

ENVIRONMENTAL AWARENESS AND DISASTER FACTORS IN BANGLADESH

Mohammad Ohid ULLAH

PhD Associate professor

Department of Statistics, Shahjalal University of Science and Technology (SUST)
Sylhet-3114, Bangladesh

Email: ohidullah@gmail.com

Md. Abu HASAN

MSc student, Department of Statistics, SUST, Sylhet-3114, Bangladesh

Taj UDDIN

Professor, Department of Statistics, SUST, Sylhet-3114, Bangladesh

ABSTRACT

Environmental pollution is one of the important problems for the living beings. It interrupts to lead better life. The present study is an attempt to study the environmental awareness and behavior towards the environment of the students with environmental disasters factors in private universities in Sylhet, Bangladesh. To conduct this study, a questionnaire was designed and implemented on a sample of 200 students of four private universities in Sylhet city. Research findings show that global warming (66.5%) is the most important problem in the world and unplanned urbanization (32%) is the most important problem in Bangladesh. Research indicates that 'Global warming', 'The conflict over the natural water resources' and 'The needs for other energy sources against petroleum' are the most influential factors for environmental disaster. Most of the respondents believe that education of environmental awareness and use of bi-cycle for short distance in the city may solve environment pollution. Therefore, Government and non-government organizations should take initiative to prepare bi-cycle road aside foot-path as well as educational activities regarding healthy environment.

Keywords: Environment, Awareness, Disaster factors, Behavior

INTRODUCTION

Environment is the aggregate of water, air, sound and land interrelationships and also with the human being, other living organisms and property. It includes physical, biological, social, cultural and economical factors which constitute the surroundings of human being, who is both the creator and molder of the environment (Pillai, 2012). Human beings from their

beginning of life always have been tried to derive benefits from the environment to provide for their needs, and environment has been used to improve their quality of life. Because of over uses of natural resources the natural balance has been broken down and thus serious problem occurred, which called environmental problems. Those problems have gained international extent as a result of technological progress and industrialization that has been achieved in the recent decades (Gulgan et al., 2008). Among many global phenomenons, environmental pollution has become a key concern for human beings. Each and everybody of whatever occupation he or she may have, is affected by environmental issues like global warming, depletion of ozone layer, dwindling forest, energy resources, loss of global biodiversity, air, soil, water pollutions, water shortage, garbage problems etc(Oluk & Ozalp, 2007; Bybee, 1991). And these types of environmental disasters are increasing enormously. Global warming turns Bangladesh into one of the most vulnerable countries in the world. Climate change over the coming decades will become a major threat for the well being and survival of the people in Bangladesh (Ministry of Environment and Forests, Bangladesh). The people of Bangladesh are already suffering from climate impacts. It is scientifically established that some of the changes in motion are irreversible, that some impacts will be unavoidable, and some unmanageable (Kalpana, 2012). Our mistakes and wrongful decision have leaded us such a place, there is no return pathway, which enforcing us to reshape our principles, responsive mechanisms and way of thinking (Krousouloudi et al., 2010). To keep our environment safe and livable it is important to raise environmental awareness. By the term environmental awareness we mean knowledge about environment and also attitude, values and necessary skills to solve environment related problems. Environmental awareness also refers to the ability of a person to carry on citizenship behavior (Shobeiri et al., 2007). To encourage meaningful public participation and environment, it is necessary to create awareness about environment pollution and related adverse effects. Any Government at its own level can't achieve the goal of environment conservation, until the public has a participatory role in it. Therefore, there is a great need to protect and preserve our environment by increasing the level of awareness among the public as well as the students, who are the future of a nation. The role of students would go a long way in achieving such desired goals. In order to faster their awareness towards environment, it is necessary to know what levels of awareness they possess in these areas. For raising public awareness and enhancing the protective attitudes towards the environmental issue, environmental education is one of the most effective strategy or role. If the peoples' perception, knowledge, awareness and attitude toward environmental issues are high, it means that the people's environmental literacy rate is also high. Increasing environmental literacy will lead to a change in behavior or action. Determining, what people know about the environment, how they feel about it, and what actions they take that may help or harm the environment is required to establishing the sustainability of a community and to protect the environment. Environmental education rate will be high when people's conception, knowledge, consciousness and behavior toward environmental issues will be high. Environmental education helps to change the concept about environment. Three things are needed for a community and for saving the environment; those are feelings of the people about environment, proper knowledge for maintaining the environment, actions of the peoples about environment (Thapa, 2001; Stapp, 1969). Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, to aware of how to help to solve these problems and to motivate to work towards their solution (Kumar, 2011). Environmental Education acts as an indispensable tool in

the battle against the degradation of living environment. Environmental consciousness and environmental sincerity should be grown among young people. For the awareness of society it is essential to work at a grass root level. So the whole society can work to save the environment. If we want to generate the environmental values in our children, we have to know the responsibility towards environment and also we have to show our behavior as a like eco-friendly. Environmental awareness should be the integral part of any environmental curriculum encouraging student to take an active role in the protection to their environment in one way by which the critical balance between man and environment may be preserved. Through it young generations are full of curiosity to learn about their environment (Talay et al., 2004). Universities educate young generations who are expected to be the upcoming leaders in many different areas in the society and who will be the decision makers, the role of the universities in the environmental training of the public is huge. The future decision of these young generations will affect the sustainability of the human existence, their approach and activities will have important consequence for the environment (Uddin et al., 2007).

So, in this paper we tried to see the awareness of the undergraduate students of private universities in Sylhet city about the environmental problem. We also tried to identify the disaster factors and to understand the attitude and behavior of the students about the solutions.

MATERIALS AND METHODS

The study was conducted during the period April - May in 2013 among the student of four private universities at Sylhet city in Bangladesh. A total of 200 participants were drawn by selecting 50 students from each university. Investigators have prepared a set of questionnaire, which were included closed questions covering various aspects of the current environmental issues at global and local levels with 8 environmental disaster factors as Likart scale. The questions were administered at the end of class periods and students responded voluntarily. The Statistical Package (SPSS version 20) and "FactoMineR" package in R program were used to analyze the data.

RESULTS

General characteristics of the participants

It is found that only 57% of the participants were male while 43% were female. The larger group of the participants (69%) was between 18-21 years of age. Among them 37.5% were in 1st year, 33% in 2nd year, 26.5% in 3rd year and rest of all were in 4th year students of under graduate level.

Students' environmental awareness

The result showed that most of the students (66.5%) believe global warming is the most serious problem in the world. However, they gave their opinion that the global warming is the fourth serious problem in Bangladesh (13%). The first three problems in Bangladesh, as mentioned by the students, were unplanned urbanization (32%), air pollution (17%) and Soil pollution & loss of farmland (13.5%). The most interesting outcome of this question is the difference between the perceptions of the local and global problem. Around

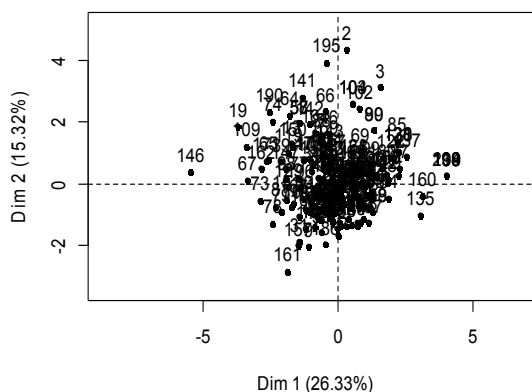
39% students think that lack of awareness is the most important factor responsible for environmental problems in Bangladesh.

Most of the participants (57%) think 'education for raising the awareness of public' may solve the environmental problem followed by 'technological improvements' (16%). To raise the public awareness of the people about the environmental issue, most of the students think it is essential to increase the activities of government followed by TV-Radio watching with and internet (facebook, twitter etc.). Most of the students (63%) are familiar with sustainable development on environment; this indicates that the students are really conscious about the environmental issues.

DISASTER FACTORS

Eight different disaster scenarios/factors which may be faced in the future as a result of environmental problems were presented to the participants. Students were asked to put their thoughts about the possibilities of these disaster scenarios by using Likart scale. Using these 8 factors of environmental disaster scenarios we run principal component analysis by *FactoMineR* package in R program. We found that DSGW (Global warming), DSNWR (The conflict over the natural water resources) and DSNOE (The needs for other energy sources against petroleum) are the most influential factors for environmental disaster.

Individuals factor map (PCA)



Variables factor map (PCA)

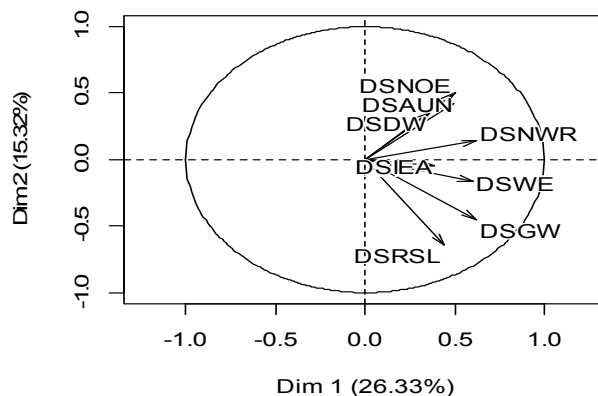


Figure 1. (A) Individual factor map (score plot). It shows all the respondents respond almost homogeneously. **(B)** Variable factor map (Loading plot) of 8 disaster factors. It shows the association among the factors of environmental disaster. Longer the vectors indicate more influential and the vectors that are close of each other with same direction indicate highly positive association. First principal component shows around 26% of the variation in the dataset. DSGW (Global warming), DSNOE (The needs for other energy sources against petroleum), DSWE (Water endangerment), DSNWR (The conflict over the natural water resources), DSAUN (The abandonment of using the nuclear power), DSIEA (Raising importance of ecological agricultural), DSRSL (Melting ice/Raising Sea level), DSDW (Desertification of the world).

The variable factor map (loading plot) shows that all the factors are positively associated with each other as they are showing same direction. We also found that DSGW (Global warming) and DSRSL (Melting ice/Raising Sea level) are adjacent to each other- indicates they are positively associated which is expected as ice is melting because of global warming.

PARTICIPANTS' ATTITUDE AND BEHAVIOR TOWARDS THE ENVIRONMENTAL ISSUES

We found that 48.5% students read newspaper, magazine or books on environmental issue regularly. They also liked to watch TV and Radio about environmental issue regularly.

It is pleasing that a large number of students (69%) would like to work voluntarily, while 18.5% students want to include in environmental preservation activities by providing donation or extra taxes. It is also observed that 45.5% of participants are not a member of any environmental organization, 12% of them have taken part of environmental activity and 35% students are interested to join any environmental organization. We found that 40% students prefer bicycle for transportation, 18.5% prefer subway-train but 29% prefer taxi, buses or mini buses. We also found that industries (66%) is the worst polluters followed by individual people (13.5%).

It's serious issue in Bangladesh that only 43% of the respondent sort plastic and 20.5% of them sort waste food. It's pleasing that, a small proportion of participant (8%) never take any reaction against the polluters, on the other hand 56.5% participants try to tell people and warn people about the polluters. In order to find out their opinion, how would be their future concerning the current condition of environment we have found that 50% students think that their future will be challenging while 25.5% think it will be bright and hopeful. Besides that 61.5% students believe that their health has already been affected by pollution. And 56.5% students think that the environmental situation after 10 years from now will be worse than it is now.

DISCUSSION & CONCLUSION

Environmental education is the most efficient way to improving the environmental literacy which consists people's perception, knowledge, awareness and attitude towards

environmental issue. Increasing environmental literacy makes people more conscious about their environment and which leads to a positive change about the environmentally responsible behaviors or the action of the people. However, from this study we found that students are concerned about environment to some extents and they maintained a positive behavior towards the environmental issues but they presented a little inadequacy about some other environmental issues. Students are concerned about present situation about environment and also they can realized that their future will be challenging and they have also noticed that their health is already been affected by the environmental pollution.

We also found that 'Global warming', 'The conflict over the natural water resources' and 'The needs for other energy sources against petroleum' are the most influential factors for environmental disaster. We also found that DSGW (Global warming) and DSRSL (Melting ice/Raising Sea level) are adjacent to each other- indicates they are positively associated which is expected as ice is melting because of global warming.

In this study we observed that there is a positive association between watching TV, Radios program on environmental issue and the number of person who are the member of any environmental organization. Thus it implies that TV, Radio programs on environmental issue have a great influence on raising environmental awareness.

It is observed that private university students' awareness levels are almost same with public university students (Barraza & Walford, 2002) in many cases such as, "the most serious environmental problem of the world", "the environmental disaster scenarios that the world may face in future", "the most probable recommendation that can be taken against the environmental problem" etc. But we have got better percentages on some cases such as they enjoy following printing media or electronic media on environmental issue, they are wishing to work voluntarily on environmental issue etc. We think that these percentages have been increased for time difference and this is a good sign that is the awareness levels are increasing day by day.

It is observed that, there is no discrimination in the awareness level between male and female students that is there is no association between gender and work voluntarily on environmental issue. So Bangladeshi women's are also aware about environmental situation and they are playing a positive role on environmental preservation activities with men.

It is clear whether in this survey or other similar works about environmental awareness and conservation studies the most important fact is public awareness. To do this, it is crucial to have national strategies about environment and increasing the awareness of environment among public. Moreover visual and pressed media have an important role of aware public about environmental issues. The other important fact is non-governmental organizations. Environmental awareness can be raised with collaboration and rising educational programs on these instruments.

Respect to the most environmental problem in the world, respondents thinking are almost same, where global warming is the most serious problem in the world by both the university students of Bangladesh and Turkey (Gulgun et al., 2008; Onder, 2006; Oguz et al., 2010). Concerning the most probable recommendation that can be taken against the environmental problem, from those papers we have found that "Education for raising the awareness of public" is the best recommendation. As the most important factor responsible for environmental problems in both countries, 38.5% of Bangladeshi and 28.4% of Turkey students choose "Lack of Awareness" (Oguz et al., 2010). In environmental preservation activities Bangladeshi students showed better percentage (69%), they would like to work

voluntarily, though only few students (12%) are member of an environmental organization same as others (Gulgun et al., 2008; Onder, 2006).

To save our environment, it is obvious that we need educated people as individuals who care for environment as well as have environmental awareness and knowledge to environmental subjects (Erol & Gezer, 2006). It can be accomplished that the future of environmental education in Bangladesh is hopeful, though the existing environmental education programs in higher studies do not seem to be good enough. No doubt, Bangladesh is environmentally rich and its culture and traditions is also well known to the people as naturally beauty which are also incorporated initially as a course of geography in the education systems of the country. This idea is connected in the early stage of the human civilization and gradually developed. The consciousness of the environmental problems grew in the country at all levels and in all sectors. It is seen particularly at the higher studies stage, in all universities (Masum & Akhir, 2010; Ozmen et al., 2005). Most of the students prefer bicycle in Bangladesh though there is no separate bicycle road. It suggests that Government should take initiative to prepare bicycle road near the footpath so that people go here and there. This action may solve the air pollution as well as traffic jam in the big cities.

To be a member of environmental organization plays a vital rule, by made a valuable difference about attitude and behavior of students regarding environment. We should encourage our young generation as well as students, to be a member of environmental organization and to take responsibility to protect our environment with non government organization (Budak et al., 2005). After all, a reorganization is needed which will be guided by the inalterable principles of Environmental Education, intending into creating a ecologically-oriented environmental ethics, should be the foundation to construct the new personalities required. The way youngsters compact with the information received and their natural sensitivity, under the auspices of enlightened educators could be what we should expect (Krousouloudi et al., 2010).

All these findings suggest that the government should take necessary steps to protect the environment. The environmental studies is not limited only to related disciplines but also others discipline like law, medicine and economics etc.

Finally, the aspire of all efforts of environmental education, preservation, and improvement is to endow with more safety and healthy environment to all human and alive who have to rights to live in safe and healthy world during their life. This article may be helpful for the stakeholder or policy makers of the country.

REFERENCES

1. Barraza, L., & Walford, R.A **Environmental Education: a Comparison Between English and Mexican School Children.** *Environmental Education Research*, 8, 2002, 171-186.
2. Budak, F., Zaimoğlu, Z., Kekeç, S. & Sucu, M.Y. **Behavior and Attitudes of Students towards Environmental Issues at Faculty of Agriculture Turkey.** *Journal of Applied Sciences*, 5(7), 2005, 1224-1227.
3. Bybee R.W. **Planet Earth in Crisis: How Should Science Educators Respond?** *The American Biology Teacher*, 53(3), 1991, 146-153.

4. Erol, G.H. & Gezer, K., **Teachers' Attitudes toward Environment and Environmental Problems**. *International Journal of Environmental and Science Education*, 1(1), 2006, 65-77.
5. Gulgun, B., Onder, S., Aktas, E. & Unal Ankaya, F. **Responses of University Students Related to Environmental Problems: A Case Study of Ege University (Izmir-Turkey)**. *J. Int. Environmental Application & Science*, 3 (4), 2008, 234-246.
6. Krousouloudi, N., Terzoglou, E., Bakti, G., Theocharopoulos, D., Tsekos, C.A, Mimigiannis, A. and D. P. Matthopoulos, **Environmental Education as Means to Reshape Our Society**, *International Journal of Arts and Sciences* 3(19), 2010, 28-36
7. Kumar, P. **A Study of Environmental Awareness Among Higher Secondary Students and Some Educational Factors Affecting it**. *International Journal of Multidisciplinary Research*, 1(7), 2011, 90-101
8. Masum, A. & Akhir, M. **Environmental Education in Bangladesh with Special Reference to Higher Studies (1992-2009)**. *International Journal of History & Research*, 1(1), 2010, 1-32.
9. Ministry of Environment and Forests, Bangladesh. 18 July, 2013. <http://www.climatechange-cell.org.bd/recent-initiatives.html>
10. Oguz, D., Çakci, I. & Kavas, S. **Environmental awareness of University Students in Ankara, Turkey**, *African Journal of Agricultural Research*, 5(19), 2010, 2629-2636.
11. Oluk, S. And I. Ozalp, **The Teaching of Global Environmental Problems According to The Constructivist Approach: As a Focal Point of the Problem and the Availability of Concept Cartoons**. *Educational Sciences: Theory and Practice*, 7(2), 2007, 881-896.
12. Onder, S. **A Survey of Awareness and Behaviour in Regard to Environmental Issues among Selcuk University Students in Konya, Turkey**. *Journal of Applied Sciences*, 6 (2), 2006, 347-352.
13. Ozmen, D., Çetinkaya, A.Ç. & Nehir, S. **Behaviors of University Students Towards Environmental Issues**. *TAF Preventive Medicine Bulletin*, 4(6), 2005, 330-344.
14. Pillai, S. K. P. **A Study of Environmental Awareness of Higher Secondary School Students in Cuddalore District**. *Research Expo International Multidisciplinary Research Journal* 2(2), 2012, 44-48.
15. Shobeiri, S. M., Omidvar, B. & Prahallada, N. N. **A Comparative Study of Environmental Awareness among Secondary School Students in Iran and India**. *Int. J. Environ. Res.*, 1 (1), 2007, 28-34.
16. Stapp, W.B. **The concept of Environmental Education**. *Journal of Environmental Education*. 1(1), 1969, 30-31.

17. Talay, I., Gündüz S. & Akpınar, N. **The Determination of Environmental Awareness of University Students. A Case Study: Ankara University, Turkey.** *Int. J. of Environment and Pollution*, 21(3), 2004, 293-308.
18. Thapa, B. **Environmental Concern: a Comparative Analysis between Students in Recreation and Park Management and Other Departments.** *Environmental Education Research*, 7, 2001, 39-53.
19. Uddin, M.T., Chowdhury, M. A. I. & Hossain, M. I. **Study on Environmental Awareness, Attitude and Behavior of Students of Shahjalal University of Science and Technology, Sylhet, Bangladesh.** *Bangladesh J. Environ. Sci.* 13(2), 2007, 65-70.