



## **Minutes of the Meeting of the Research Advisory & Monitoring Committee (RAMC) of the Botanical Survey of India (BSI) held at BSI, AZRC, Jodhpur on September 22, 2012**

The Meeting of the Research Advisory & Monitoring Committee was held in Arid Zone Regional Centre of BSI at Jodhpur on 22<sup>nd</sup> September, 2012 under the Chairmanship of Prof. A.K. Koul, Dean Academic Affairs, School of Biosciences & Biotechnology, Baba Ghulam Shah Badshah University, Rajouri. The meeting was preceded by a visit to the library of the Centre and followed up by the plantation of saplings by all members in the 'Desert Botanic Garden' and a visit to the herbarium and museum. The list of members who attended the meeting is appended at the end.

At the outset, Dr Paramjit Singh, Director, BSI, extended a warm welcome to the Chairman and other distinguished members of the Committee and Special Invitees. He hoped that valuable inputs from the Committee coupled with the continued support of ministry would help BSI achieve its objectives in a timely manner and also meet the emerging challenges.

As the Chairman reserved his comments for the end, Agenda Items were taken up in seriatim thereafter.

### **Agenda Item No. 1: Confirmation of the minutes of last meeting:**

Dr D.K. Singh, Member Secretary, informed the Committee that the draft minutes were circulated among the members and only one comment was received from Dr N.P. Singh, former Director, BSI and Special Invitee to the meeting, which was communicated to the Chairman and the members of the Committee through e-mail, and with permission from the Chairman, necessary changes were made in the minutes. He therefore, requested that the same may be confirmed. The minutes were later confirmed.

### **Agenda Item No. 2: Action taken on the decisions of the previous meeting:**

- 1. All rediscoveries of plant species to be followed up with its conservation/restoration plan:** It was informed that Heads of office's of all the Regional Centres have been appraised of the recommendation of the Committee on follow up conservation measures to be taken up in case of species that are rediscovered/located after considerable length of time. It was further informed that species, like *Fissistigma verrucosum* (Annonaceae) and *Parakaempferia synantha* (Zingiberaceae), rediscovered after more than 50 and 45 years respectively, have already been brought under cultivation in associated botanic garden of Eastern Regional Centre of BSI at Barapani, Shillong. Efforts will be made to collect the live plants/propagules of *Taeniophyllum filiforme*, *Polyalthia crassa*, *Pyrenaria khasiana*, *Hemiorchis pantlingii*, recollected after 135, 40, 140 and 50 years respectively, for their cultivation, multiplication and ex situ conservation in BSI gardens.

The Chairman suggested that BSI should bring out publication documenting rediscoveries made after long intervals, underlining probable reasons for non-collection and threats, including biological imparities, and also distribute the propagules of such species to other gardens as well as rehabilitate them in their natural habitats in wild.

2. **BSI to review its 'Flora of India' programme through a small Committee of its senior scientists and former Directors and to expedite its publication:** It was informed that the 'Flora of India' Vol. 23, comprising families Loranthaceae, Viscaceae, Santalaceae, Balanophoraceae, Buxaceae, Euphorbiaceae and Daphniphyllaceae, is now in press and shall be printed shortly. Besides, Vol. 6, comprising sub-families Caesalpinoideae, Mimosoideae and Papilionoideae (part); Vol. 9, comprising families Saxifragaceae, Grossulariaceae, Hydrangeaceae, Droseraceae, Hamamelidaceae, Haloragaceae, Hippuridaceae, Callitrichaceae, Rhizophoraceae, Combretaceae, Myrtaceae and Lecythidaceae (incl. Barringtoniaceae) and the family Acanthaceae towards Vol. 20 are presently being edited. To further expedite the work under this programme, a proposal was sent to the ministry for approval of consultancy and the queries raised by the ministry in this regard are being answered.

The Chairman requested Shri B.M.S. Rathore, Joint Secretary (CS), in the ministry to look into the matter and help in expediting the approval for engaging experts as consultants to give impetus to this flagship programme of BSI. Dr D.K. Upreti, representing Director, NBRI, Lucknow, suggested that expertise generated under 'All India Coordinated Project on Capacity Building in Taxonomy (AICOPTAX)' could be utilised to expedite the work under 'Flora of India'. Dr P. Singh stated that revision of 'Flora of India' requires both taxonomic expertise as well as experience, hence it will not be advisable to assign this task to young scientists. Shri Rathore desired to know the nature of the queries from the ministry and advised to respond to the queries in the light of the deliberations of the meeting.

3. **The enhancement of contingency for research fellows under BSI Scholarship Scheme should be pursued with the ministry again, with appropriate justification, for reconsideration based on the deliberations in RAMC:** It was informed that the contingency of the BSI Research Fellows has since been enhanced from Rs. 3,000/= to Rs. 15,000/= p.m. for the first two years and from Rs. 4,000/= to Rs. 20,000/= for the next three years w.e.f. 1<sup>st</sup> May 2012.

Dr D.K. Singh informed that a related issue of revision of Junior and Senior Research Fellowship, under BSI 'Research Scholar Scheme', at par with DST and CSIR w.e.f. 1<sup>st</sup> April, 2010 from existing Rs. 12,000/= and 14,000/= p.m. to Rs. 16,000/= and 18,000/= p.m. has been apparently turned down by the ministry as BSI research scholars were not NET qualified. The Chairman recalled the deliberations of the last meeting at NOIDA and once again reiterated that NET qualification should not be linked with the enhancement of Junior/Senior Research Fellowship in BSI as is the case with the fellowships funded by the Department of Biotechnology (DBT). It was informed that the JRF selection in BSI was done on All India basis through a written test followed by an Interview by a Committee of experts that includes an external examiner as well. It was, therefore, suggested that the ministry should be approached afresh drawing parallel with DBT.

4. **BSI should invite proposals for Emeritus Scientist positions to work on its own prioritised areas:** It was appraised that Prof. G.H. Dar finally declined to join as Emeritus Scientist in BSI to take up Mahatma Gandhi Chair at BGSB University at Rajouri in J & K and Dr V. Singh has just completed his tenure of Emeritus Scientist in August. As such, the three positions of Emeritus Scientists will be advertised in 'Current Science' as well as the in-house journal 'Nelumbo'. The Chairman expressed his disappointment at the delay in advertising these positions particularly when the BSI is facing man-power crunch for early completion of its 'Flora of India' programme.

The Committee also expressed concern over the inadequate time allowed to Dr V. Singh as Emeritus Scientist for the revision of family Musaceae in India – which is not only taxonomically challenging but also represents economically one of the most important fruit crops, leading to inconclusive study. It was informed that at present the upper age limit for Emeritus Scientists in BSI is 65 years, and a proposal to raise the same to 70 years, at par with UGC, and increase the number of Emeritus Scientists from existing 06 to 10 is pending in the ministry since long. After due deliberations, the Committee opined that to address the issue of taxonomic impediments, which is a globally acknowledged phenomenon, it would be prudent to utilise to the hilt whatsoever expertise and experience is available to expeditiously document the 'Flora of India'. The Committee accordingly reiterated the recommendation of the earlier Committee to raise the number of emeritus positions to 10 and upper age limit of the Emeritus Scientists to 70 years. The Committee further recommended extension to Dr V. Singh, as a special case, to enable him to complete his study on an important group of plants.

5. **BSI to prepare 'Identification Manuals' of plant groups covered by it under AICOPTAX:** It was informed that the Identification Manual for (i) Hepaticae and Anthocerotae of Great Himalayan National Park, (ii) Grasses of Tamil Nadu, (iii) Follicolous Lichens of India, (iv) Lichens of Sunderban Biosphere Reserve have already been published, whereas 'Bamboos of Meghalaya' and 'A Century of West Himalayan Orchids' are under publication and 'Hepaticae and Anthocerotae of Himachal Pradesh and Sikkim are being finalised. The Chairman suggested that new publications should be properly publicised by writing to the Botany departments of Universities and other research institutions. Dr R.R. Rao suggested that the publications should be reviewed and publicised in Current Science.

### **Agenda Item No. 3: Review of the Progress report of BSI from March to August 2012:**

Dr D.K. Singh made the presentation on the progress made by the BSI during the period under review providing an overview of different activities and achievements in terms of number of explorations undertaken, documentations done at ecosystem, state, regional and national levels, new discoveries and rediscoveries, ex situ conservation in botanic gardens, publications brought out, digitization of herbarium specimens, education and awareness programmes, etc. He also informed the Committee about the new programmes that have been approved by the ministry for the 12<sup>th</sup> Five Year Plan for which efforts are on for mobilising the resources.

The Chairman commended the very elaborate and comprehensive presentation on the activities and achievements of BSI.

Shri Rathore commended the work done by BSI and underlined the importance of and the problems with taxonomy. He observed that the taxonomic science and the taxonomists need visibility, to capture people's imagination. There is need to garner greater support in favour of the science of taxonomy and the cadre of taxonomist for which he suggested holding 'National Taxonomy Congress'. There are professional associations around taxonomic groups, e.g. IAAT and APT, which also need support and recognition. The congress can bring together many groups, and multiple stakeholders of taxonomic knowledge, including the users. The national taxonomic congress can provide a platform to foster collaborative partnerships amongst disparate groups, the institutions, key ministries and the universities. Both BSI and ZSI can anchor the proposed national congress and link it to their component of Capacity Building. The Committee welcomed the idea of the congress. Shri Rathore further suggested that a committee/steering group can be set up to further the process. BSI & ZSI will need to develop a proposal to give effect to the congress, and submit it to the MoEF at an early date. The congress could possibly be held by next October. He also emphasised the need for preparing popular communication materials on different facets of plant taxonomy for popularising the subject, which will also give more visibility to BSI. He also suggested involving college students in explorations which will not only create interest in taxonomy in younger generation but also act as force multiplier, and to facilitate this BSI should put its exploration calendar on its website. He appreciated the contributions of the Committee towards steering the research programme of BSI and assured that the ministry, on its part, will facilitate the same.

Dr R.R. Rao observed that the achievements made by BSI despite the constraints faced by it are truly commendable. He stated that *Pyrenaria khasiana* – a member of tea family Theaceae, which could be a potential source of tea, is very interesting and suggested that BSI should compare its chemical constituents with that of wild tea plants from the North-east.

Referring to the project "Assessment of 'nutritional' value of wild edible plants of Meghalaya", carried out by the Chemistry Unit of the Headquarters, Prof. M. Daniel suggested that since some of the parameters, like total phenolics, flavonoids, etc. are not truly nutritional, it would be appropriate to use the term 'Nutraceutical' instead of 'Nutritional'.

Prof. S.C. Srivastava, while appreciating the achievements made by BSI wanted the continuation of AICOPTAX programme preferably with all India focus on the taxa taken up under various themes.

Dr P.G. Latha suggested that BSI should organise 'Open House' programmes which should be open to students to generate interest in them and popularise taxonomy. He gave examples of some of the programmes in progress in TBGRI.

Prof. S.P. Vij wanted BSI to pay special attention to endemic and polymorphic species, rehabilitation of threatened species in their natural habitats and organising taxonomy capacity building training workshops at its different Centres. He also emphasised continuation of AICOPTAX programme.

Dr D.K. Upreti emphasised the need for developing synergies between the research activities of BSI and NBRI to avoid duplication of efforts and proposed to establish linkages between the digitisation programmes of the two. Dr D.K. Singh suggested that a meeting of the senior scientists of the two organisations be organized to identify areas of collaboration and formalise the MoU accordingly.

Dr P. Venu suggested that BSI should not divert its focus from 'Flora of India' programme.

Dr T.S. Rathore wanted BSI to expedite the publication of further issues of 'Red Data Book of Indian Plants' and develop strategies for recovery of RET species. He proposed a collaborative programme between BSI and Arid Zone Forestry Research Institute (AFRI) to undertake a holistic study on RET species of Rajasthan, including the assessment and mapping of populations and conservation biology, and to develop their germ plasm bank. Dr P. Singh requested him to give a brief 'Concept Note' on the proposed collaboration. Dr Rathore also emphasised the need for filling of vacant posts in BSI and suggested outsourcing of tasks/personnel till such time.

Towards the end Dr S.L. Meena, Scientist C, AZRC, BSI, Jodhpur, made a brief presentation on the activities and achievements of the Centre.

The Chairman suggested the documentation of plants surviving in extreme conditions of Rajasthan, as these could act as good indicators of climate and envisaged a larger role for AZRC in monitoring the 'climate change' through such species. In view of the being manned by young group of scientists, he emphasised the continued association of Dr V. Singh, former Additional Director, in view of his vast experience of desert plants and taxonomic expertise.

#### **Agenda Item No. 4: Any other issue for consideration with permission of the Chair:**

Two collaborative proposals, first between Ashoka Trust for Restoration of Ecology & Environment (ATREE) and BSI for digitisation of herbarium specimens in BSI, and the other between BSI (BGIR, NOIDA), U.P. State Forest Department and the WWF-India, for eco-restoration of Surajpur wetland in Greater Noida (with funding from the MoEF) were put up before the Committee for consideration and approval. The Committee encouraged BSI to undertake collaborative research programmes based on core competence of the collaborating partners and mutually agreed terms and conditions without affecting its on-going activities.

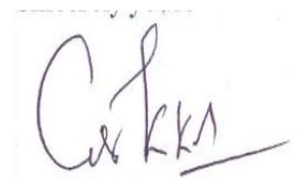
Wrapping up the discussions, the Chairman hoped that the interest shown by the Joint Secretary will definitely help BSI in overcoming its administrative problems and expedite the decision making process in the ministry. He recorded his personal appreciation for all the members for actively participating in the deliberations which was further boosted by the inputs from the Special Invitees and suggested that in future also taxonomists of the region should be associated with the Committee meetings. He expressed concern on the BSI centres functioning without basic requirement of man-power and hoped that the ministry will look into these issues with due urgency.

## Recommendations:

The following recommendations emerged from the deliberations

1. Engagement of consultants for editing/writing of 'Flora of India. **(Action: BSI/MoEF)**
2. Enhancement of fellowship amount of BSI research scholars on par with DST and CSIR. **(Action: BSI/MoEF)**
3. Raising the number for Emeritus Scientists in BSI to 10 and the upper age limit to 70 years and extension of tenure of Dr V. Singh, as a special case. **(Action: MoEF)**
4. BSI should bring out publication documenting plants rediscovered/recollected after long intervals along with reasons for non-collection, biotic and natural threats, etc. **(Action: BSI)**
5. BSI should enter into collaborative research programmes with peer institutions/stakeholders in the areas of core competence of the collaborating partners based on mutually agreed terms and conditions without affecting its on-going activities. **(Action: BSI)**

The meeting ended with vote of thanks by Dr D.K. Singh.



**Prof. A.K. Koul**  
**Chairman, RAMC, BSI**

## List of Participants

1.	Prof. A.K. Koul	Chairman
2.	Sri B.M.S. Rathore, IFS, Joint Secretary (CS), MoEF	Member
3.	Dr P.G. Latha, Director, TBGRI, Trivendrum	Member
4.	Dr R.R. Rao, Bangalore	Member
5.	Prof. S.C. Srivastava, Lucknow	Member
6.	Prof. M. Daniel, Baroda	Member
7.	Dr D.K. Upreti, Scientist G, NBRI, Lucknow	Member
8.	Dr P. Singh, Director, BSI	Member
9.	Prof. S.P. Vij, Chandigarh	Special Invitee
10.	Dr T.S. Ratore, Director, AFRI, Jodhpur	Special Invitee
11.	Dr V. Singh, ex Addl. Director, BSI, Jodhpur	Special Invitee
12.	Dr P. Venu, Scientist F, BSI	Invitee
13.	Shri Vonod Maina, Scientist C-in-Charge, BSI, Jodhpur	Invitee
14.	Dr D.K. Singh, Scientist F, BSI	Member Secretary