter Home, Damage, Loss.

Citation: Rahman, M. & Islam, A. (2014). Can New ICTs Facilitate Women as Key Actor In Disaster Risk Reduction? Narratives from Southern Bangladesh. *Ganpat University Journal of Applied Research In Social Sciences & Humanities*, 3 (1), 1-14.

1 Introduction

Bangladesh is the most vulnerable country to several natural disasters. Every year natural calamities upset people's lives in some part of the country. The major disasters concerned here are the occurrences of flood, cyclone and storm surge, flash flood, drought, tornado, riverbank erosion, and landslide. The geographical setting of Bangladesh makes the country vulnerable to natural disasters. The mountains and hills bordering almost three-fourths of the country, along with the funnel shaped of Bay of Bengal in the south, have made the country a meeting place of life-giving monsoon rains, but also make it subjected to the catastrophic ravages of natural disasters (Medline, 2001). The Bay of Bengal is the breeding place of catastrophic cyclones during the pre-monsoon (April-May), and post monsoon (September– December) period's cyclones in the Indo–Bangladesh sub-continent is classified according to intensity and the following nomenclature is used (Dunn and Miller, 1964). Its physiography and river morphology also contribute to recurring disasters. Abnormal rainfall and earthquakes in the adjacent Himalayan range add to the disaster situation. Effects of *El-Nino*-Southern Oscillation (ENSO) and the apprehended climatic change have a great impact on the overall future disaster scenarios. Since Bangladesh is a disaster prone country, it is subject to colossal damages to life and property almost every year (Medline, 2001).

1.1 Major natural disasters in Bangladesh

There has been an increasing trend of disasters in Bangladesh over the years because of the unabated increase in population, concentration in urban areas and active population migration to high risk areas. Experts also suggest that many emerging natural disasters have been technologically and human induced, because they are deeply associated with modern human settlement, production, transportation, and consumption activities in a post-industrial society. In addition, these risks are inevitably surprising and specific in their characteristics, typically of 'low frequency but of catastrophic consequence' in terms of human life and health, economic loss, and associated environmental damage. Hence, such hazards are often comprehended as a possible danger as an event of 'virtual-reality' in terms of the difference between the perceived possibility and reality, for example, the danger of encountering lightning or a airplane crash that are likely to occur no more than once in one's lifetime (Renn, 1992). Coastal zone of Bangladesh is the most risk prone area to disaster like cyclone, tidal surges.

Whatever the underlying causes, Bangladesh frequently experiences cyclone and flood along with tornadoes, drought, riverbank erosion, earthquake, etc. that increases the country's vulnerability. The Table 1 below includes the list of the top ten natural disaster during the last 350 years (Ali & Choudhury, 1992).

Table 1: Top Ten Disasters in Bangladesh (1900- 2007)¹

	Disaster	Date	Damage (in '000 USD)
1	Flood	2007	1066.69 million ²
2	Storm	November 2007	2300 Million
3	Earthquake (seismic activity)	December 2004	500 Million
4	Flood	June 2004	2200 Million
5	Flood	September 2000	500 Million
6	Flood	July 1998	4300 Million
7	Storm	April 1995	800 Million
8	Storm	April 1991	1780 Million
9	Flood	June 1988	2137 Million
10	Flood	August 1987	727.5 Million

Moreover, in recent years- 2007 and 2009, two most devastating cyclones hit Bangladesh. In 2007, cyclone storm- Sidr hit in 30 districts (200 upazila & 1896 unions) of Bangladesh which caused death of 3301 people, 2 million family and 8.7 million people affected (DMIC, DMB³). Similarly, in 2009, cyclone Aila attacked in south-west of Bangladesh and surrounding districts of India. The storm displaced 2 million people and destroyed 700 km of coastal embankments⁴. In line with this, existing literatures suggest there were numbers of studies done to identify who get affected most and what are coping mechanism they apply for reducing their risks and saving their lives before, during and after disaster. However, the study⁵ found a knowledge gap on whether and how access to new ICTs⁶ by disaster affected women can play a role in reducing their disaster risks. Therefore, this study aims to contribute in exploring underlying correlation (if exist) between DRR, gender and new ICTs.

2 Objective of the Study and Research Methodology

The study is explorative in nature and it aims to explore whether any relationship exist between DRR, access to new ICTs and gender relation. Both qualitative and quantitative data collection methods (FGD & Household Survey by Individual Interview) have been applied. At household level, the study applied purposive sampling. It usually interviewed most senior female member of the household, but in a situation when she did not able to cooperate, then most immediate junior female members of the household was selected for interview. All together 120 women were interviewed and 16 women participated in the Focus Group Discussion.

¹ EM-DAT: The OFDA/CRED International Disaster Database (www.em-dat.com) in (Ali & Chowdhury, 1992)

² DMB, 2007

³ Accessed on February 09, 2013 through the link of www.dmb.gov.bd

⁴ Shelter Projects report, Bangladesh- 2009- Cyclone Aila, accessed on April 12, 2013 through <http://www.disasterassessment.org/documents/B.1%20Bangladesh%20-%202009%20-%20Cyclone%20Aila.pdf>

⁵ The study was conducted in October 2009 as a part of research monograph (of the second author). In 2010 further field research was conducted to update some of data and incorporate few more aspects.

⁶ Refers to mobile telephone, computer, internet etc

Study Area: The study conducted field research at Southkhali Union of Sorankhola Upazila, Bagerhat district, Bangladesh. This coastal area is characterized by proximity to sea Sundarbans reserve forest. As a result development activities are hindered and people are in the grasp of poverty since long time. Moreover, availability of secondary data, population density, prone to disaster and local support for field research were been considered for the selection of location.

Research Process and Data Analysis: After developing the instrument, it was tested in the field. Based on the experience of field testing, survey instrument was finalized. FGD was conducted to validate survey findings, and it was done after the analyzing survey findings. Regarding analysis, quantitative data was organized, verified, analyzed and interpreted by SPSS software. However, inductive thematic analysis was applied for qualitative data which was collected by FGD.

Limitations of the Study: The study acknowledges its limitation as it collected data only from one union which is not representative at all. Moreover, it tried to find relation between roles of new ICTs in DRR by women with an assumption that role of traditional ICTs such radio, miking remained unchanged. Moreover, the study also limits the comparison of impacts of the two cyclones without having enough data on what government has done in regard to building awareness on DRR among community.

3 Gender Concern in Disaster Risk Reduction

Literatures on DRR suggest that when disaster strikes, the poor and socially disadvantage group of people suffer most and are least equipped to cope with the impact. In Sri Lanka, more women than men died in the Tsunami 2004. The reasons are lack of basic skills such as climbing trees and swimming and their main concerns like staying back to look after or carrying children. It was also found that women faced incidents of rape and sexual violence immediate after the Tsunami (Kottegoda et al; 2011). In Bangladesh, women are the victims of gender discrimination and they are the socially disadvantages group (Connell, 1999), therefore, women's human rights are not comprehensively enjoyed throughout the disaster process. Moreover, the right to security of persons is violated as women and girls are victims of sexual and other forms of violence while in relief camps or temporary housing. Civil and political rights are denied since women cannot act autonomously and participate fully at all decision-making levels in matters regarding mitigation and recovery (Enarson, 2001). Similarly different international instruments and reports on women also recognized this gender discrimination during disaster. Like the Beijing Platform for Action, adopted at the Fourth World Conference on Women (1995) recognized that the impact of environmental disasters on women and

their disaster responses needed to be further investigated (DAW, 1995 and 2001). Moreover, Molin⁷ stressed the need to mainstream a gender perspective into disaster risk reduction (relating to disaster prevention, mitigation and preparedness activities, as part of vulnerability reduction efforts) by including women as actors and agents of change and progress. She also pointed out the need to include a gender perspective in risk assessments and policies, addressing the roles and responsibilities of both women and men, and incorporating more women at decision-making levels (Molin: DFID, 2005).

3.1 Gender and Access to Information

In line with this, lack of access to information or early warning system contributes women to being more vulnerable from climate change impacts. Nonetheless, the issue of gender equality and women's participation get little attention in the climate change policy regimes. The little participation or in some cases exclusion of women from climate change decision-making processes remain a real challenge to women empowerment, fail to maintain human rights principles. Moreover, society deprives many skills, experiences and capacities of women (UNDP; 2009 & UNFCCC; 2005).

3.2 New ICTs & Gender

In Bangladesh, new uses and expansion of ICTs are very fast and becoming essential part of everyday life, irrespective of age, class, education and profession. Computer penetration has been growing rapidly. Because of, it has been exempted from import tax. However, due to a low benchmark, computer penetration is still low in compare with other countries. Computer penetration is 7.1 per 1000 inhabitants which was 1.2 per 1000 inhabitants in 2005 (ITU⁸, 2005 and 2007). Due to sound competition, appropriate policy and zero license fees within National Telecom Policy 2000, access to mobile telephone has been growing exponentially. Presently, the tele-density (comprising mobile phone, fixed line & PSTN⁹) is 47% (BTRC¹⁰, 2011). In recent days BTRC declares that total number of Mobile Phone subscribers has reached 97.180 million at the end of December 2012¹¹. The total number of PSTN Phone Subscribers has reached 1028.19 thousand at the end of May 2010¹² and the total number of Internet Subscribers has reached 29415.693 thousand at the end of July 2012¹³.

⁷ Ms. Helena Molin Valdes is Senior Officer for Policy Issues, Inter-Agency Secretariat of the International Strategy for Disaster Reduction (UN/ISDR).

⁸ International Telecommunications Union)

⁹ Public Switched Telephone Network

¹⁰ Bangladesh Telecommunication Regulatory Commission

¹¹ <http://www.btrc.gov.bd/index.php> Retrieved on February 22, 2013

¹² *Ibid*

¹³ *Ibid*

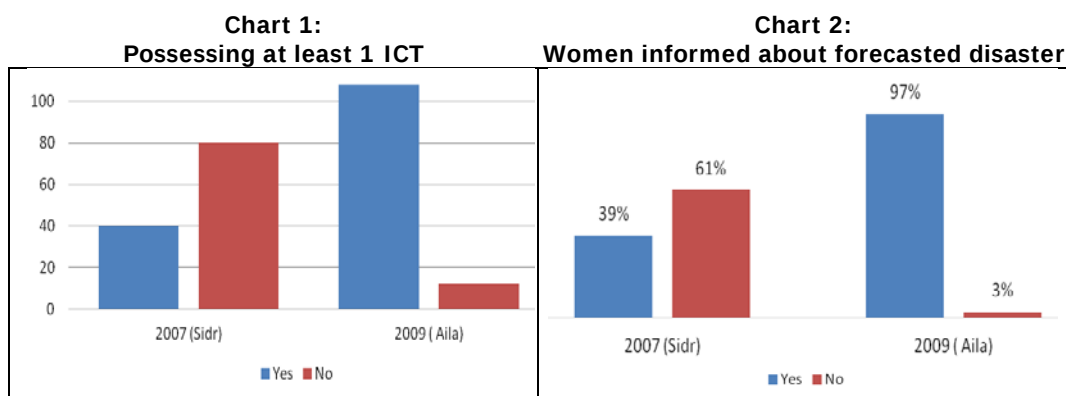
Besides this, ICTs was highly recognized and valued in the National Strategy for Accelerated Poverty Reduction (NSAPR) 2009 of Bangladesh. Moreover, 'Vision 2021' has been declared by the present Government to mainstream ICTs as a pro-poor tool to eradicate poverty, establishing good governance, ensuring social equity through quality education, healthcare and law enforcement for all, and prepare the people for the climate change has been proposed. It is noteworthy to mention that the 'Vision 2021' has four broad components such as human resource development, connecting citizen, digital government for pro-poor service delivery and plan in business (Karim, 2010). Government of Bangladesh has taken several initiatives to materialize the vision 2021. As a latest edition of such initiatives, 4501 Union Information and Service Centres (UISC) have been inaugurated on November 10, 2010 through video conference by Prime Minister. This Union Parishad¹⁴ based UISCs are equipped with computers and wireless internet, and offer various online and offline services to people at nominal charge in the grassroots of Bangladesh¹⁵. This models are already been applied by different development organizations, and proved to be economically viable as well as very helpful for grassroots people of Bangladesh to meet up their information demand.

In such a ICTs favourable policy environment, this paper tries to look at how possessing ICTs by women (most affected by disasters) can play any role to reduce their risks.

4 Findings

4.1 Possessing New ICTs & Access to Information:

The following bar diagram illustrates that during Sidr which attacked in 2007, out of the total respondents, 80 (66%) did not have any kind new ICTs devices which could provide them access to the information. On the other hand, 40 respondents shared that they managed to have at least one new ICTs.



Source: Field Work 2009 & 2010

¹⁴ Third stair of the Local Government

¹⁵ The Daily Star, <http://www.thedailystar.net/newDesign/news-details.php?nid=162275> on 12.11.2010.

However, in 2009 during the attack of Aila, out of the total, 108 (90%) respondents reported to have at least one new ICT. This illustrates that during this period, new ICTs penetration among women significantly increased.

The study found the relation between the level of new ICTs penetration among women and being informed about forecasted disaster. While in 2009 women had better access to new ICTs devices (108 respondents- 90%) then they were better informed about the forecasted disaster and were better prepared to save their life and belongings.

4.2 Access to Information and Moving to Shelter Home

The study found a correlation between possessing new ICTs, getting information about forecasted disaster and taking shelter at the shelter centre during disaster. During Sidr of 2007, only 48% of the respondents had new ICTs by their own. It was also revealed that out of the total, 39 % of them got information about the forecasted disaster. Moreover, it was also found that 40% of the respondents after having information about forecasted disaster took decision to move to shelter centre. During Aila (2009), among respondents, 90% of them had at least one new ICT, 97% of them were informed about the forecasted disaster and 81% of them had taken decision to move to shelter.

Table 2: Possessing New ICTs & Moving to Shelter Home

Concerns	During Sidr (2007)		During Aila (2009)	
Possessing at least one new ICT	40	48%	108	90%
Informed about forecasted disaster	47	39%	116	97%
Taken shelter in shelter centre	48	40%	97	81%

Source: Field work 2009 & 2010

The above field research findings clearly indicate that while people possessed new ICTs, they had access to information, this access to information influenced to decide moving to shelter home which had saved many lives and assets loss during Aila (2009). That means that people's moving to shelter home depends on people's new ICTs penetration. High new ICTs penetration indicates better decision towards moving to shelter home.

4.3 Age and Marital Status of the respondents

Most of the respondents (95 out of 120 which 79% of total) were married and most of them (71 out of total; 59%) were between 25- 40 years age. Among married, widow and unmarried women- unmarried were less (12 only out of 120) among the respondents.

The following Table 3 illustrates details of the age and marital status of the respondents.

Table 3: Age and Marital Status of the respondents

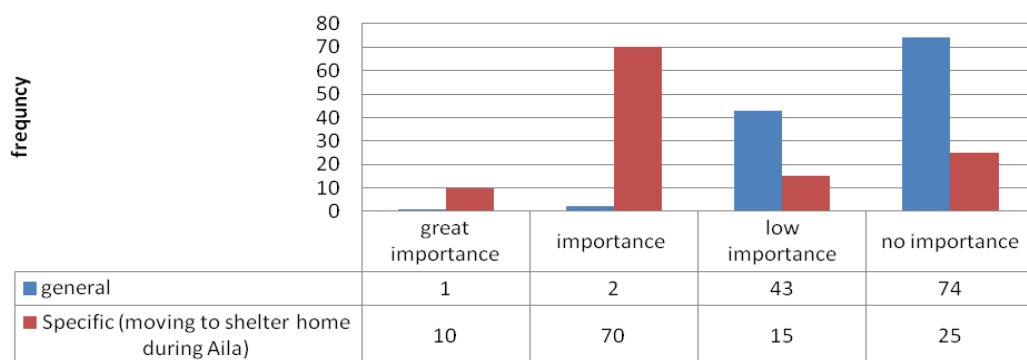
Age	Marital Status of the respondents						Total Respondents	
	Married		Unmarried		Widow			
	freq	%	freq	%	freq	%	freq	%
20- 25	9	7.5	6	5	4	3.3	19	16
25-30	14	11.5	3	2.5	0	0	17	14
30-35	32	27	0	0	4	3.3	36	30
35-40	28	23	3	2.5	4	3.3	35	29
40-45	12	10	0	0	1	0.80	13	11
Total	95	79	12	10	13	11	120	100

Source: Field Work 2009 & 2010

4.4 Respondents' Position in Decision Making

Women respondents informed that before Aila there were very limited opportunity for them to express their opinion, and even though they shared something, their voices were very unlikely to be valued. However, during the disaster Aila, they found that their male counterparts were influenced by them in taking decision to moving to shelter home. They further informed that during disaster they decided for moving to shelter home as their relatives and friends living outside of their village encouraged their moving. Initially, men were not interested to move rather they tried to ignore the information about upcoming disaster. However, when women shared risk of potential live loss and experience of others with reference to previous disasters, men accepted decision to move to shelter home.

Chart 3: Women's position in decision making
(women's decisions are valued with....)



Source: Field Work 2009 & 2010

The Chart 3 indicates only one woman thought that her voices for any general issues get great importance from her husband. However, during the disaster, women's decision regarding moving to shelter home were happened to get great importance to 10 women

(8% of total respondents) from their husbands. In addition, in regard to moving to shelter home during the Aila, 70 respondents (58%) shared that their opinion were valued with importance by their husband but for other concerns they used to have very poor concentration as only two women (2% approximately) stated to have importance on any general concern. In contrast, 25 women (21%) during the disaster and 74 (62%) in general found their voices get 'no importance' to their husband or male household head.

4.5 Damage and Loss in Southkhali Union: Comparison between Sidr & Aila

Both the disasters contributed great damage and loss to human life. However, in the earlier one number of deaths were 561 in the village whereas in later one it was zero. In addition, number of wounded people was 2000 in Sidr but zero in Aila. Moreover, number of worst and worse affected people has been decreased significantly (worst affected-by 46%, worse by 49 %). However, number of badly affected people rose to 2650 which was zero in Sidr 2007.

Loss of assets such as cattle, poultry, house and education institutions- all has been reduced to later disaster in compare with the earlier one- Sidr. The following Table 4 presents some areas of damage and loss what has been occurred during Sidr and Aila.

Table 4: Damage and Loss of Sidr and Aila¹⁶

Name of the Disaster		Sidr (2007)	Aila (2009)	Reduced by
Damaged Area (in Sqm.)		35	26	9
Number of affected people	Worst	15,000	12,300	2700
	Worse	10,000	5,100	4900
	Bad	-	2650	Increased
Number of death		561	-	561
Number of wounded of people		2000	-	2000
Number of Damaged family	Worst	4500	2450	2050
	Worse	1000	1020	Increased
Number of fully smashed up house		5500	365	5135
Number of partial smashed up house		500	3635	Increased
Loss of Cattle (in BDT)		733000	40,000	693,000
Loss of poultry (in BDT)		10,000,00	300,000	700,000
Number of fully smashed up educational institutions		8	-	8
Number of partial smashed up educational institutions		11	2	9

Source: Field Work 2009 & 2010

¹⁶ Source: Upazila Survey of 2007 & 2009, Shoronkhola Upzalia, Bagerhat.

5 Discussion: New ICTs Equipped Women Play Significant Role in DRR

Most organizations and agencies working on risk management issues, even those working from a social perspective, fail to pay more than lip service to the importance of gender. Even when gender considerations are included in programme design, this tends to be in a top-down manner, without the participation of the vulnerable communities involved and without recognizing the peculiarities and particularities of each context. Vulnerable men and women are rarely involved in discussions about their needs and rarely have access to decision making processes in the planning and policymaking spheres (Anderson, 1994: 8). In this case “gender analysis may help to further a process of change through which vulnerability and risk is reduced, for example through support which answers women’s needs by financing income- generating activities to give women more economic power; improving their livelihood by promoting education, health and the preservation of the environment; and supporting grassroots initiatives in the rural population” (Reardon, 1993:23). Similarly it may help to strengthen the space for women’s independent reflection and expression. As to Sequeira (2001)¹⁷ quotes,

“Gender analysis can play a key role in improving the relevance, effectiveness and efficiency of local level risk management for a number of reasons:

- Gender relations have an important influence on the development processes that configure the evolution of hazards and vulnerabilities in local level risk scenarios.
- In contrast to infrequently occurring large-scale events, the kind of disaster loss associated with small scale disasters regularly affects the lives and livelihoods of highly vulnerable groups and thus becomes one of their development priorities to manage and reduce.
- Vulnerable women and men have greater possibilities of influencing decision making processes related to risk management at the local level, in contrast to such processes at the national, regional and international scales.”

The respondents shared that they helped their partner (or head of family) to remember damage, death and loss of last disaster (Sidr) and their irresponsible behavior. Women respondents were found to sensitize their male partner or household head very strategically so that they take decision in favor of moving shelter centre. In sensitizing, they mentioned the messages received or heard from Radio, TV and from others taking through mobile phone (with specific reference). When women found their male partners are skeptical about authenticity of the news, they communicated with local development professionals (DRR related). They also asked those professional how to move and save household assets. In line with above grassroots experience, existing literatures also indicate women as potential agent of DRR. As Khan & Baten (2011) notes, despite being

¹⁷ Nora Sequeira (2001) in “Risk management: an alternative perspective in gender analysis”

affected most from climate change, women's role in adaptation and mitigation is praiseworthy. Women generally possesses a strong body of knowledge and expertise regarding their surroundings that have accumulated over time through their active involvement in resource management can be used in climate change mitigation, disaster risk reduction and adaptation strategies. More practically, in many developing countries women are found in building anti-flood embankments, and increasing off-farm employment during crisis periods which can be best illustrated as coping mechanisms against climate change.

As 90% of the respondents are married (including 11% of widow) and 59%¹⁸ of them are of age between 30 to 40, therefore, they are in better position of assessing their situation within their family. The study identified that most of the respondents were in better position as their decisions regarding shifting to shelter homes were valued with better importance. Table 2 indicated that the study found a correlation between possessing new ICTs by women and moving shelter during the disaster which significantly contributed to reduce damage and loss (presented in Table 5). Evidences inform that if women can possess new ICTs, they can negotiate and influence their male household head in a critical situation like disaster. Similar to these realities, literatures on ICTD discourses recognize the role of digital technologies as tools for women's empowerment. It also makes clear distinction between empowerment as 'capacity building to cope' and 'capacity building to transform' (Huyer & Sikosha; 2003 in Thampi & Kawlra; 2011:39). Feminist schools view new ICTs' not as mere tools but as the basis for the construction of the new social realities that can contribute to "shifts in local gender norms" (Gurumurthy; 2008, Gurumurthy, Singh & Kovacs; 2008 in Thampi & Kawlra; 2011:39). Thus from a gender and development perspective, empowerment refers to the altering and shifting of existing relations of power and social status defined by gender roles which in fact leads to the "control over resources (physical, human, intellectual, intangible); control over ideology (belief, values and attitudes); and changes in institutions and structures that support unequal power relations" (Rao & Kelleher, 2005 in Thampi & Kawlra; 2011:39).

6 Conclusion

Women's vulnerability is unlike men that have developed through the socialization process overtime and, therefore should be treated accordingly. Women are more vulnerable to climate disasters not because they are physically weak; rather it is because of gender discrimination that persists at every sphere of the society. Generally, in many developing countries women often live in conditions of social exclusion, such as cultural limitations to mobilize outside their immediate environment; have less access to

¹⁸ Please follow table 04 for details.

information to early warning systems in times of disasters, and to forecasts of climate variability; and have difficulties in participating in training processes (UNDP:2009 in Khan & Baten, 2011). Apart from women, children are also vulnerable to disaster. Children's vulnerability doubled women's vulnerability as women care children, their assets, and give maximum efforts to save those. However, having the information horizon broadened, women in disaster prone area like Southkhali of this Study, it is proved that most effected group can be most effective agent of reducing disaster risk. Especially, when women have information on a particular issue (like disaster in this case), then this can potentially use to influence decision of their partner (at least during critical situation like disaster when survival issue matters). Moreover, possessing new ICTs promote women's information literacy which accelerates women's bargaining power or negotiations skills within family.

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