• Established: 13th February, 1890
• Reorganised: 29th March, 1954
• Mandate: Survey, Documentation and ex-situ conservation of Wild Plant Diversity of the Country
• Headquarters: Kolkata
• Reg. Centres/Units: 15, including AJC Bose Indian Botanic Garden, Howrah (Estd. 1787), Botanic Garden of Indian Republic, NOIDA (Estd. 2002) and Industrial Section Indian Museum, Kolkata
OBJECTIVES

- Exploration, inventorying and documentation of phytodiversity in general and protected areas, hotspots, fragile ecosystems and sacred groves in particular;

- Publication of National, State and District Floras.

- Identification of Red list species and species rich areas needing conservation;

- *Ex-situ* conservation of critically threatened taxa in botanical gardens.

- Survey and documentation of traditional knowledge associated with plants.

- Develop a National database of Indian plants, including herbarium collections, living collections, botanical paintings/illustrations etc.
OBJECTIVES

- Monographic/Revisionary studies on selected plant groups.
- Capacity building in plant taxonomy through refresher courses.
- Environmental Impact Assessment of areas assigned to BSI for study.
- Develop and maintain Botanical Gardens, Museums and Herbaria.
- Preparation of Pollen, Seed and Spore Atlas of Indian Plants.
- Qualitative analysis of nutritive value of ethno-food plants and other economically useful species.
EXPLORATION OF PLANT DIVERSITY

- 71 Field Tours [+16]
  - 04 biodiversity hotspots [Himalaya, Indo-Burma, Sundaland, Western Ghats-Sri Lanka]
  - 09 biogeographical regions [WH, EH, NE, Arid-Semi Arid, GP, DP, WG and Coast] + Antarctica
  - 41 Protected areas
  - 13 Sacred groves
  - Wetlands [Upper Ganga Ramsar site]
- 11,851 specimens [incl. 1923 NFP] collected
STRENGTHS

- Nationwide organization
- Well organized herbaria with over 3 million herbarium specimens
- Over 19000 type specimens
- Over 20,000 exhibits of economic plants & products
- Largest repository of books and journals dealing with taxonomy and phytogeography in the country
- Elaborate ex situ conservation facilities comprising 861 acres of gardens (IBG-275 acres; BGIR-200 acres) and conservatories with Live Germplasm Holdings: 1,75,000 (belonging to 7050 species)
- Facilities for rapid mass multiplication of plant species
- National repository of data on plant resources of the country
WEAKNESS

- Lack of hierarchal parity with other research Institutes in MOEFCC, DST, CSIR
- Shortage of trained manpower
- Lack of in-service skill augmentation, exposure to current trends in research in other peer institutions
- Old and inadequate infrastructure
- Lack of easily retrieval data in digital form
OPPORTUNITIES

- Ratification of Convention on Biological Diversity (CBD) by the Govt. of India (1994), Enactment of Biological Diversity Act, 2002 and Biological Diversity Rules, 2004 envisages larger role for BSI, particularly with reference to Article 7, 8, 9, 10, 12, 13 and 14 (CBD) and Sections 36, 37, 38, 39, 40 (Biodiversity Act, 2002)

- With the kind of infrastructure and data on the plant resources the BSI has, it can play a larger role in environmental awareness

- Consolidation of the resources to initiate/facilitate experimental research in the field of molecular biology, conservation biology
THREATS

- Scientific and Technical man-power burdened with administrative work
- Overlapping mandate of other Research Institutes
- Lack of appreciation of basic taxonomic research
- Lack of taxonomic teaching and staff in Universities

With these strengths, weaknesses, opportunities and threats BSI has till date been able to floristically explore 70% area of the country
Important Achievements

• National Reference Collections of Plants: 3.2 million (incl. 19280 types)
• Live Germplasm Holdings: 1,75,000 (belonging to 7050 species)
• New Discoveries:
  • Family: 1
  • Genera: 32
  • Species: 925 (including subspecies and varieties)
  • New plant records: >2500
  • During the year 2010 the scientists of BSI published 1 new genus, 23 new species incl. 5 new varieties of plants and discovered 2 genera, 60 species and 5 varieties as new records for India
• Digitisation:
  • Herbarium Specimens Digitised: 33,000
  • Archival Material Digitised: 60,000
  • Textile designs, Natural dyes, Botanical illustrations Digitised: 10,500
• Publications:
  • National Flora: 33 titles
  • State Flora: 41 titles
  • Misc. (Incl. District Flora): 185 titles
  • Periodicals: Nelumbo (52 Vols.), ENVIS News (16 Vols.), Vanaspati Vani: 20
**Publications:**

### A. Flora of India
- Flora of India Series 1 Fascicles: 27 fascicles
- Flora of India Series 2 State Flora: 45 volumes of 25 State Flora
- Flora of India Series 3 District Flora: 34 volumes of 26 District Flora
- Flora of India Series 4: 4 volumes Red Data Book of Indian Plants and 145 titles
- Miscellaneous: More than 165 titles

### B. Publications:
- Bulletin Botanical Survey of India: 57 volumes
- Records of the BSI: 22 volumes
- Plant Conservation Bulletin: 5 volumes
- ENVIS Newsletter: 20 volumes
- Vanaspati Vani (Hindi): 23 volumes
- Parijat (Hindi): 5 volumes
- BSI Monthly Enews: 21 issues
SOME DISTRICT WISE PROJECT REPORTS RECENTLY COMPLETED
ENVIS CENTRE ON FLORAL DIVERSITY

- **Indian Plants included in CITES and Negative List of Exports:** Updated with a complete list of Indian Plants listed in CITES and Negative List of Exports with detailed description of 55 individual plants including photographs.

- **Carnivorous Plants of India:** 38 species of *Utricularia*, 3 species of *Drosera* and 1 species each from *Aldrovandra*, *Nepenthes* and *Pinguicula* have been provided with detailed information and photographs.

- **Mangroves of India:** A list of 49 mangrove plant species of India has been provided with their detailed information and photographs.

- **State Tree and State Flower** (for all States) have been prepared with their photographs.

- **Glossary Module** of ENVIS website has been updated with over 1200 Scientific terminologies with their meaning.

- **Bibliography Module** of ENVIS website has been updated with over 5000 bibliographic records.
IDENTIFICATION

- 11,893 specimens identified into 6,226 taxa
  - 01 genus (*Sawantomyces*), 39 species and 07 varieties new to science
  - 03 genera (*Acarocybellina*, *Cucurbidothis* and *Pterigiella*), 95 species and 02 subspecies new to India
  - 97 new distributional records for major geographical regions / states
- 02 species collected after a gap of more than 50 years
DOCUMENTATION

- Editing of Flora of India, Vol. 9  
  - National Flora
    - Flowering plants: 108 taxa
    - Non-flowering plants: 63 taxa
  - Regional/State/ District Flora: 1,455 taxa
    - Non-flowering plants: 167 taxa
  - Protected areas: 2,055 taxa
- Ethno-botanical information
  - Koraput: 522 uses
  - Deogarh: 251 uses

[healthcare, food, fodder, broom/plate-making, dyes, insect repellent/pest control, fish poison, etc.]
In the present state of our knowledge India has about 18259 species of angiosperms and 78 species of gymnosperms.

The group wise current status of number of species known from India:

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virus/ Bacteria</td>
<td>1120</td>
<td>2.33</td>
</tr>
<tr>
<td>Algae</td>
<td>7331</td>
<td>15.22</td>
</tr>
<tr>
<td>Fungi</td>
<td>15053</td>
<td>31.26</td>
</tr>
<tr>
<td>Lichens</td>
<td>2479</td>
<td>5.15</td>
</tr>
<tr>
<td>Bryophytes</td>
<td>2550</td>
<td>5.29</td>
</tr>
<tr>
<td>Pteridophytes</td>
<td>1288</td>
<td>2.68</td>
</tr>
<tr>
<td>Gymnosperms</td>
<td>78</td>
<td>0.17</td>
</tr>
<tr>
<td>Angiosperms</td>
<td>18259</td>
<td>37.91</td>
</tr>
<tr>
<td>Total</td>
<td>48158</td>
<td></td>
</tr>
</tbody>
</table>
Since reorganisation in 1954, the scientists of BSI have discovered 01 new family, 40 new genera, 1371 new species.

During 2015

3 new genera, 42 species, 2 infra specific taxa as new to science from India and 01 genus, 101 species, 4 infra specific taxa as new records for Indian Flora.
Bulbophyllum chyrmangensis D. Verma, S. Lavania & Sushil K. Singh (Orchidaceae)

Collected from: Chyrmang sacred groove, West Jaintia Hills District of Meghalaya

*As per the current IUCN criteria it has been categorized as Data Deficient (DD)
Rhododendron mechukae A.A.Mao & A.Paul (ERICACEAE)
Collected from: Mechuka to Yourlung, West Siang District of Arunachal Pradesh.

As per the current IUCN criteria it has been categorized as Critically Endangered.
Rhododendron pseudomaddenii A.A.Mao & M. Bhaumik
Sp. Nov. (ERICACEAE)
Collected from: West Siang District of Arunachal Pradesh.
* As per the current IUCN criteria it has been categorized as Least Concern.
**Tripogon mahendragiriensis** Chorghe, Sangita Dey, K.Prasad, Prasanna & Y.V.Rao

(POACEAE)

Collected from: Mahendragiri Hills, Gajapati District of Odisha

*As per the current IUCN criteria it has been categorized as Data Deficient (DD).*
**Rhododendron titapuriense** A.A. Mao, K.N.E. Cox & D.F. Chamb, (ERICACEAE)

Collected from: Yang Sang valley, Anjaw district of Arunachal Pradesh.
Collected from: Teptepa, Balpakram National Park, Hatisia Beat, South Garo Hills district, Meghalaya
* As per the current IUCN criteria it has been categorized as Data Deficient (DD).
Ceropegia karulensis

Punekar, Tamhankar, Lakshmin., Kumaran, A. Raut, S.K. Srivast. & Kavade

A. Habitat; B. Flowering Habit; C. Inflorescence;
D. L.S. of flower showing light windows; E. Corona;
F. Pollinarium; G. Flower based predation
(spider captured a Stingleless bee).

Photographs by: Sachin A. Punekar
Brachystelma penchalakonense Rasingam et al.
Glochidion tirupathiense Rasingam et al.

Tripogon tirumalae Chorghe et al.
Acanthus albus Debnath et al.  Habenaria nicobarica Murugan et al.
Musa argentii Gogoi & Borah
Musa aurantiaca var. jengingensis Gogoi
**Uvaria eucincta** Bedd. ex Dunn (Annonaceae). The species was collected recently from Kuldiha WLS in Blasore district of Odisha, where only 3 plants were located. This species was originally collected by R.H. Beddome in 1880 from Goosur, Russelkonda and Kurcholi hill forests of Ganjam district, Odisha.
**Connaraceae**: *Connaraceae nicobaricus* King (Connaraceae). In recent years only 09 individuals of the species have been located from Pewaye in Little Nicobar Is., Gandhinagar in Great Nicobar Is. and Trinkel Is. of Nicobar Islands respectively. This species was originally collected from an unknown locality in South Nicobar (Great Nicobar?) in 1884 by King’s collector. It was subsequently collected from Parlob Island in Middle Andaman by C.E. Parkinson in 1916.
EX SITU CONSERVATION

- Plant introductions [413 species]
  - 413 species in AJCBIBG, BGIR and associated botanic gardens of different Regional Centre

- Micropropagation
  - *Cymbidium tigrinum*
  - *Ilex khasiana*
  - *Rhododendron wattii*
  - *Rhododendron macabeanum*
  - *Indopiaptadaenia oudhensis*
  - *Eremostachys superba*
  - *Pittosporum eriocarpum*

- Assistance to botanic gardens
**CYBER-TAXONOMY INITIATIVE**

- Indian Virtual Herbarium: 16,427 sheets
- Digital Archive of Rare publication: 1,28,000 pages
- Flora of India: Vols. 1–4
- Checklist of Indian plants: Monocotyledons
### STAFF STRENGTH*

<table>
<thead>
<tr>
<th>Classification</th>
<th>Scientific</th>
<th>Technical</th>
<th>Ministerial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SS</td>
<td>MiP</td>
<td>Vct</td>
</tr>
<tr>
<td>Group-A</td>
<td>107</td>
<td>94</td>
<td>13</td>
</tr>
<tr>
<td>Group-B</td>
<td>46</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>Group-B(NG)</td>
<td>96</td>
<td>34</td>
<td>62</td>
</tr>
<tr>
<td>Group-C</td>
<td>174</td>
<td>85</td>
<td>89</td>
</tr>
<tr>
<td>Total</td>
<td>423</td>
<td>242</td>
<td>181</td>
</tr>
</tbody>
</table>

*Total strength: 1184; Man in Position: 651

### BUDGET

<table>
<thead>
<tr>
<th>Budget Head</th>
<th>Approved (₹ in Crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>21.00</td>
</tr>
</tbody>
</table>
THANK YOU