

Evaluating services of forest

Biodiversity contributes considerably to economy and environment

DR. M. A. BASHAR

IN developing countries, the necessity of publicising services of forests is severely lacking. This sector must be given attention with special emphasis. The country like Bangladesh has to be very serious in all respects to understand and exercise the services offered by the forests. We must remember that the services are very important and useful and they could be made so when and if we become serious about maintenance of forests.

Services of forests are categorised into two broad types. The type 1 includes those services for which a formal market exists or can be developed. These services are: clean water, grazing, ecotourism, recreation, hunting and gathering. The type 2 includes services or functions that are largely intangible and not sold through market. The services are: cultural and spiritual values, influences on climate, erosion control and conservation of biological diversity. This second type of services might be better classified as forest externalities; that is, the services of forest that deliver a welfare benefit but not fully accounted for in price and market systems.

Recently, progress has been made to price and sell several forest-services

The indirect contribution of biodiversity are the services that are crucial to human wellbeing. This type of contribution is more difficult to quantify or value than direct contribution and in some cases it may be difficult to recognise. It should be a relationship between biodiversity and ecosystem functioning.

that were largely non-marketed in the past. For example, the carbon sequestration and storage functions of forests are becoming more "marketable" under new international agreements. Similarly, forest genetic resources, and the associated functions of biological diversity conservation, are increasingly being valued and marketed.

All the above are services of the forest ecosystem. Forest ecosystem is part of the integral ecosystem. Ecosystem diversity is itself one of the components of biodiversity as the components are species diversity, genetic diversity and ecosystem diversity. Services coming from any one of the components of biodiversity are the contributions of biodiversity as a whole to the humans and to the environment. The contribution of biodiversity renders the widespread canopy character-

istics of its definition.

Evaluating contribution of biodiversity to national economy needs a widespread practice to define biodiversity in terms of genes, species and ecosystem -- corresponding to three fundamental and major components of biological organism. Three major components of biodiversity (genetic diversity, species diversity and ecosystem diversity) have significant contribution to national and global economy. The contribution of biodiversity can be divided into two broad and self-explanatory fields: **direct contribution and indirect contribution.** The direct contribution of biodiversity essentially concerns marketable commodities and the scale of this contribution is enormous and extremely multifaceted. The direct contributions of biodiversity are in the fields of **food, medicine, biological control, industrial materials, recreational harvesting and ecotourism.**

Biodiversity directly provides food for humans, which is the foundation of all our food industries and related services. The use of wild species and varieties to supply genes for the improvement of cultivated and domesticated species and replacement of genetic variation in crops and livestock very much influences national as well as global economy. Biodiversity plays a vital role in maintaining the health of human population. More than 60% of the world's human population relies almost entirely on plant medicine for primary health care. The economic returns of biological control programme can be huge, with the monetary values of annual gains in food or other crop production perhaps exceeding by many times the entire investment in control programmes.



Biodiversity contributes directly in national economy through industrial materials including building materials, fibres, dyes, resins, gums, adhesives, rubber, oils and waxes, agricultural chemicals and perfumes. Multifarious recreational harvesting including hunting and fishing as well as harvesting of plants and animals is of huge commercial value for trade. Tourism as a whole is one of the fastest growing industries in the world. Ecotourism directly depends on biodiversity and it can be of huge economic significance at national and global level.

The indirect contribution of biodiversity are the services that are crucial to human wellbeing. This type of contribution is more difficult to quantify or value than direct contribution and in some cases it may be difficult to recognise. It should be a relationship between biodiversity and ecosystem functioning.

Biodiversity deals with production of biomass in any region of the bio-

sphere and this is the speciality of biodiversity and biodiversity conservation. Biodiversity is structured by the practicality of biodiversity conservation as well. Biodiversity conservation ensures augmentation of species richness and species assemblage in an ecosystem. When species richness in plant-kingdom increases in an ecosystem, the increase of interactions between both biotic-biotic and biotic-abiotic factors is ensured. These interactions are key to creating ecosystem services. Then the ecosystem becomes strong enough to provide good services to humans and environment. And that is why biodiversity contributes both to the economy and environmental soundness in the area where it remains in sustainable status.

It happens that when biodiversity provides an increase of species richness in plant kingdom, it creates opportunities for conversion of more abiotic energy into biotic molecules; and then biomass production

increases. The increased biomass production contributes fruitful ecosystem-services both to economy and environmental functioning through the successive trophic levels. These contributions are natural and do not have any side impact on environment. Because of the fact, biodiversity can contribute towards increase in renewable energy in a better way than any other physical resources.

Services of biodiversity are the services of ecosystem functions that stand essential for human life and economic well-being, such as waste breakdown, climate regulation, erosion control, etc. These can be further categorised as regulating, supporting, and provisioning services of nature or forest towards contributions of biodiversity in economy and in the nature conservation as well.

The writer is Professor, Department of Zoology and Former Dean, Faculty of Biological Sciences, University of Dhaka.



Contribution of biodiversity to the nature is enormous.

DOHA CLIMATE CONFERENCE

What the outcome yields for Bangladesh?

MD. MAHFUJUR RAHMAN

THIRTY-SEVEN industrialized countries had been accused of releasing Greenhouse gases in Kyoto Protocol under United Nations Framework Convention on Climate Change (UNFCCC). Signatory members to the UNFCCC have been meeting annually in Conference of the Parties (COP) to assess progress in dealing with climate change since 1994. This year Climate leaders from all over the world gathered at Doha from 26 November to 8 December 2012 to find 'what to do' for reversing the grim effect of global anthropogenic climate change. However, outcomes are a mixture of both success and failure with depiction of slow pace in progress.

Climate change and Bangladesh Being a high density and low per capita resource country, Bangladesh is very vulnerable to climate change impacts. According to recent research outcomes, it is in second position with respect to climate change vulnerability after Haiti. This floodplain and deltaic country having tropical climate has been a gross victim of flood, cyclone, drought and salinity ingress due to increased temperature, changing pattern of rainfall and variance of water flow in major rivers much of which relate to climate change effect.

The changes in climatic factors are affecting life and livelihood of millions of people in Bangladesh. Due to change in seasonal distribution of rainfall early and late floods are commencing in the haor areas more frequently. Such haor floods destroyed major crops of the area in 2010. Scarcity of potable water and reduced agricultural production are major threats in coastal districts due to rising sea level and salinity ingress. People in many areas of Chittagong and Khulna are compelled to store rain water in monsoon for drinking purpose all the year round. Drought in Rajshahi district tremendously affected mango production in 2011. Rising flood water in the flood plains of Jamuna, Padma and Meghna

river and salinity in the coastal districts such as Patuakhali, Jhalakathi are major threats to rice cultivation. Not only this the number and severity of tropical cyclones hitting the coast of Bangladesh have increased also. When a cyclone occurs, it floods paddy fields with sea water, damage home, standing crop and irrigation systems and destroy seed supplies. A huge number of people are yet homeless due to cyclone Sidr and Aila. Death from cold shock and heat stroke has also increased in Bangladesh due to unusual severity of the seasons.

Coping with global warming Overall, the aggregated emission-reduction pledges of all Parties fall far short of what is needed to get the world on track for limiting global warming to 2 and 1.5°C above pre-industrial levels.

The Climate Action Tracker added up the international reduction target and pledges of individual countries, and has estimated that global emissions in 2020 would total 54 billion tonnes CO₂/year in 2020. In spite of having minimal contribution to GHGs emission poor and developing countries are the worst victim of climate change. Climate justice says that those who are responsible for the harmful change should compensate. Developing countries like Bangladesh need long-term and guaranteed finance, efficient technology transfer and capacity building for adaptation. For that immediate release of fast track fund, replenishing other existing funds and keeping pledge and commitment are essential. The procedure for LDCs to access adaptation funds right now is cumbersome. Binding commitments from Annex-1 parties to reduce emissions are must for global emission reduction. Reductions from large emitter developing countries are also necessary in regime where India and China are emerging as big emitters.

Outcomes of COP 18

Outcome of COP 18 is a mixture of success and failure. The conference

Outcome of COP 18 is a mixture of success and failure. The conference decided to continue the Kyoto Protocol to a second commitment period and articulated the need of a new agenda, 'loss and damage'. These are successes while the conference has quite some failures as well.



decided to continue the Kyoto Protocol to a second commitment period and articulated the need of a new agenda, 'loss and damage'. These are successes while the conference has quite some failures as well.

Continuation of Kyoto Protocol: One of the key successes of COP 18 is that it ensured the continuity of Kyoto Protocol up to 2020 that would mean uninterrupted support of developed countries to emission reduction in developing countries through CDM projects. The Kyoto Protocol was adopted in 1997 and legally bonded developed countries to emission reduction targets. The protocol's first commitment period was 2008-2012. Now it has been binding for the Annex-1 countries to reduce GHGs emission upto 25-40% below the emission base of 1990 by 2020. Countries taking on further commitments have agreed to review their emission reduction commitments at the latest by 2014. However, Australia, the EU, Japan,

Lichtenstein, Monaco and Switzerland have declared that they will not carry over any surplus emissions trading credits (assigned amounts) into the second commitment period.

Fast start finance and long term finance: Towards the end of the most hilarious annual conference on climate change in the world, Doha's COP 18, finance is still a big issue to handle. Numbers are not yet on the table, except one from UK pledging £ 2.9 billion by 2015. EU did not give any number for their unfinished budget. Without giving any pledge many developed countries assured saying 'we will continue funding'.

Green climate fund: In Doha countries pledged or provided a little more than \$10 million to the Green Climate Fund (GCF) to meet its administrative costs as its Board works to further operationalise the fund in 2013. Countries also agreed to develop the rules of engagement between the COP and the GCF board in order to allow the COP guide the

fund's strategic direction without interfering in its day-to-day operations. The Standing Committee on Finance, acting on behalf of the COP, will work with the GCF Board to develop these rules through 2013, with the goal of agreeing on them by COP 19.

Adaptation for vulnerable countries: COP 18 launched a new set of adaptation planning efforts by approving a set of technical guidelines to help Parties develop National Adaptation Plans (NAPs) as long-term, flexible, and iterative planning processes to help build adaptive capacity and respond to climate change. Least Developed Countries' Fund (LDCF) would be utilised to meet the full cost of preparing the NAPs for LDCs. The conference also approved the three-year work plan of the Adaptation Committee, which represents an important new effort to promote coherence among the many adaptation negotiation streams under the Convention.

Measurement, Reporting, and Verification (MRV): Though COP 18 was scheduled to adopt a cost-effective verification regime for developing countries, they left Doha with divergent views on how this process -- known as international consultation and analysis (ICA) -- should be conducted. However, on the effective use of existing institutions like the Consultative Group of Experts (CGE), a technical assistance body was created to help developing countries meet their reporting requirements.

Mitigation by developing countries: Developing countries agreed to a two-year work programme on mitigation, with opportunities for international organizations to shape relevant guidance that will help these countries design and implement their nationally appropriate mitigation actions (NAMAs). But how the mitigation activities would be financed was not assured.

Loss and damage of Asian countries: Though developed country Parties had resisted any concrete

decision on this issue because of challenges associated with attributing specific losses and damages directly to climate change, but under persistent pressure from least developed countries (LDCs) and island states, the Parties agreed to establish by COP 19 "institutional arrangements, such as an international mechanism" that would help vulnerable, developing countries deal with the irrecoverable losses and damages from climate change. But it is unclear that what "institutional arrangements" would mean.

Forests / REDD: For many, this was a disappointing COP for REDD+. Parties had two major tasks during the negotiations on reduced emissions from deforestation and forest degradation (REDD+): to address technical issues under SBSTA, and to clarify how finance would be made available to countries taking REDD+ actions. Had these tasks been completed, many believe that REDD+ architecture would be largely finished. Unfortunately, in both cases the outcome was to defer decisions for later.

Concluding remarks

Rural communities are at high risk of natural hazards like flood, cyclone and salinity ingress in coastal region due to climatic impacts. Though government's capacity is well proven in disaster management, it may not perform its duty as efficiently in a changing climate regime. Though there are some glimpses of hope, the total scenario is dismaying. Continuation of KP, pledges for green climate fund and formal recognition on 'loss and damage' are some examples of successes. However, new pledges, pace of fund release and amount from the developed countries are not sufficient for adaptation of developing countries. There is not any direct funding for most vulnerable countries like Bangladesh. Even the criteria of being eligible for receiving financing adaptation projects from *Adaptation Fund* are too strict to access. Responses of the developed countries are slow which is ultimately slowing down the process.

The writer is an Impact and Policy Officer at Islamic Relief, Bangladesh.