

Young People's Perception on Environmental Change in Bangladesh: Rural-Urban Perspectives

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Abstract

At present environmental awareness programme is emerging across the world although this is a quite new phenomenon in Bangladesh. The present study attempted to know young people's perception about environmental change in Bangladesh. Findings of the study reveal that majority respondents' are aware that environmental change means changes in temperature, rainfall, and sea level rise. Almost all respondents stated that the urbanisation and industrialization as the main cause for environmental change. They also said that by reducing carbon emission the environmental change can be reduced. This means that young people are quite aware about environmental change.

Key Words: Young people, perception, environmental change, urban, rural, and Bangladesh.

Introduction

The global environment is changing rapidly, resulting in increasing temperatures, sea-level rises, changes in precipitation patterns and extreme weather events. These changes in the environment are affecting the overall environmental condition like air, water, soil, food and secure shelter (Organisation, 2015, Organization, 2008, World et al., 2015). It is expected that severe weather conditions will become more and more common over the next century resulting a very grim environment which is a growing concern for all (Leiserowitz, 2006, Leiserowitz, 2007, Rahman et al., 2011). Studies have shown that many countries of Asia and Africa are frequently experiencing various kinds of environmental snags that is threatening our livelihoods (Bamidele et al., 2014, Bartlett, 2008, Mishra et al., 2015). The environmental, social and economic impacts from environmental change are first and most strongly felt by communities who live in ecologically fragile areas but they are not aware of the real consequences which has become a major challenge to ensure sustainable development (Devkota, 2014, Maharjan et al., 2011).

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In terms of environment, Bangladesh is characterized by high temperatures, heavy rainfall, high humidity, and fairly marked seasonal variations (Saleemul and Ayers, 2008). It is well recognized both in the scientific and negotiating community that Bangladesh would be one of the most adversely affected country to climate change (Mahmood et al., 2010). We are ranked third most vulnerable to sea level rise, sixth most vulnerable to floods and fifth as most vulnerable country to climate change due to our unique geographic location, dominance of floodplains and low elevation from the sea (Forests, 2005, Kreft et al., 2014). Bangladesh in last 30 years experienced nearly 200 climate-related disasters like drought, extreme temperature, floods, and storms that have killed thousands of people, destroyed homes and livelihoods which cost approximately \$16 billion, and projected that in next 20 years the country will be worst victim of climate change (Bhusal, 2009, Feldman et al., 2010). Low economic strength, inadequate infrastructure, low level of social development, lack of institutional capacity, and higher dependency on the natural resource makes the country more vulnerable to climate stimuli (Leiserowitz, 2006). The environmental change has adverse impact on agriculture, infrastructural systems, energy, human health, fisheries and forestry, water and wildlife sectors therefore all believes that climate change is a very serious problem and concern for all (Huda, 2013, Leiserowitz, 2006, Leiserowitz, 2007, Yu et al., 2013). In Bangladesh most local perceptions on climate change were consistent with the scientific evidence regarding the vulnerability of the country to climate change (Lowe et al., 2006, Huq and Rabbani, 2011). Other studies focused on the environmental education and awareness among the mass people and secondary level students' environmental attitudes (Mahmood et al., 2010, Mamun et al., 2013, Sarkar, 2011). Then research on young people's perception on environmental change mainly focused on the strategies of reducing impacts and effects of climate change in schools and communities but not with a focus on health (Anagbogu et al., 2014, Lovell and O'Brien, 2009).

There has been considerable distinct research on people's understanding and knowledge of climate change that act as key factor for developing policies to mitigate and cope with its effects (Duan and Fortner, 2012, Egbe et al., 2014, Feldman et al., 2010). Especial in Bangladesh to date, such initiatives have been very limited. There have been few cross-national research on climate change and public opinion then no specific research focusing young people's perception regarding environmental change issue. The environmental change discourse has been evolving globally, and it has generated new ideas, debates and interests within the community of experts. At the same time, there has been intensification of efforts both by government and international communities to tackle the climate change impacts in Bangladesh. Still a knowledge gap exists on how these have influenced the perceptions of people affected by climate change. In fact, rare studies have focused the perception of young people about environmental change. Perception is important in our life because

understanding of different issues depends on right interpretation of information. The perception of environmental change is the foundation or making changes in future. Since the young people are the future politicians, business leaders and scientist, it is important to find out how this group views the environmental changes. The aim of this study was therefore to explore young people's perception on environmental change both in urban and rural areas in Bangladesh.

Methodology

This quantitative study mainly used a structured questionnaire to collect data and study area was Dhaka and Rajshahi divisions considering urban and rural areas, respectively. To find out the representative sample for this study simple random sampling procedure has been used considering the prevalence of 0.5 and the estimated sample size was 437. Almost equal number of respondents have been interviewed from rural and urban areas. For the purpose of data entry and cleaning SPSS version-20 was used and STATA 14 was used for data analysis. Here both descriptive statistics and inferential statistics were used to find out the required output. Simple percentages were calculated using descriptive statistics and some graphs were used where relevant. To find out the level of perception of the respondents on environmental change, a scoring method has been used based on perception related questions. Further, perception on environmental change has been estimated considering median score as the cut of point. The respondents achieving at least median score marked as 1 considering presence of adequate perception and the respondents achieving less than median score marked as 0 considering absence of adequate perception about environmental change. The chi-square test has been used to validate the statistical association between various independent variables (background variables) and dependent variable (perception on environmental change) using 5 percent level of significance.

Results

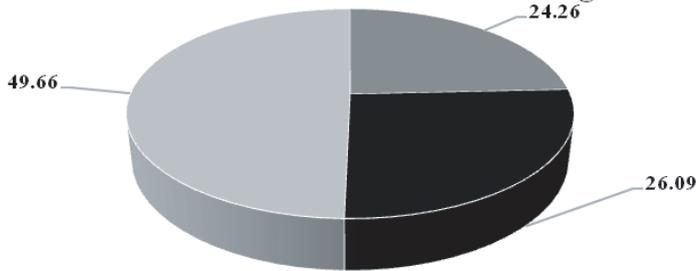
Most of the young people of this research fall within the age bracket of 15 to 24. Among them 42.7 percent belongs to age group 15-17 and they have been defined as young-young in this study, 25.7 percent belongs to age group 18-22 and they have been defined as young and the rest 31.7 percent comprises age group 22+ and they have been defined as late-young in this study. Among the respondents 50.5 percent were male and the rest 49.5 percent were female. In terms of place of residence 46.9 percent respondents have been interviewed from rural areas and the remaining 53.1 percent have been interviewed from the urban areas. Educational attainment has been classified into two categories namely higher secondary (46.7%) and above higher secondary (53.3%). Information on environmental change helps to develop the perception of people regarding the issue. Around 84.79 percent respondents said that they were receiving information on environmental change sometimes and 15.21 percent respondents were receiving information on environmental change regularly.

The major sources from where they received information on environmental changes were electronic media, print media and personal sources. In terms of sources of information, about 78.49 percent respondents were receiving information from print media, nearly 71.62 percent respondents were receiving information from electronic media and around 66.13 percent reported that they were receiving information from personal sources (see Table 1).

Table 1: Socio-demographic characteristics of the respondents	
Background Characteristics	Number of respondents (%)
Age Group	
Young-young (15-17)	186 (42.7)
Young (18-22)	112 (25.7)
Late-young (22+)	138 (31.7)
Sex	
Male	220 (50.5)
Female	216 (49.5)
Place of Residence	
Rural	205 (46.9)
Urban	232 (53.1)
Educational attainment	
Higher Secondary	204 (46.7)
Above Higher Secondary	233 (53.3)
Receive Information	
Sometimes	368 (84.79)
Regularly	66 (15.21)
Sources of Information	
Print Media	
Yes	343 (78.49)
No	94 (21.51)
Electronic Media	
Yes	313 (71.62)
No	124 (28.38)
Personal Sources of Information	
Yes	289 (66.13)
No	148 (33.87)

To know the perception of the adolescents regarding the causes of environmental change, respondents were asked to state main causes for environmental change, responses varied from deforestation (24.26%) to burning of fossil fuels (26.09%). While some respondents (49.66%) perceived that environmental change is due to urbanization and industrialisation as the main cause of environmental change (see Figure1).

Figure 1: Perception of the Respondents Regarding the Causes of Environmental Change

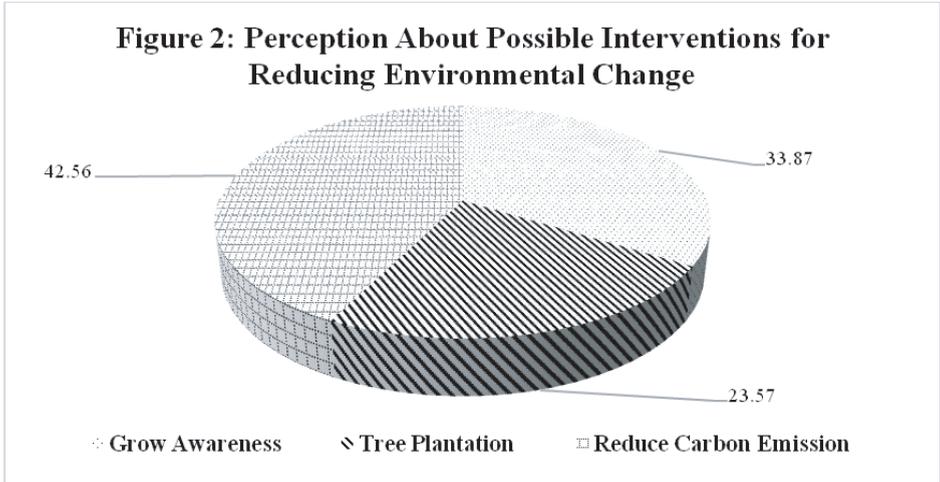


- Deforestation
- Burning of Fossil Fuel
- Urbanization and Industrialization

Cross tabulation was done to examine the association between background variables and the perception of respondents about the causes of environmental change. There was significant association with all the background (age, level of education, place of residence and receiving information) with respondent's perception about the causes of environmental change (see Table 2).

Characteristics	Deforestation	Burning of Fossil Fuel	Urbanization and Industrialization	Total	p-value
Age					0.001
Young -young (15-17)	55 (29.57)	60 (32.26)	71 (38.17)	186 (100.00)	
Young (18-22)	19 (16.96)	26 (23.21)	67 (59.82)	112 (100.00)	
Late-young (22+)	31 (22.46)	28 (20.29)	79 (57.25)	138 (100.00)	
Sex					0.890
Male	52 (24.07)	66 (30.56)	98 (45.37)	216 (100.00)	
Female	53 (24.09)	48 (21.82)	119 (54.09)	220 (100.00)	
Place of Residence					0.000
Rural	61 (26.29)	78 (33.62)	93 (40.09)	232 (100.00)	
Urban	45 (21.95)	36 (17.56)	124 (60.49)	205 (100.00)	
Education					0.000
Higher Secondary	57 (27.94)	67 (32.84)	80 (39.22)	204 (100.00)	
Above Higher Secondary	49 (21.03)	47 (20.17)	137 (58.80)	233 (100.00)	
Receive Information					0.012
Sometime	90 (24.46)	105 (28.53)	173 (47.01)	368 (100.00)	
Regularly	16 (24.24)	8 (12.12)	42 (63.64)	66 (100.00)	

Environmental change can be reduced by taking different preventative intervention such as grow awareness, tree plantation and reduce carbon emission. In stating the possible intervention that could be taken to reduce environmental change 33.87 percent respondents mentioned that need to grow awareness, 23.57 percent respondents identifies that tree plantation and the rest 42.56 percent observes that reduction of carbon emission (see Figure 2).



This study found that the perception regarding possible interventions for reducing environmental change varies according to different background characteristics of the respondents. It has been found that the concept of preventive intervention varies significantly according to age of the respondents, place of residence, educational level and availability of information except sex of the respondents (see Table 3).

Table 3: Perception About Possible Intervention for Reducing Environmental Change

Characteristics	Grow Awareness	Tree Plantation	Reduce Carbon Emission	Total	p-value
Age					0.000
Young -young (15-17)	43 (23.12)	45 (24.19)	98 (52.69)	186 (100.00)	
Young (18-22)	43 (38.39)	26 (23.21)	43 (38.39)	112 (100.00)	
Late-young (22+)	62 (44.93)	32 (23.19)	44 (31.88)	138 (100.00)	
Sex					0.995
Male	74 (34.26)	51 (23.61)	91 (42.13)	216 (100.00)	
Female	74 (33.64)	52 (23.64)	94 (42.73)	220 (100.00)	
Place of Residence					0.000
Rural	51 (21.98)	58 (25.00)	123 (53.02)	232 (100.00)	
Urban	97 (47.31)	45 (21.95)	63 (30.73)	205 (100.00)	
Education					0.000
Higher Secondary	49 (24.02)	48 (23.43)	109 (53.43)	204 (100.00)	
Above Higher Secondary	102 (43.78)	55 (23.61)	76 (32.63)	233 (100.00)	
Receive Information					0.000
Sometime	112 (30.44)	94 (25.54)	162 (44.03)	368 (100.00)	
Regularly	35 (53.03)	8 (12.12)	23 (34.85)	66 (100.00)	

Respondents were asked whether their living environment is changing nowadays. Most of the respondents considers that environmental changes are taking place and it was found that young people have heard about environmental change. Among those who had heard about environmental change in both urban and rural areas, two third respondents were aware of the term ‘environmental change’. To them environmental change meant different thing they have interpreted

environmental change as storms, floods, temperature rise, long heat waves and sea level rise (table not shown).

To measure the perception of the respondents we asked them to give their views on different factors related to environmental change (i.e. change in rainfall, change in temperature, unpredictable weather, flooding, drought, cyclones and rise in sea level). Since the level of perception regarding environmental change is not same for all the respondents, cross tabulation was done to examine the association between background variables. The study found significant association between age, place of residence, education, receiving information on environmental change from print media and perception level. For instance young-young respondents have significantly more perception (98.94%) compared to young (93.75%) and late young (90.58%), respectively. This study found significant ($p=0.000$) differences between urban respondents (98.71%) and rural respondents (90.73%) in terms of the level of perception on environmental change. However, the level of education has a negative but significant ($p=0.001$) impact on the perception level of the young people, that is the increased level of education is not increasing the perception level. Further, it has also been found that the respondents receiving information from print media have significantly higher level of perception than the opponent. But receiving information from electronic media and personal sources has no significant effect on the perception level of environmental change (see Table 4).

Characteristics	No Perception N (%)	Have Some Perception N (%)	P-value
Age			
Young young (15-17)	2 (1.08)	184 (98.94)	0.003
Young (18-22)	7 (6.25)	105 (93.75)	
Late young (22+)	13 (9.42)	125 (90.58)	
Sex			
Male	7 (3.18)	213 (96.82)	0.073
Female	15 (6.94)	201 (93.06)	
Place of Residence			
Rural	19 (9.27)	186 (90.73)	0.000
Urban	3 (1.29)	229 (98.71)	
Education			
Higher Secondary	3 (1.47)	201 (98.53)	0.001
Above Higher Secondary	19 (8.15)	214 (91.85)	
Receiving Information			
Sometimes	17 (4.62)	351 (95.38)	0.615
Regularly	4 (6.06)	62 (93.94)	
Print Media			
Yes	9 (2.62)	334 (97.38)	0.000
No	12 (12.77)	82 (87.23)	
Electronic Media			
Yes	12 (3.83)	301 (96.17)	0.131
No	9 (7.26)	115 (92.74)	
Personal Source			
Yes	13 (4.50)	276 (95.50)	0.675
No	8 (5.41)	140 (94.59)	

Discussion

The overall purpose of the research was to explore young people's perception on environmental change both in urban and rural areas in Bangladesh. The finding of the study shows that most of the young people of this research fall within the age bracket of 15 to 24. The findings of the study shows that urban young people sometime receiving more relevant information regarding environmental change than rural young people this finding is similar with other studies carried out on climate change perception (Bamidele et al., 2014, Egbe et al., 2014). Among the different sources to receive information about environmental change, print and electronic media were two leading sources, majority respondents said that they were receiving information on environmental change sometimes and this finding is similar to other research of Huda (Huda, 2013).

This study found that with increase of age perception level regarding environmental change subsequently decreases which is consistent with earlier studies (Stevenson et al., 2014, Moniruzzaman, 2013). This study found that level of education has a negative but significant impact on the perception level of the young people that as the level of education increased the level of perception is not increasing subsequently. This findings is not consistent with the other research where they have found that with the increase of education status of perception level increases (Esther et al., 2014, Toan et al., 2013, Carew-Reid, 2008). As stated the urbanization and industrialisation as the main causes of environmental change by the respondent, along with deforestation and burning fossil fuels this finding is similar with other study findings (Bamidele et al., 2014, Communication and Indies, 2012, Foundation, 2012, Anagbogu et al., 2014, Hara, 2010). Environmental change can be reduced by taking possible intervention such as grow awareness, tree plantation and reduce carbon emission etc. According to the findings respondents specified that by growing sufficient awareness and reduce carbon emission could be possible way to prevent environmental change. This findings were consistent with that of other studies where they also have found that awareness programme plays an important role in preventing environmental change (Egbe et al., 2014, Bamidele et al., 2014, Foundation, 2012, Communication and Indies, 2012, Hara, 2010, W IDCR, 2009.).

The findings of the study reveals that the young people both in urban and rural areas had some perception regarding environmental change that resemblances in many aspects with the perception of respondents of other studies (Toan et al., 2013, Yu et al., 2013, Foundation, 2012, DeBono et al., 2012, Akter and Bennett, 2011, Akerlof et al., 2010, Semenza et al., 2008, Leiserowitz, 2005). The study shows that the perception of environmental change as perceived by young people are rising temperatures, heavy precipitation, increase rainfall, flooding, rising sea levels, deforestation which is consistent with the earlier studies (Anagbogu et al., 2014,

Seal and Baten, 2011). The test of association (chi-square) also shows that the rural respondents are likely to have lower perception about environmental change compared to their urban counterparts that have similarity with the findings signified in previous studies in the context of environmental change in Bangladesh (Chaudhary and Bawa, 2011, Emch et al., 2010, Shahid, 2009, Emch et al., 2008, Rahman et al., 2007, Ebi et al., 2007).

Conclusion

According to present research, most of the young people both urban and rural area have some perception about the causes and possible intervention to reduce environmental change. If awareness is created at the all stage for the young people then they can understand the extent of the impact and effect of environmental change. Therefore to increase level of perception regarding environmental change among the young people, environmental education is important by adding specific chapter on environmental issues in our national education curriculum. It is also important to increase the frequency of receiving information right information from appropriate source. Therefore the government needs to commit universal access to information and messages on environmental issues. Thus it requires more specialised training programme for the providers who are responsible to disseminate information. Government can include environmental issues in their existing program with the aim to develop appropriate educational and awareness program. These programs will aim to teach and train people about environment change and how to conserve to improve the present environmental condition of Bangladesh. We should also engage young people in different environmental conservation program regardless of their level of acceptance of risk perception. Further research will deepen our knowledge about environmental change. Attention should be given to collect more information on perception regarding causes and consequences to environmental change.

Limitations

This study has some limitations. First and foremost, the study topic is complicated and difficult to measure. Secondly it made use of self-reported data on environmental change perception which are subject to recall bias and misreporting. Thirdly the study was conducted in two districts of Bangladesh so it may not represent the perception of elsewhere. At the same time many important variables have been left out such as parent's education, parent's socioeconomic status that has influence on children. Despite these limitations, the study tried to focus on the perception of young people regarding environmental change. Also it was empirically established that the strategies if applied will go a long way to reduce the impact and effect of environmental change in our environment now and in the future.

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References

- AKERLOF, K., DEBONO, R., BERRY, P., LEISEROWITZ, A., ROSER-RENOUF, C., CLARKE, K.-L., ROGAEVA, A., NISBET, M. C., WEATHERS, M. R. & MAIBACH, E. W. 2010. Public perceptions of climate change as a human health risk: surveys of the United States, Canada and Malta. *International journal of environmental research and public health*, 7, 2559-2606.
- AKTER, S. & BENNETT, J. 2011. Household perceptions of climate change and preferences for mitigation action: the case of the Carbon Pollution Reduction Scheme in Australia. *Climatic change*, 109, 417-436.
- ANAGBOGU, M. A., NWOKOLO, C. & ANYAMENE, A. 2014. School children's perceptions of climate change and possible remediation.
- BAMIDELE, J. O., ODU, O. O. & WASIU, O. 2014. Public perception of climate change and its impact on health and environment in rural southwestern nigeria.
- BARTLETT, S. 2008. Climate Change and Urban Children: Impacts and implications for adaptation in low-and middle-income countries. *Environment and Urbanization*, 20, 501-519.
- BHUSAL, Y. 2009. *Local peoples' perceptions on climate change, its impacts and adaptation measures in mid-mountain region of Nepal (a case study from Kaski district)*. Tribhuvan University, Institute of Forestry, Pokhara, Nepal.
- CAREW-REID, J. 2008. Rapid assessment of the extent and impact of sea level rise in Viet Nam. *International Centre for Environment Management (ICEM), Brisbane*, 82.
- CHAUDHARY, P. & BAWA, K. S. 2011. Local perceptions of climate change validated by scientific evidence in the Himalayas. *Biology Letters*, rsbl20110269.
- COMMUNICATION, C. I. O. M. A. & INDIES, T. U. O. T. W. 2012. REPORT ON CLIMATE CHANGE KNOWLEDGE, ATTITUDE AND BEHAVIOURAL PRACTICE SURVEY. Jamaica: Planning Institute of Jamaica.
- DEBONO, R., VINCENTI, K. & CALLEJA, N. 2012. Risk communication: climate change as a human-health threat, a survey of public perceptions in Malta. *European journal of public health*, 22, 144-149.
- DEVKOTA, R. P. 2014. Climate change: trends and people's perception in Nepal. *Journal of Environmental Protection*, 2014.
- DUAN, H. & FORTNER, R. 2012. A cross-cultural study on environmental risk perception and educational strategies: Implications for environmental education in China. *International Electronic Journal of Environmental Education*, 1.
- EBI, K. L., WOODRUFF, R., VON HILDEBRAND, A. & CORVALAN, C. 2007. Climate change-related health impacts in the Hindu Kush-Himalayas. *EcoHealth*, 4, 264-270.

- EGBE, C. A., YARO, M. A., OKON, A. E. & BISONG, F. E. 2014. Rural Peoples' Perception to Climate Variability/Change in Cross River State-Nigeria. *Journal of Sustainable Development*, 7, p25.
- EMCH, M., FELDACKER, C., YUNUS, M., STREATFIELD, P. K., DINHTHIEM, V. & ALI, M. 2008. Local environmental predictors of cholera in Bangladesh and Vietnam. *The American journal of tropical medicine and hygiene*, 78, 823-832.
- EMCH, M., YUNUS, M., ESCAMILLA, V., FELDACKER, C. & ALI, M. 2010. Local population and regional environmental drivers of cholera in Bangladesh. *Environmental Health*, 9, 2.
- ESTHER, A. O., BAMIDELE, J. O., ODU, O. O. & WASIU, O. 2014. Public perception of climate change and its impact on health and environment in rural southwestern Nigeria.
- FELDMAN, L., NISBET, M. C., LEISEROWITZ, A. & MAIBACH, E. 2010. The Climate Change Generation? Survey Analysis of the Perceptions and Beliefs of Young Americans. Yale University and George Mason University. New Haven, CT. Yale Project on Climate Change Communication.
- FORESTS, M. O. E. A. 2005. Forests ME: National Adaptation Program of Action (NAPA). In: BANGLADESH, M. O. E. A. F. G. O. T. P. S. R. O. (ed.). Bangladesh: Ministry of Environment and Forests
- FOUNDATION, A. 2012. Report On Climate Change Perception Survey. Dhakla: The Asia Foundation Bangladesh.
- HARA, K. N. 2010. An assessment on the knowledge, attitudes and practices among communities on climate change.
- HUDA, M. N. 2013. Understanding indigenous people's perception on climate change and climatic hazards: a case study of Chakma indigenous communities in Rangamati Sadar Upazila of Rangamati District, Bangladesh. *Natural hazards*, 65, 2147-2159.
- HUQ, S. & RABBANI, G. 2011. Climate change and Bangladesh: policy and institutional development to reduce vulnerability. *Journal of Bangladesh Studies*, 13, 1-10.
- KREFT, S., ECKSTEIN, D., JUNGHANS, L., KERESTAN, C. & HAGEN, U. 2014. Global Climate Risk Index 2015.
- LEISEROWITZ, A. 2006. Climate change risk perception and policy preferences: The role of affect, imagery, and values. *Climatic change*, 77, 45-72.
- LEISEROWITZ, A. 2007. International public opinion, perception, and understanding of global climate change. *Human development report*, 2008, 1-40.
- LEISEROWITZ, A. A. 2005. American risk perceptions: Is climate change dangerous? *Risk analysis*, 25, 1433-1442.
- LOVELL, R. & O'BRIEN, L. 2009. Would you believe it? Children and young people's perceptions of climate change and the role of trees, woods and forests. *Forest Research*. Retrieved from www.forestry.gov.uk/fr/INFD-7UCASC.
- LOWE, T., BROWN, K., DESSAI, S., DE FRANÇA DORIA, M., HAYNES, K. & VINCENT, K. 2006. Does tomorrow ever come? Disaster narrative and public perceptions of climate change. *Public understanding of science*, 15, 435-457.

- MAHARJAN, S., SIGDEL, E., STHAPIT, B. & REGMI, B. 2011. Tharu community's perception on climate changes and their adaptive initiations to withstand its impacts in Western Terai of Nepal.
- MAHMOOD, S. S., NAJNEEN, F., HOQUE, K. S., RAHMAN, S. & SHAMIM, M. 2010. Climate change: A study on impact and people's perception (a case study on Mongla upazila, Bagerhat district, Bangladesh). *Bangladesh Research Publications Journal*, 4, 153-164.
- MAMUN, S., NESSA, A., AKTAR, M., HOSSAIN, M. & SAIFULLAH, A. 2013. Perception of Environmental Education and Awareness Among Mass People: A Case Study of Tangail District. *Journal of Environmental Science and Natural Resources*, 5, 263-266.
- MISHRA, S. R., BHANDARI, P. M., ISSA, R., NEUPANE, D., GURUNG, S. & KHANAL, V. 2015. Climate change and adverse health events: community perceptions from the Tanahu district of Nepal. *Environmental Research Letters*, 10, 034007.
- MONIRUZZAMAN, M. 2013. People's Perception on Climate Change and Variability: A Study of Sabrang Union, Teknaf, Cox'sbazar, Bangladesh.
- ORGANISATION, W. H. 2015. Climate Change and Health. September 2015 ed.: Media Centre WHO.
- ORGANIZATION, W. H. 2008. Protecting health from climate change: world health day 2008. *Protecting health from climate change: World Health Day 2008*. World Health Organization (WHO).
- RAHMAN, A. A., ALAM, M., ALAM, S. S., UZZAMAN, M. R., RASHID, M. & RABBANI, G. 2007. Risks, vulnerability and adaptation in Bangladesh. *Human Development Report*, 8.
- RAHMAN, M. S., HAQUE, M. & KHAN, M. B. K. 2011. Perception on climate change an exploratory study on urban citizens. *European Journal of Economics, Finance and Administrative Sciences*, 17-30.
- SALEEMUL, H. & AYERS, J. 2008. Climate Change Impacts and Responses in Bangladesh Policy Department Economy and Science.
- SARKAR, M. 2011. Secondary Students Environmental Attitudes: The Case of Environmental Education in Bangladesh. *International Journal of Academic Research in Business and Social Sciences*, 1, 96-109.
- SEAL, L. & BATEN, M. A. 2011. Reckoning Climate Change: Local Peoples' Perception on the Impacts of Climate Change in South-Central and Northern Bangladesh. Unnayan Onneshan-The Innovators.
- SEMENZA, J. C., HALL, D. E., WILSON, D. J., BONTEMPO, B. D., SAILOR, D. J. & GEORGE, L. A. 2008. Public perception of climate change: voluntary mitigation and barriers to behavior change. *American journal of preventive medicine*, 35, 479-487.
- SHAHID, S. 2009. Probable impacts of climate change on public health in Bangladesh. *Asia-Pacific Journal of Public Health*.