

## **Minutes of the 8<sup>th</sup> RAMC Meeting of the Botanical Survey of India, Held at Central National Herbarium, Howrah on 25<sup>th</sup> November 2017**

The 8<sup>th</sup> meeting of the Research Advisory & Monitoring Committee (RAMC) was held at Botanical Survey of India, Central National Herbarium, Howrah on 25<sup>th</sup> November 2017 under the chairmanship of Dr. (Prof.) A. K. Koul, University of Jammu. The meeting was preceded by visit to the AJC Bose, IBG garden, and CAL herbarium. The meeting started at 10.30 am in the Conference hall of CNH, Howrah.

Prof. M. Daniel, Maharaja Sayajirao (MS) University and DR. (PROF.) D. J. BHAT, Goa University (Retd.), Mrs. Manju Pandey, Joint Secretary and in charge, CS Division, MoEF&CC could not attend the meeting due to their preoccupation.

The meeting started with welcome address by Dr. P.V. Prasanna, which followed by brief introduction of BSI working models by Dr P.Singh. Dr. Singh presented an outline of the on-going programmes.

In his opening remarks, Prof. Koul, Chairman of RAMC stressed upon the importance of Biodiversity study in the post CBD and the role BSI is required to play. in it. He also emphasized the need of creating an urge among scientists of BSI to study problems arising out of climate change, dangers to bio-wealth loss of wild relatives of crop plants besides continuing taxonomy, so as to make this institute glorious.

A short film on the facilities and activities of BSI was shown to committee members. Dr. R.R. Rao commented that the film should elaborate major contributions of BSI, list of publications, glimpses of discoveries etc. for the benefit of stake holders in plant wealth of the country.

This was followed by five presentations by Heads of different regional centres of BSI. In the first presentation, Dr. P.V. Prasanna spoke of different action plans of CNH. Dr. A. Pramanik, spoke about the different projects of AJCBIBG; Dr. A.A. Mao updated the members about different projects of ERC; Dr. P. Lakshminarasimhan updated the members about the different projects of WRC and Dr. Sampath Kumar appraised the committee about different programmes of ENVIS centre, and about Green Skill Development Programmes of BSI.

While appreciating the different research programmes of BSI Prof. Koul suggested that, the scientists of BSI should initiate programmes on contemporary issues such as, climate change, genetic erosion and Bio-prospection, etc. They suggest following things:

- Premier institute like BSI should come up with new initiatives based on their unparalleled taxonomic background.
- BSI needs to take the driver's seat to monitor the Climate Change ó its impact on plants and on strategies to combat it.

- BSI should contribute to find useful genes in wild relatives of crop plants to answer the narrowing genetic base of plants that sustain humankind.

Dr. Kuldeep Singh, Director, NBPGR said that, being repository of herbarium specimens as old as two hundred years, has unparalleled opportunity to find answers arising out of climate change. He also stressed upon the need of collaboration for research on wild relatives of crop plants between NBPGR and BSI. He praised the publications of BSI on wild relatives of cultivated plants and stressed the need for more such books.

While reviewing the projects listed for implementation the committee proposed that completion of Flora of India project which has remained hanging for 40 years since it was launched needs to be given first priority. All countries, including India's neighbours have published they are floras. We can wait no more. The committee appreciated the bottlenecks that have hampered the work particularly the paucity of human resources. As a way out it was decided that BSI scientist should be assigned Flora work instead of employing them in exploration of small habitats such as sacred groves, small water bodies that have largely been explored. The manpower, thus saved, should be utilised in undertaking the neglected Flora of India work.

In order to achieve this important goal, the Director, Botanical Survey of India was empowered to constitute the in-house project assessment committee to sieve the projects listed for approval by the RAMC. Since the RAMC is not likely to meet anytime soon, it has been proposed that the following projects may be considered for the period given against each. This may be prioritised and implemented depending upon the availability of scientific manpower after assignment of the Flora of India work.

The committee also proposed that should the director feel after in house discussion that, involvement of some members of RAMC will be useful to draw the road map for assigning and executing the much delayed Flora of India work, he may convene their meeting in the coming one or two months.

The members emphasized that the BSI scientists need to recognise the challenges, accept it and overcome it. This is necessitated by the CBD.

Dr. R.R. Rao, has congratulated for the excellent works of BSI and requested the Director BSI to publish review of different books of BSI in Current Science or any reputed journals. He also advised on setting of priorities on ethnobotanical information which can lead in the product development, which ultimately place works of BSI into limelight. He also told, there is a need of cross cultural study of different tribes of India, and BSI should do such types of ethnobotanical studies instead of concentrating individual tribes or regions of India.

Dr. Nandi, Scientist-G, from GB Pant Institute of Himalayan Development has enquired about the impact factor of different publications of BSI and BSI scientists. However, Director BSI has convinced him that, impact factors in taxonomic publications are very less and sometimes absent. However, there BSI publication has a high impact factors in research gates or J- gates.

The committee proposed for conducting Nomenclature programmes at different regional centres every year and at least each regional centre to do a workshop in a year. The committee has also said that, the introduction of plants in the different BSI gardens cannot be considered as conservation, unless it has not been mass multiplied and rehabilitated in the natural environment. While showing his interest in the information is wild edible plants of North east India, Dr. Kuldeep Singh, has shown his interest on a larger collaboration with BSI for identifying leafy vegetables of NE regions, Western Ghats and Andaman & Nicobar Region so as to introduce for commercialization. When, Dr. Rao, cautioned that, not all edible leafy vegetables are palatable, Dr. Singh assured the role of NBPGR in identifying the gene, make it palatable and ultimately to bring to commercialization; and wished this could be a greatest collaboration between two institutes.

After the lunch break Dr. B.K. Sinha, Scientist -F0 & Additional Director, Headquarters (BSI) presented on the overall progress of Annual Action Plan projects of rest of the regional centres and the new proposals for 2018-2019.

The committee unanimously ratified the Annual Action Plans of BSI for the year 2017-18 and following suggestion were given for the AAP 2018-19.

1. **An in-house evaluation committee to be set up to evaluate the proposed actions plans** before putting up to RAMC and members of this committees to be present in RAMC for discussion.
2. BSI should send a copy of all their publications to the RAMC members and their publication should be reviewed and published in the reputed journal like Current Science under Book Review
3. **There is a need for a permanent editorial committee for the Flora of India project.** Prof. Koul, emphasized the serious lacunae of delay in Flora of India work, and the urgent need to complete it, as the target has been not been achieved even after 40 years of its initiation. **The flora of India project should be given first priority in BSI action plan and to consider it a national Challenge and pride.** To facilitate this programmes, Director, BSI to take immediate considerations, and to call an urgent meeting with all the stake-holder of Flora of BSI, all those worked in this project so as to make a road map to complete this prestigious project in a targeted time.

4. Prof. Kaul said that a comprehensive volume of orchids of India and Impatiens of India needs to be brought out.
5. Sharing of information on bio-prospective studies with ICAR, NBPGR and other institutes for development of products.
6. Before plunging into the DNA Barcoding project BSI should review the fate of DNA Barcoding projects undertaken by other institutes. For trial basis few groups of plants may be considered initially. Dr.Kuldip Singh suggested to initiate the work with the chloroplast genome rather.
7. Regarding initiations of DNA bar coding studies, the committees cautioned about its implications, as opined that, this study is not at all successful in many of the plant groups. Thus if at all, BSI should try for the Chloroplast DNA sequencing to prepare standardized protocols for different plants.
8. Regarding the proposal for reviewing of manuscripts, the committee agreed upon for a remuneration scheme for reviewing and editing of manuscripts of BSI. It has unanimously agreed upon for fixing of the rates @ 25/per page in 1.5 line space, 11 font size in Times Roman font. It also suggested to fix the maximum time of six months to review and making the manuscript in a publication ready format. The time limit for manuscript up to 250 pages would be three months only. They also suggested that, if the review is not done within stipulated time period, the reviewer has to forfeit the remuneration. A list of potential reviewers to be drawn from Retired scientist, in service scientists other than BSI and who are well versed with taxonomic, floristic studies.

### **PROPOSED ANNUAL RESEARCH PROGRAMME 2018-19 (New)**

#### **(Revised by as per RAMC recommendation)**

- Fern family Pteridaceae of North-East India by Dr. V.K. Rawat (2018-2022).
- Diversity and phylogeny of Aquatic fungi from North east India by Dr. Ashish V. Prabhugaonkar (2018-2020).
- Pictorial Flora of Pteridophytes of Uttarakhand Dr. B. S. KHOLIA Scientist- D (2018-2021).
- Assessment of Phytodiversity in Chail Wildlife Sanctuary, Himachal Pradesh by Dr. Manas Ranjan Debta (2018-2021).
- Pteridophytes of Goa by Dr. A. Benniamin (2018-202).
- Taxonomy and Diversity of Family Acanthaceae under Flora of India and taxonomic studies of Genus *Strobilanthes* Blume (Gap area not completed under Flora of India) along with seeds and epidermal studies of 50 selected Acanthaceae species for SEM studies which is

doubtful identification by DrLakshminsarasimhan, Dr. J. Jayanthi, ArtiGarg , Dr. C. R. Jadhav&Nitisa Srivastava (2018-2019).

- Family Orchidaceae under Flora of India by Dr. J. Jayanthi (2018-2020).
- A Taxonomic Revision of the Family Orchidaceae under Flora of India by Dr. Jeevan Singh Jalal (Co-OrdinatorDr A. A. Mao )(2018-2021).
- Bryoflora of Jharkhand by Dr. D. Singh (2018-22).
- Wood rotting fungi of Valmiki National Park by Shri Manoj E. Hembrom (2018-2021).
- Taxonomic revision of the genera Blysmus, Isolepis, Kyllingiella and Trichophorum (10 taxa, including 2 varieties,) under family Cyperaceae for Flora of India project by Dr V.P. Prasad (2018-19).
- Ethno-botanical study of Bihar, India by Dr. Harish Singh, &Dr. P. A. Dhole, (2018-2022).
- Floristic diversity of Alwara Wetland, Kaushambi district, Uttar Pradesh by Dr. G. P. Sinha & Shri Vineet Kumar Singh (2018-2019).
- Interpretation of IconesRoxburghianae family Orchidaceae by M. Bhaumik (2018-2019).
- Interpretation of IconesRoxburghianae - Pteridophyte by Dr.KangkanPagag (2018-2019).
- Flora of Eagle Nest Wild Life Sanctuary and its adjacent regions, West Kameng District, Arunachal Pradesh by Sanjay Kumar & Dr. S.S. Das (2018-2021).
- Cytological Investigation of Genus Impatiens of Eastern Himalaya (Arunachal Pradesh & Sikkim) by Monika Mishra (2018-2021)

Finally, the esteemed members expressed happiness being a part of this esteemed committee and stated their personal comments and views in a nutshell. **All the members emphasized to see the basic documents of Flora of India on table.**

**Dr. Kuldip Singh suggests two proposals:**

- For the joint (BSI & NBPGR) exploration of wild crop relatives for setting GenBank/seed bank mainly focusing on the North East Himalaya, Deccan Plateau and Southern India.
- For a joint (BSI & NBPGR) effort to conserve the plant wealth of Valley of Flowers.

**Dr. Upreti** suggested undertaking more projects on different groups of lower plants which are the good indicators of climate change.

Honorable chairman thanked all the committee members and the entire team of BSI.

Director (BSI) assured that all the possible necessary steps will be taken to implement the wise suggestion given by the esteemed committee.

- ✓ A permanent committee shall be set for editing of Flora of India

- ✓ A link will be established between NBPGR and BSI for a wider collaboration and expeditions in North East, Eastern and Western Ghats, which will lead to new projects and MoU at an institutional level.
- ✓ A module training programmes for gene bank, seed bank and cryopreservation will be modelled between NBPGR and BSI.
- ✓ Long term monitoring projects of climate change will be taken up.
- ✓ More interaction between NBRI, TBGRI and BSI will help in produing collaborative works.

The meeting is closed with the vote of thanks by Dr.A.A.Mao, Scientist F, ERC, Shillong.

**List of the Participant Present :**

1. Prof. A.K. Koul, Chairman
2. Dr. Kuldeep Singh, Director, NBPGR
3. Dr. R. R. Rao, CIMAP (Director Grade Scientist, Retd.)
4. Dr. A. Pandurangan, Director, TBGRI
5. Dr. S. K. Nandi, Scientist-G, G. B. Pant Institute of Himalayan Environment and Development, Almora
6. Dr. S. C. Srivastava, Lucknow Universty, Lucknow (Retd.)
7. Dr. D. K. Upreti, Principal Scientist, NBRI, Lucknow
8. Dr. P. Singh, Director, Botanical Survey of India
9. Dr. B. K. Sinha, Scientist -Fø BSI, Hqrs. ó Member Secretary
10. Dr. P. Lakshminarasimhan, Scientist -Eø & HOO, BSI, WRC
11. Dr A. A Mao, Scientist-F, BSI, ERC, Shillong
12. Dr P.V. Prassana, Scientist-F & H.O.O., Central National Herbarium, Howrah
13. Dr. Sampath Kumar, Scientist D, CNH and in-charge of ENVIS centre
14. Dr. Kanad Das, Scientist D, BSI-Hqrs., Kolkata
15. Shri Sabyasachi Saha, Botanist, BSI, Hqrs.
16. Other officials of Botanical Survey of India.

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