

CLIMATE CHANGE AND BANGLADESH: ROLE OF MILITARY IN PURSUING NON-MILITARY SECURITY INTERESTS

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INTRODUCTION

In the post cold-war period national security has become more complex, where numerous non-military threats are causing war like insecurities to people, properties and states. Political analysts are convinced that threat to national security might also come in ecological forms which can damage the physical base of the state, perhaps to a sufficient extent to threaten its idea and institutions¹. 'Climate Change' is a source of insecurities which Bangladesh (BD) is facing in numerous forms and ways. Ecological threat due to climate change poses non-traditional security threat to the elements of societal and human security from different dimensions. These in turn affect the political and economic interest in a complex form. This complex dynamics of insecurities necessitate employment of all 'ways and means' for the sake of national security.

Considering the significance, the Government of BD (GoB) developed 'BD Climate Change Strategy and Action Plan (BCCSAP)²' in 2009. To implement BCCSAP a 10-year programme (2009-2018) was also made as 'Climate Change Action Plan (CCAP)'. It is observed that in the first five year period (2009-2013), the GoB has not been able to attain the objectives set in the CCAP. Failing to attain the CCAP objectives will pose considerable threat to the national interest.

Being the major security organ, BD Armed Forces has to play significant role to tackle such insecurities. Besides protecting territorial integrity and political independence, responding to non-traditional security threats is being increasingly considered as important role and task of BD Armed Forces. During the past natural disasters, BD Armed Forces successfully recovered those situations attaining much confidence of the victims and the officials. Being the major organ for national security; how can BD Armed Forces assist the GoB to implement the BCCSAP; is the focal question of this paper.

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1. Buzan, Barry 1983, *People, States, and Fear: The National Security Problem in International Relations*, Wheat Sheaf Books Limited, Great Britain, p-82.
 2. Ministry of Environment and Forest (MoEF), GoB 2009, *Bangladesh Climate Change Strategy and Action Plan 2009*, p-xiii.

Climate Change and National Security of Bangladesh

Climate change will lead to increased natural disaster/events, sea level rise, massive displacement and migration, reduced crop yields, unplanned urbanization, food insecurities, unsecured livelihood, health hazard; etc. The impact of environmental issues on security is large and increasing, and BD is going to be one of the worst sufferers from this³.

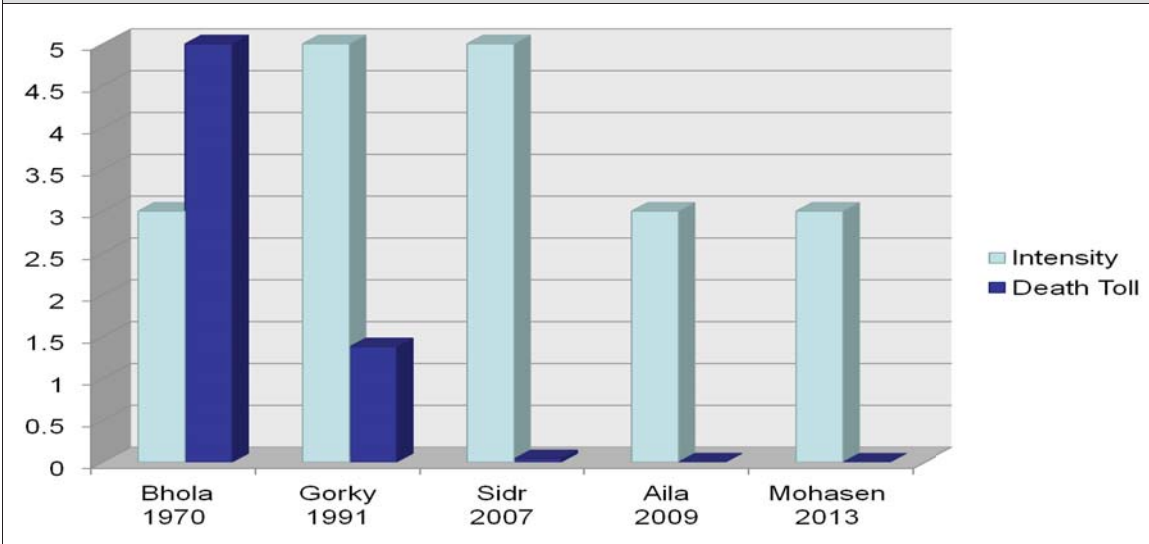
Sea Level Rise, Loss of Territory and Sovereignty. Sovereignty resides within the population⁴. In the case of BD, the supreme and independent power or authority possessed by the GoB on a huge area will face severe challenges due to the sea level rise of 1.5 meter. This will also cause cultural, health, and life threatening risks comparable to the impact of warfare. The change of the geography will reorient the maritime area, new baseline and other connected issues. Whether it is river bank erosion, flood, cyclone or sea level rise, the most significant impact will be the loss of habitable area, home or territory. These will force large scale homeless people to be displaced or migrate elsewhere, which is similar to the life of war refugee. Although they cannot be termed as war refugee, but they can very well be termed as ‘Environmental Refugee’ or ‘Climate Refugee’.

Environmental Refugees, Migration and Conflict. Chart 1 shows that the intensity of disaster has not reduced from Cyclone Bhola (1970) and Gorky (1991) but the frequency has increased which make millions of people homeless (Table 1).

3. CCIS Programme: *Climate Change and International Security*, Roundtable Workshop Environment and Security Challenges for Change, IUCN World Conservation Congress, Barcelona 6 October 2008 <http://www.envirosecurity.org/challengesforchange/> (Accessed on 10 August 2014).

4. Buzan, Op Cit, p-41.

Chart 1: Cyclone Intensity, Frequency and Death Toll (in 100 thousand) Chart⁵



Source: AFD⁶

Table 1: State of death and homeless people due to cyclone

Event	BHOLA (1970)	GORKY (1991)	SIDR (2007)	AILA (2009)	MAHASSEN (2013)
Death Toll	5,00,000	1,38,882	3,406	170	17
Missing	1,00,000	20,000	873	48	-
Homeless	36,00,000	1,00,00,000	15,22,077	6,37,851	16,628

Source: AFD⁷

Climate change has already created a refugee situation in BD⁸. In future, the sea-level rise is very likely to induce large scale migration in the longer-term. The country is so densely populated that it will not be able to absorb this homeless population. A significant number may seek to move to India and Pakistan. Previous migration of this category has been a factor in violence in the region⁹. India and Myanmar have built fence around BD, and India is in the process of electrifying the fence now. Wherever there is a flow of refugees trying to cross into India, tension and conflict will erupt. Conflict along the border of India-Bangladesh-Myanmar is unbearable to the international community.

5. AFD Presentation by Brig Gen DSM Shaheedul Islam, afwc, psc to AFWC-2013.

6. Ibid.

7. Ibid.

8. Major General (Retd) Muniruzzaman, 2011, 'Militarising Climate Change' at <https://www.chinadialogue.net/article/show/single/en/4388-Militarising-climate-change> (accessed on 4 September 2014).

9. Ibid.

Unplanned Urbanization and Insecurities. Research found that, after a tidal flood 64 % people are displaced locally and 27 % are displaced within BD, including to Dhaka; 9 percent are displaced across international borders¹⁰. This type of displacement poses threat to the urban life and metropolitan cities¹¹. Study also reveals that 56% of the floating people in Dhaka were displaced due to river bank erosion, flood and water logging. This is likely to increase in future due to the increased impact of climate change. There have been instances where these floating peoples are exploited in illegal drug markets, arms trade and in criminal activities.

Food Insecurities, Unsecured Livelihood and Health Hazard. Saline water intrusion, sea level rise, water stagnancy, cyclone and storm surges are major climatic hazards affecting the low lying coastal areas. Over 30 % of the net cultivable area of BD is in the coastal region. Intergovernmental Panel on Climate Change (IPCC) estimates that, by 2050, rice production in Bangladesh could decline by 8% and wheat by 32% (against a base year of 1990)¹². All of these changes threaten the food security and the livelihood of the poor. Climate change is likely to increase the incidence of diseases too. Bacteria, parasites and disease vectors breed faster in warmer and wetter conditions and where there is poor drainage and sanitation. Acute illness is one of the main triggers driving people into extreme poverty and destitutions in Bangladesh¹³.

BANGLADESH CLIMATE CHANGE STRATEGY AND ACTION PLAN AND CAPACITY OF GOVERNMENT

Bangladesh Climate Change Strategy and Action Plan 2009 is built on six pillars¹⁴: a) Food security, social protection and health; b) Comprehensive disaster management; c) Infrastructure development; d) Research and knowledge management; e) Mitigation and low carbon development; and f) Capacity building and institutional strengthening. To implement BCCSAP a 10-year programme (2009-2018) was also made to build the capacity and resilience of the country which was named as the Climate Change Action Plan (CCAP)¹⁵.

Mitigation and Adaptation Program. Per capita emission of green house gases of BD is insignificant to many developed countries. Even though, the country wishes to play its part in reducing emission. Mitigation measures are: a) Promotion of renewable energy; b) Conversion of automobile to CNG; c) Use of coal for brick kilns; d) Increased

10. Displacement Solutions, Geneva, Switzerland April 2012, '*Climate Displacement in Bangladesh: the need for urgent Housing, Land and Property (HLP) solutions*', <<https://www.displacementsolutions.org>> (accessed on 6 September 2014)

11. Ibid.

12. ibid

13. BCCSAP 2009, p-16

14. Haque, Mahfuzul 2013, *Environmental Governance: Emerging Challenges for BD*, A H Development Publishing House, Dhaka p-129

15. BCCSAP, Op Cit, p-27

efficiency of fossil fuel burning; and e) Introduction of Environmental Management System (EMS) for domestic and industrial energy use. For adaptation, National Adaptation Programme of Action (NAPA) suggested following adaptation measures to address the adverse effects of climate change¹⁶:

- Reduction of climate change hazards through coastal forestation with community participation.
- Providing drinking water to coastal communities to combat enhanced salinity due to sea level rise.
- Capacity building for integrating climate change in planning, designing of infrastructure, conflict management and land water zoning for water management institutions.
- Climate change and adaptation information dissemination to vulnerable community.
- Construction of flood shelter, and information and assistance centre.
- Mainstreaming adaptation to climate change into policies and programmes in different sectors.
- Inclusion of climate change issues in curriculum at secondary and tertiary educational institution.
- Enhancing resilience of urban infrastructure and industries to impacts of climate change.
- Development of eco-specific adaptive knowledge (including indigenous knowledge) on adaptation to climate variability.
- Promotion of research on drought, flood and saline tolerant varieties of crops to facilitate adaptation in future.
- Promoting adaptation to coastal crop agriculture to combat increased salinity.
- Adaptation to fisheries in areas prone to enhanced flooding.
- Promoting adaptation to coastal fisheries (salt tolerant fish).

Capacity of Government Agencies. Scholars and environmentalists are skeptical about the capabilities of the GoB agencies to implement the BCCSAP¹⁷. Poor planning, implementation, monitoring and evaluation due to lack of institutional capacity of the government agencies are posing challenges to the implementation process¹⁸. Insufficient

16. NAPA, Op Cit, p-xvi

17. Lecture by Dr. Ainun Nishat, Ph. D, Former Vice Chancellor of BRAC University, Dhaka Bangladesh on *Climate Change and Security*, 3 Jun 2014.

18. http://unfccc.int/files/adaptation/groups_committees/ldc_expert_group/application/pdf/bangladesh.

baseline scenario due to lack of research and data bank and, Insufficient fund causing partial achievement of the implementation process. Slow transfer of technological know how by developed countries is also causing setback for strategic implementation.

Lack of Success Indicator. BCCSAP-2009, NAPA and CCAP did not mention what would be the quantifiable indicators by which achievement could be determined. It also did not mention whether any Environmental Impact Assessment (EIA) or Social Impact Assessment (SIA) is required or not before deploying any adaptation interventions. In this regard, there is a need to develop indicators that will be useful to crosscheck the progress of climate change adaptation activities and put those assessment indicators in the future directions to address climate change impacts. The visible progress of the projects shows that GoB has not attained its objectives of first five year programme (2009-2013) at a desired pace. All these necessitate additional effort by the GoB which may be provide by the Bangladesh armed Forces in suitable sectors.

FEASIBLE SECTORS FOR BANGLADESH ARMED FORCES

BD Armed Forces is highly valued and regarded by many developed and powerful nations of the world because of its quick response and operational capability in the DM. Country like US whenever possible seeks opportunity to conduct DM related exercise with the BD Armed Forces because of its high degree of expertise and competence. It is desired that Bangladesh Armed Forces needs to take part in some of the important sectors to implement the climate change mitigation and adaptation strategy.

Opinion Survey. From an opinion survey it was found that 70% officers feel that pursuing a Climate Change and Disaster Management Institute in BD is feasible. On the other hand significant number of officers feel that ‘Promotion of Renewable Energy’ and ‘Conversion of Automobile to CNG’ are the mitigation measures where BD Armed Forces can participate to implement the CCAP. Many of them also opined that ‘Preparing cyclone shelters’, ‘Flood protection and drainage schemes to protect urban areas’ and ‘Coastal Embankment Projects designed to raise agricultural productivity’ are the priority fields for Armed Forces assistance to implement the climate change adaptation measures.

Coastal Forestation with Community Participation. During the cyclone ‘Aila’ coastal areas having green belt had lesser damage than the other areas¹⁹. With the participation of the locals, Armed Forces may expand the coastal forestation in support of the Coastal Green Belt Program. Already Jahijjar Char²⁰ under Noakhali Dist has been entrusted to BD Army for forestation and developing a military training area.

19. Minutes of the meeting held on 8 September 2011 at the Secretariat of the Ministry of Land on ‘Implementation of green belt project on the potential char areas bt Bangladesh Army’.

20. New Char (islands) in the Meghna River

Infrastructure for Food Security. During the 1991 cyclone total 1,73,290 kg relief goods had to be transported to the affected areas by 234 air and heli sorties. In 2007 after the cyclone ‘Sidr’ total 7,05,827 kg relief goods were transported by 325 air and heli sorties, which are very costly and time consuming. Table-2 shows that a cyclone similar to Gorky would require food supply for at least 1 million people and 0.35 million acres crop damage would require a long term support in this regard.

Table 2: Requirement of food supply for only cyclone victims					
Event	Bhola (1970)	Gorky (1991)	Sidr (2007)	Aila (2009)	Mahasen (2013)
Homeless	36,00,000	1,00,00,000	15,22,077	6,37,851	16,628
Crops Damaged	1.2 Million Acres	0.35 Million Acres	2.4 Million Acres	95,920 Acres	1400 Acres
Source: AFD ²¹					

Constructing mega drinking water plant in the coastal areas will reduce the pay load during the DM. Cyclone resilient food storage facilities may also be developed in supporting the local farmers to store their high yield crops and seeds, it will also ease up the post disaster relief operation.

Flood Shelter, Information and Assistance Centre. Since 2010 BD Armed Forces have successfully rehabilitated more than 25,000 families under Asrayon project. After the cyclone ‘Aila’ Armed Forces are reconstructing the coastal embankments successfully. They may be employed to construction flood shelter, information and assistance centre to assist the vulnerable people. Armed Forces have a very good and effective battle field compatible communication network which can be integrated with the information assistance system.

Eco-specific Adaptive Knowledge Agriculture and Farming

For demonstrating the application of eco-specific adaptive knowledge on adaptation to climate variability; Char areas may be utilized by the Armed Forces. This will also facilitate the planned and organized rehabilitation of climate refugee. Char areas also support the developement of agro farms, food processing industries, climate change resilient ideal coastal village by the Armed Forces for demonstrating, training and rehabilitating the climate change vulnerable people.

21. AFD Presentation by Brig Gen DSM Shaheedul Islam, afwc, psc to AFWC-2013

MILITARY STRATEGY ON CLIMATE CHANGE IN BANGLADESH

Climate change needs to be included in the national security strategies in order for the military to organize and react. Many Nations have already taken their Armed Forces on board and kept them in the forefront to deal with the environmental issues. In Canada, Armed Forces are working with other federal agencies, levels of government, and aboriginal groups to protect the environment.²² The US Quadrennial Defense Review (QDR)²³ also determined the role of armed forces on climate change issues. It is important for BD to identify suitable strategy, role and tasks for its Armed Forces to participate in the mitigation and adaptation strategy of the country.

Strategic Framework. Armed Forces operate in the National Disaster Management chain to play their assigned role. The term ‘Climate Change Mitigation and Adaptation’ may be brought under ‘Disaster Risk Reduction’ so that Armed Forces can play its role in the BCCSAP under the existing framework of National Disaster Management chain.

Reorientation of Maritime Boundary and Legal Aspects. With the sea level rise the new base line and the maritime boundary will be completely altered²⁴. BD needs to start the home work for pursuing the rights of its people to voice against this environmental aggression for which they are not responsible. The countries those are mainly responsible for the global warming have lot to do to support BD. BN may assist the concern ministry to prep resolution in this regard.

Climate Change Mitigation. To take part in the mitigation strategy BD Armed Forces need to opt for conversion of its automobile to CNG. However, option for using the fossil fuel may remain in vogue. This will provide an alternative to the logistic supply system during the war. 24 Infantry Division, upcoming Khulna and Ramu Division and a division in Barisal (proposed by the author), Naval and Air Bases along the coastal areas may assist in promoting the renewable energy (solar power and wind) in the Chittagong Hill Tracts and in the coastal areas. The same formations and bases may also take part in developing the Coastal Green Belt and mass forestation within their area of responsibility. They may also take some pilot projects on environmental management to facilitate the research on Climate Change Mitigation and Adaptation Measures.

22. Alex Boutilier, *Canadian Forces watching climate change carefully*, The Star, 26 August 2014
http://www.thestar.com/news/canada/2014/08/26/canadian_forces_watching_climate_change_carefully_rob_nicholson_says.html

23. It is a report that the US Department of Defense is legally required to conduct every four years. They talk to all the experts inside the department and work with academics and other experts outside the government. They project what future needs the department is going to have and think through the problems the department might confront over the next four years and into the future. Last QDR took place in Feb 2010.

24. These predictions are based on current data from the 4th IPCC Assessment.

Climate Change Adaptation

To build up the capacity Armed Forces to adapt itself first with the climate change impacts. It needs to be well trained to enhance awareness and shape up the mindset of its personnel. ‘Climate Change and National Security’ need to be incorporated in the training and the doctrine.

Mega Drinking Water Plant and Modern Food Storage Facilities. AFD may form a technical body to carry out a research to build water treatment plants in the coastal areas which will be climate change resilient and durable. BN may also develop ship based water treatment plants. BMTF need to be incorporated in this project to gradually induct its technological knowhow for subsequent service and maintenance support. This will reduce the pay load to supply drinking water during the DM. Each of the Formations and Bases responsible for the coastal area may construct required number of cyclone resilient food storage facilities in the coastal areas. This will facilitate the local farmers to store their high yield crops and seeds. It will also ease up the post disaster relief operation by reducing the transportation cost and pay load during the DM phase.

Flood Shelter, Information and Assistance Centre. Formations and Bases may assist the union IT Cells to develop a database of the climate change vulnerable community. The existing communication network and the facilities of the Armed Forces need to be integrated with the civil networks to augment and assist the civil administration for pre disaster warning, emergency preparedness measures and awareness raising programs on enhanced climatic disasters. Incorporating the database of the vulnerable community and their mobile numbers, the information dissemination system can be made more effective and digitalised. Each of the Formations and Bases responsible for the coastal area may construct required number of cyclone resilient flood shelters in the coastal areas. These shelters may be used by the military for training the locals and volunteers on developing the climate resiliency.

Eco-specific Adaptive Knowledge, Agriculture and Farming. For demonstrating the application of eco-specific adaptive knowledge (including indigenous knowledge) on adaptation to climate variability; Caring Char, Jahajjar Char and other areas vested to Armed Forces may be utilized by the Armed Forces. Presently only army is developing these chars which needs an integration of other services to take part for a comprehensive security from climate threat. After successful completion, these areas may be planned and organized to rehabilitate the climate refugee with sustainable climate resilient livelihood. BD Army may develop a large scale cattle farm in the wide char lands of Jahajjar Char along with some meat processing industries. This industrialisation will open the employment opportunity of the climate refugees.

Training and Research by the Armed Forces. BD Armed Forces need to incorporate ‘Climate Change and National Security’ as a subject for training. The high cost of research must be viewed from the perspective of Vision 2021 and 2041, when BD is expecting to be a middle income and a developed country respectively. A Detailed Area Master Plan on Coastal Area (DAMPOCA) is necessary for implementing the NAPA. MIST may be tasked for developing DAMPOCA and to carry out associated scientific research in the subject. They should be able to carry out necessary research for developing suitable model of accommodation, infrastructure and transportation that is well suited with the livelihood and the environment of our coastal people. To take US as an example, its military has a history of spearheading advanced technologies, which are later, transferred to the civilian sector²⁵. BD Armed Forces need to start some research on BCCSAP, when the climate is threatening its territorial integrity.

Rehabilitation and Capacity Building of Vulnerable People. BD Armed Forces and other law enforcing agencies have inducted number of tribal who were either homeless or victim of the insurgency operation in Chittagong Hill Tracts. There is no difference between a war victim and a disaster victim from a refugee’s point of view, both are homeless. One blames the warriors and other blames the nature. So, Armed Forces and the other Law Enforcing Agencies should be ready to induct climate refugees and victims within their organizations. Armed Forces Units and Installations in the coastal area may have separate role, task and organization keeping this point in view. This will be the best rehabilitation for the potential climate refugee.

Development of International Institution for Climate Change and DM. BD may take advantage of its expertise, experience and exposure of DM capacity in the international forum to develop an Institute for Climate Change and DM by necessary funding from the developed countries. This will enhance BD’s capability to implement the CCAP and NAPA and make BD a Global focal point for climate change issue for furthering its interest.

Challenges and Limitations

Since the roles and tasks of BD Armed Forces have widened enough therefore, it may have different roles and task for the Formations and Bases in the coastal areas addressing the BCCSAP. Armed Forces may gradually withdraw its manpower deputed to other organizations to engage in the BCCSAP. Venturing to undertake the proposed tasks of BCCSAP will be challenging but it is the Armed Forces which is trained and organized to face any challenge for pursuing the national security interest. Armed Forces Personnel need rigorous training to clear their perception about the meaning of ‘In Aid to the Civil Power’ to stop any highhandedness of the Armed Forces personnel over the civil authority while implementing the BCCSAP. BD Armed Forces should be beyond

25. Xie Yanmei, Security alert, 2010 <https://www.chinadialogue.net/article/show/single/en/3546-Security-alert>

any question regarding the accountability and fund management for implementing any projects of BCCSAP. Last but not the least, the mindset of the Armed Forces personnel need to be inclusive to understand that Climate Change as a security threat to the state.

Hard Military vs. Capacity Building for Climate Change Action Plan

From the military point of view modernization of military always focus around the procurement of modern weapon system, armaments, arsenals etc. It is always a challenge to determine whether to shade the fund from traditional security sector to the non-traditional security. It is quite ironic and sometimes self-defeating because comprehensive security demands adequate focus on non-traditional security. People are the base element of the state whose rights to individual security is a constitutional obligation. When these people face challenges with their rights on food, water, energy and a host of others due to the climate change impact; the military needs to be convinced to spend their budget for developing their capacity to combat non-traditional security challenges. Military needs to balance their security spending to ensure that people are safe. Unfortunately, global economies do not work in this manner, and internationally, politics do not allow BD to behave in that manner. But many people realise that military have to reduce spending on hard military and build more resilience and a comprehensive security strategy²⁶. Debate must start on the issue of spending more on mechanized maneuvering units' vs modernizing the Army Engineers; procuring battle ships vs vessels for DM; modernizing fighter squadrons vs helicopter or transport aircraft. However, before the debate starts Armed Forces personnel need to undergo the awareness and sensitization program on 'Climate Change and Comprehensive Security Strategy for BD'.

CONCLUSION

Climate change is an environmental source of threat in BD. Ecological threat due to climate change poses non-traditional security threat to the elements of societal and human security from different dimensions. Climate change also poses cultural, health, and life threatening risks comparable to the impact of warfare. Government has prepared BCCSAP 2009 to counter this threat. BD Armed Forces need to implement some of the strategies of BCCSAP to pursue the non-military security interest of the nation.

Its impacts undermine national security by forcing millions of people to become 'Climate Refugee' which is potentially a serious problem for state legitimacy and internal harmony. It also affects the cross-border security that has damaged the diplomatic and people to people relation in this region in the past. BD will not be able to absorb these refugees after the loss of huge land due to the sea level rise. There may be a spill over migration; conflict along the border of India-BD-Myanmar and in worst case will create dangerous conflicts in other parts of the world.

26. *ibid*

To implement BCCSAP a 10-year programme ‘Climate Change Action Plan’ was made. But the implementation of 1st five year (2009-2013) has not progressed in desired pace. Poor planning, implementation, monitoring and evaluation due to lack of institutional capacity of the government agencies are the main causes for the slow pace of implementation. The other challenges are lack of prioritisation and ad hoc nature of projects.

Because of quick response and operational capability on DM, BD Armed Forces is highly valued and regarded in the home and abroad. BD Armed Forces is recognized by people, communities and government as capable forces for nation building activities. Both the military and the civilian personnel of GoB also realize that Bangladesh Armed Forces may participate in implementing the BCCSAP strategies to augment the GoB efforts. Many nations have already assigned their armed forces to deal with climate change insecurities.

For the participation of BD Armed Forces, the term ‘Climate Change Mitigation and Adaptation’ may be brought under ‘Disaster Risk Reduction’ so that Armed Forces can play its role in the BCCSAP under the existing framework of National Disaster Management chain.

Formal initiatives need to be taken to materialize the term “climate refugee” to preserve special rights and privilege for them. BD may pursue an Institute for Climate Change and DM in BD. AFD may formulate a draft resolution concerning the sea level rise, orientation of base line, maritime boundary and the legal consequences for BD and assist concern ministry. The resolution may also focus the issue of environmental aggression and seek financial compensation from the countries responsible for global warming.

BD Armed Forces may undertake following projects: Conversion of military automobile to CNG; Raising Khulna, Barisal, and Ramu Division with BCCSAP oriented role, task and organization; Renewable energy (solar power and wind) projects, coastal green belt and mass forestation projects by coastal formations and bases; Climate change resilient and durable water treatment plants including ship based water treatment plant, food storage facilities and flood shelters in the coastal areas; Employment of climate refugees and victims in the military organizations; Inducting ‘Climate Change and National Security’ as a subject for military doctrine and training; Developing a mega cattle and agro farm with a meat processing industry in Jahajjar Char.

Char areas vested to Armed Forces may be utilized for demonstrating the application of eco-specific adaptive knowledge and to rehabilitate the climate refugee with sustainable climate resilient livelihood. At least one thesis on climate change impact in BD may be made compulsory for the engineering students of MIST. A research and development wing may be integrated with MIST to spearhead research and pursue the

development of climate change adaptive technologies. MIST may develop a Detailed Area Master Plan on Coastal Area and carry out associated scientific research focusing on accommodation, infrastructure and transportation that are well suited with the livelihood and environment of our coastal people.

Precise and comprehensive awareness program need to be undertaken to sensitize Armed Forces personnel on the detrimental effect of highhandedness while assisting the civil authority for implementing the BCCSAP. AFD may organize debate on the issue like: mechanization of maneuvering units' vs. modernizing the Army Engineers; procuring battle ships vs vessels for DM; modernizing the fighter squadrons vs. procurement of more helicopter/transport aircraft; to counter environmental threat.

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