

# ANNUAL REPORT 2018 – 2019



Kerala State Biodiversity Board



**KSBB**  
**ANNUAL REPORT 2018 - 2019**

Chief Editor  
**Dr. S.C. Joshi IFS (Retd.)**  
Chairman

Published by :  
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Member Secretary

**Kerala State Biodiversity Board**

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# Kerala State Biodiversity Board

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## **PRELUDE**

The Annual report of 2018-19 provides details of broad activities carried out by KSBB towards achieving its mandate of Conservation of Biodiversity, Sustainable utilization and Fair and equitable sharing of benefits. During the reporting year all efforts were directed towards building the institutional capacity of the Board through effective governance and policy decisions.

One of the key achievements is the opening of a state of art Biodiversity Museum to public which has already elicited much response from student community. State level steering committee for Biodiversity and State level expert committees under priority themes were constituted to provide the required guidance in all the activities of the Board. Our major challenge during the last five years was establishment of Biodiversity Management Committees and preparation of Peoples Biodiversity register. My predecessors had laid the foundation for this and KSBB was declared as BMC notified state during COP 11 held at Hyderabad during 2012, a truly proud moment for all of us. Strengthening the BMCs by appropriate guidelines and notifications was the thrust area during 2018-19. One of the indicators of efforts made by KSBB towards this goal was that two BMCs of Kerala, Meenangadi and Eraviperoor received Special mention in the India- UNDP award instituted by MOEF and UNDP for Best BMC during 2018. The institutional mechanism for enforcing the regulatory functions of Biodiversity Act was strengthened by officially declaring Range Forest officers as Biodiversity nodal officer. An all out attempt was made to implement Access and Benefit Sharing in Kerala and four companies came forward to provide ABS for the first time in Kerala.

Kerala was ravaged by floods and landslides during 2018 and the studies conducted subsequently reaffirms the role of Local Government Institutions and BMC in planning for a Resilient Kerala. The first step in this direction was the constitution of a 13th working group for Biodiversity, Environment, Climate Change and Disaster Management including members from the Biodiversity Management Committee and Disaster Management Committee. These efforts and positive outcome achieved during the short period by Kerala State Biodiversity Board would not have been possible without the constant and ever affirmative leadership and guidance provided by Hon'ble Chief Minister of Kerala Shri Pinarayi Vijayan as the Minister in charge of the Board and the dedication of the Board members. I would like to take this opportunity to extend our sincere thanks to all our collaborating partners, and well-wishers for their continued support and encouragement.

**Dr. S.C. Joshi IFS (Retd.)**  
Chairman





## FOREWORD

Annual report 2018-19 presents a summary of the many activities undertaken by the Board for conservation of biodiversity and sustainable use of its components and equitable sharing of the benefits arising out of utilization of biological resources. KSBB had submitted to government, several major reports relevant for policy developments during this period, including a comprehensive study of Sacred Groves of Kerala and the Impact of floods/ Landslides on Biodiversity. Having realized the necessity for developing convergence of the various allied activities being undertaken by Government of Kerala, linkages are being developed by KSBB with Haritha keralam mission, Suchitwa mission, Kudumbasree, MNREGS, Literacy mission, etc. A rapid participatory assessment of the impact on Biodiversity in 187 Panchayats in 13 districts in the state was conducted by BMCs after the natural disasters of August 2018. Such an assessment with the active involvement of State-District-BMC-Local community through intensive trainings and survey is the first of its kind initiative in the country. Biodiversity conservation is possible only with local action and KSBB has tried to mobilize volunteers with a passion for biodiversity conservation in all our activities. To reach out to people a Toll free number and an online complaint register facility has been started so that citizens can file complaints relating to loss of biodiversity.

The first Kerala State Biodiversity Congress (KSBC) organized by Kerala State Biodiversity Board along with Brennan College was one of the largest conclave of scientists, conservationists, environmentalists, civil society groups, Biodiversity Management Committees, custodian farmers, students, and local communities concerned with conservation of biodiversity. The major objective of KSBC was to formulate a vision and strategic plan for biodiversity conservation.

I am sure with our concerted effort of biodiversity conservation it will be possible to build a Resilient Kerala. I express my deepest gratitude to Environment department, Planning Board, LSGD, KSCSTE and all Board members who have offered invaluable support. I sincerely thank the Chairperson, KSBB for valuable advice, continued motivation, encouragement and support in all the endeavours to achieve the goals of the year effectively. Lastly I would like to thank all the staff of KSBB and well wishers without whose cooperation this would not have been possible.

**Dr.V. Balakrishnan**  
Member Secretary





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# INTRODUCTION

## 1. Background

Kerala State Biodiversity Board is an autonomous body of the State Government and comes under the Kerala State Environment Department. With the Head Quarters at Thiruvananthapuram the Board falls under the provision of the Biological Diversity Act 2002, Rules 2004 and Kerala State Biological Diversity Rules 2008. The KSBB is dedicated to conservation and sustainable utilisation of bio resources of the State and fair and equitable sharing of benefits. The Board is headed by a Chairman, Member Secretary and by a team of expert officials, leading the Board in its all vibrant activities.

## 2. The Biological Diversity Act, 2002

The Act was promulgated to meet the objectives of UN-Convention on Biological Diversity (CBD). The Act provides a legal framework for conservation of biological diversity of the country, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources. The Biological Diversity Act 2002 envisages a decentralized biodiversity management with Biodiversity Management Committees at local level, State Biodiversity Boards at State Level and National Biodiversity Authority at national level.

In accordance with the provisions of Act of 2002 the State Biodiversity Board (KSBB) was established in 2005 and the Kerala Biological Diversity Rules were framed in 2008.

## 3. The National Biodiversity Authority

The National Biodiversity Authority (NBA) was set up in the year 2003 with its headquarters in Chennai. The NBA is a statutory, autonomous body which provides advisory function for the Government of India.

## 4. Constitution of Kerala State Biodiversity Board

The Board was constituted in February 2005 vide GO (Ms) No. 1/2005/STED dated 28 February 2005 in accordance with the provisions under section

22-25 of the Biological Diversity Act 2002. At that time Board was not fully functional and it was housed under Kerala State Council for Science Technology and Environment (KSCSTE). Later on in Feb 2006, when the new Environment Department was formed in Kerala [vide order GO (Ms) No. 10/2006/GAD dated 6.1.2006], the KSBB was transferred to the Environment Department [vide order GO (Ms) No.64/2006/GAD dated 16.2.2006]. In exercise of the powers conferred by section 63 of the Biological Diversity Act, 2002 the Government of Kerala has made the Kerala Biological Diversity Rules 2008 vide. GO(P) No. 1/2008/Env. dated 10th June 2008, Rule 12 Specifies the function of the State Biodiversity Board.

## 5 Functions of KSBB

The major function of the State Biodiversity Board is to advise the State Government on any guidelines issued by the Central Government on matters relating to the conservation of biodiversity. SBB also advocate for sustainable use biological resources and equitable sharing of the benefits arising out of the utilisation of these.

Board has the authority to grant approvals on requests for commercial utilisation or bio-survey and bio-utilisation of any biological resource by Indians. The Board also perform functions necessary to carry out the provisions of Biodiversity Act or as prescribed by the State Government.

The functions, objectives and strategies of the Kerala State Biodiversity Board reflect on the recitals to the Biological Diversity Act 2002 under which the Board is constituted, viz:

“WHEREAS India is rich in biological diversity and associated traditional and contemporary knowledge system relating thereto;

AND WHEREAS India is a party to the United National Convention In Biological Diversity signed at Rio de jenerio on the fifth day June 1992;

AND WHEREAS the said convention came into form on the 29<sup>th</sup> December 1993;

AND WHEREAS the said convention reaffirm the sovereign rights of the State over their biological resources;

AND WHEREAS the said convention has the main objective of conservation of biological diversity, sustainable use of its components fair and equitable sharing of the benefits arising and of utilisation of genetic resources;

AND WHEREAS it is necessary to provide for conservation, sustainable utilisation and equitable sharing of benefits arising and of utilisation of genetic resources and also to give effect to the convention.

Also Rule 12 of the Kerala State Biodiversity Rules 2008 lays down 31 important functions to be performed by the State Biodiversity Board without prejudice to the generality of the provision of the Biological Diversity Act.

(i) Lay down the procedure and guidelines to govern the activities under section 23 of the (i) Biological Act 2002;

(ii) Advise the State Government, subject to any guidelines issued by the Central Government, on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of the benefits arising out of the utilisation of biological resources;

(iii) Provide technical assistance and guidance to various departments of the Government;

(iv) Regulate by granting of approvals or otherwise requests for commercial utilisation or bio-survey and bio-utilisation of any biological resource by Indian nationals;

(v) Facilitate updating and implementation of State Biodiversity Strategy and Action Plan;

(vi) Commission studies and sponsor investigation and research;

(vii) Bio-conservation and preservation of unknown

potential of every gene in every species of ecosystem;

(viii) Engage consultants for specific periods, not exceeding three years and with a monetary ceiling of Rs. 10 lakhs (Rupees ten lakhs only) per consultancy, for providing technical assistance to the Board in the effective discharge of its functions, provided that if it is necessary and expedient to engage any consultant beyond three years the Board shall seek prior approval of Government for such engagement;

(ix) Collect, compile and publish technical and statistical data, manuals, codes and guides relating to conservation of biological diversity, sustainable use of its components and fair and equitable sharing of benefits arising out of the use of biological resource and knowledge;

(x) Inventorisation, cataloguing of biodiversity, monitoring the rate of depletion, awareness creation in public, decision makers and planners and initiating scientific, administrative, legal and socio-economic measures for the protection of biodiversity;

(xi) Compile a complete database on the biodiversity resources in the State;

(xii) Development of state wide strategy for implementing resources in the State;

(xiii) Identify the natural habitat of useful biological communities by enlisting the services of the locally available experts;

(xiv) Preparation of an exhaustive inventory of the species available in the natural habitat of useful biological communities and take steps to preserve them;

(xv) Take steps to build up database and to create information and documentation system for biological resources and associated traditional knowledge through biodiversity registers and electronic database, to ensure effective management, promotions and sustainable uses;

(xvi) To devise methods to ensure protection of rights including intellectual property rights over

biological resources and associated knowledge including systems of maintaining confidentiality of such information as appropriate, including the protection of the information recorded in People's Biodiversity Register;

(xvii) Ensure that biodiversity and biodiversity-dependent livelihoods are integrated into all sectors of planning and management, and at all levels of planning from local to State, to enable such sectors and administrative levels to contribute effectively for conservation and sustainable use;

(xviii) Plan and organize training programmes for personnel engaged or likely to be engaged for programmes in the conservation of biological biodiversity and sustainable use of its components;

(xix) Organize through mass media a comprehensive programme regarding conservation of biodiversity, sustainable use of its components and fair and equitable sharing of benefits arising out of the use of biological resource and knowledge;

(xx) Setting up sufficient infrastructure and strengthening technology base in biochemistry and biotechnology including molecular systematic;

(xxi) Preparation of annual budget of the Board incorporating its own receipts as also devolution from the Central and State Government and National Biodiversity Authority;

(xxii) Recommend creation of posts to the Government for the effective discharge of functions

by the board and to create such posts;

(xxiii) Approve the method of recruitment to such posts, which shall be done only with the prior approval of the Government of Kerala;

(xxiv) Fix the terms and conditions of services of the employee (including salary and allowances, leave etc.) with prior approval of Government of Kerala;

(xxv) Co-ordinate the activities of the Biodiversity Management Committees;

(xxvi) Give directions to Biodiversity Management Committees for the effective implementation of the Act and to facilitate their meaningful participation in all measures relating to conservation, sustainable use and equitable benefit sharing;

(xxvii) Report to the Government and the National Biodiversity Authority about the functioning of the Board and implementation of the Act;

(xxviii) Recommend, prescribe or modify collection fee of biological resources from time to time;

(xxix) Sanction grant-in-aid and grants to the Biodiversity Management Committee for the specific purpose;

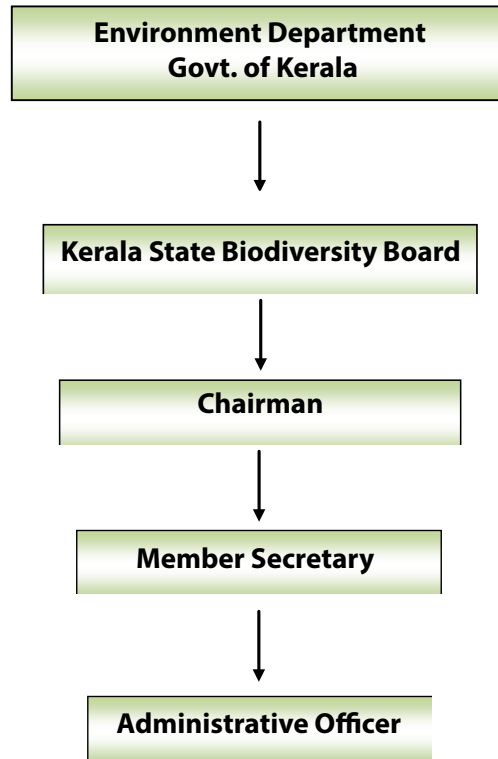
(xxx) Undertake physical inspection of any area within its jurisdiction in connection with the implementation of the Act;

(xxxi) Do such other functions as may be directed by the Government from time to time.



# COMPOSITION OF THE BOARD AND STAFF

## 1. ORGANIZATION STRUCTURE



### Functional divisions

Administrative section	Biodiversity Conservation	Biodiversity Research and Technical	Extension and Training	Environmental issues and Legal
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## Details of Board members

The Board was reconstituted vide order No.GO (Ms) No.4/2018/Env. dated 27.07.2018.

<b>Name and Designation</b>		<b>Post</b>
	<b>Chairman</b> Dr. S.C. Joshi IFS (Retd.)	Joined on 18.09.2017 - continuing
<b>Ex-official Members</b>	<b>The Additional Chief Secretary to Govt.,</b> Environment Department, Government Secretariat, Thiruvananthapuram	
	<b>The Principal Secretary to Govt.,</b> Forest and Wildlife Department, Government Secretariat, Thiruvananthapuram	
	<b>The Principal Secretary to Govt.,</b> Fisheries Department, Government Secretariat, Thiruvananthapuram	
	<b>The Executive Vice President,</b> Kerala State Council for Science, Technology and Environment, SasthraBhavan, Pattom	
	<b>The Agriculture Production Commissioner,</b> Government Secretariat, Thiruvananthapuram	
<b>Non-official Members</b>	<b>Sri. A.K. Dharni IFS</b> Principal Chief Conservator of Forest (Forest Management), Kerala Forest Department Thiruvananthapuram	
	<b>Sri. K.V. Govindan</b> Member, D.P.C. Kannur Madhavi Nilayam, Chuzhali P.O., Kannur - 670142, 9447684686	
	<b>Dr. K. Satheeshkumar</b> Senior Principal Scientist & Head (Retd) , Biotechnology, JNTBGRI, Palode	
	<b>Dr. T.S. Swapna</b> Professor & Head, Department of Botany, University of Kerala, Karyavattom Campus, Thiruvananthapuram	
	<b>Dr. K.T. Chandramohan</b> Asst. Professor, Department of Botany, Govt. Brennen College, Thalassery, Kannur	

## Member Secretary

### **Sri. V. Anil kumar**

Sr. Administrative Officer &  
Member Secretary (i/c) ( From 01.04.2018 up to 18.05.18)

### **Sri.Saji B.**

(Additional Secretary To Government)  
Administrative Officer & Member Secretary (i/c)  
From 19.05.2018 up to 31.10.2018

### **Dr.V. Balakrishnan**

Member Secretary  
From 01.11.2018 - continuing

## 2. STAFF STRENGTH OF THE BOARD

SL. No	Designation	Sanctioned strength	Working
<b>Sanctioned staff on deputation</b>			
1	PSO	2	1
2	SO	1	-
3	Technical Asst.	1	1
4	Asst cum Cashier	1	-
5	Data Entry Operator	1	-
6	Confidential Asst.	1	-
7	Helper	1	-
8	Part time sweeper (permanent)	1	1

## Project Staff

1	Technical Staff	9
2	Supporting Staff	11
3	Staff funded by NBA	4
4	Staff funded by UNDP - GEF	4
5	Consultant	1



### 3. BOARD MEETINGS CONDUCTED DURING 2018-19

During the reporting period four board meetings were conducted as follows

47<sup>th</sup> Board meeting on 01.09.2018

48<sup>th</sup> Board meeting on 18.12.2018

49<sup>th</sup> Board meeting on 02.03.2019

### 4. EXPERT COMMITTEES CONSTITUTED

Seven Thematic Expert Committees on various subjects were constituted to provide direction and to suggest recommendations in order to implement various provisions of the BD Act in Kerala. Details - Annexure I

## BIODIVERSITY CONSERVATION

### Key Achievements

- » Eraviperoor Biodiversity Management Committee ( BMC), Pathanamthitta District and Meenangadi BMC, Wayanad District received the India- UNDP award instituted by MoEF and UNDP for Best BMC during 2018.
- » 13<sup>th</sup> working group for Environment, Climate change, Biodiversity and Disaster Management constituted at all LSGs
- » Altogether 1032 Biodiversity Management Committees (BMC) reconstituted.
- » Agreement signed with 28 model BMCs for carrying out biodiversity conservation activities and updation of Peoples' biodiversity register (PBR).
- » District offices set up at Thiruvananthapuram, Alappuzha, Palakkad and Wayanad districts, office infrastructure and laptops purchased.
- » Preparation of 67 PBRs completed during the year. Altogether PBR preparation completed in 959 LSG's of Kerala.
- » 104 Block level BMC capacity building workshops conducted during which 850 BMCs were trained by Master trainers.
- » 4 PBR trainings were conducted in LSGI's during 2018-19.
- » Updation of PBR data is being done at 880 BMCs with the help of Technical support group, LSG, BMC members and other stakeholders.
- » Biodiversity assessment (plant diversity) of seven police camps in Pathanamthitta, Palakkad Thrissur and Malappuram districts were conducted and the book " Floral Diversity of Armed Police Camps in Kerala : A Rapid Assessment " was published.
- » Preparation of Marine Biodiversity Register of Kollam is ongoing



**Attakolly Biodiversity Park**  
BMC – Meenangadi Grama Panchayath  
**INDIA - UNDP AWARD**



Meenangadi Grama Panchayath BMC members and  
**INDIA- UNDP Judges**



**Smart school visit of INDIA- UNDP Judges**



**Eraviperoor Rice Farm**



**Conservation of biodiversity**  
**INDIA - UNDP AWARD**



**Marine Biodiversity Register**  
of Kollam



**Biodiversity assessment of**  
**Police Camp**



**Biodiversity assessment of**  
**Police Camp**

## 1. STRENGTHENING OF BMC

### Administrative support to BMC

Biodiversity Management Committees (BMC) has been constituted in LSGs of Kerala as per Section 41 of Biological Diversity Act 2002 and Rule 20 of Kerala Biological Diversity Rules 2008. The BMCs are mandated with conservation of biodiversity in their respective jurisdiction and documenting of biodiversity and associated knowledge in Peoples Biodiversity Register. In Kerala BMC has been empowered to function as Environmental Watch Group vide Govt of Kerala Order No 04/13/ Evt dated 13.05.2013. By the said order it was directed that the grass root level primary environmental protection will be the responsibility of the BMC of respective Panchayat. The respective BMC will be responsible to inform the concerned authorities for taking immediate action against all activities violating environmental rules, acts, notifications, as also environmental depletion, general public health problems and circumstances which leads to/ or may lead to threat for human life.

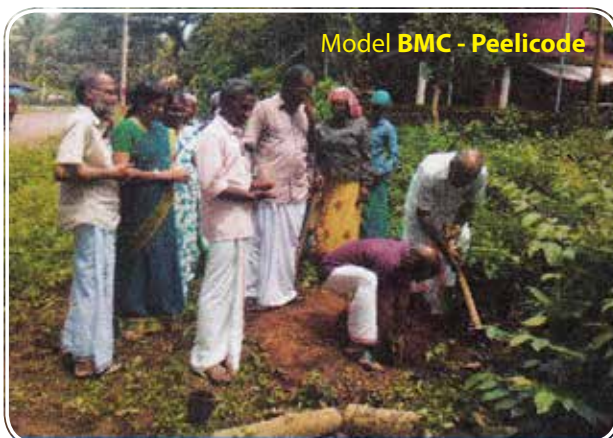
(a) The 13<sup>th</sup> Working group for Biodiversity, Climate Change, Environment and Disaster management was constituted at all LSGs vide GO No 2462/2018/LSGD dated 19.09.2018 including BMC members.

(b) Range officers were designated as Biodiversity nodal officer (vide GO No 19/2019 F & WLD dated 16.01.2019) for enforcing Biodiversity Act and for strengthening BMCs to function as Environmental watch groups.

### Model BMCs

The 13<sup>th</sup> working group of Biodiversity constituted by Planning Board, had mooted the idea of supporting a minimum 100 model BMCs from each of the 14 districts of Kerala including those from High ranges, Midland and Coastal areas. The BMCs can be supported financially for undertaking Biodiversity conservation projects and through Policy support and Capacity development.

During the 13<sup>th</sup> five year plan it was aimed to strengthen the BMC through capacity development and policy support to sustainably manage the natural resources at local level. As part of this KSBB had started a project to develop 100 BMC's as models which can be replicated during the subsequent years. During 2017-18 twenty BMC were selected and during 2018-19 twenty eight model BMCs were selected and they are being empowered through capacity building workshops and financial support for focused projects.



## Capacity Building of BMCs

### a. Training provided to BMCs

Trainers training workshop were conducted in association with Kerala Institute for Local Administration (KILA) for building capacity of BMC during 2017-18. A total of 65 master trainers@ 4 - 5 per district were trained as part of this. The subsequent trainings of BMC were conducted during 2018-19 by the master trainers. As part of strengthening BMCs, KSBB has conducted Block level training programmes in each district with the support of Resource Persons trained by KSBB and KILA from May to July 2018. Training modules and handbook has been prepared by KSBB for Resource Persons. A total of 104 trainings were held at Block level and 850 BMCs (82.2%) participated. Training modules covered the following aspects

- Functioning and statutory responsibilities of BMCs as envisaged in the Biodiversity Act, 2002,
- Need for biodiversity conservation
- Role of BMCs in environment/ biodiversity conservation
- Biodiversity Management and Convergence with LSGIs, etc.
- Functions of LSGs as per Panchayati Raj Act relating to Environment and Biodiversity Conservation
- Access and Benefit Sharing

**Table : I The details of number of trainings held in each district and status of BMC participation**

Sl. No.	District	Total No. of BMCs	No. of Block level trainings held	No. of BMCs participated
1	Thiruvananthapuram	78	8	70
2	Kollam	73	7	57
3	Pathanamthitta	57	6	53
4	Alappuzha	78	6	61
5	Kottayam	77	9	54
6	Idukki	54	6	53
7	Ernakulam	96	11	75
8	Thrissur	94	9	90
9	Palakkad	95	8	67
10	Malappuram	106	10	86
11	Kozhikode	78	9	73
12	Wayanad	26	3	15
13	Kannur	81	8	65
14	Kasaragod	41	4	31
	<b>Total</b>	<b>1034</b>	<b>104</b>	<b>850</b>

### b. Training BMCs for climate change

Capacity building of BMCs for Environment, Biodiversity and Climate change and developing Local Climate Change Action Plan was conducted in four climate change hotspot districts of Kerala in two stages with financial support of Directorate of Environment and Climate Change (DOECC) and KILA.

### c. Training through IMG

A module on Environment, Biodiversity and Allied matters were included in the “Focused Training Programme For GramaPanchayat Secretaries & Equivalent Officers Of Panchayat Directorate” being conducted by Institute for Management in Government (IMG), Kerala. The training program for BMC Secretaries included the key aspects of Convention on Biological Diversity (CBD), Aichi targets, Sustainable Development Goals (SDGs), Role of LSG in Biodiversity conservation and Roles and responsibilities of BMCs.



## 2. BIODIVERSITY DOCUMENTATION IN PEOPLE’S BIODIVERSITY REGISTER (PBR)

The PBR is a comprehensive document on the biodiversity of the locality along with associated traditional knowledge prepared by BMCs with technical support of KSBB and Technical Support Groups created in each district by Kerala. During 2018-19, a total of 67 PBRs has been prepared and thus 959 PBRs were completed so far in the State consisting of 892 GramaPanchayats, 64 Municipalities and 3 Corporations and PBR preparation is progressing in most of the remaining LSGs. District wise details of total PBRs completed and percentage of PBR completion in each district is furnished below:



**Table : II Status of PBR preparation**

SL. No.	District	No. of PBRs completed up to March 2019	Percentage of PBR Completion	Status of PBR preparation in remaining LSGs
1	Thiruvananthapuram	72 GPs + 4M + 1C	98.7%	PBR Preparation in remaining one GP is progressing
2	Kollam	68 GPs + 4M + 1C	Completed	-

3	Pathanamthitta	53 GPs + 4M	Completed	-
4	Alappuzha	72 GPs + 5M	98.7%	PBR Preparation in remaining one Municipality is progressing
5	Kottayam	71 GPs + 5M	98.7%	PBR Preparation in remaining one Municipality is progressing
6	Idukki	49 GPs + 2M	94.4%	PBR Preparation in remaining LSGs are progressing
7	Ernakulam	77 GPs + 12M	92.7%	PBR Preparation in remaining LSGs are progressing
8	Thrissur	81 GPs + 2M	88.3%	PBR Preparation in remaining LSGs are progressing
9	Palakkad	67 GPs + 2M	72.6%	PBR Preparation is progressing 16 LSGs and yet to start in 10 LSGs
10	Malappuram	85 GPs + 7M	86.8%	PBR Preparation in remaining LSGs are progressing
11	Kozhikode	69 GPs + 6M+1C	97.4%	PBR Preparation in remaining LSGs are progressing
12	Wayanad	23 GPs + 3M	Completed	-
13	Kannur	67 GPs + 5M	88.9%	PBR Preparation in remaining LSGs are progressing
14	Kasaragod	38 GPs + 3M	Completed	-
	<b>Total</b>	<b>892 GPs+ 64M+3C</b>	<b>92.7%</b>	

(GP – Grama Panchayat, M – Municipality, C – Corporation)

### Marine Biodiversity Register (MBR)

During 2017-18 Marine Biodiversity Register of Thiruvananthapuram Coast was prepared and during 2018-19 work relating to Marine Biodiversity Register of Kollam was initiated. MBR aims to document the marine bioresources of Kollam coast and the traditional knowledge of fisherman community.

Kerala coast contains various marine ecosystems like lagoons, mangrove swamps, sandy and rocky shores and open sea front and has a rich array of fishes, crustaceans, corals, echinoderms, molluscs, turtles, etc. BMCs of coastal LSGs can play an important role in conserving marine biodiversity. Documentation of underwater ecology of the inshore areas and the traditional

knowledge systems of fishermen along the coastal stretch in the form of Marine Biodiversity Register (MBR) is important for developing a management plan for marine resources. MBR shall contain information on coastal habitats, marine flora and fauna, TK associated with fish ecology, migration, feeding habits and reproduction, fishing rituals, traditional rights and conservation practices followed and availability of marine biological resources, their medicinal, food or any other use.



## BIODIVERSITY RESEARCH AND TECHNICAL

### Key Achievements

- » Impact Assessment of floods on Biodiversity conducted in 187 LSGs by BMC and more than 1000 volunteers and local experts participated in this survey and report was submitted to Govt. It is for the first time in India that such an assessment of impact of natural disasters on Biodiversity was conducted at LSG level.
- » Focused study on Impact of natural disasters on different aspects of Riverine biodiversity is being conducted through 28 institutions/ universities of Kerala
- » Ecosystem service valuation of marine and coastal ecosystem in Kadalundi Community Reserve of Kerala being conducted through CMFRI.
- » Studies on habitat identification and propagation protocol for in situ and ex situ conservation of 6 notified plant sp. by JNTBGRI is being continued .
- » A general study on total number of sacred groves of Kerala is conducted and report submitted to Government
- » A study on “Environment Poisoning from Pineapple farms in Kerala: A Preliminary Study” were conducted in Pathanamthitta, Kottayam and Idukki through Tropical Institute of Ecological Science, Thrissur and report submitted to the Hon’ble High Court. The report submitted by Board specifically pointed out the obligations of the Government to bring in stringent stipulations and guidelines to control excessive usage of pesticides in Pineapple farms. The Hon’ble High Court has given directions to Government to take into consideration the recommendations of KSBB and take necessary action.
- » Ten doctoral fellows are conducting research in biodiversity related topics with financial support of KSBB
- » Kerala Biodiversity Information System a single window for Biodiversity related information is being developed with NIC. As the first phase a work flow based system which facilitates Local Self Government (LSG) to collect, disseminate biodiversity data and generate PBR electronically has been developed.
- » Externally funded projects such as Munnar Landscape project, National Medicinal Plants Board project for value addition of medicinal plants are ongoing
- » FAO supported project for strengthening Agro biodiversity being implemented by CDS and KILA with technical assistance of KSBB.

## 1. A study on Impact of floods/landslides on Biodiversity (A Community Perspective)

Between 1<sup>st</sup> June and 18<sup>th</sup> August 2018 Kerala State experienced flood and landslides which had severe impacts in all walks of life of the people and damaged livelihood assets throughout the state. The torrential rains triggered a number of landslides that devastated innumerable infrastructure facilities and washed away a vast portion of biodiversity. As per the direction of the Chief Minister of Kerala, a rapid participatory assessment of the impact on Biodiversity in 187 Panchayats in 13 districts in the state was conducted by BMCs. A multidisciplinary team of experts comprising 100 persons were selected for this. Apart from this a 12 member core committee was also formed to monitor this rapid assessment. Such an assessment with the active involvement of State-District-BMC mechanisms through intensive trainings and surveys the first of its kind initiative in the country. A joint team of 4 BMC members, 2 experts and 5 volunteers with representation from KSBB was constituted to conduct a rapid impact assessment of floods/ landslides on Biodiversity in 187 Local Self Government (LSGs) spread across 13 districts. A state level expert meeting with representatives from all the Research Institutes, Line Departments and NGOs was conducted on 4<sup>th</sup> September, 2018 to finalize the methodology to be adopted. A methodology manual for the entire process was developed in association with Kerala Institute of Local Administration. Training for the survey team was provided jointly by KILA and KSBB at Alapuzha where in the methodology manual was introduced to the team and hands on training for conducting field survey and focal group discussions were provided.



**Table : III Rapid Assessment on Impact of Natural Disasters on Biodiversity Training Schedule (5<sup>th</sup> to 11<sup>th</sup> October 2018 at Alappuzha)**

SL.No	Date of Training	Districts & No. of LSGs	No. of participants
1	5 <sup>th</sup> & 6 <sup>th</sup> October	Thiruvananthapuram (3) Kollam (5) Pathanamthitta (20) Thrissur (20) Kannur (12)	Study team - 60x3= 180
			KSBB team - 4
			District Coordinators – 4
			Project Fellows - 13
			Facilitators - 5
			Core team- 5
			<b>Total - 211</b>



2	8 <sup>th</sup> & 9 <sup>th</sup> October	Alappuzha (26) Idukki (18) Wayanad (10) Kozhikode (12)	Study team - 66x3= 198
			KSBB team - 3
			District Coordinators – 4
			Project Fellows - 8
			Facilitators - 4
			Core team- 5
			<b>Total - 222</b>
3	10 <sup>th</sup> & 11 <sup>th</sup> October	Kottayam (12) Ernakulam (24) Palakkad (12) Malappuram (10)	Study team - 58x3= 174
			KSBB team - 2
			District Coordinators – 4
			Project Fellows - 13
			Facilitators - 4
			Core team- 5
			<b>Total - 202</b>

A district level meeting to create awareness of the importance of the study and the responsibilities of the Local Self Governments was conducted under the chairmanship of the District Panchayat President with representation from Panchayats, District Planning Officer, Panchayat Deputy Director, Co-ordinators of Janakiyasoothranam, Harithakeralam mission, Suchitwa mission and other key stakeholders in all the 13 districts. The assessment process started with a meeting chaired by BMC chairperson and attended by all the BMC members, farmers, fishermen and other stakeholders where the process of the assessment was explained. The officers from Agricultural department, Fisheries, Forest and Animal Husbandry, were invited to the meeting and requested to share data on the loss due to natural calamities in their respective sectors. The team visited the affected areas and data was collected in a prescribed format using Open Data Kit software. Focal group discussions were held with farmers, fishermen, tribal people, students etc. The team also conducted field visits to understand the extent and nature of damage and to record the findings in the designated format. The team also held consultations with representatives of line departments for more information and data was also compiled from other secondary sources. Various PRA tools were used to generate the data on livelihood loss, biodiversity loss, landscape devastation, and the wash away of floral and faunal components for preparing this report.



**National disaster of August 2018**



**Impact assessment study national disaster August 2018**

## **2. Special studies on Impact of natural disasters on Biodiversity - Details in Annexure II**

KSBB commissioned 28 studies relating to Impact of natural disasters on Biodiversity through various R & D institutions and Universities .

## **3. Project on Valuation of marine and coastal ecosystem in Kadalundi Community Reserve of Kerala**

Kerala State Biodiversity Board has undertaken a project entitled as 'Valuation of marine and coastal ecosystem in Kadalundi Community Reserve of Kerala'. The project is being implemented by CMFRI. The area is an important coastal and marine biodiversity area, important bird area listed by IBC and an important nursery ground for fish species. The community reserve is notable for fishing, collection of oysters and mussels and is the third community reserve in the country and only one in state.

### **The main objectives of the project are;**

- a. Biodiversity documentation of the study area
- b. The economic valuation of the biodiversity and ecosystem services of the Kadalundi - Vallikunnu Community Reserve

### **Expected outcomes**

- I) To provide information on the present status of the Community Reserve
- II) To develop guidelines for management for the welfare of the local community
- III) To develop a methodology for compensation of ecosystem services and loss to the people.

## **4. Development of software for digitization of PBR :**

Subsequent to the completion of PBR in more than 90% of LSG Kerala State biodiversity board learnt that for effective use, better environment and biodiversity management there is need for data retrieval for implementing PBR based action plan and therefore digitization of PBR is necessary. KSBB in association with NIC has developed a work flow based system which facilitates LSG to collect , disseminate biodiversity data and generate PBR electronically. This system is based on citizen science and aspires to facilitate the participation of amateur in gathering scientific data and building a free resource on Kerala biodiversity. The software also has facilities for submission of on line applications for ABS. The software will enable to create a data bank of bioresources, and also ensure transparency in all the processing stages of ABS.

## **Externally Funded Projects**

### **5. Resource Augmentation, Sustainable Harvesting and Value Addition of Medicinal Plants Resources through BMCs funded by National Medicinal Plant Board (NMPB) project**

#### **Activities proposed during the final phase are**

- a. Industry meet - Establishment of marketing linkages/marketing support (buyers/ traders/ representative from Vanasree(Marketing Network of Forest Department) Ayurvedic industry and pharmaceuticals sector).

- b. Strengthen the activities of the Trust constituted under the BMCs with a view to take up the project forward and also to ensure the sustainability of the project to achieve the ultimate objectives of the project as envisaged in the proposal.



### Key achievements

- » Organised capacity building programmes and training at two levels (a. Common awareness programme in BMCs of 5 Grama Panchayats (GPs) of Thirunelli, Noolpuzha, Poothadi, Thavinjal and pozhuthana at Wayanad. (b). Organised separate training programme for BMCs in each GPs).
- » Constructed ware houses at 5 GPs.
- » Constructed drying yard at 5 GPs.
- » Installed Machineries/equipments in one GP for the preparation of value added products.
- » Prepared two handouts(training manuals and guidelines) for good conservation, cultivation, collection, processing, storage and selling practice.
- » Established plantation of perennial herbs and shrubs of Medicinal plant value with the help of MNREGS.
- » Extended training for value addition and micro enterprise development by involving BMC members and Kudumbasree members.
- » Constituted Committees for Medicinal plants conservation, cultivation, sustainable utilization and selling trust in all 5 Grama Panchayats under the patronship of 5 BMCs to ensure the sustainability of the project.

## 6. India-Munnar Landscape project funded by UNDP- GEF

Ministry of Environment, Forest and Climate Change, Government of Kerala and United Nations Development Programme with the support from the Global Environment Facility is implementing a project "India High Range Mountain Landscape Project for developing an effective multiple use management framework for conserving biodiversity in the mountain landscape of the Western Ghats". As part of this KSBBS has been awarded two studies namely:

- a. Documentation and Compilation of Existing Information on Various Taxa(Flora and Fauna), and Identification of Critical Gaps in Knowledge in the GEF-Munnar Landscape Project Area.

The study area consist of Anjunad and adjoining areas and includes 2198.78 sq.km of Munnar, Devikulam, Chinnakanal, Kanthalloor,Vattavada, Edamalakudi, Marayoor, Mankulam,

Adimali, Kuttampuzha and Athirappilly covering Adimali Block in Idukki district, Kothamangalam block in Ernakulum district and Chalakkudy block of Thrissur district. The project aims to generate a comprehensive documentation of information on various taxa of Munnar landscape for developing strategies for the conservation of this unique and biodiversity rich landscape of Western Ghats.

b. Review of Ecological and Development History of Various Sectors and Changes in Selected Ecological Units in Munnar Landscape Project Area.

The major objectives of the project are Documentation of the changes in the spatial extent and qualitative changes in selected ecological units, Review of historical and cultural process and development activities that induced change on larger land cover categories and to identify, characterize and critically evaluate major agents and drivers of change in the landscape



## **7. FAO funded project- Strengthening Agriculture and Allied Sector Contributions to India's National Biodiversity Action Plan (NBAP) 2008 and the National Biodiversity Targets (NBTs).**

Kerala State Biodiversity Board (KSBB) in association with Food & Agricultural Organisation (FAO) is implementing a project "Strengthening Agriculture and Allied Sector Contributions to India's National Biodiversity Action Plan (NBAP) 2008 and National Biodiversity Targets (NBTs)". The project operate across selected districts of the state of Kerala, Mizoram and Punjab. National Biodiversity Authority and State Biodiversity Boards are the implementing agency. The key stakeholders are Biodiversity Management Committees, LSGD, State Agriculture Department, Fisheries department etc.

### **The project is undertaken with the following main objectives:**

1. Conduct systematic and comprehensive review of Agriculture and allied sectors commitments at National, State and Local levels to Agrobiodiversity conservation and reporting as per the NBAP 2014.
  2. Key consultations with community, government and other key stakeholders across project sites to identify opportunities to mitigate impacts of current practices of Agriculture and allied sectors on Agrobiodiversity conservation, management and use.
  3. Capacity building of stakeholders engaged in the conservation and use of Agrobiodiversity at National, State and local levels in developing a multi stakeholder action plan to help achieve implementation of relevant NBTs.
  4. Recommendations to policy development and action plan for mainstreaming agriculture and allied sectors contributions in conservation, management and use of Agrobiodiversity
- Aiming to enhance the capacity of stake holders who are engaged in conservation of

agrobiodiversity, a one day work shop on "Site-Level Gaps Assessment was held on 11<sup>th</sup> February 2019 at Coir Machine Manufacturing Company, Alappuzha, Kerala. A state level gaps assessment workshop was held on 12<sup>th</sup> Feb at Mascot Hotel, Thiruvananthapuram. The event was basically designed to bring the state government officials, representatives of the relevant Line Departments and KAU researchers to a single platform and share their views about bio diversity especially agro biodiversity. Around 30 people participated in the workshop from various parts of the state.

### **8. INTERACT - BIO project for developing Local Biodiversity Action Plan at Kochi by International climate initiative by Government of Germany**

Ministry of Environment and Forests along with National Biodiversity Authority is extending support to a project "INTERACT-Bio: Integrated sub-national action for Biodiversity – supporting implementation of National Biodiversity Strategy and Action plan". The project by Federal Ministry for Environment, Nature Conservation, Government of Germany under International Climate initiative has been awarded to ICLEI- Local Governments for sustainability. The project with a four year duration is being implemented in three countries India, Brazil and Tanzania. The project aims to strengthen the integration of biodiversity management at all levels of governance and facilitate cooperation between national and sub-national authorities for ecosystem management in urban regions. Kochi is the model city with Panaji and Mangalore as satellite cities for the project. MoEF and NBA has identified Kerala State Biodiversity Board for guiding the project implementation and initiating dialogues with local governments and to develop Local Biodiversity Action Plan. The project with focus on mainstreaming biodiversity into land use planning and decision-making at the sub-national level, will be definitely beneficial to the state of Kerala.

### **9. Biodiversity Research**

Kerala State Biodiversity Board is an approved research centre under Kerala University. The Board is supporting 10 doctoral fellows for conducting research on various aspects of biodiversity. The topics are as follows:

- a. Phytochemistry and pharmacology of Ethnomedicinal plants used by Malaipandaram tribes of Southern Western Ghats.
- b. Radiometric characterization of native flowers in Kerala
- c. A study on the Biology of earthworms in the selected areas of Kottayam
- d. Diversity and abundance of Hymenopteran parasitoids and pests of rice with special reference to farming practices in Kerala
- e. Micropropagation of *Vernonia anthelmintica* and Characterization of Anti-diabetic Compound from its Invitro culture
- f. Biodiversity assessment and Biomonitoring of Bharathapuzha, Kerala
- g. Taxonomy and Diversity of Theridiidae (Araneae) in Kerala.
- h. Taxonomy, Systematic & conservation of Nemacheilid loaches (Teleostei: Nemacheilidae) of Southern Western Ghats.
- i. Taxonomy & molecular Phylogenetics of Wrasses (Labridae) and puffer fishes (Tetraodontidae) of Kerala
- j. A comparative study of Mixed Species. Bird Flocks in a natural forest habitat & selected human modified landscapes in Wayanad

## ACCESS AND BENEFIT SHARING

ABS refers to the way in which bio resources may be accessed, and how the benefits that result from their use are shared. As per Biological Diversity Act 2002 and Kerala Biological Diversity Rule, 2008, any Indian citizen or body corporate in India should seek approval of KSBB for access to collection of biological resources from Kerala for commercial utilization. Ministry of Environment Forest and Climate change ( MoEF) vide gazette notification GSR 827 dated 21st Nov 2014 had given the guidelines for ABS whereby companies utilizing bioresources commercially shall pay the benefit sharing ranging from 0.1 to 0.5% of the annual gross ex-factory sale of the product minus government taxes to the State/Local Biodiversity Funds. In Kerala large number of Ayurvedic medicine manufacturers, Food based, Sea food based, Spices based and other industries utilize bioresources commercially. KSBB during 2017-18 has conducted several meetings with representatives of the respective associations for bringing them onboard. In this connection an expert committee on ABS was also constituted to provide guidance.

During the period 2017-18 Board had send more than 500 notices to industries commercially utilizing bioresources to comply with the provisions of the Act and as per this 195 intimation forms (Form-I) were received during 2018-19 Repeated followup through reminder notices were send to each of the industries and they were invited for dialogues also. Due to these efforts four industries came forward to sign ABS agreements for the first time in Kerala. The industries were awarded a certificate of compliance by the Hon'ble Chief Minister of Kerala in a public function held during World Environment Day on June 5<sup>th</sup> 2018.

The First Expert committee meeting on ABS was held on 1<sup>st</sup> March 2019. The salient points discussed during the meeting are:

- a. Modalities for identification of Industries commercially utilizing bio resources coming under the ambit of the Act
- b. The expert committee suggested development of sector wise guidelines on ABS.
- c. It was also suggested to empower BMC to levy fees while collecting bioresources for commercial utilization



**Table : IV Form I Applications received under Section 3 of Biological Diversity Act through NBA**

Sl. No	Consent Given	Consent given with condition	Rejected	Pending
1	M/s. Pioneer Hi Bred Private Limited Somajiguda, Hyderabad-500 082, Telangana.	Dr. Achyut Kumar Banerjee School Of Life sciences, Sun Yat-sen University, China.	Mr. Yong Pang Choong, Director, The Green Venture Sandalwood Plantation, Kuala Lumpur	
2	Mr. Gideon OYeshina OYeku Ora - ekitilane Akrngebile, Moniya, Ibadan, Nigeria.	Dr. Maria Thaker, Assistant Professor, Centre for Ecological Sciences, Indian Institute of Science, Bengaluru		
3	M/s. Pioneer Hi Bred Private Limited, 3 D Floor, 6-3-L099 /1100, Babukhan's Millennium Centre, Raj Bhavan Road, Somajiguda, Hyderabad- 500 082			

### Legal cases

Six court cases are pending in High Court of Kerala. The petitioners are industries commercially utilizing bioresources and the petition is given in response to the order sent by KSBB directing all companies commercially utilizing bioresources to comply with provisions of Section 7 of Biological Diversity Act 2002 and Rule 16 of Kerala Biological Diversity Rules 2008

1. Writ petition No :W.P. (C) No. 40132/18
2. Writ petition No :W.P. (C) No. 41622/18
3. Writ petition No :W.P. (C) No. 41903/18
4. Writ petition No :W.P. (C) No. 35855/18
5. Writ petition No :W.P. (C) No. 41976/18
6. Writ petition No :W.P. (C) No. 42017/18

## GOVERNMENT ORDERS AND REPORT SUBMITTED

### 1. GOVERNMENT ORDERS FOR STRENGTHENING INSTITUTIONAL STRUCTURE OF KSBB

#### a. Working group for Biodiversity, Climate Change, Environment and Disaster management:

In Kerala, as per Panchayati Raj Act, 1994 it is mandatory for each Local Self Government to constitute Working Groups for different sectors which is responsible for formulation and implementation of plan process in the sector. The 13<sup>th</sup> Working group for Biodiversity, Climate Change, Environment and Disaster management was constituted at all LSGIs vide GO No 2462/2018/LSGD dated 19.09.2018 including BMC members.

## **b. Designation of Authorized officers for Biodiversity Conservation:**

Range officers were designated as Biodiversity nodal officer (vide GO No 19/2019 F & WLD dated 16.01.2019) for enforcing Biodiversity Act and for strengthening BMCs to function as Environmental watch groups.

## **c. State level steering committee for Biodiversity:**

Biodiversity is a multifaceted concept and communicating the importance and relevance of Biodiversity conservation across production sectors and allied departments can help to generate cross sectoral strategies to conserve biodiversity. In Kerala 27 institutes/ departments are actively involved and has budgetary allocation directly or indirectly related to Biodiversity conservation. For Mainstreaming Biodiversity in policies and programs of line departments State level Steering Committee for Biodiversity (vide G.O 60/2018/Envt dated 11/05/2018) with Secretaries of Environment, Local Self Government Department, Water resources, Agriculture, Forest, Fisheries, Tourism, Animal Husbandry, Department of Environment and Climate Change and Chairman KSBB were constituted. The First meeting was held on 03/08/2018 and was chaired by Additional Chief secretary (Environment). It was suggested that KSBB should identify and prioritize activities, functions and schemes which cause positive and negative impact on Biodiversity. It was also suggested to develop a network of trained officials "The Virtual Biodiversity Cadre" with institutional capacity and knowledge to mainstream Biodiversity concerns in policies and the schemes of the department over a period of three or four years.

## **2. MAJOR REPORTS SUBMITTED TO GOVERNMENT**

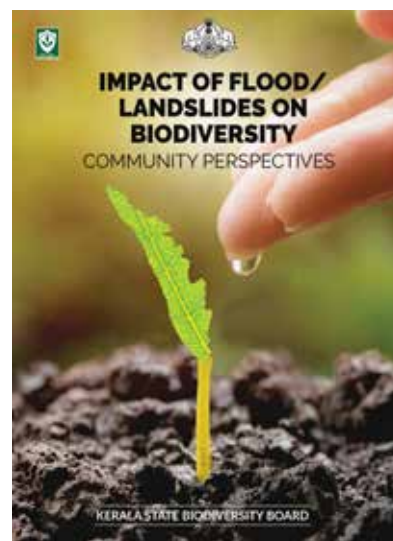
### **a. Kerala state report for India's Sixth National Report to CBD – NBT**

KSBB submitted a report on the progress made by Kerala state in achieving the National Biodiversity Targets - Kerala state report . This was prepared as part of the consultations held by NBA for submitting India's Sixth National Report to CBD. KSBB undertook extensive consultations with experts in the field, research organizations and line departments. The activities being undertaken by KSBB towards the implementation and achievement of National Biodiversity Targets NBT1, NB2, NBT 3, NBT 6, NBT 9, NBT 10, NBT 11 were brought out in this report.

### **b. Impact of floods/ landslides on Biodiversity - Community Perspectives**

The report reveals how the flood and landslides affected various landscapes, Agrobiodiversity, Species diversity and biocultural diversity of the state. The report submitted to Government included impact on species both flora and fauna and ecosystems. About 771 different landscapes including riverine, forest, plantations and agricultural fields were affected. Soil erosion was the major impact in 86 % of area. Most of the impacts on biodiversity are due to changes in the habitats, inundation for a longer period and displacement of animals during the flood. Changes have occurred in distribution patterns, all of which will have long term impact on ecological processes. The report also outlines long term and short term strategies for environment and biodiversity inclusive sustainable development and provides recommendations for a green growth for Nava Keralam. This report was officially submitted to the Honorable Chief Minister of Kerala during the inaugural ceremony of the State Biodiversity Congress held at Govt. Brennan College, Thalassery on 27<sup>th</sup> January 2019.





### c. Rebuild Kerala Development Plan (RKDP)

As part of Rebuild Kerala Development Plan KSBB submitted a detailed report regarding the major recovery needs in Biodiversity sector post flood and the overall challenges in the sector. The Report includes

- a. Overarching challenges concerning biodiversity in Kerala
- b. Proposed Approach (Strategies To Address Major Challenges)

#### **The proposed approach is organized into**

- i. Policy interventions/ Government orders/ Govt directions
- ii. Institutional framework
- iii. Strategies and Action Plan
- iv. Technical Studies

### d. Report of sacred groves of Kerala

Sacred groves, the patches of vegetation protected on religious grounds are considered as repository of local biodiversity. In Kerala, groves are supposed to provide nutrient rich water to the adjacent agricultural fields and are usually associated with Hindu temples and ancestral homes of old Hindu families. The study on the sacred groves of Kerala was carried out as per the direction of the Kerala legislature committee on Environment. For this, the survey of sacred groves in all LSGs of the state was conducted by district coordinators and project fellows of the respective districts. A total of 7058 sacred groves were reported in the state. Alapuzha reported maximum number of sacred groves whereas Idukki reported the minimum. The size of the groves varied from 0.5cent to acres. The study report was submitted to Government.

## 3. EXPERT COMMITTEE MEETINGS HELD

### a. First State level Thematic expert committee

The First State level Thematic expert committee meeting funded by National Biodiversity Authority was held on 1st March, 2018 at Central Residency, Trivandrum. Dr. V. Balakrishnan, Member Secretary, KSBB welcomed the distinguished guests. An overview of the major functions of each of the committee was given. Dr. S.C. Joshi, IFS, Chairman, KSBB delivered the presidential address.

The meet was inaugurated by Shri. M.C. Dathan, Scientific Advisor to Hon'ble Chief Minister of Kerala. He called for strengthening of BMC and to take action at local level for the same. He also stressed the need for enlisting the services of younger generation as Biodiversity Volunteers. Dr.T.S.Swapna, Board Member delivered the Vote of Thanks.



### **b. State Level Expert Core Committee Meetings for Study of Impact of Floods on Biodiversity**

A state level expert meeting with representatives from the Research Institutes, Line Departments and NGOs was conducted on 04.09.2018 to finalize the methodology to be adopted. It was suggested that a quick assessment of the impact at the local level may be conducted by Biodiversity management committees, which will be followed by studies on the Impact on specific ecosystems/ indicator species and development of strategies and action plan for rejuvenation and livelihood support by Sustainable utilization of Biodiversity. Core committee meetings were held on 25.10.2018, 06.12.2018 and 17.01.2019 to review the progress of the work. In order to finalize the major recommendations and to submit the action plan to Rebuild Kerala initiative, a meeting of the core committee constituted for the purpose was held on 18.03.19.

## BIODIVERSITY EDUCATION EXTENSION AND TRAINING

### Key Achievements

- » 1<sup>st</sup> Kerala State Biodiversity Congress (KSBC) was held at Govt. Brennan College, Thalassery, Kannur during January 2019. In connection with KSBC 2019, Consultative workshop, BMC meet, State level Children's Biodiversity Congress (CBC) and Exhibition were conducted.
- » 12 Categories of Biodiversity awards were distributed during 2018-19.
- » Awareness programmes for Forest department, Harithakeralam mission, Suchitwa mission, Kudumbasree, MNREGS, Literacy mission, Law students, etc, were conducted.
- » The International Day for Biological Diversity (IBD) was celebrated on 22.5.2018 at NCESS, Ulloor, Thiruvananthapuram with focal theme "Celebrating 25 years of Action for Biodiversity". Conducted a panel discussion on Environmental degradation of Veli-Akkulam lake and report was submitted to Govt. Conducted Green Images 2018, a National level digital photography contest as part of IBD celebration.
- » The Hon'ble Chief Minister of Kerala Shri. Pinarayi Vijayan inaugurated Kerala State Biodiversity Museum, Vallakkadavu, Thiruvananthapuram on World Environmental day, June 5<sup>th</sup> 2018
- » Biodiversity awareness programs Harithavani was aired through All India Radio
- » Awareness programs were conducted for companies commercially utilizing bioresources.
- » 21 Biodiversity clubs for school students were newly registered during the year. Altogether there are 1565 registered biodiversity clubs in Kerala.
- » Published Book on "Ants of Kerala" by Travancore Natural History Society.
- » KSBB supported 30 Biodiversity related awareness programmes by providing financial assistance and participated in 6 exhibitions by setting up stalls.
- » Financial Assistance was provided to 30 institutions including NGOs and Academic Institutions for carrying out biodiversity conservation activities.

## 1. BIODIVERSITY EDUCATION

### Kerala Biodiversity Museum

A state of art museum was set up at Vallakadavu, Thiruvananthapuram district by Kerala State Biodiversity Board with galleries which give an overview of the ecosystem and biodiversity of India with special focus on Kerala. The Museum housed at Vallakadavu Boat House, a heritage building, is aimed at providing awareness about biodiversity, species and about ecosystem diversity, biodiversity conservation activities in State, National and at global level and sustainable utilization of biodiversity. The major attraction of the Museum is the Bio diversity Gallery – a gallery with a variety of dioramas and models of varied ecosystems and species. The galleries throw light on pre-historic animals as Dinosaurs, Ecologically important species, Threatened species etc. Exhibits, dioramas, scaled down models, interactive kiosks, LCD displays are some of the major attractions. The museum is arranged in two floors. First floor is dedicated to biodiversity of India and Kerala and Interactive Panels and Backlit panels in addition to videos of the panorama of species diversity. Ground floor exhibits focus on Conservation and sustainable utilization of Biodiversity, Agro biodiversity etc. and has Interactive Panels and Backlit panels and also videos. The panels of major threats to biodiversity and conservation initiatives at global level and national level and the

conserved areas of India are highlighted. A 3D theatre with a seating capacity of 50 seats are also established. Science on Sphere (SOS) is a room sized, global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe is another attraction of the park. This system gives real time data which can be used as an educational tool to create awareness about biodiversity and threats to biodiversity especially climate change. The adjacent water body connected with Parvathiputhanar river was developed into a visually pleasing arena with a viewing dock and seating arrangements. The area has water fountains, vertical garden and aquarium. The Museum will act as the single location to provide a holistic knowledge on biodiversity and therefore intends to impart exposure to stake holders. The Museum is spread across the 5,000 sq. ft. boat house building which was built in the early 19<sup>th</sup> century and the museum promises to engage visitors to the best possible extent.



Visitors to Biodiversity Museum



## 2. KERALA STATE BIODIVERSITY CONGRESS 2019

Kerala State Biodiversity Board in association with Govt. Brennen College, Thalassery, Kannur, conducted **'First Kerala State Biodiversity Congress'** from 26<sup>th</sup> to 28<sup>th</sup> January 2019 at Govt. Brennen College, Thalassery, Kannur. Kerala State Biodiversity Congress will be held annually from 2019 onwards to exchange knowledge, share experiences, discuss issues, showcase green innovations and more importantly spread the message of biodiversity conservation. The major highlights of KSBC 2019 are :

- a. Consultative Workshop on
  - Biodiversity Conservation Best Practices
  - Biodiversity Conservation Priorities and Strategies
- b. Biodiversity Management Committee meet
- c. Children's Biodiversity Congress
- d. Biodiversity exhibition



First Kerala State Biodiversity Congress Inaugurated by Hon'ble chief Minister of Kerala

As part of Kerala State Biodiversity Congress, a platform has been provided to Scientists, Custodian farmers, BMCs, NGOs and Institutions which are playing an important role in the conservation and management of biodiversity. The focal theme of the congress was **“Biodiversity for Climate Resilient Kerala”** and was inaugurated by Hon'ble Chief Minister **Shri. Pinarayi Vijayan** on 27<sup>th</sup> January. Consultative workshops were held in parallel where scientists, conservationists, academicians, officials, etc. shared/ presented the best practices of biodiversity conservation at national and state level. In the second day the Model BMCs presented the various ongoing schemes for the conservation of biological resources and ecosystem in their respective jurisdiction. The technical advice of the eminent panel members during the program gave the proper direction to the Model BMCs for improvising their activities in a sustainable manner. The last day of the Congress was dedicated to Children Scientists and they presented their projects in a lively session and interacted with Scientists. Biodiversity exhibition for exhibiting and exchanging Climate Resilient Seeds and Varieties were also held in parallel which attracted wide attention. Nearly 98 institutions, individuals and Government stalls participated for Exhibition and Exchange of Climate Resilient Seeds and Varieties.



Major highlights of First Kerala State Biodiversity Congress 2019

In addition to Custodian farmers and Plant Genome Saviour Awardees from various parts of the State, various BMCs, Government Institutions like Malabar Botanic Garden and Research Institute, Zoological Survey of India, Botanical Survey of India, KFRI, State Medicinal Plant Board, etc., and NGOs like MSSRF, Pulari, WWF, ATREE, Hornbill Foundation, etc. participated in the exhibition. The Plenary address was delivered by **Dr. Erach Bharucha**, Director, Bharati Vidyapeeth Institute of Environment Education and Research, Pune. This was followed by two Scientific sessions held in parallel viz., 1) Biodiversity Conservation Best Practices and 2) Biodiversity Conservation Priorities and Strategies.



Dr. Sandhya IPS receiving the book Floral Diversity of Armed Police Camps in Kerala released by Hon. Health and Social Justice Minister Smt. K.K Shylaja Teacher



Shri. Kadannappally Ramachandran honoured the Plant Genome Saviour awardees of Kerala



Biodiversity exhibition stalls



### 3. CAPACITY BUILDING OF LINE DEPARTMENTS

a. State level Consultative Workshop on Mainstreaming Biodiversity in Governance was held on 31<sup>st</sup> December 2018 at Forest Headquarters, Vazhuthazaud, Thiruvananthapuram. The workshop was inaugurated by the Hon'ble Minister for Forests and Wildlife Adv.K.Raju. The Minister emphasized the need for integration of the activities of all the departments working for Biodiversity conservation. Dr. S. C. Joshi IFS (Retd.) gave a presentation on the salient features of biodiversity Act and Rules, The Maharashtra State Biodiversity Board Paristhithi Niyamasbha Chairman Dr. Jha and Former Secretary to NBA, Dr. Achlender Reddy delivered talk on various aspects of Biodiversity legislations. The program was also attended by Dr. Padma Mahanti, APCCF Kerala Forest Department, Abraham Joseph, Director Animal Husbandry and Dr. Sunil Kumar.



b. Biodiversity is the centre of many economic activities particularly relating to Agriculture, Fisheries, Animal Husbandry and Forestry. It is in sectors such as agriculture, forestry, fisheries, mining, water management and energy production where the activities takes place that drive biodiversity loss and the measures need to be targeted. In order to mainstream Biodiversity conservation in the policies, programs and projects of various line departments awareness programmes for Mainstreaming Biodiversity in Governance for the missions of Government as Haritha Keralam Mission, Suchitwa Mission, Kudumbasree, MNREGS, Literacy Mission etc was conducted on Feb 14, 2019 at Govt Guest House, Trivandrum. The workshop was inaugurated by Hon'ble Minister for Revenue Shri. E Chandrasekaran. In his inaugural address the link between nature and mankind was stressed and it was advocated to stop unsustainable utilization of biodiversity. Dr. T.N Seema, Executive Vice Chairperson, HarithaKeralam Mission called for sustainable development and watershed management Dr. Divya Iyer, Director, MGNREGS, K V Govindan, Board Member delivered felicitations. The workshop was attended by District coordinators of the various missions of Kerala State Government.



3. Training program for Law students on Mainstreaming biodiversity was conducted on 20<sup>th</sup> December 2018. The program was inaugurated by Dr.S.C.Joshi.IFS (Rtd) at Law Academy Thiruvananthapuram. Law Academy Principal Dr.V.L.Mony presided over the function. DrShanawas delivered a speech on importance of biodiversity conservation.

#### 4. COMMEMORATIVE DAY CELEBRATIONS

##### a. International Day for Biological Diversity

The theme for International Day for Biological Diversity 2018 was “Celebrating 25 Years of Action for Biodiversity”. The theme was chosen to mark the 25th anniversary of the entry into force of the Convention on Biological Diversity and to highlight progress made in the achievement of its objectives at the national and global levels. Kerala State Biodiversity Board celebrated the day by organizing events for raising public awareness based on the theme “Celebrating 25 Years of Action for Biodiversity”. The public awareness programmes included Photography contest and Nature Camps. The programmes included:

- Nature camp: Idukki and Wayanad districts
- State level Biodiversity Day Celebrations- May 22<sup>nd</sup>2018
- Green Images 2018 – Digital Photography contest
- Training for selected Biodiversity Management Committees from Thiruvananthapuram district, Kerala.
- Interactive Session on the “Environmental issues of Veli-Akkulam Lake”

##### Nature Camps: Wayanad and Idukki Districts

A 3 days Camp at Wayanad district was held for Biodiversity club students at Wayanad Wildlife Sanctuary. As part of this biodiversity related classes, forest visit and biodiversity quiz competitions were conducted. The classes focused on Agro biodiversity, Cultural diversity and diversity of butterflies etc.



ii. A 2 days Nature Camp at Idukki district were held for Biodiversity club co-ordinators at Periyar Tiger Reserve, Thekkady. As part of this camp biodiversity related classes and cultural programmes were conducted. A class on the Environmental Problems and Solutions – Global and Local by Dr.Ajit Peter, Environmental Scientist, Brunel University, London was conducted.



Nature Camps: Idukki



Nature Camps: Wayanad

The State level celebrations of International Day for Biological Diversity 2018 was held on 22<sup>nd</sup> May 2018 at National Centre for Earth Science Studies, Akkulam, Thiruvananthapuram. The function started with the lighting of lamp by Adv. K. Raju, Hon'ble Minister for Forests, Animal Husbandry and Zoos, Govt. of Kerala. The Introductory Speech was delivered by Dr. S.C.Joshi IFS (Retd.), Chairman, Kerala State Biodiversity Board. Presidential Address was delivered by Dr. T.N. Seema, Executive Vice Chairperson, HarithaKeralam Mission Kendra. In this occasion, prizes for the Digital Photography contest 2018 **"GREEN IMAGES-2018"** were distributed to the winners by the Minister. **"Green Images-2018"** was conducted under two categories.

- » Amateur : Age group 10 years to 17 years
- » Professional: 18 years and above

The theme of the competition for 1<sup>st</sup> category was **"Biodiversity"** and 2<sup>nd</sup> category **"Biodiversity our life"**. Cash prizes was distributed for 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> prize winner in addition to consolation prizes. Certificates of merit were awarded to photographers selected for final round.



Inaugurating the function  
Hon'ble Minister for Forests and Wildlife **Adv.K.Raju**



Hon'ble Minister **Adv.K.Raju** distributing  
Green Images 2018 award



Hon'ble Minister **Adv.K.Raju** distributing  
Green Images 2018 award



Hon'ble Minister **Adv.K.Raju** distributing  
Green Images 2018 award

Shri. P K Kesavan IFS, PCCF & Head of Forest Force, Dr. P.S.Sreekala, Director, Saksharatha Mission, Dr.P.N. Poornachandra Rao, Director, National Centre for Earth Science Studies and Smt.V.R.Sini, Councilor delivered felicitation. This was followed by Training for Biodiversity Management Committee members of two blocks of Thiruvananthapuram District. The classes included Biodiversity conservation, Roles and Responsibilities of BMCs, Access and Benefit sharing etc. In afternoon, an interactive session with experts and all other stakeholders of Veli-Akkulam lake were held for arriving at practical strategy to reduce pollution of Veli-Akkulam lake.



Interactive session with experts - pollution of Veli-Akkulam lake



### b. World Environment Day 2018

World Environment Day is the UN's most important day for encouraging worldwide awareness and action for the protection of our environment. The theme for World Environment Day 2018 was **"Beating Plastic Pollution"**. The state level celebrations was inaugurated by Hon'ble Chief Minister of Kerala **Shri.Pinaray Vijayan** As part of this Kerala Biodiversity Museum a state of art museum showcasing the rich Biodiversity of India and Kerala was opened for public held at Vallakadavu, Thiruvananthapuram.



Kerala Biodiversity Museum Opened by Hon'ble Chief Minister of Kerala **Shri.Pinaray Vijayan**



World Environment Day Inaugurated by Hon'ble chief Minister of Kerala **Shri.Pinaray Vijayan**

## 5. BIODIVERSITY EXHIBITIONS

During the reporting period KSBB participated in 6 exhibitions where the various panels and photographs of flora and fauna were displayed and brochures and books were distributed for creating awareness about biodiversity conservation.

**Table V. The exhibitions in which KSBB participated from 2018 March to 2019 March**

1	<b>Medi Expo 2018</b> : The medical exhibition held at Marancherry Higher Secondary School, Malappuram, Kerala from 2018, April 01 to 04. The hosting authority of the expo was Marancherry Grama Panchayath.
2	<b>Global organic Meet (Prakruthi)2018</b> ”, April 21 to 24, held at CMS College Kottayam, hosted by the college authorities.

3	<b>Vaiga 2018:</b> The exhibition relating to agriculture held at Thekkinkadu Maithanam, Thrissur from 26.12.2018 to 31.12.2018, hosted by Agriculture Department.
4	<b>Kerala State Biodiversity Congress, 2019</b> held at Govt. Brennan College, Thalassery, Kannur, Kerala from 26th to 28th January 2019. Hosted by Kerala State Biodiversity Board and Government Brennan College.
5	<b>“Kerala Government 1000 Days Celebration”</b> held at Central Stadium Thiruvananthapuram, Kerala from 2019, February 19 to 27. Hosted by Government of Kerala.
6	<b>Palakunnu Fest 2019</b> ”, held at Palakunnu, Kasargod District, Kerala, from February 19 to March 10. The expo was hosted by its Sangaadaka Samithi, the committee of Palakunnu Fest.

## 6. BIODIVERSITY AWARDS 2018

KSBB gives awards annually to individuals and organizations for their meticulous work in the field of Biodiversity conservation. Awards are given in 10 categories, which include Best Biodiversity Management Committee, Biodiversity/Environment Conservation, Custodian of Traditional Varieties, Custodian of Traditional Farm Animal breeds, Biodiversity Conservation – School, Biodiversity Conservation – College, Biodiversity Conservation Institution, Biodiversity Conservation – NGO, Media Person - Print (Malayalam), Electronic Media – Malayalam. Award consists of Plaque, certificate and cash award. Details in Annexure III



## 7. FINANCIAL ASSISTANCE GIVEN TO INSTITUTIONS AND COLLEGES FOR BIODIVERSITY AWARENESS

For raising awareness about the necessity of biodiversity conservation and Biological Diversity Act 2002 and Rules 2004 financial assistance to 30 institutions were provided during the reporting period. Details in Annexure IV

## 8. EXPERT COMMITTEE REPRESENTATION AND MAJOR MEETINGS ATTENDED

### Major meetings attended by Chairman

- Attended consultative meeting towards preparation of India's Sixth National Report to CBD and on the progress achieved on India's National Biodiversity Targets held at NBA, Chennai on 11.04.2018
- Attended the meeting to discuss modalities on sharing of the benefit sharing amount accrued including upfront payment with the BMC and/or beneficiaries concerned conducted by NBA on 13<sup>th</sup> June, 2018 at Chennai.
- Attended 10<sup>th</sup> Executive committee meeting on Agrobiodiversity conducted by NBA at Chennai on 12.10.2018
- Attended CoP 14 with the focal theme 'Investing in Biodiversity for people and planet' at Sharm El-Sheik in Egypt from 22<sup>nd</sup> to 26<sup>th</sup> Nov 2018
- Attended Capacity Building workshop on

Nagoya Protocol for SBBs held on 25-26 February, 2019 at NBA, Chennai.

Attended national level meeting on Strengthening Agriculture and Allied Sector Contributions to India's National Biodiversity Action Plan (NBAP) 2008 and the National Biodiversity Targets (NBTs) by FAO held on 6<sup>th</sup> and 7<sup>th</sup> March 2019 at New Delhi

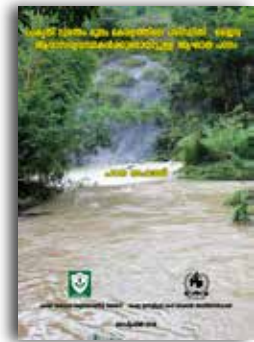
### Major meetings attended by Member Secretary

- Attended the ToT on "Biodiversity Governance" conducted by National Institute of Rural development and Panchayati Raj held on 13-15 Nov. 2018 at NIRD & PR, Hyderabad
- Attended 13<sup>th</sup> Annual meet of SBBs conducted by NBA at New Delhi on 29.12.2018

## PUBLICATIONS

### 1. A handbook for study of the Impact of natural disasters on Biodiversity for BMCs

Kerala witnessed one of the worst disasters of the century during August 2018 in the form of flood and landslides. This impacted not only human lives but also biodiversity and ecosystems, both directly and indirectly. Although estimates of damage to human lives and property are available at a preliminary level, an accelerated assessment of the impacts of flood damage on biodiversity is imperative. The Hon'ble Chief Minister of Kerala, Shri.Pinarayi Vijayan directed Kerala State Biodiversity Board to conduct a study through BMCs of the Impact of Flood/ Landslides on Biodiversity. The assessment was done in 187 panchayats spread across 13 districts(except Kasargod) of Kerala by Biodiversity Management Committees (BMC), which are statutory bodies constituted at LSG level and authorized to function as Environmental watch groups.



This study guide, which is designed to assess the damages to the biodiversity and ecosystems after the flood, is very simple and straightforward, which help BMCs to quantify the biodiversity loss caused by natural disasters, and also to determine the magnitude of the impacts, and to plan and implement multilateral biodiversity management strategies and policies at local level.

### 2. ABS Practice and Guidance Manual

It is imperative that people's representatives and local environmental activists must acquire knowledge about Access and Benefit Sharing. For this purpose, the State Biodiversity Board

published an ABS Practice and Guidance Manual. The manual details the provisions relating to the ABS in the Biodiversity Act, the responsibilities of the Biodiversity Management Committees, the penalties for violations of the biodiversity regulations and a glossary of common terms used in ABS. It is hoped that this pamphlet will help to create awareness about access to biological resources and the equitable sharing of benefits derived from it.



### 3. Mainstreaming Biodiversity



Mainstreaming biodiversity conservation is the key to implementation of NBAP and accordingly, the same was explained giving examples of importance of biodiversity for various sectors viz; agriculture, fisheries, forestry and tourism. The brochure includes introduction to CBD, Strategic Plan and Aichi Biodiversity Targets, Salient features of NBAP, NBTs and their linkages with sustainable development goals (SDGs).

### 4. Floral Diversity of Armed Police Camps in Kerala



Kerala Armed Police Battalion and training camps are not only acting as reserve force but also as custodians of biodiversity. Majority of the police camps are established on the lap of Western Ghats, one of the biological hotspots in the country. Asokavanam, a well-protected vegetation in Kerala Police Academy (KEPA) and biodiversity conservation in different police camps in the state are some of the best models in this lines.

Kerala State Biodiversity Board had undertaken vegetation mapping of Kerala Police Academy (KEPA), Kerala Armed Police I (KAP I), Kerala Armed Police II (KAP II), Kerala Armed Police II (Detachment), Kerala Armed Police V (Detachment), Malabar Special Police and Rapid response and rescue force (RRRF) and published a pictorial book. This book deals with scientific names, common names, malayalam names, conservation status, distribution map which will help for easy and proper identification as well to develop a local conservation plan

### 5. Museum Promotion Booklet



A state of art Biodiversity museum was set up at Vallakadavu by Kerala State Biodiversity Board with galleries which gives an overview of the ecosystem and Biodiversity of India with special focus on Kerala. The Museum housed at Vallakadavu Boat House a heritage building is aimed at providing awareness about biodiversity, species and ecosystem diversity, biodiversity conservation activities in Kerala, in India and at Global level and sustainable utilization of biodiversity. The major attractions are Science on Sphere (SOS), the Biodiversity Galleries, 3D theatre, Exhibits, dioramas, scaled down models, interactive kiosks, LCD displays etc. The promotion booklet serves to highlight the major attractions of the museum.

## 6. Children Biodiversity Congress Proceedings



Children Biodiversity Congress is an annual event conducted by KSBB . Project presentations were conducted at the district level and the winners presented their work in the 11<sup>th</sup> Bio diversity Congress. The papers presented by the children were compiled as proceedings. The Topics discussed included:

a. Flood related impact and losses to Bio diversity and the best short term strategy to mitigate the losses.

b. What are the reasons for the recent flood and what is the long term strategy to prevent and overcome such calamities.

c. What are the traditional knowledge and practices associated with flood calamities? How to revive loss of traditional knowledge and practices available with Tribals, vaidyans, farmers etc.

## 7. Scientific Publications

Oommen V. Oommen and Preetha N (2018), Biodiversity conservation : Kerala Initiatives. India Biodiversity Congress - International Conference Indian Statistical Institute, Kolkatta

### Implementation of right to information act Officers In- charge

Name & Designation of Officer (s)	Designated post
<b>Dr. S.C.Joshi IFS (Retd.)</b> Chairman	Appellate Authority
<b>Dr. V. Balakrishnan</b> Member Secretary	State Public Information Officer

### Details of sales made during year 2018 April to 2019 March

SI No	KSBB Publications sold	Rate (Rs)	Total No of Books sold
1	Common Trees of Kerala	Rs. 250/-	62
2	KeralathileOushadaSasyaVaividhyam	Rs. 250/-	67
3	Kerala TheeratheKadaljeevikal	Rs. 300/-	15
4	KeralathileChitrashalabangal	Rs. 180/-	41
5	JaivaKrishiOruPrayogikaPaadam	Rs. 50/-	83
6	Invasive Plants Of Kerala	Rs. 100/-	61
7	KeralathileSudhaJalaMaltasyangal	Rs. 170/-	27
8	Common Amphibians of Kerala	Rs. 250/-	19
9	Mushrooms of Kerala	Rs. 70/-	25
10	Mangroves & Mangrove Associates of Kerala	Rs. 150/-	26
11	Marine Gastropods of Kerala	Rs. 200/-	04
12	PrakrithiGeetangal	Rs. 80/-	24
13	ParisthithiVidjanavum JaivaVaividhya Nattarivum	Rs. 150/-	38

14	Feathers Of Vellayani	Rs. 250/-	16
15	Biodiversity Richness Of Kerala	Rs. 500/-	40
16	Snakes of Kerala	Rs. 200/-	46
17	Caecilian Diversity Of Kerala	Rs. 75/-	24
18	Vrikshayurveda	Rs. 300/-	43
19	Flying Colours Of Vembanad	Rs. 300/-	17

### Details of Books, Brochures, Booklets, distributed during 2018 April to 2019 March

SI No	Item	Category	Language	Total Distributed
01	Jaiva vaividhya Act 2002 & Rules 2004 (NBA)	Book	Malayalam	600
02	Kerala State Biological Diversity Rules 2008	Book	English	1800
03	Jaiva vaividhya Mukyadharayilekku	Booklet	Malayalam	1000
04	Keralathile Naadan Pasukal	Brochure	Malayalam	3200
05	Keralathile Naadan Aadinangal	Brochure	Malayalam	3500
06	Keralathile Naadan Valarthu Pakshikal	Brochure	Malayalam	3500
07	Island Biodiversity	Brochure	English	2600
08	Water Birds	Brochure	English	2600
09	ABS Pravarthana Reethi	Book	Malayalam	2000
10	Keralathile Nheer Pakshikal	Brochure	Malayalam	3500
11	Marotti	Booklet	Malayalam	230
12	Oushada Sasya Swabhavika Uravida Pariposhnam	Book	Malayalam	15
13	Medicinal Properties, Selected Plants in Vrikshayurveda	Book	English	41
14	Keralathile Sugandha, Oushada Nellinangal	Brochure	Malayalam	3750
15	Bhoomiyude Pachakudakal	Brochure	Malayalam	3750
16	Kerala Samsthana Jaiva Vaividhya Board	Brochure	Malayalam	3550
17	Kaavukal	Brochure	Malayalam	3750
18	Thavalakal Manmarayumbol	Brochure	Malayalam	3750
19	Thumbikal Prakrithiyude Vismayangal	Brochure	Malayalam	3750
20	Nhamayude Nheerthadangal	Brochure	Malayalam	3750
21	Keralathile Vanangal	Brochure	Malayalam	3750
22	Kadalukal Malinamakumbol	Brochure	Malayalam	3750
23	Kandalkaadukal	Brochure	Malayalam	3750
24	Vithinte Avakasikal	Brochure	Malayalam	3750
25	Poultry Breeds of Kerala	Brochure	English	1800
26	Aromatic Medicinal Rice Varieties of Kerala	Brochure	English	1800
27	Native Goat Breeds of Kerala	Brochure	English	1800
28	Native Cattle Breeds of Kerala	Brochure	English	1800
29	BMC Kaipustakam	Book	Malayalam	1030
30	Floral Diversity of Armed Police Campus in Kerala	Book	English	20
31	Oothayilakkam	Brochure	Malayalam	600
32	BMC Anubavapadangal, Viketrikarnam, Samreksnam	Book	Malayalam	1560
33	KSBB Pravarthana Samvidhanam	Brochure	Malayalam	1000
34	Kerala Biodiversity Museum	Booklet	English	6200

**SUO MOTO DISCLOSURE UNDER SECTION 4(1) (b)**  
**Reporting Year: 2018-19**

Sl. No	Department	No. of Public Authorities	No. of Public Authorities which published the 17 manuals under section 4(1) (b)	No. of Public authorities which updated the 17 manuals during the year	No. of Public authorities which displayed the 17 manuals online
(1)	(2)	(3)	(4)	(5)	(6)
	KSBB	Nil	Nil	Nil	Nil

**DESIGNATION OF PUBLIC INFORMATION OFFICERS / APPELLATE AUTHORITIES**  
**Reporting Year: 2018-19**

Sl. No	Department	No. of Public Authorities	No. of Public Information Officers designated	No. of Assistant Public Information officers Designated	No. of Appellate Authorities Designated
(1)	(2)	(3)	(4)	(5)	(6)
	KSBB		1	Nil	1

**DISPOSAL OF INFORMATION REQUESTS BY PUBLIC INFORMATION OFFICERS**  
**Reporting Year: 2018-19**

Name of the Department	No. of requests pending at end of last year	No. of requests received during the year	Total No. of requests	No. of requests disposed	No. of requests rejected	No. of requests deemed to be refused under section 7(2)	% of cases access to information denied
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KSBB	Nil	19	19	19	NIL	NIL	0%

**INFORMATION REQUESTS REJECTED BY PUBLIC INFORMATION OFFICERS**  
**Reporting Year: 2018-19**

Name of the Department	Total no. of requests rejected	No. of requests rejected under section 8	No. of requests rejected under section 9	No. of requests rejected under section 11	No. of requests rejected under section 24	No. of requests rejected other sections
(1)	(2)	(3)	(4)	(5)	(6)	(7)
KSBB	NIL	NIL	NIL	NIL	NIL	NIL



**DISPOSAL OF FIRST APPEALS BY DESIGNATED APPELLATE AUTHORITIES**

**Reporting Year: 2018-19**

Name of the Department	No. of first appeals pending with appellate authorities on 1.4.2017	No. of first appeals preferred during the year	Total no. of first appeals with appellate authorities (2+3)	No. of first appeals disposed	No. of first appeals rejected	% of first appeals rejected	No. of first appeals pending for more than 45 days
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KSBB	NIL	NIL	NIL	NIL	NIL	0%	NIL

**PENALTIES IMPOSED & COLLECTED**

**Reporting Year: 2018-19**

Name of department	Penalties imposed in previous year pending for collection	Details of penalties imposed by information commission under section 20 (1)	Total	Details of penalties collected
(1)	(2)	(3)	(4)	(5)
KSBB	NIL	NIL	NIL	NIL

**DISCIPLINARY ACTION TAKEN AGAINST OFFICERS IN RESPECT OF ADMINISTRATION OF RTI ACT**

**Reporting Year: 2018-19**

Name of department	Details of disciplinary action recommended by information commission under section 20 (2)	Details of disciplinary action taken based on recommendation of information commission	Other disciplinary actions taken (other than those recommended by information commission)
(1)	(2)	(3)	(4)
KSBB	NIL	NIL	NIL

**SUMMARY COSTS, FEES & CHARGES COLLECTED BY PUBLIC AUTHORITIES**

**REPORTING YEAR: 2018-19**

Name of the Department	Cost collected section 4 (4)	Fee collected section 6 (1)	Fee collected section 7 (1)	Fees Collected Section 7 (6)	Other charges collected (specify)	Total collection
(1)	(2)	(3)	(4)	(5)	(6)	(7)
KSBB	62	190				252

**Annexure I**  
**Thematic Expert Committees**

I	<b>ABS technical committee –Legal issues for implementation of ABS in state and IPR issues</b>	II.	<b>BHS - Notification and Management of BHS</b>
1	<b>Chair</b> <b>Dr. R. V. Varma,</b> Former Chairman, Kerala State Biodiversity Board, Trivandrum	1	<b>Chair</b> <b>Prof. P. V. Madhusoodhanan</b> Emeritus scientist, KSCSTE-Malabar Botanical Garden and Institute for Plant Sciences, GA College Post, Kozhikode
2	<b>Shri. Bennichan Thomas IFS</b> Principal Chief Conservator of Forest (Forest, Land and Resources) and Custodian of EFL, Kerala Forest and Wildlife Department, Trivandrum	2	<b>Dr. Seethalakshmi K.K</b> Consultant, Integrated Rural Technology Centre (IRTC) Mundur, Palakkad
3	<b>Dr. N.S.Gopalakrishnan</b> Honorary Professor , IUCIPRS Cochin University of Science and Technology, Cochin university P.O, Cochin	3	<b>Shri. A. Nizammudin</b> Land use commissioner Department of Planning & Economic Affairs, Govt. of Kerala, Thiruvananthapuram
4	<b>Dr. N. Anil Kumar</b> Executive Director M.S. Swaminathan Research Foundation (MSSRF), Chennai	4	<b>Sri. P.U.Das</b> Assistant Director of Soil Conservation Kabini Project, Karakkamala, Wayanad
5	<b>Dr. C.R.Elsy</b> Professor and Co-ordinator, IPRCell ,Agricultural Research Station, Mannuthy,Thrissur	5	<b>Prof.E. Kunhikrishnan</b> Professor (Retd), Department of Zoology University College, Thiruvananthapuram
6	<b>Adv. M.Rajendran Nair</b> District Judge (Retd.), Sreemangalam,Edava.	6	<b>Dr. Mathew Dan</b> Scientist(Plant Genetics Resources) Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Karimancode P.O., Palode, Thiruvananthapuram
7	<b>Prof. (Dr.) M. Haridas,</b> Director, Inter University Centre for Bioscience IUCB Thalassery Campus, Palayad, Kannur	7	<b>Dr. Rajendra Prasad.M</b> Senior Scientist Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Karimancode P.O., Palode, Thiruvananthapuram
8	<b>Adv. Harishvasudevan</b> High Court of Kerala, Ernakulam	8	<b>Dr. Raghu. A. V</b> Scientist Department of Extension Kerala Forest Research Institute Peechi, Thrissur
9	<b>Dr. I .G.Rathish</b> Assistant Professor , IUCIPRS Cochin University of Science and Technology, Cochin university P.O, Cochin	9	<b>Dr. P. J. Vincent</b> Press Secretary to Hon Speaker History Department, Government Arts and Science College, Kozhikode
10	<b>Dr. Shiburaj.S</b> Senior Scientist, Microbiology Division, JNTBGRI,Palode	10	<b>Dr. Ramachandran Kotharambath</b> Assistant Professor Department of Animal Science Central University Kerala Kasaragod

III	Floral biodiversity- Conservation of Land races and wild floral diversity	IV	Faunal biodiversity Animal and Fish biodiversity
1	<b>Chair</b> <b>Dr. N. Sasidharan (Retd)</b> , Kerala Forest Research Institute Peechi P.O. Thrissur ,Kerala	1	<b>Chair</b> <b>Dr. A. Biju Kumar,</b> Professor and Dean Dept. of Aquatic biology and fisheries University of Kerala
2	<b>Dr. M. Sabu</b> Professor Department of Botany University of Calicut	2	<b>Dr. MuhamedJafferPalot,</b> Scientist, Zoological Survey of India (ZSI) Calicut
3	<b>Dr.C.N. Sunil Kumar</b> Professor(Retd) SreeNarayanaMangalam College, Maliankara, Ernakulam	3	<b>Dr. P.O. Nameer</b> Special Officer, Professor & Head (Wildlife) & The Dean of the Academy of Climate Change Education (ACCER), KAU, Thrissur.
4	<b>Dr. Prabhukumar K.M.</b> Senior Scientist, AryaVaidyasala, Kottakal	4	<b>Dr. K. K. Joshi,</b> Principal Scientist & Head, MBDD CMFRI (Head, Biodiversity), Cochin
5	<b>Dr. P.S. Udayan,</b> Assistant Professor P.G. Department of Botany and Research Centre, Sree Krishna College, Guruvayoor	5	<b>Dr. George Mathew,</b> Former Head Entomology, KFRI, Trissur
6	<b>Dr. K.V. Mohanan,</b> Former Professor & Head, Department of Botany; Former Director, School of Biosciences; University of Calicut, Kerala- 673635, India	6	<b>Dr. P.R.Swaran</b> Assistant Professor, Department of Zoology, Payyanur College, Payyanur
7	<b>Dr. P M Radhamany</b> Professor, Department of Botany, University of Kerala	7	<b>Dr.P.Balakrishnan</b> Scientist Department of Wildlife Biology Forest Ecology & Biodiversity Conservation Division, Kerala Forest Research Institute Peechi, Thrissur
8	<b>Dr. Pramod.C</b> Assistant Professor Dept of Botany, GovtBrennen College, Thalassery	8	<b>Dr.Shaji. C .P</b> Chakallackal House Meladoor (PO), Thrissur- 680741
9	<b>Dr.R. Prakash Kumar,</b> Director, Jawaharlal Nehru Tropical Botanic Garden and Research Institute Karimancode P.O., Palode	9	<b>Dr.K.S.Anoop Das</b> Assistant Professor, Department of Zoology MES College, Mambad, Malapuram- Kerala
10	<b>Dr. Shiburaj.S</b> Senior Scientist, Microbiology Division, JNTBGRI,Palode	10	<b>Dr. Ramachandran Kotharambath</b> Assistant Professor Department of Animal Science Central University Kerala Kasaragod

V	Aquatic ecosystem management	VI	Issues impacting Biodiversity- Invasive and exotic plants and animals
1	<b>Chair :</b> <b>Dr.V.S.Vijayan</b> Former chairman, KSB,Trivandrum	1	<b>Chair</b> <b>Dr. K. V.Sankaran</b> Former Director KFRI,Trissur
2	<b>Dr.K.G.Padmakumar</b> Director, International Research and Training Centre for Below Sea Level farming, Kuttanad	2	<b>Shri.Renjan Mathew Varghese,</b> State Director, WWF-India, Vanchiyoor, Thiruvananthapuram
3	<b>Dr.V.S.Basheer,</b> Principal Scientist, National Bureau of Fish Genetic Resources, PMFGR Centre, Cochin	3	<b>Dr. T. V. Sajeew</b> Principal Scientist, Department of Forest Entomology, Kerala Forest Research Institute, Peechi, Trissur
4	<b>Dr. DinesanCheruvat</b> Director, NIFAM, East kadungallor, Aluva, Ernakulam	4	<b>Dr.R. Sugathan,</b> Scientist Thattekad Bird Sanctuary Ernakulam
5	<b>Dr. HariKumar P S,</b> Sr.Principal Scientist Centre for water Resource Development and Management , Kozhikode	5	<b>Dr. Jacob Joseph,</b> Asst. professor and Director in charge, Centre for Law and Agriculture, National university of Advanced Legal Studies (NUALS) Ernakulam
6	<b>Dr.P.K.Asokan,</b> Principal Scientist&SIC, Central Marine Fisheries Research Institute, Kochi	6	<b>Prof. K. V.Jayachandran,</b> Scientific Consultant Centre For Marine Living Resources and Ecology MoES, Gol, Block C, 6 <sup>th</sup> floor Kendriyabhavan, CSEZ P.O., Kochi-682037
7	<b>Dr. N. S. Pradeep,</b> Senior scientist and Director in charge Malabar Botanic Garden Kozhikode	7	<b>Dr. T. Sabu,</b> Programme Director (NREM) Centre for Environment and Development Thozhuvancode, Vattiyookavu P.O.
8	<b>Dr.V.B.Sreekumar</b> Scientist Forest Botany, Kerala Forest Research Institute, Peechi, Thrissur	8	<b>Dr. Shajivas</b> Professor (Retd) Department of Botany, Iqbal College, Peringammala, Thiruvananthapuram
9	<b>Dr. T.K.Susha</b> Associate Professor, Department of Zoology, St Peters College, Kolenchery, Ernakulam	9	<b>Dr. Prasad. P.K</b> Assistant professor and Head Department of Zoology, Kannur University Mananthavady Campus, Edavaka P.O Wayanad, Kerala
10	<b>Dr.Sampath Kumar</b> Assistant Professor, Department of Zoology, SreeSankara College, Kalady, Ernakulam	10	<b>Dr.T.K.Hrideek</b> Scientist Kerala Forest Research Institute, Peechi,Trissur

VII	<b>Agrobiodiversity –Assessing Environmental and Biodiversity issues in Kerala</b>		
1	<b>Chair:</b> <b>Dr. C. Bhaskaran,</b> Professor (Retd), College of Agriculture,Vellayani	6	<b>Dr. Thamban .C,</b> Principal scientist CPCRI, Kasargod
2	<b>Prof. C. K. Peethambaran,</b> (Former Director of Research Kerala Agricultural University) KGWS-67 , Golf linksRoad, Trivandrum	7	<b>Dr. Vanaja.T</b> Professor Regional Agricultural Research Station, Pilicode, Kasargod
3	<b>Dr. K. Joseph John,</b> Principal scientist, ICAR-NBPGR, Thrissur	8	<b>Dr. B. Sasikumar,</b> Principal Scientist & Head (Retd), Crop Improvement Biotechnology Division, ICAR-IISR, Kozhikode
4	<b>Dr. C.A. Jayaprakash</b> Principal Scientist & Head, CTCRI, Trivandrum	9	<b>Dr.Sreeja. P,</b> Assistant professor, Department of Botany, Sir syed College, Taliparamba, Kanuur-Kerala
5	<b>Dr. Johnson George. K,</b> Principal Scientist, Crop improvement & Biotechnology Division, ICAR-Institute of spices research, Kozhikode	10	<b>Dr. Anil Zacharia</b> Assistant project Officer RAHC, Meenangadi, Wayanad

Sl No	Institutions	Subject	Objectives
1	Centre for Environment and Development Thozhuvancode, Vattiyoor kavu P.O. Thiruvananthapuram	Assessment of Impact of floods/landslides on Biodiversity with special emphasis on - Riparian vegetation - Pamba, Periyar, Chalakudy, Bharathapuzha	<ol style="list-style-type: none"> <li>1. To identify and map the vegetation loss in the Chalakudy river, Pampa river, Periyar and some major tributaries of Bharathapuzha (Thodupuzha, Kalpathipuzha and Gayathripuzha).</li> <li>2. To survey the current floristic diversity of the riparian regions of the above rivers and identify species lost due to flood and the extent of loss.</li> <li>3. To analyze the impact of species loss with respect to its conservation importance like IUCN threatened status, endemism, breeding and nesting areas of animals, river bank protection, economic importance as medicine, raw material for local livelihood, aesthetics and tourism etc.</li> <li>4. To identify the species which has survived and potential of using these species for future afforestation programs in the river banks in Kerala.</li> </ol>
2	Department of Biotechnology, Cochin University, Cochin	Riverine biodiversity monitoring with reference to Mangroves in comparison with pre flood data	<ol style="list-style-type: none"> <li>1. To survey the existence, growth and health of flood affected true mangrove floras.</li> <li>2. To survey the "indicator species" of fauna (Fishes, Crabs and Molluscs) in flood affected mangrove forest</li> </ol>
3	Academy of Climate Change Education (ACCER), KAU, Thrissur	Impact of Floods / Landslides on Riverine Biodiversity - Chalakudy river basin	<ol style="list-style-type: none"> <li>1. Preparation of a flood map in the Chalakudy river basin at the Panchayat level (23)</li> <li>2. Riverine biodiversity monitoring including the narrow endemic</li> <li>3. Invasive species of fauna and flora at Chalakudy river basin</li> <li>4. Fish migration and breeding at Chalakudy river basin and loss of microhabitat</li> <li>5. Flora, Faunal (vertebrate and invertebrate) Biodiversity in comparison to pre flood data.</li> </ol>

4	Kerala University of Fisheries and Ocean Studies (KUFOS), Kochi	Impact of Kerala Floods / Landslides on single location endemic fish species	1. A rapid biodiversity survey to assess the impacts of the catastrophic floods on the habitats and populations of these threatened species is therefore a priority. 2. Assess the impacts of the worst hit known location and River system – Periyar Tiger Reserve/Periyar, Shenduruney WLS/ Kallada, Santhampara Hills/Periyar, Malakkapara/Chalaky, New Amarambalam/Chaliyar, Valiparai/Chalaky.
5	WWF-India, Vanchiyoor, Thiruvananthapuram	Assessment of Biodiversity Loss for Selected Faunal Groups	1. focusing on faunal groups Birds, Amphibians, Butterflies and Odonates 2. estimate the damage to their habitats under study 3. recommend measures for recovery/ restoration
6	Govt. Victoria College, Palakkad, mayacnair@victoriacollege.in, 9400728998	Post flood habitat modification and biodiversity loss in selected forest ranges in Palakkad District	<ul style="list-style-type: none"> <li>• Documentation of species affected by landslides</li> <li>• Identification of resilient taxa in landslide areas</li> <li>• Documentation of post flood modification in habitats</li> </ul>
7	KSCSTE-Malabar Botanical Garden and Institute for Plant Sciences, Kozhikode	Assessment of Plant diversity including Aquatic flora Riparian vegetation etc in the flood / Landslides affected areas of Chaliyar, Korapuzha and Kuttiyadi rivers	An assessment on the loss of plant diversity including aquatic flora riparian vegetation and mangroves due to floods/landslides in the affected areas of Chaliyar, Korapuzha and Kuttiyadi rivers - the severely affected areas in Malabar region.
8	Jawaharlal Nehru Tropical Botanic Garden and Research Institute	Impact of Landslides on the Forest Ecosystem in Wayanad district, Kerala with special reference to floristic wealth	<ol style="list-style-type: none"> <li>1. Survey and documentation of the extent of forest cover and species loss</li> <li>2. To identify plant species which should be included in species recovery programmes</li> <li>3. Mapping the landslide susceptible zones and prepare the landslide susceptible zone map of the state.</li> <li>4. To descend strategies for rehabilitation of landslide affected areas</li> </ol>

9	International Research and Training centre for Below Sea level Farming (IRTCBSF)	Impact of Flood and Deluge on the Hydrobiology and Biodiversity endowments of Kuttanad Ecosystem, Kerala	<ul style="list-style-type: none"> <li>• Assessment of the impact of the devastating flood on the hydrobiology of Vembanad and Kuttanad Wetland Ecosystem.</li> <li>• Monitoring of the impact of floods on <ul style="list-style-type: none"> <li>a. Macro Benthos (survey of Clam beds, population distribution and size frequency distribution)</li> <li>b. Fish and shellfish (catch data , numerical abundance, Species diversity &amp; biomass) c. Impact on endemic species distribution and abundance</li> <li>d. Studies on clam beds</li> </ul> </li> </ul>
10	KSCSTE - Kerala Forest Research Institute	Impact of the flood on soil biota in Pamba, Periyar, Bharathapuzha and Chalakkudy Rivers in Kerala	<ol style="list-style-type: none"> <li>1. To assess the impact of the flood on floristic elements and soil biota in Pamba, Periyar, Bharathapuzha and Chalakkudy Rivers in Kerala</li> <li>2. To identify critical areas to be restored and develop site specific restoration programmes.</li> </ol>
11	Dept. of Zoology, University of Kerala	Assessment Of Native And Exotic Ichthyodiversity Status Of River Bharathapuzha, Periyar And Pamba	<ul style="list-style-type: none"> <li>• To identify the traditional routes of migration of fishes into the breeding grounds.</li> <li>• Post flood status of the traditional routes of migration as well as the breeding grounds.</li> <li>• Whether the fishes take alternate routes to reach breeding ground.</li> <li>• Approximate qualitative and quantitative assessment of the species involved in migration.</li> <li>• Types of gears used for monsoon flood plain fishery.</li> <li>• Extend of usage of illicit fishing practices.</li> <li>• Extend of harm to the fishes.</li> <li>• How far the authorities (Fisheries Department and Local bodies) are involved in the implementation of the laws ( The Kerala Inland Fisheries And Aquaculture Act, 2010)</li> <li>• To assess the level of awareness of the public on the impact of 'Oothapidutham'</li> </ul>



12	Jawaharlal Nehru Tropical Botanic Garden and Research Institute	Survey and Inventory of Soil Microbial Biota in the Post Flood Scenario	<ol style="list-style-type: none"> <li>1. The primary objective of the proposed study is to determine the effect of flood on soil microbial communities.</li> <li>2. To provide information on the negative effects of recent flood events on soil biota particularly on microorganism.</li> <li>3. To provide comparative information on increase or decrease of soil born phytopathogen populations and plant growth promoting organisms towards predicting their effects on crops.</li> </ol>
13	Department of Botany, University of Kerala, Kariavattom, Thiruvananthapuram	Inventory and evaluation of spread ecology of the riverine flora of Achankovilriverbasin, Kerala	<ol style="list-style-type: none"> <li>1. To prepare a database on the riparian flora of the Achankovilriverbasin after the flood and assessment of the impact of flood and landslides on riparian flora.</li> <li>2. To assess the status of endemic, medicinal, economic and RET plants in the Achankovil river basin.</li> <li>3. To assess the invasion of weed plants in the riparian zones.</li> <li>4. To suggest riparian buffer system management strategy for the conservation of Achankovilriverbasin</li> </ol>
14	NSS, College, Pandalam, Patahanamthitta, Ph. 04734252221, nsscollegepandalam@gmail.com, 9400070081 Ph.,kjith77@gmail.com	Impact of Flood on the Micro and Macro Floral Biodiversity of Pandalam&Chengannur with Special Reference to Pandanad: A Post and Pre-Flood Analysis, Kerala	<ol style="list-style-type: none"> <li>1. Identifying the biodiversity in and around the ecosystem- micro and macro level</li> <li>2. Establishing a database- mapping of the flora of the river system.</li> <li>3. Enrich the existing data with additional information</li> <li>4. Study the interaction and edaphic characteristics to identify the uniqueness of the ecologically sensitive area.</li> <li>5. Identify the specific relationship of floral and faunal communities and influential alterations in it due to the natural calamity.</li> <li>6. Use of the data for developing proper management measures for the rivers system.</li> <li>7. to developed and action plan, for the proper restoration of the riverine biodiversity.</li> </ol>
15	Jawaaharlal Nehru Tropical Botanic Garden and Research Institute,	Biodiversity Assesment of Manimala River	<ol style="list-style-type: none"> <li>1. Assessment and characterization of biodiversity loss.</li> <li>2. Macro and micro niche identification</li> <li>3. Multiplication of candidate species (JNTBGRI)</li> </ol>

16	Department of Botany, University of Kerala, Kariavattom, Thiruvananthapuram	Studies on Invasive Alien Plant Species in the flood affected areas of Karthikapally Taluk, Alappuzha District	<ol style="list-style-type: none"> <li>1. To identify the invasive alien plant species in the flood affected areas of Karthikapally Taluk</li> <li>2. To find out the new taxa, if any, after flood</li> <li>3. To study the current status of those invasive species</li> <li>4. To study the impact of those alien species with special reference to agricultural fields</li> <li>5. To suggest remedial measures for minimizing/controlling those species</li> </ol>
17	NSS College, Pandalam, Patahanamthitta.	Estimation of Population density and diversity of major soil animal groups in relation to recent flood affected areas near Pampa River	<ol style="list-style-type: none"> <li>1. To identify the major soil biota with special reference to soil microarthropods in the flood affected areas of river Pampa</li> <li>2. To estimate the density of soil biota in the flood affected areas of river Pampa</li> <li>3. To compare the status and density of soil biota with pre flood data available</li> </ol>
18	Nirmala College, Department of Botany, Muvattupuzha	Riverine Biodiversity Monitoring - Impact of Floods/Landslides on Biodiversity	Identifying present status of soil microflora and comparison in flood / landslide affected and surrounding non affected areas.
19	Sanatana Dharma College, Alappuzha, Kerala	Inventory and evaluation of spread ecology of the Mangrove flora in the islands of Alappuzha District	<ol style="list-style-type: none"> <li>1. To assess the flora and fauna in the mangroves of pathiramanal, pallippuram and Perumbalam islands of Alapuzha District.</li> <li>2. To assess the invasion of weed plants in the riparian zones</li> <li>3. To assess the consequence of flood on vegetation dynamics, floristic and faunal diversity and the livelihood of associated people.</li> </ol>
20	Department of Biotechnology, Cochin University of Science and Technology, Cochin	Metagenomic analysis of soil microbia; diversity in post flood mangroves	<ol style="list-style-type: none"> <li>1. Collection of soil samples from mangroves</li> <li>2. DNA isolation from soil samples</li> <li>3. Metagenomic analysis by NGS</li> </ol>
21	Centre for Management Development	Impact of Floods/ landslide on Biodiversity and Evaluating the Change in the Ecosystem/ Biodiversity of the State	The proposed study shall assess the impact of Flood/Landslides on Biodiversity and subsequently evaluate the changes occurred with respect to agrobiodiversity, biodiversity loss, bioresources in Idukki district, Kuttanad region.

22	Community Agro-biodiversity Centre, M S Swaminathan Research Foundation	Assessment of agrobiodiversity loss due to flood in Wayanad and Developing Conservation Strategies	<ul style="list-style-type: none"> <li>• Understand status and distribution of crop diversity in Wayanad.</li> <li>• Assess the agrobiodiversity loss and agro-ecosystem damage due to flood 2018.</li> <li>• To identify the climate resilient crop varieties of Wayanad.</li> <li>• Developing local level conservation strategies by Strengthening the BMCs.</li> </ul>
23	Integrated Rural Technology Centre (IRTC)	Assessing Impact of Floods/ Landslides on Biodiversity, Bioresources, and Tribal Livelihood in Attappady	<ul style="list-style-type: none"> <li>• To assess the impact of floods /landslides on the Biodiversity, Bioresources, and tribal livelihood in Attappady. Also the impacts on traditional food crops like tubers, millets and pulses.</li> <li>• To propose strategies and action plans to restore tribal livelihood and conserve bioresources</li> </ul>
24	Department of Botany, MES Asmabi College	Assessment of Impact of flood/landslide on Biodiversity and developing methodology for long-term monitoring and evaluation of changes in the ecosystem and biodiversity : A case study in the Athirapilly Panchayath	<ol style="list-style-type: none"> <li>1. Pool existing data on all sections of biodiversity and Ecosystems including endangered species and unique ecosystem in the region</li> <li>2. Map flood/landslide impact on vegetation as well as riparian area</li> <li>3. Collect bench mark data and map the impact of flood/landslide on all sections of biodiversity and Ecosystems using rapid assessment methods and also assess the human perception on flood impact on biodiversity and ecosystems using participatory methods</li> <li>4. Evaluate the impact of flood and landslide on biodiversity and Ecosystems using the data collected</li> <li>5. Develop methodology for assessment and monitoring in long-term involving communities and online/android protocols for important species and ecosystem such as wetlands and riparian areas</li> </ol>
25	Department of Botany Govt. Victoria College, Palakkad	Assessment of Plant diversity loss along the flood and landslides hit areas of Nelliampathi Forest Range, Palakkad	<ul style="list-style-type: none"> <li>• To Prepare an inventory of plant species that is extent now</li> <li>• To prepare a base line data of the plant species existed before the flood by various methods</li> <li>• To assess the faunal diversity extent and that has been lost by survey future reference</li> <li>• To assess the Phyto diversity that has been lost by flood and landslides by comparison</li> </ul>

			<ul style="list-style-type: none"> <li>Floristic analysis of the Species diversity and endemism by cross reference with pertinent literature.</li> <li>Floristic Mapping of the calamity hit area by GPS geo tagging for future reference</li> </ul>
26	Department of Geography, Govt. College Chittur	Assessment of Biodiversity loss along the flood and landslide hit areas of Attappady region, Palakkad district Using Geoinformatics	<ul style="list-style-type: none"> <li>To Prepare an inventory of surviving plant species after the flood focusing landslide and flood hit areas with special reference to tribal hamlets</li> <li>To prepare a base line data of the plant wealth existed in Attappady region before the flood by consulting the previous works and questionnaire surveys</li> <li>To assess the Phyto diversity that has been lost by flood and landslides by comparison</li> <li>Analysis of the Species diversity, conservation status and endemism</li> <li>To identify &amp; map the land slide prone areas of Attappady using Gis</li> <li>To estimate and locate the flood affected areas of Attappady</li> <li>To assess the faunal diversity of the flood affected areas</li> </ul>
27	Centre for management Development Thycaud Thiruvananthapuram	Impact of floods/ landslides on Biodiversity in Pathanamthitta and tribal Livelihood in Idukki and Pathanamthitta	<ul style="list-style-type: none"> <li>To identify post flood/ landslides and socio economic conditions of the tribes and the government interventions to enhance their livelihood opportunities.</li> <li>To identify and prioritize the livelihood issues of tribal population due to the recent flood/landslide.</li> <li>To study the disparities, if any, among tribal communities in terms of livelihood opportunities after the flood / landslides in 2018.</li> </ul>
28	Department of Botany, University of Kerala, Kariyavattom, Thiruvananthapuram	Survey and analysis on ethnobotanical resources- present status and livelihood of tribal communities in flood affected areas of Vazhachal, Thrissur Dist.	<ol style="list-style-type: none"> <li>To analyse availability and utilization pattern of ethno botanically important resource after flood</li> <li>To analyse effect of flood on livelihood of ethnic communities in the Vazachal forest division</li> <li>To determine effect of flood on agro-diversity including crops, minor vegetables and mushrooms in the area</li> <li>To know ecological imbalance issue emerged in the area due to land slide and flood</li> <li>To provide suitable recommendations to ensure eco restoration, sustainable use of resources and conservation</li> </ol>

**Annexure III**  
**Biodiversity Awards 2018 – Winners**

Sl. No.	Category	Winner	Award Amount
<b>Individual Category</b>			
1	Biodiversity Conservationist	1. Shri. C.V. Vidhyadharan, Chethickattu House , Cherthala South PO -688539	25,000/-
		2. Shri. P.V. Divakaran, Kadimhimoola House, Thaikkadappuram P.O., Nileswaram, Kasaragod	25,000/-
2	Conservation of Plant Varieties	Shri. P.J. Manual, Pallikamyalil Veedu, Ellumandham PO, Wayanad -670645	50,000/-
3	Conservation of Animal Variety	Smt. ResmiEdathanal Edathanal House, Kuriyanaduvila, Kottayam	50,000/-
1	Biodiversity School	1. Govt. LPS, Malapacheri, Kasaragod	12,500/-
	Biodiversity College	2. Govt. Tribal LPS, Arivilanchal, Idukki	12,500/-
2	Biodiversity College	College of Forestry, Kerala Agricultural University, Vellanikkara, Thrissur	25,000/-
3	Govt. Institution	Department of Museum & Zoo, Thiruvananthapuram	25,000/-
4		Special Jury Appreciation – STM Document Engineering Pvt. Ltd., Malayinkeezhu, Thiruvananthapuram	Certificate & memento only
5	Best BMC	1.Veeyapuram Grama Panchayat BMC, Alappuzha	50,000/-
		2.Marancheri Grama Panchayat BMC, Malappuram	50,000/-
<b>Media Category</b>			
1	Print Media	Shri. SajithParameswaran Special Correspondent Mangalam Daily Pathanamthitta	25,000/-
2	Electronic Media	Shri. G.S. Unnikrishnan Nair Principal Information Officer, Farm Information Bureau, Thiruvananthapuram	25,000/-

## Annexure IV

### Financial assistance given to institutions and colleges for Biodiversity awareness.

Sl.No	Name & Address	Topic	Amount (Rs)
1	The Principal Ayyankali Memorial Arts & Science College, Pathanapuam, Kollam- 689 696	Biodiversity Awareness	15,000/-
2	The Principal NSS College Nilamel,Kollam	Biodiversity Awareness campaign Duration of Two days	14,500/-
3	NEWS( Nature Environment Wildlife Society of India) Thrissur-680 508	Mangroves: ecosystem services and conservation challenges"	15,000/-
4	The Principal SahodharanAyyappanSmaraka Pathanamthitta	AwarenessWork on Species diversity Utilization management and conservation	15,000/-
5	The Principal St.Michael's College Cherthala,	Biodiversity Awareness Campaign	15,000/-
6	The Head Mistress Govt MGHSS Chadayamangalam, Kollam.0474 2478222	Awareness Campaign against plastic pollution & survey of Sacred groves	12,000/-
7	The Principal Marathanasios College For Advanced Studies Thiruvalla	Two day State Level Biodiversity Awareness Seminar cum Exhibition for the Students and Public	25,000/-
8	Tropical Institute of Ecological Sciences, KK Road, Vellur. P.O. Kottayam	Awareness on Conservation of Local Fish Diversity or farmers and Finland fisher- man of Meenachil river basin	15,000/-
9	Principal, MES Ponnani College, Malappuram	AwarenessProgramme on Biodiversity Conservation among public	15,000/-
10	KSCSTE- Malabar Botanical Garden and Institute for Plant Sciences Kozhikode - 673 014, 91 495 243 0939	A day with MBGIPS"- A garden attached science orientation programme for high school students in Kozhikode district.	15,000/-
11	Head Mistress, GHSS, Thonnackal, Kudavoor P.O	Substitutes for Plastic , Butterfly Garden, Medicinal Garden	8,500/-

12	The Principal DevasomBoard College, Thalayolaparambu, Kottayam	Role of Rituals in the protection of Nature	35,000/-
13	Asoka Trust for Research in Ecology and the Environment (ATREE), Mullackal Alappuzha	Vembanad Fish count 2018	20,000/-
14	The Principal Christ College Irinjalakkuda	Biodiversity conservation among the public	15,000/-
15	The Principal Govt. ITI (SCDD) Oachira,P.O, Kollam	Awareness on biodiversity	15,000/-
16	WWF-India Kerala State Office, Vanchiyoor P.O, Thiruvananthapuram-695035	State level capacity building of District Nodal Officers of Scouts & Guides towards Volunteering for Protection of Biodiversity	25,000/-
17	Director, Kerala Forest Research Insti- tute,Wild Life Department, Peechi, Thrissur-680 653	Faunal Diversity of Vembanad –kole wetlands, Ramsarsite.	15,000/-
18	Dr.V.Balakrishnan Head, Community Agrobiodiversity Centre MS Swaminathan Research Foundation, Kalpetta, Wayanad	Biodiversity Education Programme for Children in Wayanad	15,000/-
19	The Principal Govt. College Chittur	Two day district level workshop for biodiversity awareness	15,000/-
20	The Principal NSS College, Ottapalam, Palappuram.P.O, Palakkad	Workshop on taxonomic training on different Fauna & Flora	15,000/-
21	The Principal PSMO College, Thriurangadi,Malappuram	Hands on training on sampling and identification of soil fauna-	25,000/-
22	The Principal Catholicate College, Pathanamthitta -689 645	National workshop on Prospects of Algal study	25,000/-
23	The Principal Sree Narayan College for Women Sreenarayan Trust, Kollam	Workshop on Biodiversity, utilization management and conservation strategies	15,000/-
24	The Principal Dept. of Economics Govt. College Women, Thiruvananthapuram	Workshops on Economic valuable of Ecosystem Services	25,000/-

25	Sreekumar. N, Deputy Director of Agriculture (Retd) & Biofarming Consultant Centre for Innovation in Science and Social Action (CISSA)	Combating Climate Change by Bamboo Cultivation In Kerala	25,000/-
26	N.K.Sukumaran Nair Pampa Parirakshansamithy Poovathoor.P.O, Thiruvalla	State level seminar on Biodiversity conservation of river Pampa	25,000/-
27	The Principal Rajagiri college of Social Science (Autonomus) College with Potential For Excellance.	Facilitate active learning opportunities for general public on Biodiversity Conservation	15,000/-
28	Puma Club for Nature and Culture, Muthiripparamba, Velluvambram.P.O, Malppuram	Medicinal Plants Conservation	15,000/-
29	RagiVanithaSamajam, Russelpuram.P.O, Balaramapuram, Trivandrum	A Seminar on Presentation of Bio Diversity tune to the particular eco system of Kerala	15,000/-
30	The Principal Sri. Vyasa NSS College Vyasagiri, vadakkancheri	Seminar- Biodiversity Conservation challenges & solutions	15,000/-
<b>Total</b>			<b>5,35,000/-</b>



## Kerala State Biodiversity Board

Kowdiar Thiruvananthapuram Kerala

Statement of Affairs as at 31/03/2019

	Note	Current period 31-03-19	Previous Period 31-03-18
<b>I Source of Funds</b>		<b>1,25,34,407</b>	<b>1,58,38,883</b>
<b>1 Reserves, Surplus</b>			
Capital Reserve	1	0	34,21,391
Surplus	2	18,33,221	11,45,015
<b>2 Current liabilities</b>		<b>1,07,01,185</b>	<b>1,12,72,476</b>
Unutilised Grant Balances	3	8,16,637	46,16,193
Funded Projects	4	81,66,287	49,34,070
Other current liabilities	5	17,18,261	17,22,213
<b>II Application of Funds</b>		<b>1,25,34,407</b>	<b>1,58,38,883</b>
<b>1 Long Term Assets</b>		<b>37,000</b>	<b>34,59,450</b>
Fixed Assets		0	34,22,450
Tangible Assets	6	0	34,22,450
Long Term Loans and Advances		37,000	37,000
Deposits	7	37,000	37,000
<b>2 Current Assets</b>		<b>1,24,97,407</b>	<b>1,23,79,432</b>
Cash and cash equivalents	8	1,24,38,766	-37,80,731
Short-term loans and advances	9	58,641	1,61,60,163

Notes forming part of Statements of Account  
Significant Accounting Policies

For and on behalf of the Board

 Chairman  
 Member Secretary  
 Kerala State Biodiversity Board  
 Thiruvananthapuram  
 As per our Report of even date  
 For JVS & ASSOCIATES Chartered Accountants  
 Thiruvananthapuram

Thiruvananthapuram  
08.01.2020

## Kerala State Biodiversity Board

Kowdiar Thiruvananthapuram Kerala

Income and Expenditure Account for the year ended 31/03/2019

	Note	Current period 31-03-19	Previous Period 31-03-18
<b>I Income</b>		<b>92,90,089</b>	<b>6,87,87,862</b>
<b>1 Grant from Government of Kerala</b>			
GoK 2406-02-110-59-31 (NP) Salary		72,21,775	71,26,632
GoK 2406-02-110-59-36 (NP) Non Salary		14,85,000	14,15,000
GoK Plan		-	5,54,86,795
<b>2 Funded Projects</b>		<b>-</b>	<b>45,47,130</b>
<b>3 Other Income</b>	10	<b>5,83,314.00</b>	<b>2,12,305</b>
<b>II Expenditure</b>		<b>86,01,883</b>	<b>6,89,24,158</b>
Plan Expenses	11	-	5,54,40,956
Funded Projects Expenses	12	-	47,51,696
Employee Expenses	13	69,12,636	72,50,135
Repairs and Maintenance, Upkeep	14	1,03,875	35,340
Utilities	15	5,80,780	5,73,459
Other Expenses	16	10,02,323	8,70,843
Finance Costs	17	1,710	649
Prior period expenses	18	1,059	1,080
<b>III Surplus/ Deficit</b>		<b>6,88,206</b>	<b>-1,36,296</b>
<b>IV Allocation</b>		<b>6,88,206</b>	<b>-1,36,296</b>
Transfer to Revenue Reserve		6,88,206	-1,36,296

Notes forming part of Statements of Account  
Significant Accounting Policies

For and on behalf of the Board

 Chairman  
 Member Secretary  
 Kerala State Biodiversity Board  
 Thiruvananthapuram  
 As per our Report of even date  
 For JVS & ASSOCIATES Chartered Accountants  
 Thiruvananthapuram

Thiruvananthapuram  
08.01.2020

### Kerala State Biodiversity Board

Kowdiar Thiruvananthapuram Kerala

Annexures to Accounts for the year ended 31/03/2019

#### Annexure 2 - Grant Accounts

	As at		Receipt		Payment		As at	
	01-04-18	Grant Received	Trf IN	Utilised	Assets	Refund Out	Trf I&E Ac	31-03-19
1	GoK 3435-03-101-99 (Plan)	6,68,58,775	1,71,540	-4,48,11,816	-13,59,758	-1,59,51,522	-87,06,775	8,16,637
	Plan Fund 02F- Agrobiodiversity Conservation	5,81,52,000	1,71,540	-4,26,99,332	-11,51,383	-1,59,51,522	0	-10,63,202
	Plan Fund from GoK	9,305						9,305
	Plan Fund PF 03/KSBB-2011-2012 Coastal Conser	2,55,355						2,55,355
	Unidentifiable credit by bank	65,600						65,600
	GoK Plan 2018 - 2019	57,487						57,487
	Interest accrued on Plan Funds	5,81,52,000	1,71,540	-4,26,99,332	-11,51,383	-1,59,51,522		-14,78,697
		27,748						27,748
2	State Biodiversity Fund	42,00,698	0	-21,12,484	-2,08,375	0	0	18,79,839
	2011 - 2012 to 2013 -2014	3,10,300						3,10,300
	2014 - 2015	5,01,188						5,01,188
	2015-2016	5,04,265						5,04,265
	2016-2017	14,41,832		-6,12,831				8,29,001
	2017-2018	14,43,113		-10,29,755	-52,100			3,61,258
	2018 - 2019			-4,69,898	-1,56,275			-6,26,173
3	GoK 2406-02-110-59-31 (NP) Salary	0	72,21,775	0	0	0	-72,21,775	0
	Trf to I&E Account	0	72,21,775				-72,21,775	0
4	GoK 2406-02-110-59-36 (NP) Non Salary	0	14,85,000	0	0	0	-14,85,000	0
	Trf to I&E Account	0	14,85,000				-14,85,000	0

For and on behalf of the Board



Chairman  
Member Secretary

Kerala State Biodiversity Board  
Thiruvananthapuram  
AS per report of even date



Thiruvananthapuram  
08.01.2020

**Kerala State Biodiversity Board**

Kowdiar Thiruvananthapuram Kerala  
Annexures to Accounts for the year ended 31/03/2019  
Annexure 4 - Funded Projects

	As at	Receipt		Payment		As at
	01-04-18	Funds	Income	Utilised	Refund OUT	31-03-19
	49,34,070	58,23,472	59,644	-24,59,089	-2,40,734	81,66,287
<b>1 DoECC</b>	27,20,000	-	-	-	-	27,20,000
Canal Works 2015 - 2016	25,00,000					25,00,000
Gramavanam 2013 - 2014	2,20,000					2,20,000
<b>2 UNDP</b>	4,27,072	23,99,760	59,644	-1,96,039	-	26,90,437
GEF Munnar Landscape Project 2014 - 2015	1,39,052			-1,35,039		4,013
GEF Munnar Landscape Project 2015 - 2016	2,84,952			-61,000		2,23,952
Project	-	23,99,760				23,99,760
Interest Received	3,068		59,644			62,712
<b>3 National Biodiversity Authority (NBA)</b>	16,88,245	21,73,712	-	-20,42,938	-2,40,734	16,27,209
Component Training Material and Printing (14 - 15)	20,726					20,726
Developing and Revamping of Website (14-15)	2,05,393					2,05,393
Peer to Peer Learning (14-15)	1,61,605			-46,887		1,14,718
Plan Fund from NBA	2,70,559	11,49,600		-15,240		14,04,919
Thematic Expert Committee (14-15)	5,97,951			-2,15,835		3,82,116
Printing of BMC Reports (14-15)	93,398					93,398
NBA Fund (COP 11 engagement)	6,262			-7,44,375	-6,262	-7,44,375
NBC 2017 Fund from NBA	1,60,578				-1,60,578	-
LSG Biodiversity Conservation and Development		1,21,338		-1,21,338		-
International Biodiversity Day		4,41,525		-4,38,014		3,511
Integrating Biodiversity Conservation		3,30,000		-3,30,000		-
Biodiversity Award		1,31,249		-1,31,249		-
State level workshop on biodiversity action plan					-73,894	-73,894
Interest received	1,71,773					2,20,697

	As at	Receipt		Payment		As at
	01-04-18	Funds	Income	Utilised	Refund OUT	31-03-19
<b>4 Coastal Ecosystem Conservation 2011 - 2012</b>	43,215	-	-	-	-	43,215
	43,215					43,215
<b>5 Plan Fund EMA</b>	31,907	-	-	-	-	31,907
	31,907					31,907
<b>6 MoEF</b>	23,631	-	-	-	-	23,631
WGEEP	23,631					23,631
<b>7 National Medicinal Plants Board (NMPB)</b>	-	12,50,000	-	-2,20,112	-	10,29,888
NMPB 2014 - 2015				-1,36,239		-1,36,239
NMPB 2018 -2019						-
Resource Augmentation, Sustainable Harvesting and Value addition of medicinal plant resources through BMC		12,50,000		-83,873		11,66,127

For and on behalf of the Board

  
**Chairman**  
Kerala State Biodiversity Board  
Thiruvananthapuram

  
**Member Secretary**  
Kerala State Biodiversity Board  
Thiruvananthapuram

As per our Report of even date

Thiruvananthapuram  
08.01.2020



  
**P. S. ASSOCIATES**  
Chartered Accountants  
Thiruvananthapuram



## ATTRACTIONS

- Explore the wonders of nature in science on sphere
- Experience diversity of life in 3D
- Gallery of biodiversity interactive kiosks
- First biodiversity museum in India
- Science on sphere system in Kerala *a unique multimedia projection system*
- Located in a heritage building of erstwhile Travancore state

# BIODIVERSITY MUSEUM

An initiative of Kerala state biodiversity board

Vallakkadavu, Thiruvananthapuram

Ph: 0471 2504740, [keralabiodiversity@gmail.com](mailto:keralabiodiversity@gmail.com),

[www.keralabiodiversity.org](http://www.keralabiodiversity.org)

