# **ACTIVITY NOTEBOOK**

Dr. Basant Kumar Singh Senior Preservation Assistant

AJC Bose Indian Botanic Garden Botanical Survey of India, Howrah

•	Designation:	Junior Research Fellow			
•	Project Name:	Co-ordinating Project for Sunderban & Nokrek Biosphere Reserve funded by MoEF & CC, New Delhi			
•	Duration:	Three years (2006-2009)			
•	Place of Posting:	Industrial Section Indian Museum, BSI, Kolkata			
•	Principal Investigator:	Dr. H.S. Debnath			
•	Work done in Brief:	<ul> <li>i) Explored the Nokrek Biosphere Reserve in 7 field tours comprising approximately 150 days of field work.</li> <li>ii) Prepared the UNESCO Nomination Form for inclusion of Nokrek Biosphere Reserve in MAB network. (N.B. Nokrek Biosphere Reserve was included in the UNESCO's global MAB network in 2009)</li> <li>iii) Collected the research data and references and their compilation to find out the research gaps in management implementation.</li> </ul>			
•	Registration of Ph.D. the	sis: The University of Burdwan in 2007			
•	Thesis Title:	A Floristic Account of Nokrek Biosphere Reserve, Meghalaya (INDIA)			
•	Guide: Dr.	H.S. Debnath & Dr. P.K. Bhattacharyya (Burdwan University)]			
-	Ph.D. awarded on 21.05.2013 by the University of Burdwan				



- Designation:
- Date of Joining:
- Place of Posting:
- Annual Action Plan:
- Work Done:
- Designation:
- Date of Joining:
- Place of Posting:
- AAP Projects: Project # 1
- Title:
- Executing Scientists:
- Work Done:

Senior Preservation Assistant

24.05.2010

Central Regional Centre, BSI, Allahabad

Flora of Ranipur Wildlife Sanctuary, U.P. (AAP 2010-11 for CRC, Allahabad)

Conducted <u>one field tour</u> to Ranipur WLS and collected <u>125 Species</u> under 242 field numbers. All were identified and herbarium label were filled in.

Senior Preservation Assistant

01.04.2011

AJC Bose Indian Botanic Garden, BSI, Howrah

4 nos.

Collection, Introduction and Multiplication of 50 Endemic, Threatened, Medicinal, Ornamental and Economically Important Plants (2012-17)

All working scientists of AJCBIBG

Conducted <u>four field tours</u> to N.E. India and collected saplings of approximately <u>60 species</u> of Endemic, Threatened, Medicinal, Ornamental and Economically Important plants.



#### Project # 2

- Title:
- Working with:
- Work Done:

## Project # 3

- Title:
- Working with:
- Work Done: and
  - Project # 4
- Title:
- Working with:
- Work Done:

Collection, Introduction and ex-situ conservation of Rare & Endemic Orchids of NE India (2014-17)

Dr. M.U. Sharief

Conducted Four field tours to Tripura, Gangtok and Itanagar and collected saplings of <u>65 species</u> of Orchids for ex-situ conservation in the botanic garden. A new species <u>Bulbophyllum parmjitii</u> (Orchidaceae) is published in Phytotaxa.

## GIS Phyto-mapping of Trees & Shrubs of AJCBIBG (2014-17)

Dr. C.M. Sabapathy & Dr. A. Pramanik

**3000 trees and shrubs** of the botanic garden are labeled marked by the GIS techniques.

## Herbaceous Flora (Dicots) of AJC Bose Indian Botanic Garden. (2014-17)

## Individual

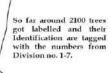
Literature surveyed and documented approximately **350 herbaceous species** of botanic garden. Final report is under preparation.











## **Scientific Work** (other than the AAP)

#### **Research Project:**

- Working on a project on Sunderban Biosphere Reserve entitled "Strengthening the community institution, Developing Criteria & Indicators for Participatory Biodiversity Monitoring for Improvement of the Ecosystem Services, Sustainable Livelihood in particular" in collaboration with IBRAD, Kolkata.
- Undertook a tour to Tripura under the AAP project on Development of Division No. 25 of AJCBIBG from 17.02.2016 to 23.02.2016 and collected **24 species** of different ornamental and economically important plants. **New distributional records viz.** *Zeuxine longilabris & Eulophia graminea* have been recorded.

#### As a Resource Person:

- **3-days residential training programme** at Viswabharati University, Shantiniketan, Bolpur, organized by West Bengal Biodiversity Board and Botanical Survey of India.
- Training course on "Herbarium Technique & Methodology" conducted by ENVIS Centre on Floral Diversity, BSI, Howrah on 02.04.2016.
- One day training programme in NMHS funded project "Biodiversity Assessment through long term monitoring plots in Indian Himalayan Landscape" on 06.08.2016 at Central National Herbarium, BSI.

## **Scientific Work** (other than the AAP)

#### As an Expert

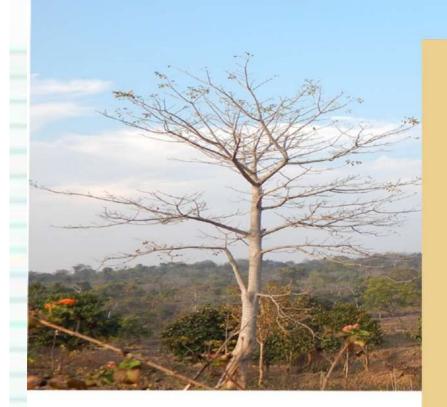
- 2 members committee to find out the reason behind the sudden large scale death of Rain Tree in Kolkata and adjoining areas.
- Assistance has been provided to Nature, Environment and Wildlife Society (NEWS) as Field Botanist in IUCN project entitled "Bench mark studies on the status of Sunderban Mangrove Forests".
- Active participation in discussion on the concept development for **new Botanical Gallery at ISIM**. Developed the theme and posters for Angiosperm Bay of the New Gallery.

### **EIA Study**:

- **Gautam Buddha Wildlife Sanctuary** in Hazaribagh & Gaya Districts for the Dedicated Freight Corridor Corporation of India Ltd. A Govt. of India (Ministry of Railways) Enterprise.
- Rabindra Sarobar as per the directives of the National Green Tribunal, Eastern Zone Bench, Kolkata.

#### **Others:**

- Dissemination of information & preparation of reports, introduction of mangrove species for *ex-situ* conservation from Sunderban Biosphere Reserve.
- Assistance to senior scientists in scientific analysis and preparation of reports.



A preliminary report on Plant Diversity Assessment in selected forest villages of Gaya distict, Bilar & Hazarbagh district, flankhood

For

Dedicated Freight Corridor Corporation of India Ltd. A Gost. of India (Ministry of Railwaya) Enterprise





By Government of India Botanical Survey of India Ministry of Environment, Forest & Climate Change CGO Complex, Sah Lake Gry Kolkata – 700 1064, West Bergal, India









### **Delivered Lecture as Invited Speaker**

- Delivered lecture on "Role of Biosphere Reserves in Conservation and Sustainable Development" in the Seminar organized by the department of Botany, J. K. College, Purulia on 03.10.2008.
- Delivered lecture on Plant Conservation (ex-situ & in-situ) in the State Level Seminar organized by Bhairab Ganguly College, Belgharia, Kolkata on 29.02.2016.

#### Technical works carried out:

- Assistance to the Technical Section in maintaining files and preparing various reports related to Audit query, RTI& Parliamentary questions, etc.
- Compilation of Monthly& Annual Reports (Scientific).
- **Demonstration** about AJC Bose Indian Botanic Garden to the students from different organizations, forest trainees, VIPs and dignitaries.
- Participation as **committee member** in different departmental programmes.
- Assistance in various **exhibitions, training**, etc.
- **Other assignments** as per the direction of the Head of Office.

#### Administrative/Other Assignments:

- Preparation of reports pertaining to the court matters.
- **Photography** during various occasions.



## **Publications**

#### **Total No. of Publications:14**

#### Published Research Paper

- Debnath, H.S., **B.K. Singh**& P. Giri. 2013. A New mangrove species of *Acanthus* L. (Acanthaceae) from the Sunderban (India).*Ind. J. Forestry* 36(3):411-412.
- **Singh, B.K.**& H.S. Debnath. 2008. Wild plants used by the tribes of Nokrek Biosphere Reserve, Meghalaya and their conservation. *J. Econ. Taxon. Bot.* 32 (Suppl.): 364-367.
- Kumar, Ananad&**B.K. Singh**, 2016. Traditional Medical Plant in proposed Eastern Dedicated Freight Corridor passing through the Gautam Buddha Wildlife Sanctuary and its environs, Bihar & Jharkhand in Chourasia, H.K. (ed.) *Conservation of Medicinal Plants: Conventional & Modern Approaches* pp 181-194.
- Agrawala, D.K., M.U. Sharief and **B.K. Singh**2016.*Bulbophyllum paramjitii* (Orchidaceae: Epidendroideae), a new species from Sikkim Himalaya, India. *Phytotaxa* 273(1):072-076.
- Panda, S.P., **B.K. Singh**, M.U. Sharief, S.S. Hameed & A. Pramanik. 2016. The Genus *Zeuxine* Lindl. (Orchidaceae) in Tripura State, *J. Threat. Taxa*8(14):9675-9677.
- Panda, S.P., **B.K. Singh**, H.N. Subudhi& H.K. Patra. 2016. The genus *Acanthus* L. (Acanthaceae) in Bhitarkanika National Park, Kendrapara District of Odisha, India, *Zoos Print* 31(4):9-11.

#### **Research Article**

- **Singh, B.K.**, AnjanSardar& P.V. Sreekumar. 2013. Introduction of *Abutilon ranadei* an endangered plants in AJC Bose Indian Botanic Garden. in ENVIS Newsletter no. 18(2): 4.
- **Singh, B.K.**& H.S. Debnath. 2007. Bamboos in the lives of Garo of Nokrek. ENVIS Newsletter no. 12(1&2): 4-5.

#### Popular Article

- Debnath, H.S. & B.K. Singh. 2013. Nokrek Biosphere Reserve. Environ 12(1): 48-53.
- Pramanik, A. &**B.K. Singh**. 2016. AJC Bose Indian Botanic Garden A Natural Heritage. Sylvan 1(5):52-65.

Research Paper (Accepted)

- Mahaptra, H.S., **B.K. Singh**& P.V. Sreekumar. Pre & Post De-siltation account of the aquatic and wetland macrophytes in the lakes of AJC Bose Indian Botanic Garden, Howrah.
- Panda, S.P., **B.K. Singh**& A. Pramanik. The Genus *Eulophia* R.Br. (Orchidaceae) in Tripura State, India in *Vegetos*.
- Sabapathy, C.M., **B.K. Singh**& A. Pramanik. The Kite Climbers of AJC Bose Indian Botanic Garden, BSI, Howrah in *Indian Journal of Biological Science*.
- Singh, B.K., C.M. Sabapathy& A. Pramanik. Hemi-epiphytes a challenge for *ex-situ* conservation in AJC Bose Indian Botanic Garden, Howrah A case study in the proceedings of National Seminar on Indian Botanic Gardens organized by NBRI, Lucknow.

**Book Chapters** 

• Singh, B.K., H.S. Debnath& P.K. Bhattacharyya. Nokrek Biosphere Reserve in JS Khuraijam, BS Kholia, Rita Singh (ed.) *Plant Diversity of Northeast India: Volume I* NBRI, Lucknow. (In Press)

Scientific Reports submitted

- Biodiversity Assessment (Flora) of Gautam Buddha Wildlife Sanctuary in Hazaribagh& Gaya Districts for the Dedicated Freight Corridor Corporation of India Ltd. A Govt. of India (Ministry of Railways) Enterprise.
- Possible reason behind the sudden large scale death of Rain Tree in Kolkata. and adjoining areas Abstract Published
- "Studies in the wild economic plants of Nokrek Biosphere Reserve (Meghalaya)" in National Conference on Utilization of Plants and Microbial Resources organized by Vishvabharati University, Bolpur in 2012.
- "Nokrek Biosphere Reserve: Special References to Conservation & Management" in National Seminar on Plants, Microbes and Forestry Research for Sustainable Development organized by Vidyasagar University, Midnapore in 2008.
- "Studies in a naturalized, annual Tephrosia of the District Burdwan (W.B.)" in National Conference on Current Researches in Plants and Microbial Sciences, organized by Burdwan University, Burdwan in 2005.

#### Article in Official Language

सिंह, बी.कें. एवं एच.एस.देवनाथ. 2008. नोकरेक जीवमंडल की बागवानी सोम्य जंगली वनस्पतियां. वनस्पति वाणी 17:67-72.

देवनाथ, एच.एस. एवं बी.कें. सिंह. 2006. नोकरेक जीवमंडल - एक परिचय. वनस्पति वाणी 15:17-23.

सिंह, बी.के. एवं एच.एस. महापात्रा. 2015. आचार्य जगदीश चंद्र बोस भारतीय वनस्पति उद्यान की झीलों पर प्रदूषण का प्रभाव एवं उसका उपचार. वनस्पति वाणी 24:86-87.

राय, रिजुपालिका, बी.के. सिंह एवं ए. प्रमानिक. 2015. सुर्योदय की घरती, अरुनाचल प्रदेश की एक यात्रा. वनस्पति वाणी 24:92-93.

सिंह, बी.कें., सी.एम. सबाफ्थी, ए. प्रमानिक एवं एस. कुमार. 2016. पतंगी मांझे और धागों से भारतीय वनस्पति उद्यान में उतपन्न खतरे. वनस्पति वाणी 25:97-100.

#### **Book under Publication**

Common Plants of Gangetic Plain by H.S. Debnath& B.K. Singh

#### **Assistance in Other Publication**

- Census of Plants of AJC Bose Indian Botanic Garden A Report (Book) by Dr. H. S. Debnathet. al., published by Botanical Survey of India. 2014.
- Mammals, Reptiles and Amphibians of AJC Bose Indian Botanic Garden (Book) by Dr. H. S. Debnath *et. al.*, published by Botanical Survey of India. 2014.
- Birds, Butterflies & Associate Plants of AJC Bose Indian Botanic Garden (Book) by Dr. H. S. Debnath & Sri Biswajit Roychoudhury, published by Botanical Survey of India. 2012.
- Winter Flowers of AJC Bose Indian Botanic Garden (Brochure) published by Botanical Survey of India. 2012.

#### **Other fields of Experience:**

- Editing and assistance in the making of the documentary film "A Journey to Nokrek". (Released by the Director, Botanical Survey of India on 10th January, 2007).
  - Editing, translation and assistance in the remaking of the documentary film "Sunderban Anischit Bhawishya (Hindi)".
- Prepared a Hindi Documentary "Acharya Jagadish Chandra Bose Indian Botanic Garden Bhut, Bhawishyaaur Vartaman" presented on the occasion of Hindi Diwas in 2013.

#### A NEW MANGROVE SPECIES OF ACANTHUS L. (ACANTHACI FROM THE SUNDERBAN (INDIA)

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#### The genus Aconthus L. (Aconthaceae) in Bhitarkanika National Pork, Kendrapara District of Odisha, India S. Panda R. Simol, N. Sabadh and K. Patra

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THE GENUS JELWAY LINDL. IO ICHIDACIAE) IN TRIPURA STATE.

S.P. Parda, K.K. Singh, M.U. Sharref, S.S. Harnered & A. Pramanih



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#### नोकनेक जीव मंडल की बागवानी गोग्य जंगली वनस्पतियों रसन्त कुमार सिंह गर्ग हिमादि सेखर छेरानाल

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WILD PLANTS USED BY THE TRIBES OF NOKREK BIOSPHERE RESERVE, MEGHALAYA AND THEIR CONSERVATION

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#### ABSTRACT

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Bulbonhullum paramittii (Orchidaceae: Enidendroideae: Malaxideae): a new species from Sikkim Himalaya, India

DivESH K. AORAWALA', MOHAMED U. IBLAREP'A BASAN'T K. SINGH<sup>1</sup> Tenerical large gladus, lition Bhadagan Registed Genre, Oragolo '17/05, Julian Jula: Loop', debiteiggnal.com Tenerical large gladus, J. C. Roe Julan Source Genle, Boord-Ulati, Was Bregs, Jula Tenerical Genre gladus, J. J. C. Bain Julian Source Genle, Boord-Ulati, Was Bregs, Jula

Solophylae: Deir-Thouse (1822) is one of the legant techniques with short 2000 true, widely distributed in the mapic (Vennadus 2014). The main course of discriby are Asia Pacific (1906 quecks), Malagarar (1906 quecks) and New Games (300 species). Based on extension: Stream regularized and an interface of the stream of the species of

conserves and deduction. The server the Advance interaction and the state data of the advance of the server the Advance interaction and the state data of the advance of the state data of the Λ Verneties 2009) revealed that faces speciment being to a previously understried species, visities to Subsymptice cohorealises Soldenfieles (1979: 46). Therefore, it is described have as new species.

Bullephyllion perovylini Agravela, M.U.Sharinf & B.K.Singh, ap. new (Fig. 1, 1A) hyp-ROLE, Mahm Ean Dorte, new Bares, 1550 n, 2750 52-67 N, 08735 38 37 E, 36 March 2013, (Sovered in outward) errora, Namer nor control per Rook. 1559, 2779 2749 75 (497197 31.57 E. M. Muth. 1911). Observed is existention or Graphs. Angue 305, Stand & Dayler Pollowing, BBSC). Standard Standard Markani, Standard Markani, Standard Markani, Standard Markani, Standard Standard Markani, St Albelan spec, spical anglescheller für strandard and für ein fans processes cells, of shalts the staffs sum is unefault to have and dat two instantion constant, up to the muttile of equival later.

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**CONSERVATION OF MEDICINAL PLANTS** CONVENTIONAL AND MODERN APPROACHES

Dr. H.K. Chourasia





सुर्वोदन की घरती । जलगणनल प्रदेश की एक वात्रा

राजे स्वेतन कार्यन के तनका अवसंग्री किने ने राजभूते हेटागर और राजने निकारणों केंद्र का सीचर जाते। "तत ने एह The state of the three states as the fraction fraction that the state  $q_{\rm eff}$  and  $q_{\rm eff}$  and q, q\_{\rm

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## **Training/ Workshops Attended**

S1. No.	Training/ Workshops	Organised by	Duration (in days)	Date
1.	Vulnerability of Sunderbans in a Changing Climate (Techinal knowledge sharing workshop for Bangladesh & India)		1	03.02.2017
2.	Participatory biodiversity conservation for improved ecosystem services in the context of Climate Change	Research & Development	2	09.05.2016- 10.09.2016
3.	Administrative and Management of e-flora of India and Plant Checklist Database	C-DAC	2	29.09.2014- 30.09.2014
4.	2 <sup>nd</sup> Capacity Building Programme for Technical Assistant	Indian Institute of Public Administration, New Delhi	14	18.02.2013- 01.03.2013
5.	Coursework on the Botanical Nomenclature	Botanical Survey of India and ENVIS Centre on Floral Diversity	3	11.01.2013- 13.01.2013
6.	Workshop on Herbarium Technology and Methodology	Botanical Survey of India and ENVIS Centre on Floral Diversity	2	2006
7.	Workshop on Herbarium Technology and Methodology	Botanical Survey of India and ENVIS Centre on Floral Diversity	2	2005

# **Future Plan of Work**

- Development of GIS based phyto-mapping and preparation of database on the introduced Tree and shrubs of AJC Bose Indian Botanic Garden
- Documenting the herbaceous plants of AJC Bose Indian Botanic Garden (monocots except Poaceae & Cyperaceae)
- Study on the distributional pattern of mangroves and mangrove associates in the Haliday Island Wildlife Sanctuary of Sunderban Biosphere Reserve.

# THE TIMES OF INDIA The Telegraph

# New mangrove species found in Sunderbans

Kolkata: A new mangrove species has been discr 54 years, ered at the Sunderbans after

Acanthus Albus, a sprawling under shrub up to 1.5 m long, was found by an NGO last July It has been confirmed as a new mangrove variety by the Botanical Survey of India and the Indian Journal of Forestry A sub-species of Acanthus, the man-

grove was chanced upon by workers of Nature, Environment and Wildlife Society (NEWS). The team was involved in an afforestation drive along a new emaniment at the Sunderbans when the white mangrove similar to Acanthus rered by them. "Initially, we thought it to be an albi-

In trans, we though it to be an abi-no variety of the original acanthus. But It was smaller and looked a tad different. We collected a sample and sent it to the Botanical Survey, which later confirmed if to be a new variety. The Indian Journal of Forestry has published a paper to as-sure people of the fact," said Biswajit Roy Chowdhury, secretary of NEWS. Sunderbans has 64 species of man-

groves, which are divided into three categories - true mangrove, back man-grove and associate mangrove, Acanthus Albas falls in the true mangrove category. It has a cylindrical stem that is woo-

dy glabrous and longitudinally grooved and light green in colour. The leaves are narrow at the base and have 4-5 pairs of derbans," said Roy Chowdhury

Vanishing turtles

Joydeep Thakur

KOLKATA: It is not known

how and when their ances-tors came here. But cut off

rom the rest of their tribe.

they found a safe haven her

and thrived for years to set up a huge colony, while members of their family

ternational community

arden. The scientists there are many more other lakes, along

ith other species, as well. The discovery becomes all the more important be cause the Indian Roofed Turtle, once abundant in

Bengal and other parts of

reped species"



ge of the Septoments throughout in neurous plant: Septopos that weat halt, a Rampor Hound, ha Bay's Septopus, the AJC Hou Acanthus Albus, a sprawline under-shrub up to 1.5 m long was found by an NGO last July It has been confirmed as a new nangrove variety by the

Botanical Survey of India and the Indian Journal of Forestry sharn tooth at the margin.

"This is an important find. It proves that there are many other things to be discovered at the Sunderbans. The last variety of mangrove was discovered more than 50 years ago. There could be more waiting to be uncarthed," said HS Debnath joint director and head of Botanic Garden.

The employees of NEWS were engaged in planting mangroves across 6,000 hectares along the new embank-ment of the Sunderbans when the new species drew their attention.

trees, tall of which are

ANASUYABAR

"This new species is good news for the survival of mangroves in the Sun-





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## A fest of flora and fauna in

mint in the

Spring has arrived at the 273-acre Acharva Jagadish Chandra Bose Indian Botanic Garden. A not o ooks in and invested spents welcome visitors. Metro takes a tour of the parties o all its don







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come back to life medicinal values and locals are known to use it to care charmorten, sprawde and mangrove species. becies along the the creek off the sh border in North ility white flowers. photographs of wrve soon send to loal Survey of India loation. Scientists

cientist with the Zoologies scientist with the Zoological Survey of India dealing with fresh water turtles, IUCN experts have alrea-dy met the garden noth-orities. Zoological Survey of India experts, too, are pla-nning to study the animals, "We're still not sure where, how and when they

who were out in the open were killed and traded until their numbers dwindled to such an extent that the proclaimed them an "endan gered species" Scientists of the Indian Botanic Garden in Howrah have stambled upon a huge colony of the Indian Roofod Turtle (pamgshirra tecta) in one of the 24 lakes inside entered the lakes," says Bas-ant Kumar Singh, a Botanies scientist. "They were either introduced by the British, or scientist into the lakes.

which were once connected to the Hooghly," he adds.

mention in the Internatio-nal Union for Conservation of Nature's (IUCN) Rod or values in the second for their ment, which is each in vitamin D and highly pai-atable, the young ones were smuggled to be kept as pets," says BHCK Murthy, a

fied as endangared. The species also finds mention in the Internatio-

CONTINUED ON P7

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OF SUNDERBANS



n new mangrove spe

follus, bearing a blutan-violet

flower is very common and is

Sunderbans," said Ajanta Deg project director of NEWS.

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found almost everywhere in the

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Botanic garden gets mobile app

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#### to

my teachers, mentors, seniors and colleagues for

guidance and help in endeavouring my goals.

