FACING SEASONAL CRISIS AND '*MONGA*' IN THE NORTH-WESTERN BANGLADESH: TRANSFORMING VULNERABILITY INTO RESILIENCE

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ABSTRACT

This paper looks into the issue of seasonal crisis in the North-western part of Bangladesh which is more popularly known as 'monga' phenomenon. Building on empirical findings from a baseline study and post-interventional impact evaluation, this paper unbundles how seasonal crisis and monga situation was tackled successfully. The discussion provides significant insights and a concrete set of evidence on how minimal external support and local innovation can help people reducing seasonal vulnerabilities effectively. This also allowed people's resilience building efforts at household level and social-ecological system in an integrated manner. The paper analyzes interesting findings and shows that what approach worked well and what type of interventions helped households to manage the seasonal crisis locally. The analysis portrays how simple self-reliance and motivational initiatives with small in-kind support can transform intra-household dynamics even within a shorter time scale and lead towards sustainable practices. The analysis brought up a unique vulnerability-resilience nexus and puts forward evidence-based recommendations that can play a pivotal role in sustainable management of the monga situation and similar type of seasonal crisis in Bangladesh and elsewhere in the world.

Keywords: *Seasonal Crisis; Food security; monga; Vulnerability; Resilience; Social-ecological system; Sustainable Development Goals.*

INTRODUCTION

Historically the Bengal region (contemporary Bangladesh and the West Bengal of India) was known for its vulnerability towards famine and famine like situation and also towards its difficulties in managing the crisis (Sen 1981; Arnold 1988). The historic *Bengal Famine Code* (Bengal Administration 1897) was an early instance of the efforts to manage such seasonal crisis but often these efforts could not able to mitigate such crises with success. The devastating Bengal famine in 1943-44 was as a great instance to it when approximately three million people died due to famine (Sen 1981; Arnold 1988; Lazzaro 2013). Now after so many decades and stepping into second decade of 21st century, the big famines are no more a reality. Bangladesh as a country has made good achievements over the last four decades in food production, however, it is increasingly faced with considerable challenges that includes population growth, climate change, vulnerability to price shocks, persistent poverty and one of the highest malnutrition rates in the world (GOB 2011, MOFDM 2006).

The north-western part of Bangladesh in some years are still affected by a famine like recurring seasonal crisis popularly known as *monga*. In recent years, some literatures have captured the characteristics of *monga* and seasonal crisis patterns but still there are not many reviews around that critically analyzes the impacts of the interventions (Ahamad *et. al*. 2013). Understanding the impacts of these approaches and modalities to draw positive actions for

seasonal crisis and *monga* requires local-based approaches connecting to the households in a dynamic way. Adoption of a multi-dimensional perspective and looking into the issues from transforming seasonal crisis and *monga* vulnerabilities into resilience might be a useful pathway forward.

In this paper, an analytical look into some of the *monga* and seasonal crisis management measures are given primacy with a quest to better understand how the simple local-based interventions can help transform the *monga* and seasonal vulnerabilities into resilience. Some learnings from it could essentially derive useful synergies to move ahead in achieving the new sustainable development goals (SDGs) (United Nations 2015). This paper builds on the findings and re-analysis of the 'Seasonal Crisis Study in the Northwestern Districts of Bangladesh' that was carried out under the Sustainable Environment Management Program (SEMP) in Bangladesh (CEGIS 2005a; CEGIS 2005) almost a decade ago when the last major *monga* was demonstrated in Bangladesh. The findings and additional reanalysis in this paper brings new insights and analysis that can play an underpinning role for sustainable development and resilience building for the seasonal crisis management in Bangladesh and elsewhere globally.

WHAT IS *MONGA*?

The *monga* phenomenon is often locally called '*kartiker monga*', a term that connotes with a season and associated with the Bangali calendar month of *kartik* (i.e. mid October). Historically in this geophysical region in the northern Bangladesh, the situation often exemplified through a glimpse of poverty in its critical most state (Rahman 1995, Sebastian 2006, Elahi & Ara 2008). There are several other synonyms of this term used in the existing literature to describe this seasonal crisis or *monga*. This is often also used to mean seasonal food crisis, a famine like situation that is manifested through lean period of starvation or in Bangla what is called *anahar* (i.e. hunger). *Monga* is also socially understood as the seasonal dearth of employment and consequently dearth of household incomes leading to a lack of access to food amongst mainly the rural poor low landholding families (CEGIS 2005a; CEGIS 2005).

The definition of *monga* is often restricted to the lean season preceding the *Aman* paddy harvest in the Bangla months of *Ashwin* and *Kartik* (mid-September to mid-November) although there is a second lean season before *Boro* paddy is harvested. As this lean season is usually less severe, it is called *little monga* (Sebastian 2006). *Monga* occurs almost every year mostly in the north-western districts, west of the mighty river Brahmaputra and the Jamuna. The region is also known for absorbing various types of natural disasters where riverine floods, river-bank erosion, drought, tornedos, nor 'wester are among the main ones.

The local people in this region lacks livelihood options manifesting lack of income at this time of the year. *Monga* is not itself the cause of the problems, but the word is used to describe the impact at the household level with a combination of factors such as reduction in day-labour opportunities after the rice crop is sown and before the harvest, seasonal higher prices of basic food commodities, and the after-effects of monsoon floods. This is understood to be a yearly phenomenon that creates an acute deprivation for various livelihoods (e.g., for small farmers, wage labourers etc.) and vulnerable groups (e.g. women, children, elderly etc.) residing in *monga* affected areas (Elahi & Ara 2008; Ahamad, *et. al.* 2013).

The impact of the *monga* is on unemployment rates, which then impacts on household incomes, then on their food security, and finally on their nutrition levels. Malnutrition is the first evidence of *monga*, which results in a rise in malnutrition-related diseases, such as diarrhoea, and finally in increased death rates (Karim & Tasnim 2015; Ahamad *et. al.* 2013).

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Women and women-headed households suffer the most as they already tend to be more malnourished, partly for existing socio-cultural reasons, and because when there is an oversupply of day-labour, employers tend to hire men before women (IRIN 2008; Kabir 2009; Chant 1999). Indicators of the presence of *monga* are the typical responses of households to the crisis. The typical responses are likely to be reduction of: size and number of meals prepared and consumed each day within the households, consumption of uncultivated foods from wild sources, advance sale of labour (at a discount on the prevailing market rate), sale of fixed and moveable household assets (e.g. land, livestock, jewelry, furniture, and even pots and pans), out migration to unaffected areas, or major cities, taking advantage of repayment holidays on existing loans, soliciting new loans from micro-credit providers or from moneylenders at extremely high interest rates and so forth.

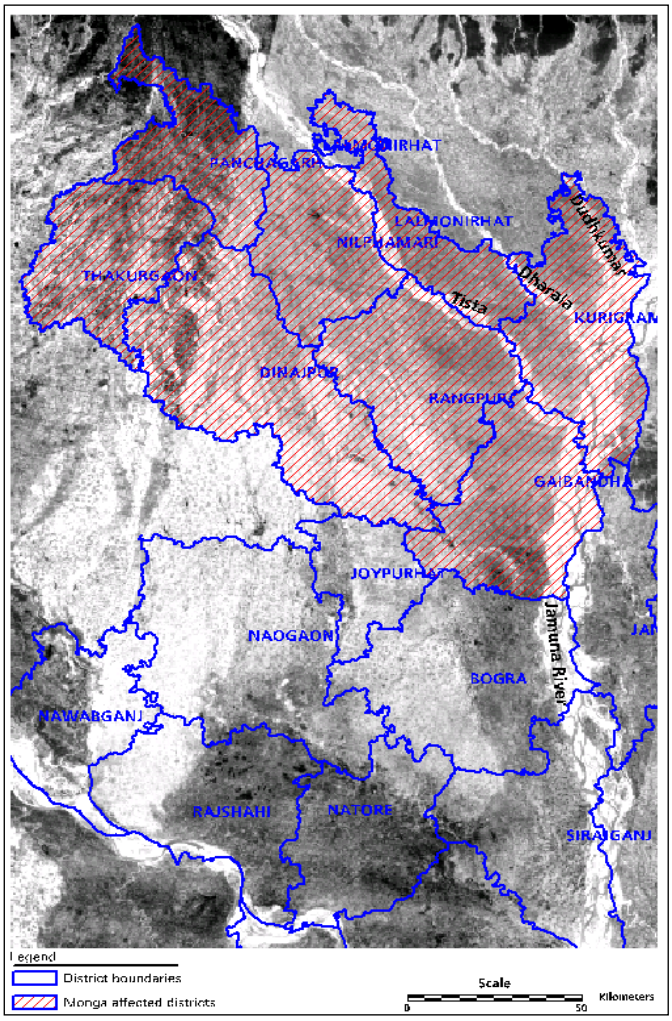

Figure 1. The *monga* affected north-western districts of Bangladesh.

AGRICULTURAL LINKAGES AND BEYOND

After the transplantation of *Aman* paddy in the month of August, the marginal farmers and agricultural labourers, who form majority of the population, do not have access to employment from September onwards. The situation persists until the harvesting of the T-*Aman* crop, which begins in late November, i.e. after the month of *kartik*. It is also perceived that *monga* is caused by a decline in people's purchasing capacity during this lean season. Soon after T-*Aman* transplantation is over, the food reserves and savings of the marginal farmers and agricultural labourers are depleted. People adopt different strategies to cope with

the situation. Informal loans are taken from local moneylenders at high interest rates, and day labourers make forward sales of their labour at reduced wages. Selling of domestic animals, essential properties and standing crops in advance at a lower price, and temporary migration in search of work to other districts are some of the distress coping measures taken by *monga*-affected people. Some people often resort to eating unconventional food often leading to diarrhoea and other health maladies. In some areas the *monga* situation persists beyond November until the coldest time of the year, often ending during the *Boro* rice planting period, which is December-January.

Although *monga* remains a seasonal crisis and is observed with the agricultural cropping seasons (*Aman* and *Boro*), its effects override the overall state of people's capabilities, assets and activities that are required for the sustainability of their means of living. This seasonal crisis or *monga* situation occurs with various degrees of severity in different years, during approximately the same period leading to food deprivation. Apart from the linkage of *monga* with the agriculture reports highlighted the non-agricultural issues as well (DER-UNDP 2004; Ahamad *et al* 2013). Recurrent *monga* episodes have also significantly contributed to a vicious cycle of poverty and increasing indebtedness in the affected area while also making people vulnerable to it. The table below with the key issues identified on various media commentary shows a host of issues factored in the discourses of *monga* and its risk management.

Table-1. Issues related to *monga* and seasonal crisis highlighted in various news.

Issues Highlighted	***Jugantar***	***Ittefaq***	***Daily Star***	***Prothom Alo***	***New Age***	***Janakantha***	***Al-Mozadded***	***Bangladesh Today***	***Juger Alo***	***The Independent***	***Bangladesh Observer***	***International Herald Tribune***	***BBC***	***The Third World View***
Advocacy initiatives by the civil society				++	+	+								
Shortcomings of the existing GoB supported measures	+		+	++						+	+	+	+	+
Food insecurity issues for the vulnerable groups	+		+	+			+	+		+		+	+	+
Unemployment and wage rate related problems	++	+	+	++	+	+			+			+	+	+
Distress sale or advance sale of crops	++	+		++										
High price of food stuff	++	+	+	+		+					+	+		
Health maladies	+			+				+						
Poor quality of food stuff intake	+		+	++				+					+	
Migration, social anomalies/disruptions, diasporas	++	+	+								+			
Severe crisis of food availability	++		+	++		+								
Shortcomings of NGO support			+				+	+						
Innovative ways of overcoming the *monga* situation	+			+			+	+	+					
Death/loss of life				+										

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Note: the relative significance of the issues highlighted by various news media are shown through the legends where "++"= high and "+"= medium significance and blank field means no mentioning of that particular issue.

METHODOLOGY

An understanding of the seasonal crisis and *monga* required an overarching holistic framework of analysis that can explore multiple layers of this phenomenon. The methodology was thereby conceptualized in a step-wise manner. The study was devised in two phases: first, setting up a baseline phase and then conducting an evaluation phase that compared the difference from the baseline. In the baseline phase, field surveys were carried out in six targeted villages in Kurigram district of the north-western Bangladesh. Kurigram was one of the most severely affected districts where seasonal crisis is often recurring. In the second phase, field surveys were carried out among 'intervened-households' and also taking additional 'control or non-intervened' households which have not received support. It was expected from two different temporal surveys that the evaluation of the impacts of the interventions would be developed and findings on the strategies for a sustainable management of the *monga* situation would emerge. The year 2004 was the last known major *monga* year so the base-line was conducted for year 2004 and incorporating the retrospective experiences of the households prior year 2004. The interventional impacts are seen one year after giving the interventions in late-2005.

From the methodological point of view these two surveys were undertaken with a well-designed social-research methodological measures that allowed a meaningful comparison between the *'base-condition'* and the *'post-intervention'* situation. The same sample households are repeated in the two surveys. The impact assessment and evaluation questionnaire was designed in such a way that on various indicators a comparison of earlier situation and the present situation are possible with meaningful statistics. A selected set of parameters included in the household survey are: a) *Demographic indicators* (age-sex distribution, sex ratio, dependency ratio, literacy and education, labour force/ economically active population); b) *Occupation and livelihood compositions* (primary occupations, composition of livelihood activities); c) *Income, expenditure and well-being related indictors* (household status - on the basis of well-being, income, expenditure, land ownership and holdings, labour and employment, wage rate, asset holdings); d) *monga-specific issues* (local definitions, major causes, impacts, credit/loan status, food intake, market price, *monga* management and coping measures, advance sale of labour/crops, migration pattern); e) *Living condition related indictors* (housing condition, drinking water, health condition; sanitation); and f) *Other associated indicators* (disasters and impacts, institutional support).

DESCRIPTION OF THE INTERVENTIONS TESTED

The study carefully reported the interventions that were disbursed to the intervened households by the local Non-government organizations (NGOs) as their interventional measure for managing the *monga* situation and seasonal crisis. These interventions were primarily given by a local NGO called Thikana of Kurigram district who had received support from UNDP's Sustainable Environmental Management Program (SEMP) program.

The interventions given to the households to manage seasonal crisis were actually based on an approach of 'micro-level local support' and these remained targeted initiatives to improve the condition of the 450-households in six villages of Kurigram district. These were based on the philosophy of developing methodologies for a 'community-based and household-centered model' that can effectively manage the seasonal crisis and *monga* in a sustainable manner.

Neither these measures remained resource intensive nor remained externally maneuvered. Some of the underlying driving forces of the initiatives were focused primarily on: a) *homestead based vegetation* and *household based income generation activities* (such as vegetable cultivation, micro pond, poultry-bird rearing); b) *utilization of available local resources* (e.g. use of homestead, roof, roadside, back of house); c) *small support services* (e.g. supplying better seeds, information support, training, group formation); and d) *close supervision and motivation* (e.g. supervisory initiative by the NGO field professionals).

Among the supply and support services the major interventions are: a) supply of seeds for winter and summer vegetable cultivation; b) supply of chicks for poultry and birds; and c) supply of poultry feeds. However, all support is provided in kind of very small amounts to the targeted households. Several types of local based training services have been provided by the NGO field staffs to the targeted households. Some of the training include: a) improved homestead based farming (e.g. improved homestead vegetable cultivation in respective seasons, fruits tree plantation); b) land management and preparation (e.g. seedbed preparation); c) integrated farming (e.g. pond fish culture, duck farming) and so forth. Motivational services are also provided to build awareness on how to overcome the *monga* situation in the community and within the household domain. An information campaign was carried out for mass awareness generation at each villages (CEGIS 2005a; CEGIS 2005).

Figure 2. Some of the interventions given to the monga vulnerable households

Soft interventions were given to developing a local set up for creating an enabling environment within each village through formation of village groups and leadership. The supporting NGO staffs facilitated groups registering formal bank accounts for savings. The leadership development has dual intentions. Firstly, these village leaders would facilitate the

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seasonal crisis management activities in their respective villages and organized their produces for sale in nearby markets. Secondly, these village leaders closely supervised the interventions took up by the households. After the groups were formed the interventions were more targeted to the household and group levels and **c**apacity building activities were carried out for the target households in terms of training on homestead vegetation, poultry-bird rearing, selection of better seeds, seedbed preparation, etc.

Once the households were given the capacity building soft trainings, they were encouraged to develop homestead gardens in their own limited spaces and take up other income generating activities from these by themselves. No cash transfer or micro-credit were given to the households. Instead, a small portion of summer vegetable seeds and later another portion of winter vegetable seeds (both costing approximately less than a dollar per package) were supplied to the targeted households prior to the respective seasons for starting homestead vegetable cultivation. A key strategy maintained in these intervention delivery was 'close supervision and monitoring' of activities by the groups themselves. This system allowed to grow a 'self-reliant culture and practice' of close-monitoring and supervision of the households to adopt a pre-emptive preparedness.

RESULTS AND FINDINGS

The impact assessment results identified that the interventions carried out using above methods for managing *monga* and seasonal crisis have brought positive changes in various dimensions among the targeted households of the six villages. Some of the prominent impacts and comparison areas of the study households are discussed in the section below.

Returns from sales and savings

The data on various productions of the interventions suggest that there have been four major types of returns from the average produces or outcomes of the interventions. Among all the returns a share of 43% of the produces came from poultry/ duck rearing, 27% from vegetable cultivation, almost 11% from fruits and almost 20% from other activities at the household level. 41% percent of the produces were directly used for consumption purposes. The rest of the produces 59% were later sold mostly for generating cash by the households. These cash amounts later serve as a security for future crisis periods, utilized for purchasing essential foodstuff and/or other basic items such as clothing and so forth. A large share of the cash is observed to be channelized for consumption purposes of the households.

Impacts on the households

The impact assessment specifically looked at the overall situation or proportion of the households affected by the *monga* phenomena in the post intervention situation. It emerged from the study findings that the proportions of severely affected, moderately affected and non-affected households have changed in the study area. The survey results show that the proportion of non-affected households has significantly improved in the post intervention situation. From a share of above 10% of households to a share of above 55% of households have actually remained non-impacted in the current year. The proportion of the intervened households suggests that households that are intervened under the NGO interventions have largely remained out of the *monga* situation this year. 65% of the intervened-households remained out of *monga* while there has not been a case of severely affected households in the intervened category. However, in contrast the non-intervened households that are identified as control-households remained largely *monga* affected. 60% above households remained as severely *monga* affected in the control section and a share of 30% remained as moderately affected.

Changes in household well-being status

The results further indicate that interventions have helped the households to overcome seasonal crisis. Figure-3 shows that a good number of the intervened households have not faced *monga* crisis and they could manage to make improvements to their household well-being status. The following comparative figures-4&5 on the self-assessed well-being status of households suggest that there has been a significant change in the first two household well-being status categories of the study households. The self-assessed well-being status figure (Figure-4&5) suggests that the households that remained in the *always deficit* category in 2004 actually reduced in number (changed from 69% to 18%) in post-intervention stage in 2005 while the *occasional deficit* category increased from the past year (from 21% to 60%). This comparative change in proportion suggests that positive changes happened. From the lower category households have actually been moved up to higher well-being category. However, changes in the overall deficit category to breakeven or surplus category have not taken place in this short period. Results suggest that the percentage of deficit categories (including *always deficit* and *occasional deficit* categories) have reduced from 90.23% to 78.20%. The results signify that the interventions were useful to improve the deficit status particularly from the *always deficit* status to the *occasional deficit* status and some *occasional deficit* households to the *breakeven* category. Another flagging point is that, although there has been a significant change in the two bottom categories, the share of the well-off category (i.e. rich) has not changed at all.

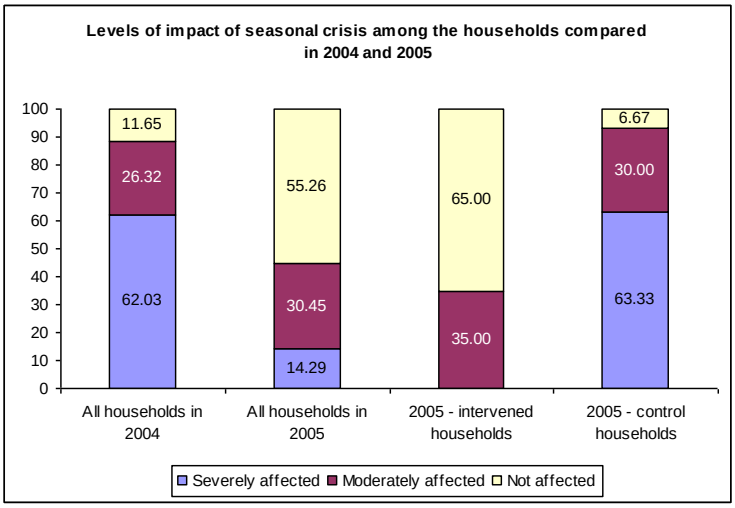

Figure 3. Comparison between households relatively affected in different conditions and times.

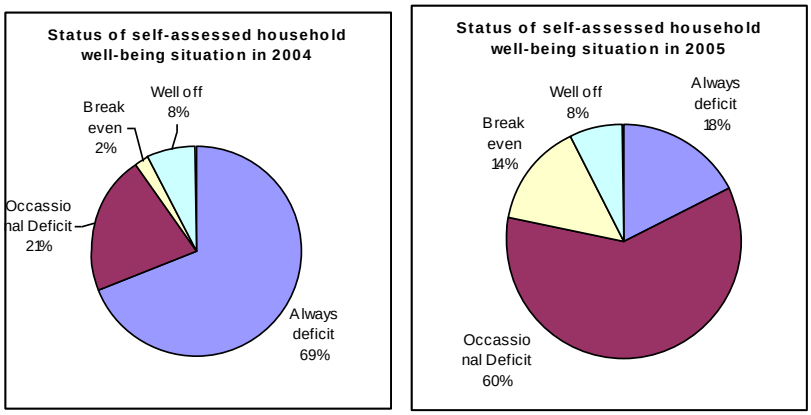

Figure 4 and 5. Self-assessed well-being status of the households in two years (prior 2004 as pre-intervention and later part of year 2005 as post-intervention period).

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Changes in the State of Consumption and Dietary Disparities

The results indicated that the intervened households did not face many consumption disparities in post-intervention period while they faced a considerable degree of consumption disparities in the base situation. In the base condition, almost one half of the households actually faced consumption disparities in terms of both number of adequate meals each day and quality of nutritional intake in their meals. However, almost 80% of the non-intervened or control-households have faced consumption disparities while among the intervened households the proportion of consumption disparities were found to be as low as 4.44%. These findings actually indicate a large improvement in the intra-household meal and food intake situation among the intervened households. The availability of foodstuff during the crisis period as well as rise in the purchasing power within the intervened households presents this positive picture of the household consumption status. In most cases, it is observed that any improvements in the consumption status have had a direct impact on the nutritional status of the household members and their overall health status. The result indicates that improvements in the consumption level were linked with the relative reduction of level of hunger among the intervened-households.

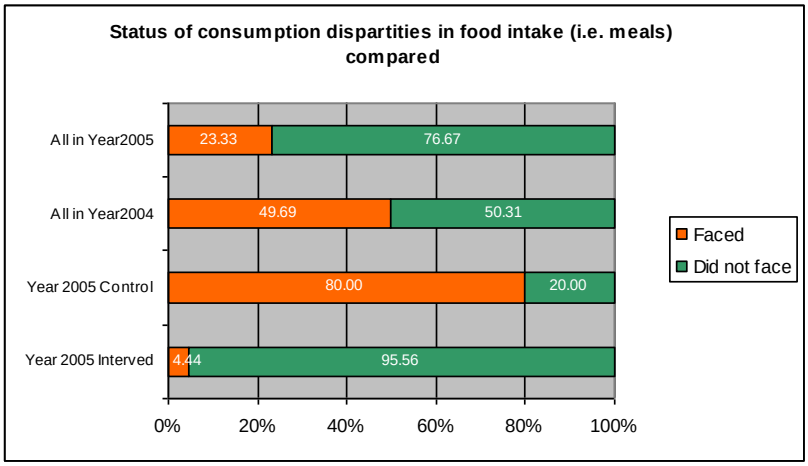

Figure 6. Comparative changes in consumption disparities among households

Impacts on İncome and Expenditure

The post-intervention results showed changes in household income and expenditure. A significant level of change observed in the intervened households, while a low level of change has been observed among the non-intervened study households. A comparative overview of these changes is analytically presented in two Figures-7 & 8). The average annual household income (Figure-7) suggests that within the category of *always deficit* households, the intervened-households have increased (in the past twelve months) from their baseline condition while among the control-households the average household income has reduced. In the *occasionally deficit* category, the intervened-households have increased from a baseline condition while among the control-households the average household income has reduced. Among the *break-even* category a slight rise was observed. However, the change in the *well-off* (rich) category is significant although this category of households were not targeted. The data suggests that the income of the intervened-households under *always deficit* and *occasionally deficit* categories have increased. The increase is prominent among the intervened-households while the non-intervened household income band has significantly reduced among the bottom two categories of the households.

The average annual household expenditure (Figure-8) suggests that expenditure level among the intervened-households has reduced while among the non-intervened households in the same category it has increased. The intervened-households had to spend a low amount of money in purchasing food and other essential household items as they had grown food in their own households. The expenditure level has increased among the non-intervened households of the same category (*always deficit* and *occasionally deficit*) and among the *breakeven* and *rich* households.

Further to this, an income-expenditure gap analysis suggested that the gap between the income and expenditure level among the intervened *always* and *occasionally* deficit households has reduced in the post-interventional conditions. The gap among the non-intervened or control-households is wider than that among the intervened households.

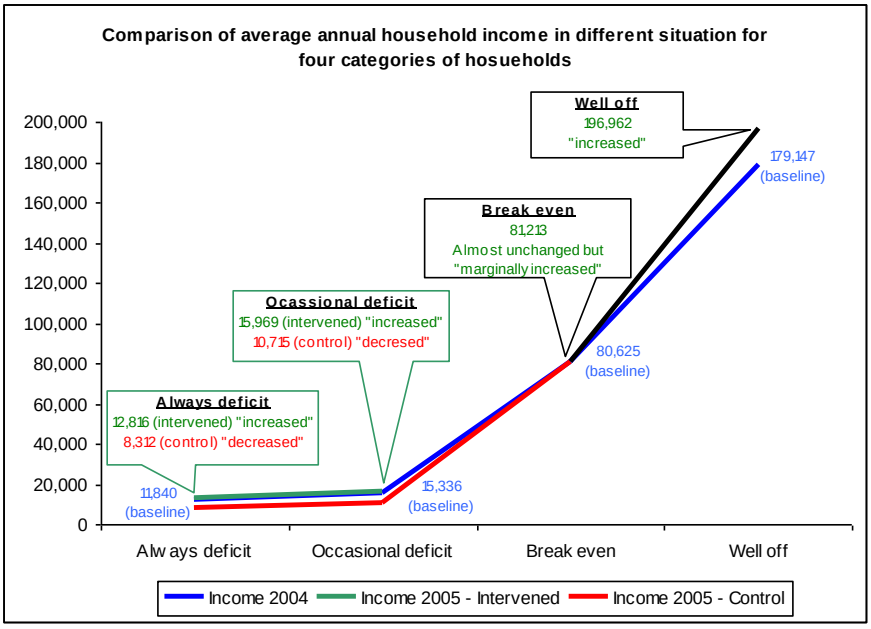

Figure 7. Comparison of average annual household income status in various contexts.

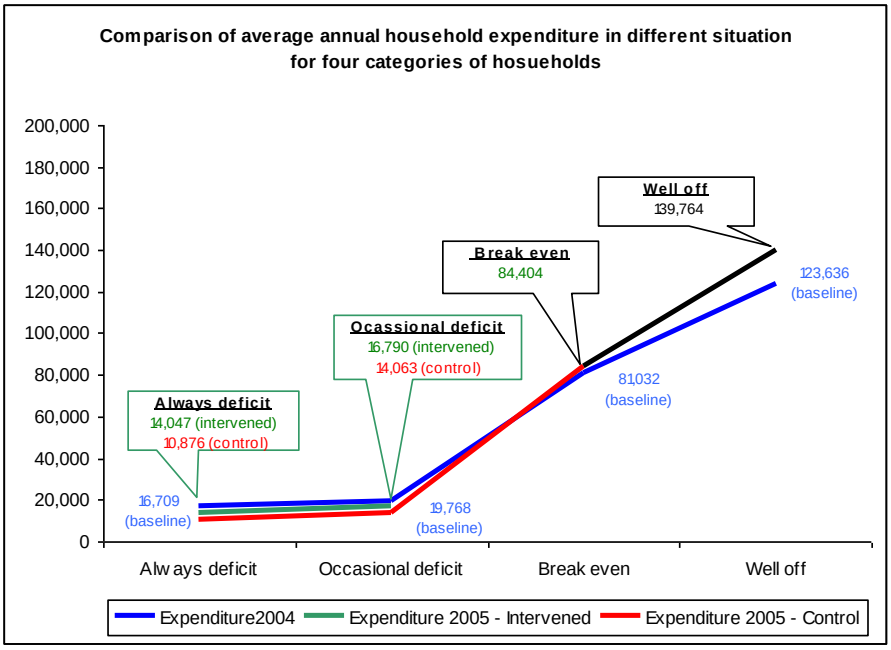

Figure-8. Comparison of average annual household expenditure status in various contexts.

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Changes in Asset Portfolio

A comparative analysis of various types of assets among intervened and control-households were done. Changes in the asset portfolio of the households are seen in three different categories: improved, unchanged and deteriorated. Results indicated that relative changes of asset portfolio among the intervened and control-households have occurred. The intervened households have managed a good degree of 'improvement' in their household asset-ownership status in terms of small and tangible assets (that can be immediately used for consumption) or for converting cash. Household assets such as number of poultry and birds (ducks, hens, pigeons etc.), homestead garden produces, cash holdings, savings, and fruit trees are grown in their homesteads. However, a moderate improvement was observed in owning of livestock (primarily goats), small household furniture, agricultural equipment (mostly necessary agricultural tools and equipment), etc. The ownership status of valuable tangible assets, however, remained largely unchanged even among the intervened households. Among these "unchanged" categories of assets, jewelry/ornaments, electric goods, agricultural lands, cycles, agricultural machineries (e.g. irrigation pumps), vans/rickshaws and boats are prominent. The "deteriorated" condition of the household asset portfolio among the intervened households is found to be almost that of 'asset less'. This can be interpreted to mean that the relative level of asset erosion among the intervened households is almost non-existent in the post-intervention situation. On the other hand, asset portfolio status among the non-intervened households have clearly deteriorated and/or remained unchanged. It is observed that small tangible household assets of control-households such as poultry and birds (ducks, hens, pigeons etc.), homestead garden produces, cash holdings, savings, and fruit trees have not grown much and have mostly deteriorated. The severity in asset erosion or deteriorated condition among the control-households was observed largely in cash/savings status and in the poultry/birds and livestock ownership status. Among the control-households, major portion of the household asset ownership status has largely remained unchanged while the ownership condition of some households in this category has deteriorated.

Loan/Credit Status

The overall credit or loan taking status among the intervened-households has significantly reduced from the base-condition of 2004. However, the loan/credit taking trend among the control-households are found to be very high. The non-intervened households have sought loans/credit in post-intervention condition mostly from informal moneylenders or other members of the community to meet their basic consumption and other needs. On the other hand, when one looks at the loan/credit repayment statistics, it shows that in the past twelve months, almost 34% of the intervened-households could actually return or repay their credit to the actual sources. This has improved from the baseline condition where the figure remained as small as 11%t. However, when one compares the figure with the control-households it emerges that the credit/loan return proportion is still very low. Among the control-households this has even reduced to 3%.

Comparison of Multiple 'Change and İmpact İssues'

A total of fifteen "change and impact" issues identified in the survey which are: nutritional intake (i.e. quality of the meals), essential household assets, clothing, social status, housing condition, protection against fraudulence, household food storage (i.e. food stock), attendance in educational institutions, psycho-social state (e.g. frustration), household and marital disputes, income and employment (crops and cash), status of daily food intake (i.e. number of meals intake), mother and child health status, confidence to overcome *monga*, and knowledge

about various ways to overcome *monga*. Responses to the change and impact issues have been analyzed using a three-class scale of conditions (improved, unchanged, and deteriorated situation) and compared between the pre-intervention and post-intervention contexts.

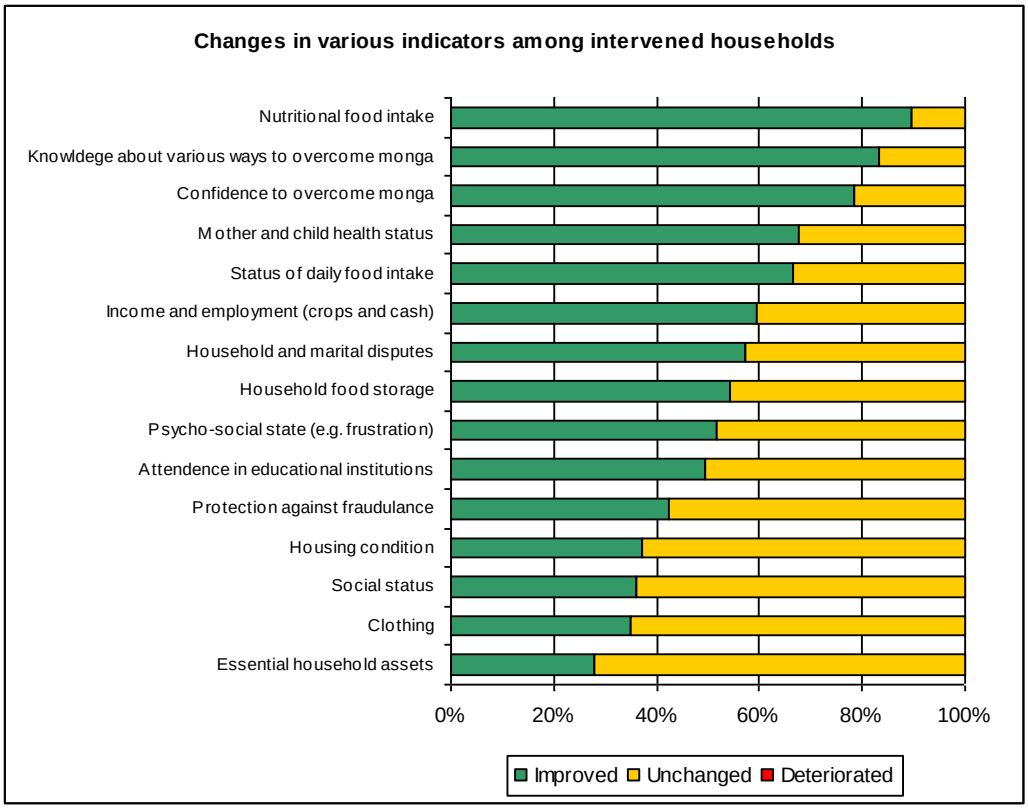

Figure 9. Changes in various indicators among intervened-households

The results (Figure 9) on intervened-households suggest that these households have made relative progress in all of the indicators. After interventions, most of the intervened-households have largely improved from the baseline situation in their nutritional food intake, status of daily food intake, household food storage, knowledge about the various ways to overcome the *monga* situation, confidence in dealing with the *monga* crisis, mother and child health status, income and employment status through interventional produces, resolution of family and marital disputes, reduction of psycho-social states of the household members, etc. This data suggests that major improvements have occurred in three main areas: a) food security (in terms of availability, accessibility and utilization), b) consecutive impacts over the health situation of children and female members of the households, and c) building confidence (thereby reducing the psycho-social impacts) to meet the seasonal crisis in the most critical period. Relatively small improvements have occurred in primary school attendance, clothing status of household members, housing condition, protection against fraudulences in the market, improvement in the social status of household heads in the community, rise in the standard of essential household assets, etc. One major finding is that the condition of the intervened-households has not deteriorated in terms of any of the study indicators. Instead, they have made significant improvements in many aspects of their survival and in issues that might otherwise cause erosion of assets and well-being in the critical months.

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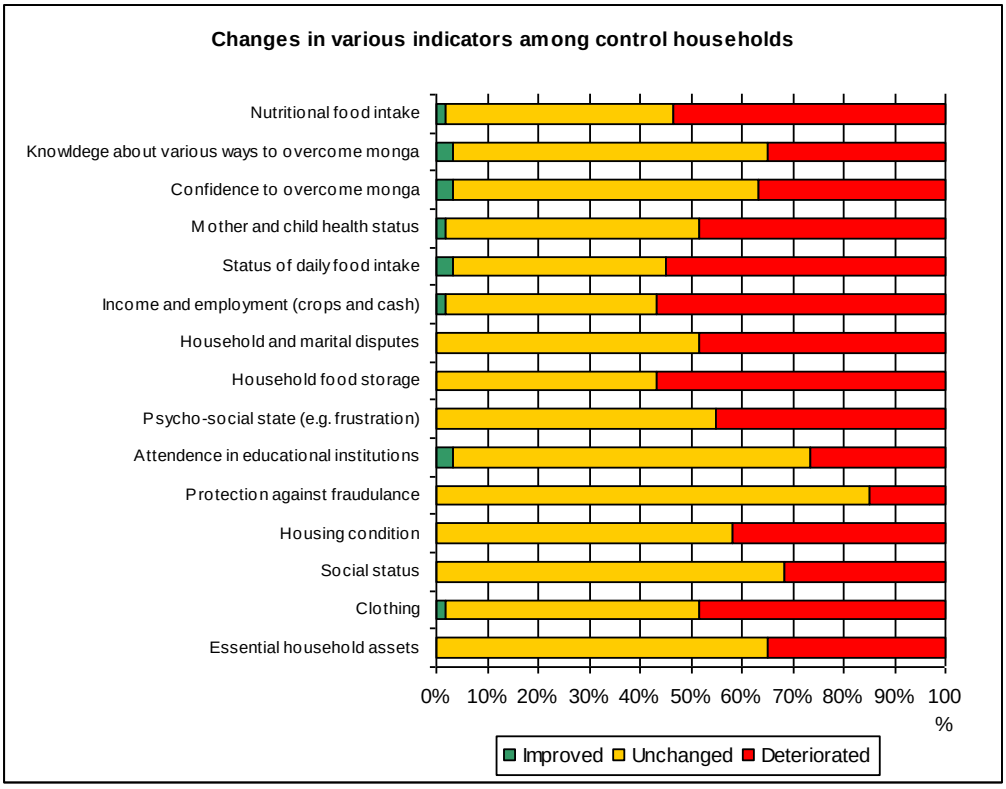

Figure 10. Changes in various indicators among control-households.

The findings on the control-households (Figure-10), on the other hand, indicated a deteriorated condition in most of the parameters. Some of the parameters where the control-households suffered as condition deteriorated are: income and employment and consecutive food related parameters (such as nutritional food intake, status of daily food intake, and household food storage). Members of a significant number of the households faced psycho-social pressure and health related maladies.

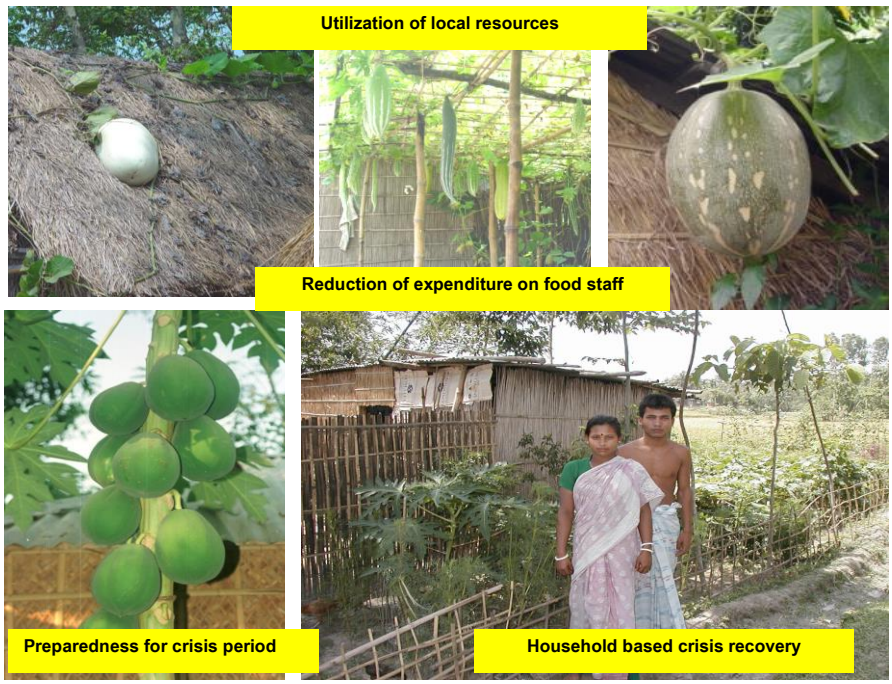

Figure 11. Some outputs received by the intervened-households from homestead-based vegetation

It was clearly revealed that while intervened-household status improved in three major areas (food security situation, health and the confidence building to meet the seasonal crisis), the control-households have remained highly affected on the same. The comparative trend in most of the change and impact issues suggests that the intervened-households have made progress since the interventions and helped positively compared to the control-households.

Changes in Migration Rate

In base-condition it was observed that seasonal forced migration has been a regular issue in dealing with the crisis where one or more members of almost one half of the households have considered seasonal migration to other areas as a distressed coping measure. However, the impact assessment identified that in the post-intervention situation, the pattern of seasonal out migration has remained steady among the control-households, i.e., above 40%. In contrast, intervened-households in post-intervention situation has shown that the percentage of seasonal out-migration have reduced to almost 15%. It implies that overall trend of seasonal out- migration among the intervened-households have reduced largely while the control-households could not manage their livelihoods within their native areas and subsequently out-migrated to seek work outside of their native area.

A synergic comparison of the overall changes in pre (base-condition) and post-intervention contexts are outlined in the table below.

Table 2. Synergic comparison of changes in pre and post-intervention contexts of selected parameters

Parameters	Pre-intervention (Base condition)	Post-interventions	Impacts/changes
Proportion of households affected by *monga*	Severely affected= 62%; Moderately affected= 26%; and Unaffected = 12%.	Severely affected= none; Moderately affected= 35%; and Unaffected= 65%.	*Monga* effects reduced significantly among intervened-households.
Self-assessed well-being status of the households	Always deficit= 68.80%, Occasionally deficit = 21.43%, Break even = 2.26% Well-off =7.52%	Always deficit= 18.05%, Occasionally deficit= 60.15%, Break-even= 14.29%, (non-intervened) and Well-off =7.52% (non-intervened)	The self-assessed well-being status of the intervened-households has improved.
Seasonal out-migration	Migrated out= 51.13 Not migrated out= 48.87%	Migrated out (intervened HHs)= 15.56% Not migrated out (intervened HHs) =84.44%	Seasonal out migration reduced among the members of the intervened-HHs.
Consumption disparities	Consumption disparities faced= 49.69% and Did not face consumption disparities= 50.31%.	Consumption disparities faced (intervened-HHs) = 4.44% and Did not face consumption disparities (intervened-HHs) = 95.56%	Consumption disparities among the intervened-HHs have significantly reduced.
Availability of food (household food storage)	Almost all *monga*-affected HHs suggested that they do not have food left for critical months.	Almost 70% intervened HHs have enough food storage. Remaining intervened-HHs did not show any food storage.	Significant improvements observed.
Income-expenditure gaps	The gap among the always deficit households was= BDT.4,869.	The gap in always deficit households has reduced.	Among always and occasionally deficit intervened-HHs, gap reduced significantly due to income increase

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Parameters	Pre-intervention (Base condition)	Post-interventions	Impacts/changes
			and less expenditure for foodstuff purchase.
Savings	None	Average total savings per HH= BDT 167.	Savings increased in a moderate manner as a large portion of increased income used for buying food.
Loan/credit status	Credit seeking: Loan credit taken= 80.45%; Not sought= 19.55%. Repayment status: Amount repaid= 11.21%; Not yet repaid= 88.79%	Credit seeking (intervened-HHs): Loan credit taken= 26.67%, Not sought= 73.33%. Repayment status (intervened-HHs): Amount repaid= 34.44%. Not yet repaid= 65.56%	Among the intervened-HHs the need for credit or loan has reduced and repayment capacity has started to improve moderately.
Sell of homestead produces (interventional returns)	None	Average per household sale of produces = BDT. 4,369.	Homestead-based returns have increased income level and improved in consumption.
Mother and child health status	Mother and child health remained very vulnerable in *monga* situation.	Almost 70% intervened-HHs have suggested that status of mother and child health has improved this year.	Improvements observed.
Proportion of household's health condition affected by *monga*	Impacted= 68.05% and Not impacted= 31.95%.	Impacted= 9.44% and Not impacted= 90.56%.	Significant improvements occurred among intervened-HHs.
Asset portfolio	Intra-household asset erosion has been a regular factor among the deficit households.	Almost 80% intervened-HHs suggested they have improved household stock and small tangible assets while large valuable assets remained unchanged.	Small tangible assets, homestead gardens grown and act as insurance for critical months. Large assets remained unchanged.
Psycho-social state (e.g. frustration)	People below deficit categories terrified to face *monga*.	More than 50% intervened-HHs improved psycho-social state.	Improvements observed.
Knowledge and confidence to overcome *monga*	Low level of know-how and confidence to overcome *monga* situation.	More than 80% intervened-households suggested now they have knowledge and know-how on overcoming next *monga* situation.	Improvement in knowledge and confidence observed among the intervened households.

CONCLUSIONS

The paper presented an evidence-based analysis of the impacts and changes of the targeted interventions undertaken to manage the seasonal crisis and *monga* phenomenon. It was found that simple initiatives at local level with innovative measures can bring rewarding experiences which could play as a key role in building future resilience at local level. The evidences showed that interventions remained centered on utilization of available local

resource bases and household-based solutions. A very small additional support was actually given to the communities but it was not channeled through conventional financial institutions or any other financial means. Rather it was channelized through supportive in-kind measures as seeds to grow and build their household and community resilience for future. Soft support was key to it and the mode it was delivered through flexible capacity building, training and close-supervision to grow local leadership and catalyzing self-reliant practices. It took up a 'integrated approach' at local level and mixing multiple factors of agriculture, livelihoods, capacity building measures that transcended the traditional practices of dealing the poverty or vulnerability. Active eagerness and enthusiasm expressed through this interventional model for the vulnerable households and the key focus that was given to build resilience through manageable, household-based means of working positivity was central to bring up success.

The resilience building model also nullified the age-old attraction of receiving relief that often create a big dependency over the Government or external aid. Instead, the approach allowed to rely on people's own agency, freedom and bringing innovation within their own niche to think proactively ahead of time and the management measures for future seasonal crisis. People saw that this type of preparedness can be taken with ease and replicable with others and positively attempt to transform their risk management approach from vulnerability to resilience to deal with the *monga* and seasonal crisis. This learning and experience of facing the crisis with resilience could play a key catalyzing role for framing of the future risk management policy in north-western Bangladesh and at the same time would be also useful for managing seasonal crisis elsewhere as well. This approach could also be a lesson for transforming the seasonal vulnerability into sustainable resilience building at local level and driving a positive connotation towards the overall sustainable environment goals effort that is now shaping up globally.

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