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### EX-SITU CONSERVATION OF THREATNED PLANTS ENDEMIC TO THE REGION THROUGH BOTANICAL GARDENS AND CENTRES OF CONSERVATION

#### 4.1 Introduction:

Conservation of plant diversity assumes greater importance when the world is facing unprecedented loss of biological diversity. As per an estimate about 60,000 out of 2,87,655 species of plants known in the world are facing the threat of extinction. 11,824 species were evaluated for their threat status as per the revised 1994 IUCN Red List Categories; of these 8321 species are now on the IUCN Red List 2004 (Govaerts 2002, IUCN 2004). Oldfield et al. (1998) documented over 7300 tree species as globally threatened. Interestingly, about 1665 of these threatened tree species are in cultivation in botanic gardens in different parts of the world (Wyse Jackson 2002). There are over 1800 botanic gardens and arboreta located in about 148 countries and they together maintain over 4 million living plants belonging to more than 80,000 species of vascular plants. The Botanic Gardens (BG) and other plants conservation Centres in the world thus play a very crucial role as Centres for rescue, recovery and rehabilitation of rare, endangered and extinct prone species of plants and other valuable plant genetic resources. The BGs also play important role in education and as a Centre of training in areas such as horticulture, gardening, landscaping, ex-situ conservation and environmental awareness.

#### Global Strategy for Plant Conservation

4.1.1 The Global Strategy for Plant Conservation (GSPC) , a recent initiative adopted by Sixth Conference of Parties ( COP) to CBD, aims at :

- Development of models with protocols for plant conservation and sustainable use, based on research and practical experience (Target 3, GSPC);
- 60 percent of threatened plant species in accessible ex-situ collections, preferably in the country of origin, and 10 percent of them included in recovery and restoration programmes ( Target 8, GSPC);
- Networks for plant conservation activities established or strengthened at national, regional and international levels (Target 16, GSPC);

The COP VI Session particularly mentions about the role of Botanic Garden in conservation and sustainable utilization as well as in eco- education/environment education in Botanic Gardens. Several countries including India have initiated relevant programs and activities for implementation of the GESPC target at national level.

#### Responsibilities of Lead Gardens in the Post-CBD Period

4.1.2 The new challenges and responsibilities of Botanic Gardens in undertaking research and development programmes on documenting bio-prospecting and sustainable use of biodiversity are well reflected in the action programmes associated with the implementation of the Convention of Biological Diversity(CBD) which came into force on 29.12.1993. CBD is a dynamic and comprehensive international legal framework on biodiversity conservation. Article 6 ( General Measures for conservation and sustainable use),Article 7 ( Identification and Monitoring of

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the components of Biological Diversity), Article 8 ( in situ conservation) and Article 9 ( ex situ conservation), Article 12 ( Research and Training), Article 13 ( Education and Awareness), Article 15 ( Access to Genetic Resources and benefit sharing), Article 17 (Exchange of Information) and Article 18 ( Technical and Scientific Cooperation) are the important provisions in CBD for conservation of biodiversity, which the botanic gardens of the world can implement in several ways.

- 4.1.3 In view of the above background and context, a scheme was initiated by the Union Ministry of Environment and Forests, Govt. of India in 1991-92 to promote ex-situ conservation and propagation of rare endemic plants through a network of Botanical Gardens and Centers of Ex-situ Conservation. The Central Govt. **assistance for Botanical Garden/Botanical Sections in popular gardens on 100% grant basis is aimed at both furthering research, and promoting awareness and education of the indigenous particularly Rare, Endangered and Threatened ( RET), and Endemic ( E) flora.** Under the scheme, it is envisaged that there would be a network of botanical gardens/botanical sections in popular horticulture or thematic gardens all over the country. **The network would cover approximately 1/3<sup>rd</sup> districts of the country by the end of XI th Five Year Plan.**
- 4.1.4 Under the scheme, one-time financial assistance is provided to organizations maintaining botanical gardens for strengthening their infrastructural facilities to facilitate conservation and propagation of rare and endangered endemic plant species of the region. Assistance is also given for development of botanical sections in the popular gardens developed by local bodies or state govt departments or any other organization of repute having reasonable knowledge of the flora, means for maintenance to disseminate information and inculcate care and conservation habits including multiplication, of RET and E plants.
- 4.1.5 The Botanical Survey of India has prepared a list of RET and E plants in different phytogeographic regions of the country. The State Govts./UT Administrations, organizations, institutions, Universities and PG Colleges & NGOs, while formulating project for financial assistance under the scheme, may contact the Director , Botanical Survey of India, Kolkata or regional Offices of BSI for advice specially for determination of RET & E plants requiring special attention. Contact addresses of BSI (Hqrs) and Regional Offices and their territorial jurisdiction are given in **Annexure I.**

#### **4.2 Aims & Objectives :**

The Aims and Objectives for ex-situ conservation of indigenous, particularly RET and 'E' plants are :

- 1. Ex-situ conservation and multiplication;**
- 2. Establish seed banks, arboreta and mist propagation facilities.**
- 3. Promote education and public awareness in respect of above said plants ; and**
- 4. Reintroduce said plants in natural habitats in collaboration with State Forest Department on project basis.**

#### **4.3 Criteria and Terms and Conditions:**

- (i) Normally existing gardens are eligible for support. Proposal for new gardens may be considered if they meet the eligibility criteria as stated in **Annexure II.** Preference shall be given to

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- applications from uncovered and under covered regions/sub-regions. .
- (ii) Such proposals may be given priority where the applicant and Institute have proven track record to undertake the conservation and propagation of indigenous, particularly 'RET' and 'E' plants. **The minimum size of the garden to be assisted should not be less than 2 acres but may be preferably, 5 acres or above.**
  - (iii) The organization receiving grants under this scheme must also ensure rehabilitation of the species and periodic monitoring of their survival/potential for survival as an integral part of the project. The organisations must coordinate with the concerned State Government to ensure that successful rehabilitation of the RET and E species in their natural habitats.
  - (iv) The Central Govt. would identify an Institute/organization in each phyto-geographic zone ( details in **Annexure III**) as nodal institute /organization for providing guidance to other recipients organizations as also other players for conservation and propagation of indigenous, particularly RET and 'E' species of the given region. State Governments may be consulted whenever desired.
  - (v) A Panel of experts from the field of taxonomy (including retired taxonomists ), forestry and horticulture would be prepared in consultation with BSI for a given state/Region for providing scientific and professional support to recipients of assistance at State/district level. BSI can engage services of retired taxonomists for technical assistance. Budgetary provisions for such assistance will be provided to BSI under the scheme.
  - (vi) The organization applying for assistance is required to furnish a certificate indicating that no grant has been received by the organization for the same work from the Union Ministry of Environment & Forests and/or any other source like DBT, DST, UGC, CSIR or ICAR etc. for the same work. .
  - (vii) The BSI is entrusted with preparation of inventory of the RET and E species in different phytogeographic regions of the country, which need to be conserved and propagated on a priority basis. The inventory may be obtained from BSI by the applicant Institutes for undertaking conservation of the species of the given region.
  - (viii) **The proposal should focus on minimum 10 to 15 RET and E species of the region concerned:** The list should be provided/authenticated by BSI. Out of RET and Endemic species, minimum 20 saplings of each tree species, 30 saplings of each shrub species including lianas and 50 saplings of each herbaceous species /climbers to be maintained in the garden.
  - (ix) The Institutes receiving grants under the scheme must ensure that they utilise the funds and the facilities under the scheme for activities for which they are meant.
  - (x) The organizations funded under the scheme should also tie up with the users for the said plant material for supplying them the material of the species conserved by them for specific purposes. There is a need to link up ex-situ conservation with in-situ transfer by developing an arrangement with the State Forest Departments so that the logical chain is completed.
  - (xi) Seeds of live materials of the RET & E species conserved by the organizations shall be sent for maintenance and storage in the regional stations of BSI or NBPGR.
  - (xii) Transfer of such material to any foreign agency/individual attracts provisions of the Biological

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Diversity Act, 2002. Hence, any such transfer can be only with the prior approval of the National Biodiversity Authority.

- (xiii) Non-recurring grant for infrastructure improvement and recurring grant for field surveys and collection of plants may be borne under the scheme. Civil construction work should be proportionately limited to the size of the garden and be kept to the minimum level and the estimates are to be based on latest available Schedule of Rates (SOR) of State PWD, and to be prepared/verified by certified engineer.
- (xiv) Assistance for Landscaping, pathways, lighting, signages, information boards and introductive multimedia equipments may also be allowed to the extent necessary for maintenance of ex-situ collection and awareness creation.
- (xv) Appointment of regular personnel or staff shall not be supported under the scheme.
- (xvi) The organization may clearly state/mention as to how the garden will sustain its maintenance and other activities once the funding of the Ministry stops after the project period.
- (xvii) The recipients of assistance will submit quarterly progress report ( QPR) in physical and financial terms (in the proforma as at **Annexure IV**).

#### **4.3.1 Role of State Governments/UT Administrations:**

- (a) The State Government/UT Administration will nominate the Department of Environment and/ or Forests which will collaborate with Department of Horticulture and Department of local-self Government/Administration to establish and strengthen Botanical Gardens/Botanical Sections in popular gardens.
- (b) The State Government's nominated Departments will make sufficient budgetary provision for maintenance of the Botanical Garden/Sections during and after implementation of the project.
- (c) The implementation of the project will be monitored by a small Monitoring Committee at State level and by a Committee headed by Divisional Commissioner at Field level (In states where there are no Divisional Commissioner, The Committee will be headed by Senior Officers nominated by the State Government). Officers of concerned Department of Forest, Horticulture, Education, Municipal Corporation and electronic and print Media would be involved with the Monitoring Committee.
- (d) The concerned State Departments will also encourage various well-equipped organizations viz. Botany Departments of Degree/Post Graduate Colleges, Universities, relevant Research and Training Institutes, State Departments of Forest and Horticulture etc. to formulate proposals on the subject.

#### **4.3.2 Role of Botanical Survey of India (BSI)**

BSI will discharge a pro-active role in the implementation of the Scheme. The Hqrs and Regional stations of BSI would assist in :

- (a) Formulation of proposals;
- (b) Furnishing of information about indigenous, RET and E species in the given Revenue

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- Division.
- (c) Technical inputs for collection and propagation of species..
  - (d) Collection of seeds and sapling of rare plants,
  - (e) information for signages.
  - (f) Periodical inspection, monitoring and suggestions of midterm corrections, if required.
  - (g) Inspect and monitor progress in implementation of the Botanical Sections assisted under the Scheme and submit analyzed reports to Ministry twice a year in April and October of a given year, as per format in **Annexure-V**.
  - (h) To provide comments on the reports submitted by funded gardens and to make appropriate technical suggestion.
  - (i) Prepare and print Handbook for each phyto-geographic zone listing most rare species.

#### **4.4. Submission of Proposal:**

**Fifteen** copies of the Proposal may be submitted as per Proforma given in **Annexure VI** to :  
( One of them through the Head of regional offices, BSI /Indian Botanic Garden, Howrah of BSI).

Joint Secretary (Conservation I) ,  
Ministry of Environment and Forests  
4<sup>TH</sup> floor, Paryavaran Bhavan  
CGO Complex, Lodhi Road,  
New Delhi – 110 003

**OR**

Additional Director ( Conservation)  
Ministry of Environment and Forests  
6<sup>th</sup> Floor, Paryavaran Bhavan,  
CGO Complex, Lodhi Road,  
New Delhi – 110 003

Progress of Project is to be submitted in proforma as at **Annexure IV**.

**Note:** Proposals should preferably be submitted by 31<sup>st</sup> July of each financial year to ensure timely processing of proposals.

## Addresses of Offices of Botanical Survey of India

S. No.	Location	Address	Telephone , Fax E-Mail	Territorial Jurisdiction
1.	Kolkata	Director, Botanical Survey of India, CGO Complex, 3 <sup>rd</sup> MSO Building, Block F, 5 <sup>th</sup> & 6 <sup>th</sup> Floor ( Room No. 549-555 & 649-655) DF Block, Sector 1, Salt Lake City, Kolkata – 700064	Telefax: 033 2321 5631	Orissa, West Bengal, Bihar
2.	Allahabad	Scientist In-charge, Botanical Survey of India, Central Circle, 10, Chatham Lines, Allahabad- 211002, Uttar Pradesh.	TeleFax: 0532 2250179 Phone : 0532 2441192	U.P., M.P and Chattisgarh
3.	Dehradun	Scientist In-charge, Botanical Survey of India, Northern Circle, 192 , Kaulgarh Road, Dehra Dun- 248195 , Uttaranchal	Fax: 0135-2757951 Phone: 0135-2753433.	Jammu & Kashmir, Uttaranchal, Himachal Pradesh, Punjab, Haryana.
4.	Jodhpur	Scientist In-charge, Botanical Survey of India, 775/80, Subhas Nagar, Khema Ka Kuan, P.O Nandavan, Jodhpur- 342008, Rajasthan	Fax: 0291 2741736 Phone: 0291 2747163	Rajasthan and Gujarat
5.	Pune	Scientist In-charge, Botanical Survey of India, Western Circle, 7, Koregaon Road, Pune- 411001, Maharashtra	Fax (020 26124139 Phone : 26122125	Maharashtra, Gujarat, Goa and Karnataka

<b>S. No.</b>	<b>Location</b>	<b>Address</b>	<b>Telephone , Fax E-Mail</b>	<b>Territorial Jurisdiction</b>
6.	Coimbatore	Scientist In-charge, Botanical Survey of India, Southern Circle, T.N.A.U. Campurs, Lawlay Road, P.O. Coimbatore-641003, Tamil Nadu.	Fax: 0422 2432835 Phone: 2432788, 2432487	Tamil Nadu, Kerala, Andhra Pradesh, Pondicherry, Lakshadweep
7.	Shillong	Scientist In-charge, Botanical Survey of India, Eastern Circle , Woodlands, Laithmukrta, Shillong – 793003	Fax: (0364 2224119 Phone : 0364 2223971, 2223618	Meghalaya, Tripura, Assam Manipur, Nagaland, Mizoram.
8.	Itanagar	Scientist In-charge, Botanical Survey of India, Arunchal Field Station, Sankie View, Itanagar – 791111, Arunachal Pradesh	Fax: 0360 2211713 Phone: 0360 2212405	Arunachal Pradesh
9.	Noida	Scientist In-charge, Botanic Garden of India Republic ( BGIR) Botanical Survey of India, Lt. Vijayant Thapar Marg ( Along DSC Road, Sector 38 Noida – 20130-3 Disrict G.B. Nagar, Uttar Pradesh.	Telefax: 95120-2433513	Delhi
10.	Port Blair	Scientist In-charge, Botanical Survey of India, Andaman & Nicobar Circle, P.O. No. 692, Haddo Port Blair-744102.	Fax: 03192 230120 Phone: 03192 233224	Andaman & Nicobar
11.	Gangtok	Scientist In-charge, Botanical Survey of India, Sikkim Himalayan Circle, Below Rajbhawan Campus, P.O. Rajbhawan, Gangtok – 737103 Sikkim	Fax: 03592 204717 Phone 202789	Sikkim



### Eligibility Criteria

The criteria for grant of assistance under the scheme will be as follows:

**(a) Eligible Entities**

Departments of Botany/Life Sciences in Universities & Colleges, Research Institutions/Organizations, State Forest/Environment/Science & Technology/Agriculture/Horticulture/Social Forestry Departments/Urban Development/Local Self Government, Municipal Corporations and Municipal Committees and Town Areas, NGOs/Voluntary Organisations.

**(b) Access to the expertise of taxonomists.**

The recipient of assistance must have access to the expertise of taxonomists. A panel of taxonomists is expected to be drawn up at State/Regional/District level by State Government in consultation with BSI as provided in para III (iv) of the terms.

**(c) Budgetary provision for the maintenance of the Garden.**

The recipient will make adequate provision in the successive annual budgets for maintenance of the garden in consultation with the concerned BSI Regional Office or with the taxonomists on the approved panel as mentioned at Sr. (b) above. The details of these offices are in Appendix I.

**(d) Evidence of ability to Augment Collections**

The applicant will give evidence of his ability to augment collections and maintain accessions of the species at periodical intervals.

**(e) Coordination with State forest Department for Rehabilitation of species in In-Situ Conditions.**

Evidence of the applicant's ability to coordinate with State Forest Department at various levels, viz. PCCF/Chief Conservator/Conservator/DFO to ensure transfer of ex-situ collections to natural habitat will also be expected.

**(f) Maintenance of Botanical Garden/Section as Node of Education**

The applicant will be expected to install and maintain bi-lingual visitor-friendly signages, and interactive multimedia equipments in an attractive manner since these botanical sections/gardens are viewed as powerful instruments of awareness-creation about the biodiversity among various section of society, particularly, youngsters. The applications will make necessary budgetary provision for the maintenance of these signages and equipments.

**(g) Provision and maintenance of facilities for visitors**

The Botanical Gardens/Sections shall made provision for adequate facilities in terms of certified pure drinking water, cafeteria/food articles, shelters/rest benches, clean toilets and wash rooms, proper signages for directions/maps/description of specimens, and pollution free transportation (e.g. solar-powered or battery run vehicles) if the size of garden is more than 100 ha.



**Establishment of Lead Gardens:**

While there are more than 1,800 botanic gardens in the world, only a few have made the necessary shift in focus that underpins scientific research and conservation, making them an essential component of the global conservation goals. The Kew Gardens, Missouri Botanic Gardens, Singapore Botanic Garden, etc. serve as a few examples. Such gardens, which provide the necessary expertise for replication at regional or local levels, could be termed as 'Lead gardens' or models that must be followed. Globally, these important 'Lead gardens' together form important resource centres for biodiversity conservation. Lead gardens should serve the present day needs of conservation and education vis-à-vis the obligations under the CBD and the Global Strategy for Plant Conservation (GSPC) as well as in context of the present WTO regime, the country's draft Environmental Policy which encompasses Conservation Policy. Several Lead Gardens in the world have initiated various biotechnological and bio prospecting programmes, based on their valuable plant collection and knowledge base. Royal Botanic Gardens, Kew; Edinburgh Botanic Garden, Missouri Botanic Garden (USA); Beijing Botanic Garden and Nanching Botanic Garden in China; National Botanic Research Institute (NBRI), Lucknow, and Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, and Tropical Botanic Garden & Research Institute (TBGRI) Trivandrum, in India are examples of those Botanic Gardens involved in active research in biotechnology and bio prospecting.

2. The Lead gardens are therefore, required to fulfill certain requirements of national conservation programmes through following functions:

- i. Help conserve natural vegetation specially RET species through replicating/maintaining natural ecosystems/woodlands, and monitor their survival over time;
- ii. Undertake botanical research resulting in excellent referral system for plants, both dried (for long-term maintenance/study in herbaria) and live condition (for monitoring/study in experimental plots, woodlands/arboreta), with documentation of the natural resources of the country/regime;
- iii. Carry out conservation studies with modern tools/technologies such as molecular characterization/DNA markers, etc;
- iv. Carry out rehabilitation/recovery programmes for endangered species;
- v. Serve as centres of training, with expertise in a focused area of subject specialization, including horticulture.
- vi. Building up *in-situ* as well as *ex situ* information on the RET species and its habitat (s).
- vii. Compile information on the area of occurrence, area of occupancy, number and size of populations, spatial distribution of populations, identification of important associates such



as pollinators and dispersers, reproductive and breeding systems, population trends in relation to habitat changes and pattern of disturbance, etc.

- viii. Develop relevant R & D expertise and capabilities in undertaking modern conservation and gene banking techniques including *in – vitro* tissue banks, DNA and cryobanking; and
- ix. Promote environmental awareness/nature conservation through well designed education programmes.

3. India has a good network of R&D institutions supported by the Central Government Ministries/Departments (e.g. MoEF, DST, DBT, ICAR, CSIR & ICFRE), State Governments (e.g. TBGRI, KFRI, SFRI), Universities including State Agricultural Universities, and NGOs. These institutions have undertaken a good number of case studies on conservation of selected threatened plants, including medicinal plants using both '*in situ*' and '*ex situ*' conservation strategies. The current areas of conservation research carried out by these institutions include: inventory of RET species and their threat-status assessment, conservation biology of RET species, mapping distribution of medicinal plants, including RET species, '*in-situ*' & '*ex situ*' conservation, including micropropagation techniques, gene banks, conservation education, agro-technology, genetic diversity assessment, documentation, molecular characterization and evaluation of RET and economically important plant species for their conservation and sustainable use, including bioprospecting. In the Indian context, Indian Botanic Garden, Howrah, NBRI, Lucknow and TBGRI Trivandrum can be included in this category. Botanic Garden of Indian Republic, NOIDA is another such botanic garden conceptualized and being developed along these modern lines.

4. In spite of various efforts, there still exists a wide gap in our knowledge on the conservation status, conservation requirements and appropriate conservation methods and strategies to be adopted for many RET species.

5. Any conservation program on RET species should be carried out from the perspective of ecology and biogeography, by a network of botanic gardens, arboreta, gene banks and other relevant institutions located in respective bio-geographic zones.

6. In view of the above consideration, a number of Botanical Gardens in the country covering different phyto-geographic regions are proposed to be designated as Lead Gardens and to be strengthened with suitable manpower and research facilities to provide leadership support for other Botanic Gardens. Such Lead Gardens should develop:

- i. Facilities for research for visiting Scientists from any Institution in the country.
- ii. Adequate provision of research infrastructure including laboratory building.

## Annexure IV

**Proforma for submission of Progress Report :** The grantee organization will furnish quarterly report of physical and financial progress to the Union Ministry of Environment and Forests, Govt. of India with a copy to nearest regional office of BSI as well as to this Ministry (one copy to each) as per following proforma. :

1. Name of the Scientist and Organisation :
2. Sanction Order , Date and Amount of grant-in-aid Sanctioned and released :
3. Period of Report ( Give exact date) :
4. Details of activities with targets and achievements :

Sl No.	Components	Physical Target	Achievement	Financial Target	Achievements
I	Civil works e.g, Conservatory, Mist Chamber, boundary wall etc.				
II	Equipments - Scientific technical and garden equipments.				
III	Irrigation facilities				
IV	RET/E Species. recommended by BSI for conservation and collection .				
V	Directional and Informational signages				
VI	Lighting, pathways etc.				

5. Tours undertaken for collection of RET/E species  
And duration and names of species collected  
( mention place with date) :
6. Names of species introduced :
7. Health of Species :
8. Recommendations/suggestions :

(Signature of  
Head of the Organisation)

(Signature of P.I.)

Signature of  
Finance/Accounts Officer

**Proforma for submission of Evaluation Report:**

The designated or authorized officials inspecting the garden to submit their evaluation report in following format :

1. Name of the Scientist and Organisation :
2. Sanction Order , Date and Amount of grant-in-aid Sanctioned and released :
3. Period of Report ( Give exact date) :
4. Details of activities with targets and achievements :

Sl. No.	Components	Physical	Achievement	Remarks
I	Civil works e,g,Conservatory, Mist Chamber, boundary wall etc.			
II	Equipments - Scientific technical and garden equipments.			
III	Irrigation facilities			
IV	RET/E Species. recommended by BSI for conservation and collection .			
V	Directional and Informational signages			
VI	Lighting, pathways etc.			

5. Whether tours were undertaken during the period ?  
If so which areas , duration and names of species collected.
- 6.. Names of species introduced and No. of plants maintained :
7. Names of Plants introduced
8. Overall Health of the Species :
9. Recommendations/suggestions for midterm correction if any :

(Signature of the Evaluator )  
Name and Designation

**Proforma for submission of proposal**

1. Name of the Institution :
2. Name & address with Pincode and phone/fax  
No.of the Scientist (agency) responsible to carryout the work :
3. Brief background of the Scientist /agency/organization  
Responsible to carryout the work (1 page only) :
4. Layout of the existing garden
  - a) Provide brief profile of the garden, its area, lay out , map, etc. The minimum size of the garden should not be less than 2 acres but may be preferably 5 acres or above)
  - b) Number of visitors visiting the Garden in the case of existing popular garden.
  - c) Is entry to the Garden free?
5. Infrastructural facilities available at the garden  
(briefly explain the existing facilities, their present condition) :
6. **Facilities proposed to be augmented**
  - (a) Provide item-wise details with cost and Justification for infrastructural facilities which are required to be created/renovated /augmented/ strengthened along-with financial estimates with detailed break-up.  
( Facilities like raising/repairing of boundary wall/fencing, green house, tube well and related irrigation facilities and any other infrastructural support such as provision of public conveniences, certified pure drinking water, criteria/food canteen, shelter, guest houses, toilets, proper signages for directions/ map/description of specimens which can help in achieving the objectives are supported.)
  - (b) Civil construction work should not be excessive. The estimates for each civil work is required to be attached . This must be based on the latest available Schedule of Rates (SOR) of State PWD available in the State ,

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and to be prepared/verified by a certified engineer and must contain following:

- i. Architectural drawings/sketches of the building/structures consisting of plans, sections and elevations with dimensions
- ii. Specifications of various components of buildings/structures
- iii. Details of measurements of the items taken in the estimate
- iv. The estimate should preferably be based on local or state Schedule of Rates. In case it is not possible to follow the schedule of rates, market rates of Items be adopted for which detailed rate analysis should be supplied in the support of the rate.
- v. The estimates should preferably be prepared & signed by qualified engineer.

(c) Landscaping, pathways, lighting, signages, information boards and multimedia equipments may be allowed in specific cases.

(d) Facilities required for transfer of saplings in natural (in-situ)condition.

7. Field work for collection of plant  
Material and funds required :
8. List of threatened / endemic species Proposed to be raised. :  
(Note : Conservation status of the species proposed to be raised in the garden needs to be given)  
The organization should generally focus on 10-15 species. A minimum of 10 plants of each tree species and 30 plants of shrubs 50 plants for herbs and climbers may be included.
9. Time required for completion of the project after sanction (Note: Normally two to three years duration for completion of the work is agreed.)
10. Mention about maintenance mechanism after the period of assistance is over.
11. Submission of quarterly report for review of progress as per **Appendix IV**.
12. Following Certificates are required to be attached :

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A certificate to be issued by the Head of the Organisation, indicating that funds are not being received from any other source for the same purpose for which funds have been sought.

The facilities created will be used only for the purpose for which these are created and future maintenance will be the responsibility of the grantee institution.

Even after completion of the project, the grantee organisation will annually submit brief report indicating maintenance of rare/endangered plants to BSI as well as Ministry of Environment and Forests during next five years.

Signature of the  
Principal Investigator

Head of the Department

Head of the  
Organisation