

# BANGLADESH NATIONAL REPORT ON TAXONOMY

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## *Introduction*

Bangladesh is a country with rich biodiversity. Although this important wealth is dwindling very fast for many reasons, we are creating most of which due to lack of knowledge about the consequences of destroying them. One of the most significant impediments to the conservation of this biodiversity has been identified as the lack of taxonomic capacities. Capacity building in taxonomy and effective steps towards conservation of the biodiversity did not proceed well in the past due to lack of coordinated initiatives. The objectives to overcome the taxonomic impediment are:

- To identify the national priorities for the taxonomic capacity building needed to meet sustainable development, reduction of poverty and conservation needs at both national and regional level;
- To agree an approach to building and sharing taxonomic capacity within the region to address national priorities as identified under the CBD and other agreements; and
- To contribute towards achieving the CBD's target of reducing the **rate of biodiversity loss** by 2010.

Not only don't we know what biodiversity we have, we're losing it far faster than we can discover it and rates of loss are increasing. Currently we do not have the capacity to discover and manage biodiversity and such capacity is also decreasing. Specifically, the lack of taxonomic knowledge to identify a potential pest has great impact on our agriculture, biological control of the pests and trade with agricultural products. The consequences for conservation of not having a checklist or accurate red list are far more destructive than we could imagine.

One recently established initiative that is seeking to combat this situation is the BRGB (Biodiversity Research Group of Bangladesh). This group was formed with members from all major disciplines of biological sciences from various universities, colleges, research institutes, Government and NGOs. Such a cross-sectoral group provides an opportunity for cross-sectoral interactions, much like the GBF itself.

Addressing the crisis in taxonomy requires an understanding of the needs of end users of biodiversity within Bangladesh (i.e, quarantine services, conservation authorities, pest control agencies, biopharmaceutical industries, tobacco companies, port authorities etc) as their member institutes and trying to work with them for sustainable use of the biodiversity.

## ***Background Statement***

The taxonomic work on the plants of this region was actually started during late 18th century with the work of some European scientists. In continuation with the line of progress work of some eminent taxonomists, like Buchanan, Roxburgh, Wallich, Hooker, Thomason, Clarke and Beddome during 19th century But the progress in 20th century was very slow and in infancy. This was due to absence of any Museum/ Herbarium, institutional back up and taxonomy related expertise. The renaissance of plant taxonomy in Bangladesh can be marked with the work on different plant groups at the late 20th century. The progress of work is still in primary exploratory phase. Before taking any conservation programme in the country a comprehensive species list along with its relevant database and status of every species, according to IUCN, is a prerequisite.

Most of the collections made during the last two centuries are located in different museums and herbaria abroad. This is a great impediment for the taxonomists working at present. There is no record of these collections.

There is no **National Depository** for the specimens being collected by various survey groups except for the **National Herbarium. Bangladesh National Museum** has a **Natural History section** with a few taxidermist. The **Zoological Survey of Bangladesh (ZSB)** is in existence but with no significant activities, A **Gene Bank** has been established by **BARC** under Ministry of Agriculture with a substantial number of collections and varieties of rice and other crop species.

A **National Reference Collection/Depository** being a network of all the institutions with collections or expertise, is a necessity. In this way each institute benefits and is strengthened by being a component of the National Reference Collection. Enhancement of all existing facilities needs to be strengthened.

**A proposal to establish a National Depository to house all groups of biological material as reference collection** has been submitted by BRGB to the Ministry of Environment and Forest through recommendations of the 1<sup>st</sup> National Workshop of BRGB held on January 7 2002. This meeting was attended by the Honourable Minister Mr. Shahjahan Siraj and the Honourable State Minister Alhaj Jafrul Islam Chowdhury as Chief and Special Guests respectively.

The MoEF of GoB is now preparing the **National Biodiversity Strategy Action Plan (NBSAP)**. Other ongoing projects of MoEF are **Sundarbans Biodiversity Project, Coastal Biodiversity Management Project, St. Martin's Island Biodiversity Conservation & Ecopark Project**. Recently, an important initiative has been taken by MoEF to prepare a **Catalogue of the Flora and the Fauna of Bangladesh**. In another initiative, Biodiversity Research Group of Bangladesh (BRGB) has progressed substantially in compiling a **Species Checklist of Bangladesh** on the basis of published record. In an effort to implement the GTI in Bangladesh, about 70 questionnaires were distributed by BRGB to make an **assessment on the Taxonomic Needs**. The assessment will be completed by January 2004.

Other important initiatives include IUCN's red listing and survey of the flora and the fauna programme under NCS (this can be referred as a baseline for the conservation programme) and ICINSA's programme for South Asia which is already operating in Bangladesh.

There is a need in adopting a regional approach to identify common species and common problems needing common expertise to link the existence of much relevant expertise and collections etc within the region that are currently inaccessible or very difficult to access.

### ***Present Taxonomic Resources***

Bangladesh has its **National Herbarium** with a few trained taxonomists working there. National Herbarium is holding mostly vascular plant materials. The four major public **universities** and the **research Institutes** like **BARC, BFRI, IFESCU, BRRI, BARI, BJRI, BTRI** has their own **herbaria** or **museums** but most of them are not well managed or well curated due to shortage of trained taxonomists and technicians. Less than 10% of the recorded specimens are documented in the museums and herbaria. There is no database of the specimens preserved in the herbaria and the museums. A small collection of forest insects is being maintained at BFRI, Chittagong. Recently, Zoology department of Chittagong University has established an insect museum to hold all groups of insects.

#### ***(a) Survey of the expertise***

According to a preliminary survey conducted by BRGB there are a few trained taxonomists working at the National Herbarium. There are at least 40 researchers working on vascular plant taxonomy in different parts of the country. People working on non-vascular plant, Fungi, Algae and the microbes are very rare which in all may not exceed 40. Numbers of trained Invertebrate taxonomists are only around 20. A few taxonomists have worked on fishes, amphibians, reptiles, birds and mammals. At present a number of scientists are working on vertebrates but most of them do not work on taxonomy.

#### ***(b) Survey of the species***

**Checklists** on Algae (Khan *et al.*, 1980-2000), Fungi (Mridha, *et al.*, 1998), Ferns (Pasha *et al.*, 1996), **Parasites of Fishes** (Arthur & Ahmed, 2002), **Mollusca** (Ahmed, 1990), **Parasitic Hymenoptera** (Bhuiya *et al.*, 1997), **Spiders**, (Habib *et al.*, 2000), **Fishes** ([www.fishbasebangladesh.org](http://www.fishbasebangladesh.org)), **Survey of Flora & Fauna** (NCS project, IUCN, 1997 and IUCN Red List (2000) are some important works that are available to use as baseline for future work.

**Based on available information the following data have been prepared by BRGB:**

<b>Comprehensive statement of microbes and plant species of Bangladesh and of World</b>			
<b>Taxa</b>	<b>Bangladesh</b>		<b>World Record</b>
	<b>Estimated No.</b>	<b>Recorded No.</b>	
Bacteria	500	50	4000
Viruses	<b>Unknown</b>		4000
Algae	1,000	600	40,000
Fungi	4,000	500	72,000
Lichens	300	35	17,000
Bryophyta	300	200	16,000
Pteridophyta	200	170	13,000
Gymnosperms	-	4	750
Angiosperms	6,000	3,000	2,50,000

<b>Comprehensive statement of animal species of Bangladesh and of World</b>			
<b>Taxa</b>	<b>Bangladesh</b>		<b>World Record</b>
	<b>Estimated No.</b>	<b>Recorded No.</b>	
Protista	500	-	31,259
Mollusca	1,000	325	66,535
Arthropoda (Insecta, crustaceans)	5,000	2,956	9,87,949
Other invertebrate	1,500	530	87,121
Protochordata	-	-	2,106
Pisces	1000	531	21,721
Amphibia	39-40	22	5,150
Reptilia	125	109	5,817
Aves	665	388 + 240 (Migratory)	9,026
Mammals	120	109	4,629

### ***Capacity Building***

In Bangladesh taxonomic training courses are being provided by BNH, BRGB and BARC (field level training). BRGB has taken initiative to work on taxonomic capacity building by organizing occasional training courses in different groups.

BRGB organized two short term training courses on collection, curation, preservation and identification of parasitic Hymenoptera, and on Bird assessment. A 7day training course will be organized on Ectomycorrhizal fungi very shortly.

Curricula related to taxonomy are being taught at the universities and research institutes. Unfortunately, after completion of the course trained botanists and zoologists cannot be appointed in taxonomy related work because of shortage of taxonomic institutions.

In the recent past one of the successful development in capacity building was the funding of the construction of a new National Herbarium by DFID.

### ***Needs***

Taxonomic Needs Assessment, conservation and management programme at national level is to be completed first. Prior to that appointment of a National GTI focal point and development of link between Taxonomic Information Networks among intra-national, (like **BRGB, BNH, CUH, FRIH, BJRI, BARI, BRRI**) and international bodies (such as Bio-NET INTERNATIONAL and its regional LOOPS, *Speceis2000 Asia Oceania*, GBF, ZOO, ICINSA, IUCN, GBIF, UNEP, UNDP, GEF, ETI, IPPC, FAO) are to be firmly established.

**Sustainable Development Networking Project (SDNP)** of **MoEF** under **Sustainable Environment Management Program (SEMP)** financed by **UNDP** can provide a good support for accessing to information at rural institutional level.

Bilateral and multilateral programmes can be initiated with ICINSA, BioNET-INTERNATIONAL and T&BRGP. Bilateral programmes on taxonomy conducted in Rajshahi and Chittagong University with DFID funding could be revived.

The proposed **SACNET** (South Asian Countries Network for Taxonomy) establishment along with taxonomic capacity building will play a vital role in this line of development.

### ***Conclusion: The Way Forward***

In order to implement the Convention on Biological Diversity it is found that the availability of taxonomic skills, resources and information has hindered the abilities. The GTI was developed as a response to this 'taxonomic impediment'. Through the GTI, Bangladesh and the other parties to the CBD have identified priority areas for taxonomic input to conservation, sustainable use and equitable access to the benefits of genetic resources, and have developed a work programme. Much activity under the GTI is most effectively being carried out at regional level. Last year in Malaysia regional issues for SE Asia were discussed by nearly 150 regional participants. BRGB Chairman participated at the GTI in KL.

It is realized that there is a need for a similar network to focus on meeting South Asian needs. **A sub-regional Technical Cooperation Network should be established to help solve the problem of inadequate taxonomic services and it is recommended that *South Asian Countries Network for Taxonomy (SACNET)* be established.**