

**Dr.Saheed Shahul Hameed**

**Scientist- 'D'**

**AJC Bose Indian Botanic Garden,BSI,Howrah**

**Doctoral Research**

Title of the Ph.D thesis

“Studies on the Morphological and Biochemical Responses of Some Selected Plant Species to Air Pollution” (Ecology)

Department of Botany, AMU,Aligarh  
(1995)

# Post Doctoral Research

## **1. Post Doctoral Research Abroad :**

College of Biotech. **South China University, Guangzhou, CHINA** from 1<sup>st</sup> Sept.,1996 to 30<sup>th</sup> August,1998 (2yrs.)

Plant Stress, including climate change impact on plants

(A joint Post Doctoral Fellowship provided by the Govt. of China & the Govt. of India under the India-China bilateral cultural exchange programme (through the Ministry of HRD Govt.of India)

## **2. Senior Research Associate (SRA) -CSIR**

To carry out research and develop strategies for protecting plant taxa and eco-biodiversity of important industrial locations of Kerala from August,1998 to October,1999. at the Environmental Resources Research Centre (ERRC), Thiruvananthapuram, Kerala.

## **3. Lecturer (FIP):**

Teaching Post-graduate & Under-graduate students on various aspects of Botany ranging from Taxonomy, Morphology, Ecology, Genetics etc. under University of Kerala from 1999 to 2002.

# **Joined in BSI as Scientist- 'B' on 29.05.2002**

## **1. Central National Herbarium:**

Work Assigned (Action Plan) : Herbarium Data Base preparation- from 29.05.2002 to 31.03.2003 (1 yr.) – including proof correction of typed data and other works.

Total number of 4572 specimens under 33 families covering 173 genera (Type & General) have been thoroughly examined, information collected ...Report submitted.

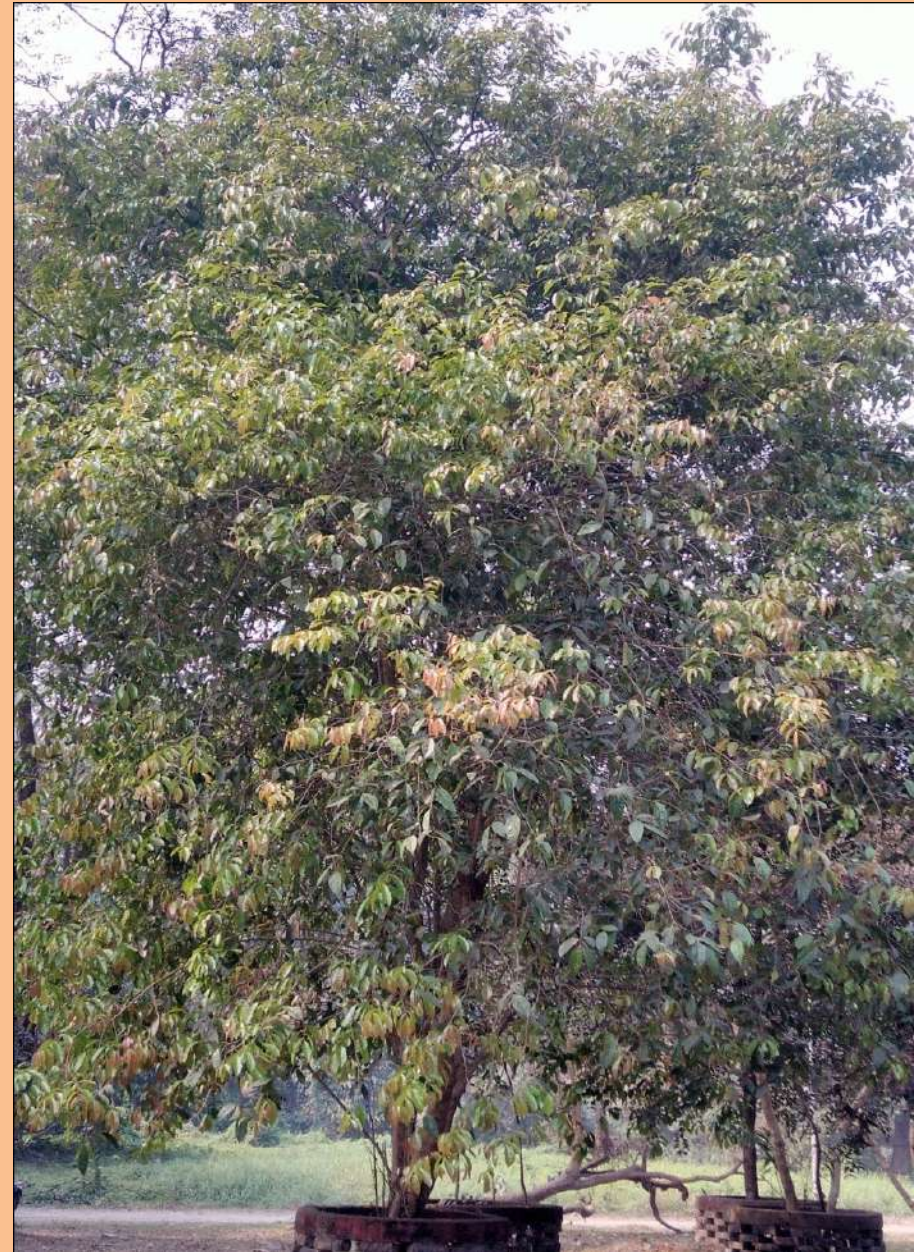
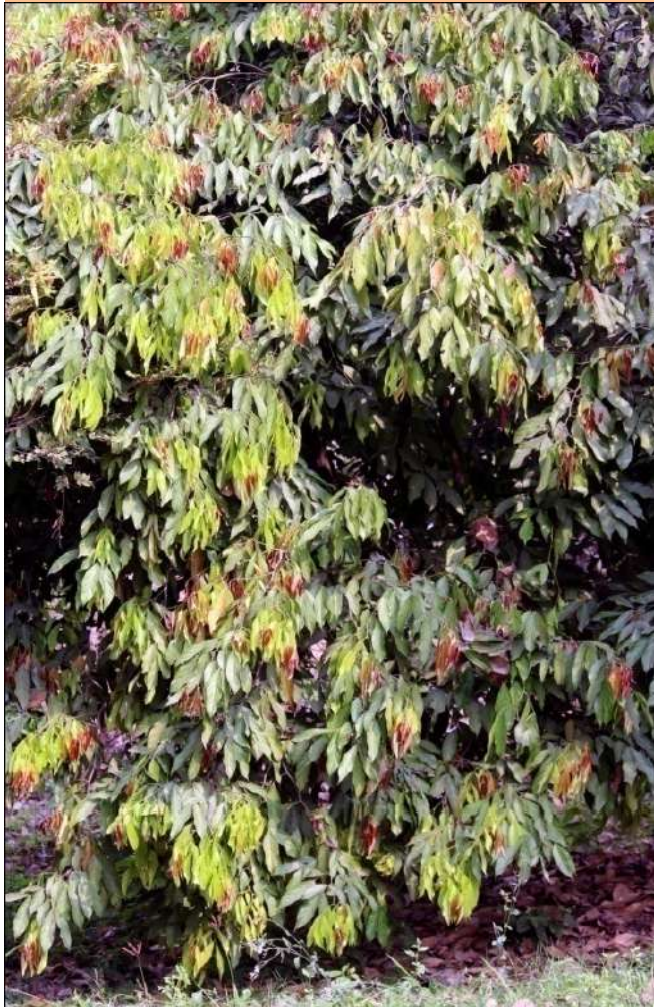
## **2. Indian Botanic Garden, BSI, Howrah:01.04.2003 to till date (about 14 yrs.)**

### **A. *Ex-situ* conservation: (Action Plan).**

Collection, introduction, and conservation of Rare, Endangered, Threatened and Endemic (RET&E), medicinal, ornamental and economically important plants in IBG through field tours.



# Plant Introduction



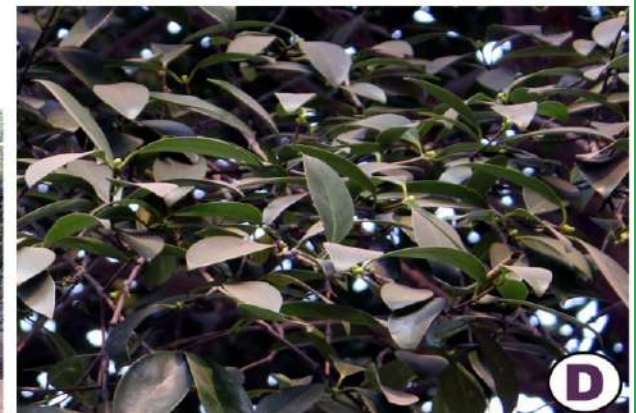
*Humboldtia* sp. – Planted by Mrs. Meena Gupta ,  
Former Secretary, MoEF & CC on 9<sup>th</sup> August,2007.  
*Flacoutia montana* J. Graham– Endemic to Western  
Ghats- planted in 2004 ( far right)



# Some of the RET & E Plants Introduced

About 15 plant introduction tours were conducted to various geographical regions of India covering South India (Western Ghats), North-East India, North India, Andaman & Nicobar Islands introduced about 600 species of RET & E and other plants like Medicinal, Ornamental and Economic etc.. for *ex-situ* conservation

- A. *Humboldtia sanjappae* Sasidh. & Sujanapal (Fabaceae)- Habit
- B. *Humboldtia sanjappae* Sasidh. & Sujanapal (Fabaceae)-Close view of flower
- C. *Garcinia gummi-gutta* (L.) Roxb. (Clusiaceae)-Habit
- D. *Garcinia gummi-gutta* (L.) Roxb. (Clusiaceae)-Close view
- E. *Flacourtia montana* J.Graham (Flacourtiaceae)-Habit-
- F. *Flacourtia montana* J.Graham (Flacourtiaceae)-Close view







**G**



**H**



**M**



**N**



**I**



**J**



**O**



**P**



**K**



**L**



**Q**



**R**

**G)** *Sterculia guttata* Roxb. ex G.Don (Sterculiaceae)-Habit

**H)** *Sterculia guttata* Roxb. ex G.Don (Sterculiaceae)- Close view of flower

**I)** *Terminalia myriocarpa* Van Heurck & Müll. Arg. (Combretaceae)- Habit

**J)** *Syzygium zeylanicum* (L.) DC. (Myrtaceae)-Habit

**K)** *Syzygium zeylanicum* (L.) DC. (Myrtaceae)-Habit- Close view of flowers

**L)** *Syzygium travancoricum* Gamble (Myrtaceae)-Habit

**M)** *Syzygium travancoricum* Gamble (Myrtaceae)-close view

**N)** *Dalbergia latifolia* Roxb-Habit

**O)** *Ensete superbum* (Roxb.) Cheesman-Habit

**P)** A view of RET & E species in the Nursery

**Q)** *Terminalia manii* King (Combretaceae)-Habit

**R)** *Salacia fruticosa* Wall. (Hippocrataceae)-Habit



# B. Other projects- Action Plan oriented

1. **Flora of Indian Botanic Garden, Howrah (2003-2004 )**  
68 species coming under 11 families have been collected, identified and described- Manuscript prepared.- Completed
2. **Phenological variation of some selected tree species of Indian Botanic Garden, Howrah, under Changing Climate. (2006-2008).- Completed**
3. **Palms of Indian Botanic Garden, Howrah (2011-2012)- Completed.**  
121 species reported and described with color photographs
4. **Census of plants in AJC Bose Indian Botanic Garden, Howrah (2013-2014) –**  
A joint work (Completed) – 1377 plants enlisted in the study as per the directives of Hon'ble High Court, Kolkata- Report submitted
5. **Flora of India- Arecaceae (West Bengal)- Allotted from CNH (2016)**  
36 species of palms identified writing of description in progress- including listing of about 140 commonly cultivated species.- Ongoing
6. **Indigenous palms of India (2012-2017)**  
106 indigenously occurring palms in India under 21 genera have been collected and identified covering all over India (North,South,East, West and Andaman & Nicobar Islands) and the writing of description is in near completion. (Total field tours-08)- Ongoing





**A**



**B**



**C**



**D**



**E**



**A. *Corypha umbraculifera* L   B. *Arenga wightii* Griff.   C. *Phoenix rupicola* T.Anderson  
D. *Pinanga andamanensis* Becc.   E. *Livistona jenkinsiana* Griff.**



## C. Multiplication, Restoration, Conservation, and Upkeep of valuable *Ex-situ* germplasm collections in AJCBIBG.

- **Multiplication of plants in the nursery and Mist Chamber**

A total of about 20,000 plants under 600 species including 110 species of RET & E, 330 tree/plant species having ornamental and economic value (some species even represented by a single number in the garden), 120 species of medicinal plants and 40 species of others multiplied in the mist chamber and nursery from **2003-2011**. Techniques developed for obtaining maximum rooting in some species such as *Maerua apetala*, *Pittosporum tobira*, *Sarcocephalus cordatus*, *Tectona hamiltoniana* etc. in Mist Chamber.

- **Upkeep of *ex-situ* collections:**

Effective advice provided to the field and technical staff & monitored the progress from time to time for the Scientific up-keep of valued germplasm collection of about 1400 species of plants of the Garden. Special attention provided for the maintenance of Large Palm House and other allotted sections.

- **Restoration of Giant water lilies (*Victoria amazonica* & *V. cruziana*) in AJCBIBG lakes**

Due to careless de-siltation of lakes carried out by CPWD during 2012-2013 a number of aquatic flora have been seriously disturbed including the much precious 'Giant Water Lilies'. Disappearance of 'Giant Water Lilies' from IBG lakes have been widely criticized by the media and the question was also raised by the 'Hon'ble High Court', Kolkata. It was even thought that the species got vanished for ever because of the reason that it was not seen in lakes for nearly 2 yrs. With a great effort, in order to relieve from the embarrassment the Dept. suffered, the said species have been revived from the very old stock of seeds with special germination techniques. Now we can see both the species of Giant Water Lilies in most of the lakes of AJCBIBG.





**Restoration of Giant Water Lily in AJCBIBG Lakes**



# Breeding of 'Double Coconut' Palm ( *Lodoicea maldivica*) in India

Longest living palm in the world believed to have a life span of over 1000 yrs. A single palm conserved in India at AJCBIBG planted in 1894. At present it is 122 year old first flowering occurred after 94 yrs. of existence , and made fruit set through artificial pollination in 2013. Pollen first procured from Peradeniya Botanic Garden, Sri Lanka and later from Nong Nooch Tropical Garden, Thailand.

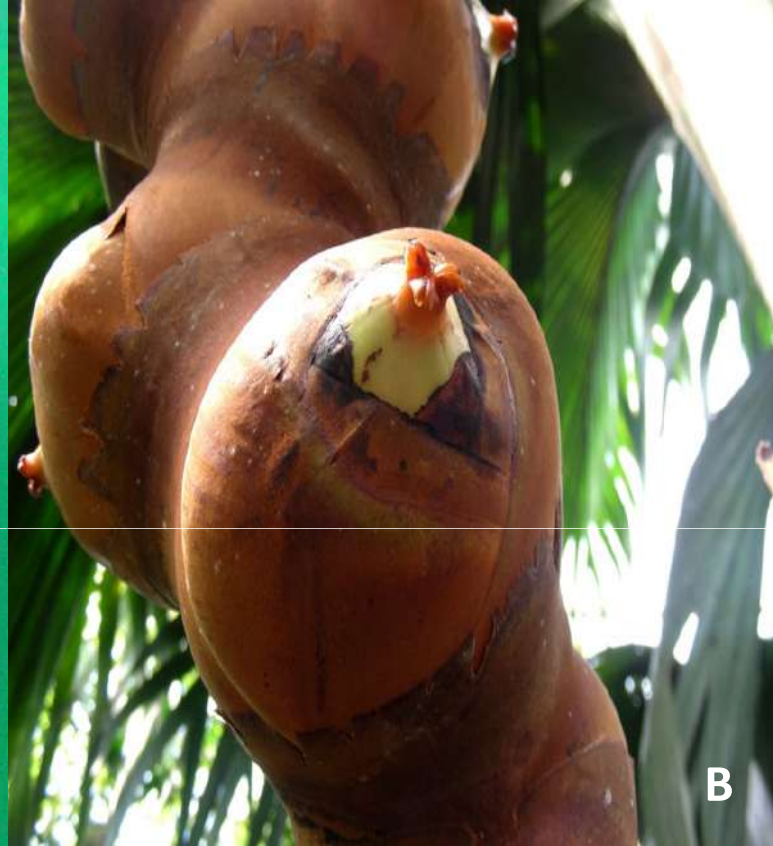
Now the pollination procedure has been completely tuned and it gives a great hope to conservation world in the similar cases to multiply and conserve rare species of plants from extinction. This experiment took almost 7 yrs..



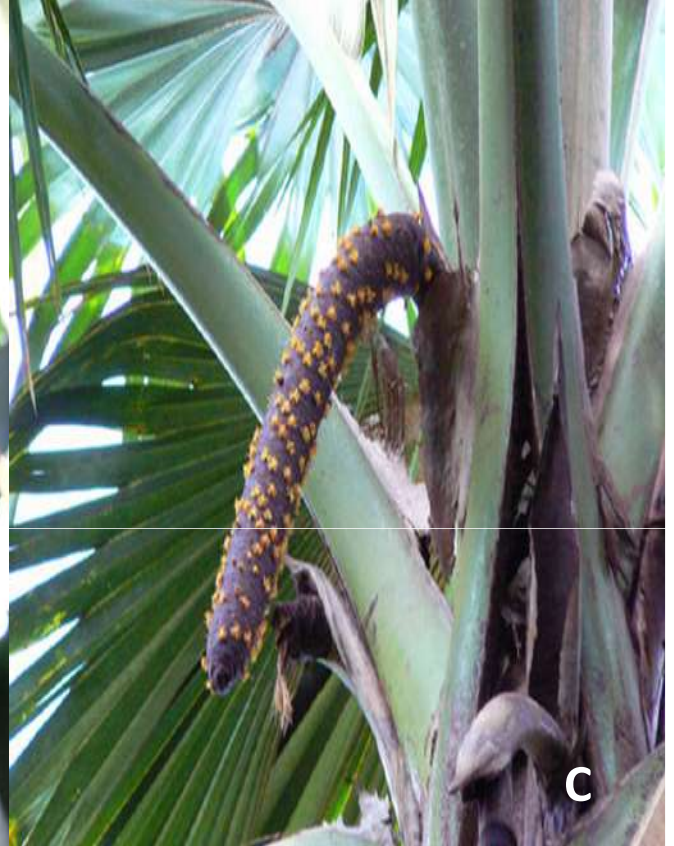




**A**



**B**



**C**



**D**



**E**



**F**

- A.** A close view of shell
- B.** Female inflorescence
- C.** Male inflorescence
- D.** Close view of female flower
- E.** Developing fruit
- F.** Close view of pollen





**A close view of 3.5 year  
old fruits of Double  
Coconut.**

**The fruits will take about 5 yrs.  
to mature and may weigh up to  
25 kg. These are the heaviest  
known seeds in the world.**



## D.Awareness Programmes & Plantation of RET & E Species

- Programmes like **World Environmental Day**, **World Biodiversity Day** and **Vanmahotsav Day** organized every year in AJCBIBG to impart environmental awareness among local public as well as in children.
- **Revival of Annual Flower Show in AJCBIBG:** A lot of effort has been given to revive the Annual Flower Show of AJCBIBG which was suspended for nearly 16 yrs. It was first carried out from 28<sup>th</sup> to 30<sup>th</sup> January,2012 and subsequently another two years on the same dates, and was inaugurated by **His Excellency Mr. M.K.Narayanan**, then the **Governor of West Bengal**.
- **Free distribution of saplings:** Distributed about 15,000 seedlings to local public on World Environmental Days on 5th June from 2003 to 2012.
- A lead taken in a month long plantation programmes of AJCBIBG in the month of July every year under the period for planting of RET &E and other species.





## E. Providing technical expertise, supplying planting materials and advice to other Botanical Gardens in India for *Ex-situ* conservation:

Technical expertise and planting materials provided to almost all the Botanic Gardens India like TBG&RI, KFRI, NBRI, Lalbagh Botanic Gardens, Pilikula Nisarga Dhama, Chandigarh Botanic Garden, Lloyd Botanic Garden, Darjeeling, Kolhapur University Botanic Gardens including BSI regional Gardens and other lead gardens declared by MoEF & CC etc. Further, exclusive expertise provided to Calicut University Botanic Garden, Pilikula Nisarga Dhama, Mangalore Bangalore Agri. Univ. Botanic Garden, Lalbagh Botanic Garden, Chandigarh Botanic Garden etc. to establish Giant water lily *Victoria amazonica* in their Botanic Gardens for *ex-situ* conservation.

Guidelines given for tree planting especially with air pollution accumulating species for different types of areas in Kolkata including planting of woody/tree species around Victoria Memorial in Kolkata. This has been done as per the request of Secretary, Dept.of Env., Govt.of West Bengal and as per the directive of Kolkata High Court in 2004.



**Establishing *Victoria* sp. in the MoEF & CC Regional Lead Botanic Garden GKVK, Bangalore**



# Thanking Letters

भारत सरकार/ GOVERNMENT OF INDIA  
पर्यावरण एवं वन विभाग/ MINISTRY OF ENVIRONMENT & FORESTS  
भारतीय वनस्पति सर्वेक्षण/ BOTANICAL SURVEY OF INDIA  
निदेशक का कार्यालय/ OFFICE OF THE DIRECTOR  
सी.जी.ओ. कॉम्प्लेक्स, तृतीय एम.एन.ओ. भवन/ CGO COMPLEX, 3RD MSO BUILDING  
ब्लॉक एफ, 5<sup>TH</sup> & 6<sup>TH</sup> FLOOR (ROOM NO. 549-555 & 649-655)  
सी.एल.के. सिटी, कोलकाता-700 064  
संख्या/No.: भा.व.स./BSI-288/17/2006-Tech. दिनांक/Date: 28 December, 2011

सेवा में/To  
वैज्ञानिक-ई एवं कार्यालय अध्यक्ष/ The Scientist-E & Head of Office  
आचार्य जगदीश चन्द्र बोस भारतीय वनस्पति उद्यान/ AJCB Bose Indian Botanic Garden  
भारतीय वनस्पति सर्वेक्षण/ Botanical Survey of India  
हावड़ा-711103/Howrah-711103

विषय/Sub.: The *Victoria amazonica* (Giant water lily) seedlings supplied to University of Calicut-reg.  
Ref.: Letter No. nil dated 20<sup>th</sup> October, 2011 from Professor & Head, Department of Botany, University of Calicut, Kerala

महोदय/Sir,

इस पत्र के साथ संलग्न उपर्युक्त संदर्भित पत्र आपके सूचनाये संश्लेषित है।  
यह निदेशक भारतीय वनस्पति सर्वेक्षण के अनुमोदन से जारी किया जाता है।  
The undersigned is directed to enclose herewith a copy of the letter under reference for your information.  
This issues with the approval of the Director, Botanical Survey of India.

सन्ध्यावार/Thanking you,

भवदीय/Yours faithfully,  
आर. सी. श्रीवास्तव  
(आर सी श्रीवास्तव)/(R. C. Srivastava)  
प्रभारी वैज्ञानिक, तकनीकी अनुभाग, मुख्यालय  
Scientist-in-Charge, Technical Section, Hqrs.

संलग्न/Encl.: उपरोक्तानुसार/ As above.

वितरण/Distribution:  
1. Adm. Section, Hqrs., BSI, Kolkata-700064.  
2. Hindi Section, Hqrs., BSI, Kolkata-700064, for record.

फैक (033) 2321 5631/ (033) 2334 6040. टेली: 2334 4963 (Director); 2321 8992/8090 (D. Sec.); 2321 3941/3775 (Estn. Sec.); 209/227 - J. Dir., Tech.; 2321 8334 (Dy. Dir. & HOO); 2358 4240 (Dy. Dir., Publ.); 2321 5779 (Acct.); 2321 3991 (Admin.); 2321 3943 (Estn.); 2337 4066 (DDO, Hqn.); E-mail: bs\_i\_headquarter@bsiindia@gmail.com

643  
09/11/11

Tech Sec  
20/10

UNIVERSITY OF CALICUT  
DEPARTMENT OF BOTANY  
CALICUT UNIVERSITY P. O., 673 635 KERALA, INDIA  
Phone: 0494-2401144 ext. 406, 407 Fax: 0494-2400269

12/10/11

CERTIFICATE

The *Victoria amazonica* (Giant water lily) seedlings supplied by the Acharya Jagadish Chandrabose Indian Botanic Garden, Kolkatta has come up well. It has become one of the major attractions of our Botanical Garden. Many students from local schools and colleges are visiting our garden in large numbers to see this plant. We are thankful to the Director, Botanical Survey of India for supplying the specimens. We are also thankful to Dr. Saheed Shahul Hameed, Scientist 'C', of AJC Indian Botanic Garden for training our gardeners and continuous technical advice for the maintenance of the giant water lily.

Professor & Head  
Department of Botany  
University of Calicut  
Professor & Head of the Department of Botany  
University of Calicut, Calicut University, Kerala,  
673 635, Kerala, India

Calicut University  
20.10.2011

To  
The Director  
Botanical Survey of India  
Block F, 5<sup>th</sup> Floor  
C.G.O. Complex  
Saltlake City, Kolkatta.

Copy to: Dr. Saheed Shahul Hameed, Scientist 'C'  
AJC Indian botanical Garden, Kolkatta.

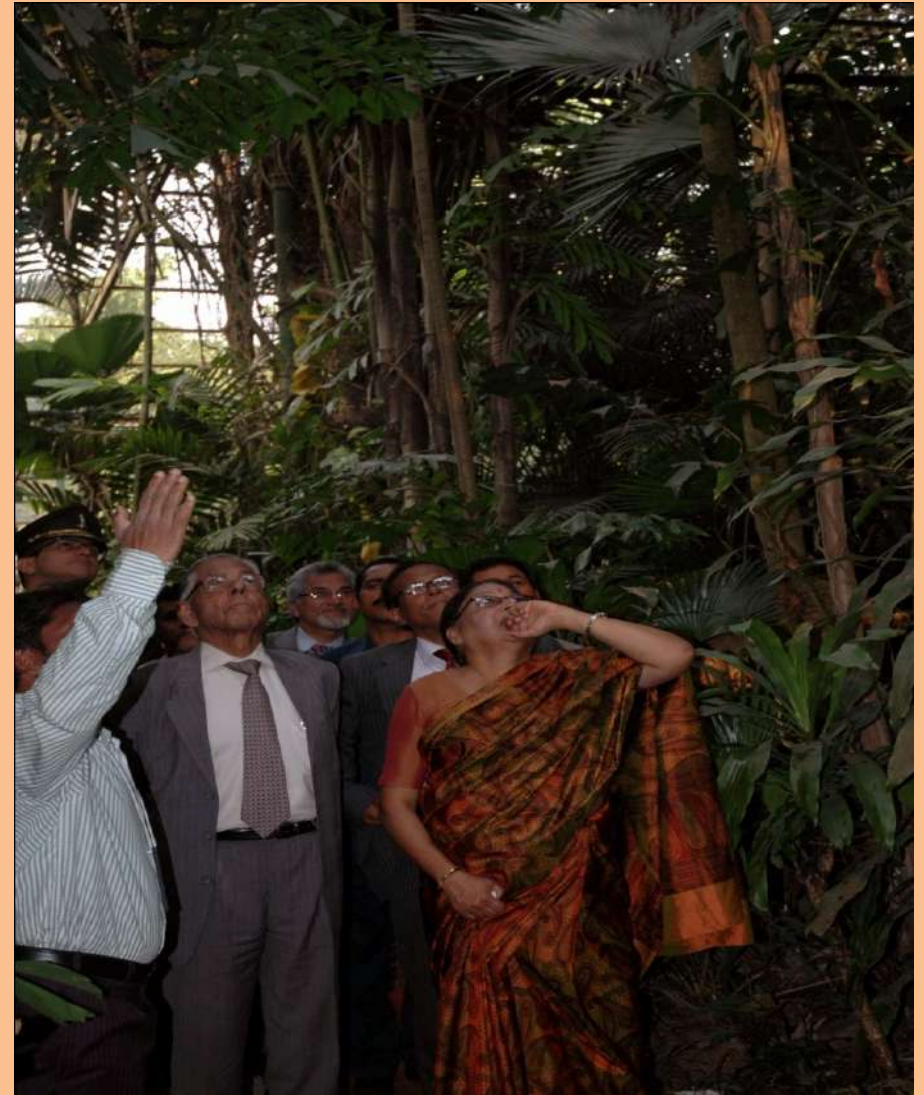
Send a copy to  
Dr. Saheed Shahul Hameed  
& record  
20/11/11

Dr. Saheed  
20/11/11



## **F. Dissemination of knowledge: Interacting with Scientists /Scholars/Teachers/Students/Trainees & others etc., (incl. attng. VIP's/VVIP's and foreign delegates) - pertaining to *Ex-situ* & Biodiversity conservation.**

Attended post graduate & undergraduate students of about 400 institutions (Approx. 30,000 students), including Agriculture, Forestry, Pharmacy, Ayurveda etc., from various Universities/ Colleges across India. Also attended several batches of IFS trainees, and a number of batches of Range officer trainees, foreign scholars and delegates under the period. Enlightened them on the importance of *Ex-situ* Conservation for protecting the Rare, Threatened, Endangered and Endemic taxa of India.



His Excellency Mr. M.K.Narayanan the then Governor of West Bengal



# AHRC School Project

- Currently, handling students under a project on ‘**Meteorological and Botanical History of the Indian Ocean,1500-2000**’ Funded by Arts and Humanities Research Council (AHRC),U.K. Organized by Centre for World Environmental History (CWEH),University of Sussex, Royal Botanic Garden,Kew, MoEF & CC and BSI- by bringing a group of Children's from two selected Schools of Kolkata twice a month – 6 lectures to be given on selected topics (Out reach programme).

## Introduction about the Botanic Garden & History of Transportation of Plants





# Administrative & miscellaneous works

- ❖ Acted as H.O.O/AJCBIBG on several occasions (past 14 yrs.) when regular head was on leave
- ❖ Acted as Curator in-Charge in the absence of regular in-Charge (past 14 yrs.)
  
- ❖ Attended official court cases of AJCBIBG by making Reports, Affidavits, meeting Govt. Counsels and attending hearings in Kolkata High Court pertaining to PIL (peak period 2009-2014)
  
- ❖ **Re-training of Group-D Staff:** Necessary help extended for organizing a retraining programme for group-'D' staff of BSI offices in collaboration with Agri.-Horti. Society, Kolkata from 17<sup>th</sup> to 22<sup>nd</sup> August,2009.
  
- ❖ Acted as members of various committees such as Official Enquiry Committee, Purchase committee, Auction committee and Tender Evaluation Committee etc. of AJCBIBG and **Performed DDO duties.**
  
- ❖ Performed over 400 roster duties to look after the garden during Saturdays, Sundays and other public holidays.
- ❖ Prepared various technical reports pertaining to AJCBIBG and attended various technical queries from 2003-2012.
- ❖ Meetings and discussions made with CPWD pertaining to the Civil & Electrical works of AJCBIBG. Regular meetings held with CPWD (civil) during de-siltation of Lakes and necessary instructions given from time to time.
- ❖ **Workshop organized for promoting official language Hindi:** In 2013 ,being the In-charge of Hindi Athikari,one day workshop and Hindi Pakwara organized (noting drafting, speech, essay contest, vocabulary test etc.,) in the other years actively involved to organize programmes.



Total Number of field tours conducted	32
No. of Lectures delivered/Talk given	20
No. of Research Proposals Evaluated	18
No. of conferences attended	15
National	12
International	03
No. of training courses attended	08
Help rendered to Scholars/Students in dissertation/project	06
No. of Research Papers Published (Singly & jointly)	45
No. of Books/Report Published	01 (jointly)



# Future Plans ?

1. Studies on the Phylogeny of Indian Palms...
2. A re-assessment and re-validation of *Phoenix loureiroi* Kunth and its variants in India.
3. Conservation of threatened taxa of Indian plants in Indian Botanic Gardens under the Changing Climatic Scenario - A strategy development.





“Thirty days have September,  
April, June, and November.  
All the rest have thirty-one,  
*February twenty eight alone,*  
and twenty-nine in each leap year.”

# Thank You





THANK YOU