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Challenges of Achieving SDGs in Bangladesh: An Assessment of Biodiversity under Sustainable Development Goal-15

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ABSTRACT

This paper explores the challenges of implementing Sustainable Development Goals (SDGs) focusing on biodiversity goal. Biodiversity loss is one of the critical environmental problems, and the stock of biodiversity is gradually decreasing due to increasing population and pressure on forests, land, and water. On the other hand, the value of biodiversity is significant for humanity and overall sustainable development. The findings of this research indicate that there are many challenges to restoring the loss of biodiversity and protecting the biodiversity from loss; that is, implementing the SDG. The challenges include inadequate financing, data gaps, lack of capacity, difficulties monitoring progress, insufficient interagency cooperation, and bad biodiversity management through EIA. This research also recommended overcoming these challenges to achieve the goal. The recommendations include filling the data gap, financing biodiversity protection, incorporating biodiversity issues into sectoral planning and policies, addressing biodiversity impacts through EIA, future budgeting for biodiversity protection, inclusive participation, and developing institutional mechanisms.

Keywords: Biodiversity, SDG, Challenges, Bangladesh

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INTRODUCTION AND BACKGROUND

Bangladesh achieved the Millennium Development Goals (MDGs) by 2015, as declared by the United Nations. Given this successful story, Bangladesh has taken the initiative to achieve Sustainable Development Goals (SDGs) by 2030 (Rahman, 2021). All countries worldwide are taking necessary initiatives, including implementing action plans to achieve the universally declared SDGs (Oosterhof, 2018; Momen & Ferdous, 2023). All nations have agreed to this agenda, which applies to all nations considering their various national realities, capacities, development stages, and policy priorities (Lucas, 2014). They balance sustainable development's social, economic, and environmental aspects and are interwoven and indivisible (Planning Commission, 2016).

While the country will be a lower middle-income country and economic growth has been around six since the 1990s, there is a long way to go to achieve the vision 2041. Significantly, this will largely depend on the achievement of SDGs by 2030. Among the seventeen SDGs, one of them is biodiversity protection. Bangladesh is a relatively small country with a of about 160 million (BBS, 2011). Due to unlawful population intervention and unplanned infrastructural development, such as the construction of roads and establishment of industries, biodiversity in Bangladesh is under threat. It is imperative to protect biodiversity in Bangladesh to get ecosystem services and the value of biodiversity from land and water.

While the Government of Bangladesh successfully implemented the MDGs, the SDGs are expected to be achieved by 2030. However, this is a daunting task, and many challenges are ahead. With this issue in mind, this paper focuses on the challenges of achieving the SDGs. In particular, the challenges of protecting biodiversity from loss, one of the seventeen SDGs, will be analysed.

As mentioned above, biodiversity is one of the and an integral part of the environment. In Bangladesh, biodiversity has been lost to a great extent due to a lack of enforcement of the law, a lack of understanding by people about biodiversity, industrial pollution, and many other reasons (Mukul et al., 2018). This suggests that we need to restore biodiversity loss on the one hand and protect the existing biodiversity on the other (Faroque and South, 2022). Importantly, this paper the challenges of achieving SDGs with a particular focus on biodiversity. The challenges are still unexplored. This paper will also recommend how to address challenges. Therefore, this timely study is expected to contribute to policymakers and academics finding ways to protect biodiversity from loss. The findings of the paper will be helpful to the government of Bangladesh. Importantly, this paper will provide insights into the biodiversity loss in Bangladesh and the challenges to protecting biodiversity.

The main aim of this paper is to find the challenges of achieving biodiversity with the following objectives. These include:

- 1. To analyse the situation of biodiversity loss in Bangladesh
- 2. To identify the challenges in achieving the goal of biodiversity
- 3. To recommend for achieving the goal for biodiversity



Figure 1: Sustainable Development Goals

LITERATURE REVIEW

The vast array of about 9 million distinct living species that inhabit the world and their interactions are generally called biodiversity. The idea encompasses all known species of bacteria, viruses, plants, fungi, and animals and the variety of genetic variations among them. It also includes the variety of habitats, the composition of species, and the continuous evolutionary processes that enable them to persist and adapt (UNEP, 2013).

These shifts in biodiversity alter ecological processes and affect how resilient ecosystems are to environmental change. This significantly impacts the services that ecosystems offer to people (Chapin et al., 2000). Without biodiversity, which encompasses creatures, ecosystems, and ecological processes, human society would not be able to exist. They give us clean air and water. They cycle carbon and fix nutrients. They control diseases and pests, help prevent flooding, allow plants to flourish, provide human food, and regulate the climate. We refer to these advantages as ecosystem services. Humans benefit from biodiversity because it is a constant reminder that, even though we live primarily in cities, we are inextricably linked to the natural world. Since we are a part of the environment, we rely on it. Biodiversity is the "life insurance policy for life itself" (McNeill and Shei, 2002). Here are six reasons why we should all value the biodiversity of the earth:

- 1. **Moral considerations:** It is better to live in a culture that values protecting and caring for wildlife and natural areas over one that does not.
- 2. For aesthetic purposes: all animals and landscapes should be preserved because they are beautiful and improve human lives.
- 3. **Fulfilling significant natural roles:** Because they perform natural functions, ecosystems are beneficial to us. For instance, bacteria are critical in an ecosystem's ability to recycle nutrients and break down dead plant and animal remains.
- 4. People can profit materially and economically from the actual and potential sense of biodiversity.
- 5. The ongoing evolution of processes.
- 6. **Protection:** Nobody can predict what future needs humanity may have. There is no way that people can gain from extinct species (Chapin et al., 2000). The Economic Commission (EC), Development Fund for International Development (DFID), and International Union for Conservation of Nature (IUCN) researched the subject. They identified the following seven principles as the guiding principles for biodiversity in development cooperation (Box 1). The fundamental idea is that biodiversity is vital to many people's lives and not merely a metric of sustainable development or an issue for environmentalists.

Principle A: When designing development cooperation programmes, take an ecological and multi-sectoral approach (considering the effects on nearby and downstream areas).

Principle B: Encourage just and equal distribution of the costs and gains associated with protecting biodiversity and using resources sustainably at all levels—local, national, regional, and global.

Principle C: Promote complete stakeholder participation, including collaborations between the public and commercial sectors and civil society.

Principle D: Ensure the organisational structures are responsive, inclusive, transparent, responsible, and effective.

Principle E: Make sure that initiatives and programmes related to development cooperation align with the larger framework of policies or that laws and policies that support them are modified.

Principle F: Make use of or supply pertinent, accurate, multidisciplinary data that is understandable and accessible to all parties involved.

Principle G: Investments in development cooperation should recognise and support local and national capacities, procedures, and structures.

Box 1: Guiding Principles for Biodiversity in Development Cooperation Source: DFID, IUCN, and EC, 2001

Globally, adverse changes to biodiversity, particularly species extinction, are occurring at an alarming rate; nevertheless, the fundamental and distinct environmental concern in emerging nations is biodiversity loss (Adenle et al., 2015). Concerns about the loss of artificial biodiversity have arisen worldwide as a result. Changes in the biodiversity around us impact all of us. Biodiversity is rapidly declining worldwide. Numerous species have been extinct due to the rapid increase in human population from 2 to 7 billion in just 100 years. Scientists agree that we live through the first global extinction event caused by human activity and climate change. They also concur that the rate at which this occurs is too quick for species to adjust. Given the increasing body of evidence linking biodiversity loss is alarming. As a result, there may be detrimental compromises to the services on which we depend. One of the megatrends that could significantly influence Australia in the upcoming decades is the reduction in biodiversity, according to CSIRO's most recent report, Our Future World 2012 (CSIRO, 2015).

According to the Economics of Ecosystems and Biodiversity study, the annual loss of ecosystem services from land-based ecosystems alone to global wellbeing would be roughly €50 billion in the case of business as usual. However, everyone depends on the advantages that biodiversity and ecosystem services offer. Benefits from biodiversity are substantial for vulnerable and impoverished populations and indigenous peoples. The poor and vulnerable, women, children, and Indigenous peoples, on the other hand, are more directly affected by biodiversity loss and degradation, and the consequences are more severe (UNEP, 2013).

Loss of Biodiversity in Bangladesh

In Bangladesh, as in many other parts of the world, relatively few ecosystems are unaffected by human activity (Department of Environment, 2004). Bangladesh is prone to natural disasters. Every year, the nation is devastated by natural catastrophes such as tropical cyclones, storm surges, floods, tornadoes, and droughts. Natural disaster frequency and intensity have grown as a result of climate change. Bangladesh is a nation in the lowlands. Less than five meters separate the majority of the country from sea level. Lowland coastal areas will suffer from saline water intrusion and rising sea levels (SLR) brought on by climate change (Uzzaman, 2014).

Biodiversity is impacted by climate change both directly and indirectly. Climate change has a complex effect on forests and biodiversity. The IPCC predicts that at least one-third of the world's forests will suffer from climate change, which will lower precipitation, soil fertility, and carbon sinks. According to the Intergovernmental Panel on Climate Change (IPCC), tropical forest ecosystems would suffer due to climate change (Government of Bangladesh, n.d).

The nation has seen various development initiatives. Our ecosystem is under extreme stress due to industrial development, the growth of agricultural settlements, fast urbanisation, and rural infrastructure development combined with population growth. These factors have exacerbated habitat degradation. These processes deplete our biological resources in both cultivated and wild stages and at species, ecosystems, and genetic levels.

According to studies, only 100 of Bangladesh's 6000 or so vascular plant species have been classified as threatened (Khan et al., 2001). Numerous additional species, particularly those of medicinal plants, are under extreme strain from habitat loss and overuse. The Red Data Books of Bangladesh have listed about 220 species of vertebrates, including fish, amphibians, reptiles, birds, and mammals because they are in danger of going extinct. According to a review of historical and contemporary trends in animal extinctions and population decreases, aquatic ecosystem-dependent species appear more vulnerable. On the other hand, flora found in terrestrial forests are the most threatened (Government of Bangladesh, 2004).

The nation is home to a diverse array of wildlife as well. Approximately 138 mammal species, over 566 bird species (passerine and non-passerine), 167 reptile species, and 49 amphibian species may be found in Bangladesh. According to the IUCN (2015) and Islam et al. (2003), there are also at least 253 species of freshwater inland fish, 305 species of butterflies, 305 species of prawn or prawn,

2,493 species of insects, 362 species of molluscs, 66 species of corals, 15 species of crabs, 19 species of mites, 164 species of algae, and four species of echinoderms thought to exist in the nation (Allendorf et al., 2024; IUCN: 2015, Islam et al., 2003).

Bangladesh's Red List by the IUCN The Red List of Bangladesh was updated recently by the International Union for Conservation of Nature and Natural Resources (IUCN), revealing 390 vulnerable animal species in Bangladesh. Of them, 181 are endangered, 153 are vulnerable, 56 are highly endangered, and 31 have been determined to be regionally extinct. Additionally, 278 species were designated as "Data Deficient" on the Red List of Bangladesh because there was not enough information available to do a direct or indirect evaluation. This creates the chance for more thorough study and beneficial conservation initiatives (Munira, 2017).

Initiatives to Protect Biodiversity in Bangladesh

In Bangladesh, biodiversity conservation has recently drawn more attention despite natural ecosystems' rapid loss and degradation (Mukul et al., 2018). As a signatory to numerous regional and international conventions and agreements about conservation, the Bangladeshi government is increasingly dedicated to protecting the nation's surviving biodiversity. The government has already ratified five major conventions about biodiversity: the Ramsar Convention, the Convention on Biological Diversity, the Convention on International Trade in Endangered Species, and the Convention on the Conservation of Migratory Species (Mukul, 2007).

In addition, the nation has implemented several in-situ and ex-situ conservation strategies to preserve its unique biological legacy. Among these are the declarations of ecologically essential and protected places. In situ conservation techniques are commonly employed in World Heritage and Ramsar Sites (Mukul et al., 2008). The Environmental Protection Act of 1995 states that if a region in Bangladesh becomes environmentally sensitive, the Department of Environment may designate it as an Environmentally Critical region or an Environmentally Protected Area. There are 38 protected areas in the nation, comprising 21 animal sanctuaries and 17 national parks. Bangladesh's protected areas include 1.8% of the nation's total land area and around 17.5% of its forest area (Mukul et al., 2018; Mukul et al., 2008). The country also boasts two safari parks, seven ecoparks, and botanical gardens, all of which significantly contribute to preserving the declining biodiversity of the nation.

Bangladesh is dedicated to protecting and conserving biological variety for current and future generations, following the convention principles as a signatory to international agreements on biodiversity. Following a protracted stakeholder consultation process, the government created the National Biodiversity Strategy and Action Plan (NBSAP) paper in 2004. Sixteen strategies have been devised to mould and guide the actions towards accomplishing the NBSAP's aims and objectives. To further safeguard biodiversity, the government created the Biodiversity Act of 2015. Any infraction of the law could result in a fine of up to Tk 10,000, five years in prison, or both.

Biodiversity as SDG

Despite the initiatives taken by the government to protect biodiversity loss, the loss of biodiversity is continuing in Bangladesh and worldwide due to the impacts of climate change and many other reasons. Thus, stopping the loss of biodiversity is a crucial component of Goal 15, which also includes the following objectives: (a) protecting, restoring, and promoting the sustainable use of terrestrial ecosystems; (b) managing forests sustainably; (c) preventing desertification; (d) stopping and reversing land degradation; and (e) halting the loss of biodiversity. Under this aim are 12 targets (Box-2), of which six are directly related to biodiversity loss.

- By 2030, conserve mountain ecosystems, particularly their biodiversity, to increase their ability to offer essential advantages for sustainable development.
- Take prompt, urgent action to reduce the loss of natural ecosystems, halt the loss of biodiversity, and, by 2020, prevent the extinction of endangered species.
- Encourage fair and equitable distribution of the advantages of harnessing genetic resources and adequate access to them, as agreed upon worldwide.
- By 2020, incorporate biodiversity and ecosystem values into national and local development protocols, accounts, and poverty reduction programmes.
- Rally support for the conservation and sustainable use of ecosystems and biodiversity and significantly increase financial resources from all directions.
- Increase international backing for programmes aimed at putting an end to the poaching and trafficking of animals under protection, mainly by providing more opportunities for local communities to pursue sustainable economic alternatives.

Furthermore, biodiversity is not only inextricably linked with other sub-goals under Goal 15, such as promoting territorial ecosystems, forest management, and combating desertification and land degradation, but it is also linked with other Goals. In several SDG areas, biodiversity plays a key role (World Bank, 2015). A recent study by the World Bank indicates a relationship between biodiversity and the other 14 SDGs (World Bank, 2015). Figure 2 shows a link between biodiversity and some of the other goals.



Figure 2: Relationship between biodiversity and other SDGs Sources: (World Bank, 2015)

For instance, biodiversity offers resources and revenue, especially to the impoverished in rural areas who rely on ecosystems and biodiversity for their daily needs. Between 50% and 90% of the overall source of livelihood for disadvantaged rural and forest-dwelling households—the so-called "GDP of the poor"—comes from ecosystem services and other non-marketed items (World Bank, 2015). In Brazil, initiatives to enhance nutrition by bringing attention to the nutritional content of native species were undertaken by several ministries, including those dealing with social development, the battle against hunger, health, education, agriculture, and rural development. The National Plan for Agroecology

and Organic Production, the Food Acquisition Programme (PAA), the Minimum Price Guarantee Policy for Biodiversity Products (PGPM-Bio), the National Food and Nutrition Policy (PNAN), and the National School Meals Programme (PNAE) are just a few of the initiatives they created. By offering minimum price guarantees, they helped growers and tried to establish marketplaces. Social organisations and educational institutions receive products (World Bank, 2015).

METHODS AND MATERIALS

Methods of data collection

This is qualitative research; data were collected from primary and secondary sources as described below.

Secondary Data Collection: For secondary data, documents such as policy papers, government documents, journal articles and research reports made by various agencies were analysed. Moreover, this study is based on expert opinions on managing and conserving biodiversity in Bangladesh.

Primary Data Collection: A semi-structured questionnaire was used to gather primary data (Appendix 2). Speaking with experts in the field and seasoned professionals in biodiversity and the Sustainable Development Goals (SDGs) at different levels of national government, international organisations, and other agencies, the researcher conducted phone conversations or in-person meetings. A questionnaire was also used to elicit expert viewpoints on issues of biodiversity loss in Bangladesh and the challenges to achieving this SDG. Expert opinions provided insights on the issues of biodiversity loss in Bangladesh as one of the SDGs and challenges to achieve this goal. A total of 30 key informants or experts were contacted with questionnaires. Key informants included local officials and stakeholders, selected through purposive sampling based on their roles. However, 20 persons responded to this research. In addition, efforts were made to collect data on how the District Administration can support achieving the biodiversity goal during field visits. The researcher visited Barisal District for five days (from 5th to 9th March) and gathered some data. Barishal was chosen for its biodiversity significance and administrative relevance. Verbal consent was obtained; though ethical clearance was informal due to time constraints. Qualitative responses were thematically analyzed to identify key patterns and challenges.

Method of Data Analysis

Expert opinions were carefully noted and analysed, focusing on the challenges of implementing biodiversity goals in Bangladesh. Furthermore, collected data were analysed using a spreadsheet to produce figures and graphs.

FINDINGS

The SDGs have a more ambitious agenda than the MDGs. They include more demanding targets for gender equality, health, education, and inclusive growth, as well as a goal to eradicate poverty rather than reduce it. They are all-encompassing, encompassing all nations and individuals. In addition, the MDGs do not cover economic growth, innovation, sustainable production and consumption, or the significance of peace and justice for all.

Opinion on the Condition of Biodiversity in Bangladesh

Figure 3 indicates key informants' opinions about the condition of biodiversity in Bangladesh. This shows that according to 50% of key informants, the biodiversity condition of Bangladesh is worse, whereas 40% of crucial informants viewed the condition as moderate. Only 10% of informants said the biodiversity condition is better in Bangladesh. No opinion was found either in the worst or excellent category. The authors support the findings; for example, Munira (2017), Islam et al. (2003), Khan (2003), and Islam (2001) underscored that many flora and fauna are either extinct or endangered.



Figure 3: Condition of biodiversity in Bangladesh. Sources: (Field Survey ,2024)

Implementing SDGs in Bangladesh Opinion of Respondents about the Achievement of Biodiversity Goal

Figure 4 indicates the opinion of key informants about the government's achievement of Bangladesh's biodiversity goal. Here, 25% of key informants opined that most biodiversity indicators will be achieved by the set time, while 60% said many will be completed by 2030. Only 15% of key informants said some indicators will be conducted by 2030 (Figure 4). However, no one said that indicators would be fully achieved or not at all. This response may correspond to the initiative taken by the government as described in section 4.2.2.



Figure 4: Possibility of achieving biodiversity indicators by 2030 Sources: (Field Survey ,2024)

Initiatives Taken by the Government in Achieving SDGs

Some documents by the Government of Bangladesh reflect the government's initiative to achieve the SDGs. The Prime Minister's Office and the Cabinet Division are two directly related Ministries/Divisions mapped out according to SDG targets (i.e., who is responsible for what). This mapping was completed by the General Economic Division (GED). The mapping operation has made it possible to examine Bangladesh's data situation using the SDGs indicators as a lens (Government of Bangladesh, 2016). This document clearly outlined the agencies responsible for implementing the biodiversity sub-goal and associated targets and indicators (Appendix 1).

The GED did another study. The Data Gap Analysis for each of the 230 indicators recommended for SDG monitoring has been completed in this study document. The Planning Commission's General Economics Division (GED) has been designated the Prime Minister's Office's SDG focal point and secretariat for the "SDGs Implementation and Monitoring Committee." To determine which ministry, division, or department will supply data for the SDG indicators, the data gap analysis underwent thorough consultation for each indicator. Furthermore, this research determined each indicator's current state of data availability, revealing that two indicators are irrelevant from Bangladesh's point of view (Government of Bangladesh, 2017).

With an emphasis on reaching goals, the government has included a few SDGs in the 7th Five-Year Plan (2016–2020). Regarding the SDGs' alignment with the 7th FYP, Goal 1, Goal 16, and Goal 17 are determined to be moderately

aligned with the plan document. At the same time, the remaining 14 objectives are deemed to be thematically matched. Out of 169 targets, 11 are irrelevant for Bangladesh, 37 are partially aligned, 65 are not aligned, and 56 are in line with the 7th FYP. 41 SDG indicators are fully aligned with the 7FYP, 27 are moderately aligned, and 138 are not.

Challenges of Achieving Targets Relating to Biodiversity in Bangladesh

While Bangladesh has taken some initiatives mentioned above to implement the SDGs, there is a long way to go to achieve the SDGs by 2030. Other countries, for example, Brazil, Pakistan, and Indonesia, have consulted with the UN and taken initiatives to implement strategies (UNDG, 2016); Bangladesh has yet to consult with the UN to find implementation strategies for SDGs (Khatun and Saadat, 2021). Apart from the simple fact that SDGs contain much larger goals covering broader issues than MDGs, the agenda is more challenging. The following challenges are identified based on secondary data.

Figure 5 indicates the opinions of key informants about the challenges of implementing biodiversity. About 90% of respondents opined that all the challenges are essential to achieving the targets relating to biodiversity goal. Only a few (about 10%) said that some challenges are moderately or less critical. Nobody said any challenge is not significant at all (Figure 5). The challenges are discussed in detail below.



Figure 5: Challenges of biodiversity goal implementation Sources: (Field Survey, 2024)

Data Gap for Biodiversity Indicators

Data Gap Analysis revealed that just 70 indicators are included in Bangladesh's current data-generating system, while 108 indicators can be produced by changing the country's recent census and survey (for disaggregation). A further study or census will be needed for an extra 63 indicators to have data for assessing how well the SDGs are being achieved. The Bangladesh Bureau of Statistics (BBS) and the statistical community as a whole need to be aware of the demanding job that lies ahead for "data mining" and production (Government of Bangladesh: 2017). For the goal of biodiversity, there are 14 indicators, where only three indicators have available data, six indicators have partial data, and for five indicators, there are no data (Government of Bangladesh: 2017).

Indicators should include the particular demographic categories and any disaggregation components in the targets to guarantee that no one is left behind. National statistical agencies will need help in implementing this data disaggregation approach.

Inadequate Financing for the Protection of Biodiversity

Financial resource constraints can become a significant concern in implementing the SDGs (Planning Commission, 2016b). There will be a need for more excellent resources to conserve Bangladesh's biodiversity, even as attempts to boost domestic resource mobilisation and aid to Bangladesh must continue. Bangladesh must use over two per cent more foreign aid than it is now. Additionally, since Bangladesh's tax GDP is even smaller than Nepal's, domestic resources must be doubled to meet the SDGs by 2030 (Daily Star, 2010). A more diverse international aid will leverage additional public resources to implement Sustainable Development Goals. Foreign aid can only fully achieve its potential benefits if Bangladesh can develop the capacity to use and manage it effectively (UNDP, 2016).

Bangladesh's enormous investment demands cannot be satisfied by domestic resources and international aid alone because private investment is still low. This indicates that additional funding from the domestic and foreign commercial sectors needs to be found in creative ways. It is clear, however, that this will be challenging in Bangladesh, where some potential political risks and capacities need to be strengthened in addition to corruption.

Inadequate Incorporation of Biodiversity in Planning Development

Incorporating biodiversity into sectoral policy and planning is crucial for implementing the biodiversity goal. In addition to the lead ministry, the Ministry of Environment and Forest, 12 ministries or divisions are responsible for implementing the biodiversity goal. However, experiences indicate little evidence of incorporating the protection of biodiversity issues into the policy and planning of these ministries. Thus, if the supporting ministries incorporate this issue, it will be easier for the Ministry of Environment and Forest to implement this goal.

Addressing Biodiversity Impacts through EIA

In Bangladesh, it is mandatory to undertake an Environmental Impact Assessment (EIA) of development projects according to the Environmental Conservation Rules of 1995 (amended in 2010). The project proponents will identify potential biodiversity impacts of the projects and take necessary action to protect biodiversity. However, research and experiences show that EIA in Bangladesh is often undertaken without quality information on environmental impacts, including biodiversity (Momtaz and Kabir, 2013). An investigation of the quality of EIA reports finds that biodiversity impacts are primarily absent (Momtaz and Kabir, 2013). When this is the case, the protection of biodiversity and restoration of the loss of biodiversity by 2013 will be a big challenge.

Lack of Implementation Capacity

Bangladesh has successfully achieved MDGs and associated targets. However, the number of SDGs is more than the MDGs, and so are the targets. However, national, sectoral, and local government capacity must be improved. To protect against environmental degradation, including biodiversity loss, the government needs to generate data for indicators and use more expertise and technology. At the same time, the primary responsibility of achieving the goal lies with the Department of Environment. Experience shows that the Ministry of Environment cannot generate data and protect biodiversity loss. This is due to the need for more adequate skilled staff in the ministry regarding biodiversity. Furthermore, other ministries will assist the Ministry of Environment and Forest in achieving biodiversity goals, for example, (Appendix 1). However, these ministries still need to establish environmental and biodiversity cells.

In addition, the local government will be responsible for collecting data on biodiversity and the protection of biodiversity. Still, local government needs to have more capacity to collect data. In addition, funding and support to improve local government capacity have yet to catch up. It requires the technical capability to plan and manage service delivery. Furthermore, there is no office of the Department of Environment at the Upa-Zilla level, whereas there are 22 offices of various departments at the Upa-Zilla (sub-district) level. If there were any office of the Department of Environment, this could support local government to serve the purpose.

Given the SDGs' extensive data requirements, more institutional and human resource support—both technical and capacity building—is needed to store, manage, and track the enormous amounts of data required to achieve the goals. Knowledge management is essential to preserve institutional memory and competence for future development simultaneously (Government of Bangladesh, 2016b).

Lack of Monitoring the Progress

Reliable, timely, accessible, and high-quality disaggregated data will be required to monitor the implementation's success and track improvements. Making decisions involves the use of such data. When feasible, data from already existing systems should be utilised. Efforts to improve the Bangladesh Bureau of Statistics (BBS) statistical capabilities must be increased. Regarding data availability for monitoring the Sustainable Development Goals, a document indicates that, with its current data-providing mechanism, BBS could provide data for 24.81% of indicators and partial data (that can be used with only minor modification) for 9.30% of indicators. However, BBS currently needs a mechanism to provide data for 65.89% of indicators, a significant percentage to consider. Therefore, more focus should be placed on guaranteeing that pertinent data availability maximises the benefits of BBS initiatives to facilitate effective monitoring of the SDGs (GED, 2016).

Inadequate Environmental Governance

Governance refers to how societies make decisions and take action. Achieving SDGs relating to environmental areas will need strong environmental governance in Bangladesh. This will require the national government, the private sector, the nonprofit sector, civil society and local communities to make proper ecological decisions. In Bangladesh, environmental governance is absent mainly even though there is a Ministry and Act for Environmental Protection of 1995. Some examples of biodiversity loss are industrial pollution and the reduction of forests. There is a political will, and exceedingly honourable Prime Ministers often vouch for protecting the environment. However, the government must enforce the law to protect against biodiversity loss.

Furthermore, the government may ignore environmental issues by fixing priorities and considering SDG trade-offs. For example, it may focus more on reducing poverty than protecting biodiversity loss. In Bangladesh, 25.3% of

people live below the poverty line, and achieving this goal will require a lot of work. This is a general challenge to achieving goal 15 and protecting biodiversity loss.

RECOMMENDATIONS AND CONCLUSIONS

In addition to integrating the SDGs with the 7th FYP, attention should be paid to identifying and addressing obstacles to the SDGs' implementation in Bangladesh (Alam, 2019). Policy coherence is essential to the success of SDG implementation because of the scope of the goals. Effective coordination amongst all parties, including civil society participation, is critical to implementing the SDGs. Capacity building for identifying appropriate initiatives, data collecting and dissemination, monitoring and evaluation, and South-South and triangular cooperation will be significantly more effective than the conventional rich-poor nexus (GED, 2016).

Recommendations

Figure 6 indicates the importance of the key recommendations as determined by the key informants. Around 90% of the respondents said the proposed recommendations are significant. Only a few respondents say the recommendations are either moderately essential or less critical. The recommendations are described in detail below.



Figure 6: Recommendations for the implementation of biodiversity goals Sources: (Field Surve, 2024)

Inclusive Participation

Ensuring the involvement of pertinent government departments and agencies, as well as the private sector, in national consultations regarding the implementation of the SDGs (Ferdous, 2024; Ferdous & Uddin, 2021), including biodiversity, is vital. Ensuring stakeholder participation in implementation and monitoring at all levels is key to effective SDG 15 implementation. There is a task force at the Prime Minister's Office for implementing all SDGs. However, to implement Goal 15, including biodiversity protection, a sub-committee should be formed, and regular dialogues should be held between the government and civil society. Implementing the SDG agenda necessitates openness, inclusive decision-making, and harnessing the power and creativity of civil society, business, and local government.

Incorporating Biodiversity Issues

The loss of biodiversity in Bangladesh poses a severe risk to human health, food security, and the goal of sustainable development in general. In this regard, it is crucial to fully and successfully implement SDG 15 and the related aims of the Convention on Biodiversity (CBD) and mainstream biodiversity into sustainable development policies and planning processes. Policy initiatives should concentrate on mainstreaming socially, economically, and environmentally sound policies and mainstreaming biodiversity into more extensive sustainable development strategies. Mainstreaming should be a two-way process. Creating a common understanding of how well sectoral strategies and current national and local development plans fit into the overall framework of the 2030 Agenda and the SDGs—especially biodiversity protection—is crucial. Prioritising the aim of biodiversity, conducting quick assessments, and holding technical seminars can all help achieve this.

Interagency Coordination

The intrinsic connection and complexity of biodiversity in its economic, social, and environmental components are largely well acknowledged. However, interagency cooperation is necessary to preserve Bangladesh's biodiversity. While there is the National Biodiversity Strategy (2016) and the Environmental Protection Act of 1995 for biodiversity protection, there must be more coordination among the agencies. The activities done by one agency or Ministry in Bangladesh often need to pay more attention to the advice of the Ministry of Environment and Forest or fully comply with the relevant acts and policies. It is essential to establish an intergovernmental mechanism which includes the relevant ministries (as shown in Appendix 1) to implement the SDGs at the national and local levels

by enforcing legislation for the protection of biodiversity and its implementation. In addition, it is crucial to create SDG support structures at the municipal, sectoral, and federal government levels, raise public awareness through events, and hold consultations on how to implement the SDGs in different parts of the nation.

Financing for Implementation

With input from various stakeholders, governments can more effectively align and monitor fiscal resources with priority goals thanks to advancements in outcome-based and participatory budgeting techniques. The government needs to set aside and invest more funds to safeguard biodiversity in light of its current situation. The government has the following choices for action: (a) Look into financial mechanisms and talk about ways to reallocate current public spending and raise new funds for SDG 15 implementation. (b) determining how to incorporate SDG (15) into the budgeting process; and (d) allocating sufficient funds, accountable from the national to local levels.

Monitoring, Reporting and Accountability

Monitoring, reporting, and accountability—or "follow-up and review," as it is called in intergovernmental talks—are essential components of the 2030 Agenda. This entails setting up data systems, capacities, techniques, and procedures to monitor the public, legislatures, and other relevant stakeholders' implementation of biodiversity goals. A technical workshop to review the SDG (biodiversity) indicators and, if feasible, compare them with those of other nations is one possible course of action for biodiversity protection. Another is the evaluation of data gaps and national capacities to produce statistics to track and report progress on implementing biodiversity targets.

Adopt an Ecosystem-based Definition of Forests

Coherent policy requires adopting a clear definition of forests based on ecosystems. According to this concept, increasing the amount of forest cover can enhance biodiversity since it would substitute monoculture plantations, including those with invasive alien species, for biodiversity-rich ecosystems. Invasive species and ecosystem modification are the two main factors contributing to the loss of biodiversity and the deterioration of land. Initiatives for the restoration of forests are crucial. Still, they must be supported by the free, prior, and informed agreement of all relevant parties and the active involvement and cooperation of women, local communities, and Indigenous Peoples. To enable policy actions that address both deforestation and forest degradation, the Ministry of Environment and Forest is required to oversee the development of a definition of forests that applies to the entire system and classifies forests as ecosystems dominated by trees (Bilderbeek et al., 2016)

Developing Institutional Mechanisms at Different Levels

A national coordinating agency is essential for successfully implementing the SDGs at the national level because of their broad scope and requirement for cross-sector collaboration. With their background in sectoral coordination, the planning agencies will assume the lead role in coordinating the SDGs (UNESCAP, 2015). Furthermore, sub-regional and regional coordination may be beneficial given their similar starting conditions, shared issues, and administrative and cultural frameworks. SAARC coordinates and cooperates across South Asia to carry out the 2030 Agenda. It would be advantageous for the nations in the sub-region to exchange development experiences in addressing certain SDGs, such as biodiversity protection, contextualising the SDGs at the subregional level and devising sub-regional efforts to supplement national strategies. Regional collaboration at the more significant Asia-Pacific level can facilitate cross-learning and the exchange of best practices. The cross-sectoral mandate of ESCAP and its universal membership with a regional emphasis are essential for reducing the implementation and oversight of the SDGs. The Asia-Pacific Forum for Sustainable Development, organised by ESCAP, has developed into a valuable forum for exchanging insights and supporting the area in creating a regional strategy for achieving the SDGs.

Adopting Rights-based Approach

A strong mandate for ensuring sustainable development policies, such as those for the preservation and restoration of biodiversity, and for fully respecting the rights of indigenous peoples, local communities, women, and other rightsholder groups, including those about land tenure and territorial rights, is provided by Agenda 2030's emphasis on rights-based approaches. The top-down management of protected areas is one example of a previously exclusive strategy that needs to give way. Instead, policies and tactics should be adopted from the bottom up, fully acknowledging and supporting endogenous community conservation initiatives and traditional knowledge. Studies have demonstrated the superiority of non-market-based strategies for guaranteeing sustainable livelihoods and effectively conserving biodiversity. Examples of these strategies include the appropriate designation of Indigenous and community-conserved territories and areas (ICCAs) (Bilderbeek et al., 2016).

Building Capacity

Increasing knowledge and ability is the most basic way to gather data for biodiversity in

- Preserve mountain ecosystems by 2030, especially their biodiversity, to boost their capacity and provide vital sustainable development benefits (Gratzer and Keeton, 2017).
- Take prompt, urgent action to reduce the loss of natural ecosystems, halt biodiversity loss, and prevent the extinction of endangered species by 2020.
- Promote equitable and just distribution, as agreed upon globally, of the benefits of using genetic resources and having sufficient access to them.
- By 2020, ecosystems and biodiversity values should be included in accounting, protocols, and local and national development programs that aim to reduce poverty.
- Encourage the preservation and sustainable use of biodiversity and ecosystems, and significantly expand the amount of money from all sources.
- Increase international backing for programmes to end the poaching and trafficking of protected animals, mainly by providing opportunities for local communities to achieve sustainable economic development, other SDGs, and wildlife preservation.

In this case, goals might be established to increase capacity for data gathering, monitoring, and performance evaluation of the execution of biodiversity goals. Government and NGO representatives must develop the capacity to carry out biodiversity goals. The GoB's main tactic will be to carry out an extensive range of initiatives to improve Ministries' and Divisions' ability to generate administrative data (Government of Bangladesh, 2017). The central data organisation in Bangladesh at the national level is the Bangladesh Bureau of Statistics (BBS). To produce timely, high-quality data, the government must step up its efforts to expand the capabilities and reach of BBS. Steps for improving BBS and other administrative agencies, including the Department of Environment, must be prioritised as time passes because one year of SDGs has already passed (Lucas et al., 2015).

Role of District Administration

The District Administration can play a vital role in the conservation of forests and biodiversity. For example, the District Administration must ban or not give licenses to brick kilns that use wood as fuel (The Business Standard, 2023). Furthermore, the District Administration can protect biodiversity and forest ecosystems with the support of the District Office of the Department of Environment. During the field visit to Barisal District, the researcher observed that the District Administration recovered an encroached canal, and they have targets to recover 29 already advanced canals. The canals are also part of both aquatic and territorial biodiversity.

Conclusions

This research aimed to identify the challenges of implementing or achieving biodiversity goals. The study indicates that the biodiversity situation in Bangladesh is worsening despite the government's various initiatives. The research identified some challenges to be faced for the implementation of biodiversity goals. The challenges include inadequate financing for the protection of biodiversity, ineffective environmental governance, environmental data gap, lack of progress monitoring, insufficient interagency cooperation, inefficient incorporation of biodiversity in development planning, lack of capacity, and insufficient implementation of biodiversity through EIA. The paper also recommends overcoming the challenges and effectively implementing the biodiversity goals. These include inclusive participation, incorporation of biodiversity issues into national and sectoral plans, interagency coordination, adequate financing for biodiversity protection, monitoring and accountability, capacity development, adoption of an ecosystem-based definition of forest, the institutional mechanism at various levels, adoption of the rights-based approach of biodiversity, proper application of EIA.

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APPENDIX-1	Title: Agencies Involved in the Implementation of Biodiversity
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	Agency	Ministry /Division	Actions to achieve the SDG targets within 7thFYP (2016-2020)	achieve the targets beyond the 7thFYP Period (2021- 2030	Existing Policy Instruments (Acts/ Policies/ Strategies etc.)	Proposed Global Indicators for Performance Measurement
4	2	m m	4	5	9	7
Goal 15: Preserve, restore, a mitigate desertification; halt	and pron	note the sustain erse land degrad	Goal 15: Preserve, restore, and promote the sustainable utilisation of terrestrial ecosystems; implement sustainable forest management practices; mitigate desertification; halt and reverse land degradation; and halt biodiversity decline.	systems; implement ine.	t sustainable fores	t management practices;
15.4 To boost mountainLeecosystems' capacityMecosystems' capacityMto produce benefitsessential for sustainabledevelopment, ensurethat they—includingthat they—includingtheir biodiversity—arepreserved by 2030.15.5 Act quickly andbiodiversity loss, stopMbiodiversity loss, stopthe deterioration ofnatural habitats, and, by2020, save threatenedspecies from extinction.	MoEF MoEF MoEF	MoA; MoCHTA; MoCAT; MoL; LGD MoL; LGD MoFLMoA; MoInf	A global commitment to update the NBSAP in accordance with the Aichi Biodiversity Targets and implement it will be made. (a) Make ensuring that nationally adequate			 15.4.1 Protected areas' coverage of significant mountain biodiversity locations 15.5.1 Red List Index

			and the National Adaptation Plan (NAP) incorporate biodiversity. (a) The Bangladesh Biological Biodiversity Act will be passed, ratifying the Nagoya Protocol on ABS, and mechanisms for benefits sharing will be developed. (c) The nation will have the capacity to handle genetic resource research and development. (c) Promote biodiversity education and awareness (c) Apply traditional and indigenous knowledge of biodiversity (e) Put an end to and reduce		
15.6 Promote appropriate access to genetic resources and the internationally agreed-upon fair and equitable distribution of the benefits arising from their utilisation.	Lead: MoEF	MoA; MoFL MoST	ITOM all sources.		15.6.1 The count of nations that have put legal, administrative, and regulatory structures in place to support just and equitable benefit distribution.

15.7 Take prompt action to address the demand and supply for illicit wildlife products and to end the poaching and trafficking of endangered plant and animal species. Lead by example.	Lead: MoEF	LJD, MoF,MoHA	(a) Put specific precautions in place to lessen the impact of current threats; (b) Examine the IUCN Red List and other records of the status of vulnerable and endangered species; and (c) Use a variety of protective measures to preserve the biophysical	
15.8 By 2020, plans will be in place to manage or eradicate priority species, significantly reduce the detrimental effects of invasive alien species on terrestrial and aquatic ecosystems, and halt their spread.	Lead: MoEF	MoA, MoFL	No commercial plantation should be permitted in protected forest areas, where only native species are suitable for enrichment and restoration. (d) The necessary regulations and the Bangladesh Biological Diversity Act will be passed.	15.8.1 The proportion of countries that have enacted applicable national legislation and allocated adequate resources to prevent or control invasive alien species.
15.9 By 2020, integrate ecosystems' and biodiversity's values into local and national planning, development procedures, accounting, and strategies for reducing poverty.	Lead: MoEF	GED,LGD, SID	To integrate these values into the national accounting system, value environment and biodiversity goods and services. (a) Improve PES through appropriate poverty- reduction methods and policies.	15.9.1 Advancement toward national goals outlined in the Biodiversity Strategic Plan 2011-2020's Aichi Biodiversity Target 2.

15. Gather and greatly expand financial				15.a.1 Official development aid and
resources from all				public investment for
sources to preserve and				biodiversity protection
use ecosystems and				and sustainable use of
biodiversity sustainably.				ecosystems
15.c Increase	Lead:	LGD,MoHA,	Examine the IUCN Red	15.c.1 The percentage
international support	MoEF;	U oM	List (a) Implement global	of traded wildlife that
for programs to end	C0-		commitments made as a	was either poached or
the poaching and	Lead:		signatory to the United	transferred illegally
trafficking of animals	MoFA		Nations Convention on	
under protection,			Biological Diversity. (b)	
including by providing			Increase forest coverage in	
local communities with			new places through social	
the chance to explore			forestry (c) Maintain and	
sustainable forms of			expand community-based	
sustenance.			resource management (d).	
			Improve reforestation and	
			forest protection through	
			carbon credits and REDD+.	

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APPENDIX-2

Bangladesh Public Administration Training Centre (BPATC)

Savar, Dhaka

Research Title: A study on achieving SDGs with a focus on biodiversity goal in Bangladesh: challenges

(This is purely academic research. So please feel free to answer the questions)

QUESTIONNAIRE

Q1: To what extent is it possible to achieve the biodiversity goal by the Government by 2030?

Fully	Mostly	Many	Some	Not at all

Q2: How significant are the following challenges for achieving SDGs in Bangladesh by 2030? Please tick

	Key challenges	Very important	Important	Moderately Important	Less Important	Not important
1	Inadequate financing					
2	Lack of environmental governance					
3	Data gap					
4	Inadequate monitoring progress					
5	Interagency cooperation					
6	Lack of capacity					
7	Inadequate address of biodiversity through EIA					
8	Any other					

Q3: How important are the following recommendations to achieve the biodiversity goal? Please tick

	Recommendations	Very important	Important	Moderately Important	Less Important	Not Important
1	Inclusive participation					
2	Incorporation of biodiversity in sectoral plans					
3	Interagency coordination					

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4	Budgeting for future			
5	Monitoring, reporting and accountability			
6	Adopting right based approach			
7	Developing capacity			
8	Any other			

Q4: How important are the following recommendations to achieve the biodiversity goal? Please tick

Excellent	Better	Moderate	Worse	Worst

Your name (optional)



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