

# Annual Report 2020 - 2021



Kerala State Biodiversity Board



**KSBB**

**ANNUAL REPORT 2020 - 2021**

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**Kerala State Biodiversity Board**

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# Kerala State Biodiversity Board

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## PREFACE

I am happy to present before you the Annual Report 2020-21 comprising of various activities taken up by the Kerala State Biodiversity Board during the reporting period. The reporting year (2020-21) was a difficult period for the Board because of the COVID-19 situation. Lockdown of offices and travel restrictions affected regular activities. Despite such problems, the Board could initiate and continue several innovative programmes. Various activities and programmes taken up in biodiversity conservation and related fields have been documented in this Annual Report.

All the projects sanctioned to KSBB under the Rebuild Kerala Initiative have been set in motion during the year. The formal inauguration of the programme was done by the Hon'ble Chief Minister of Kerala on 27<sup>th</sup> Oct. 2020 through online. Riverine Biodiversity Rejuvenation of Pampa river is an ambitious programme initiated as a model riverine biodiversity conservation project involving various stakeholders such as local bodies, Biodiversity Management Committees (BMCs), Forest Department, MGNREGS, R&D institutes, educational institutions, and local people. Creation of a database of tradable biodiversity in Kerala is another ambitious venture. We have also set in motion efforts to conserve agrobiodiversity through custodian farmers in eight districts ravaged by the fury of 2018 floods.

Other major activities highlighted include establishment of biodiversity parks, theme based biodiversity conservation projects, eco-restoration projects, and various research projects. During the reporting period, Dr. S. C. Joshi, IFS (Retd) was the Chairman upto 17 Sept. 2020 and later Dr. UshaTitus, IAS(Retd), former Additional Chief Secretary officiated the post upto 31<sup>st</sup> Jan. 2021. My thanks are due to them for leading various activities of the Board during their tenure.

I am extremely grateful to the Hon'ble Chief Minister of Kerala, Sri. Pinarayi Vijayan under whom Kerala State Biodiversity Board functions, for the constant support in all our endeavours. I would like to express my sincere thanks to the support provided by Dr. V. Venu IAS, Additional Chief Secretary to Government, and all the other officers of the Environment Department for their support and co-operation. I would also like to place on record the co-operation and support from the Board Members, the line departments, and collaborating partners for implementing various activities of the Board.

**Dr. C. George Thomas**  
Chairman



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# 1

## Introduction

### 1.1 Background

Kerala State Biodiversity Board (KSBB) is an autonomous body of the State Government, attached to the Kerala State Environment Department. With the headquarters at Thiruvananthapuram, the Board has been constituted under the provision of the Biological Diversity Act, 2002, Rules, 2004 and Kerala State Biological Diversity Rules, 2008. The KSBB is dedicated to the conservation and sustainable utilisation of bioresources of the State and fair and equitable sharing of benefits from the use of bioresources. The Board is headed by a Chairperson, Member Secretary and by a team of expert officials, leading the Board in its vibrant activities.

### 1.2. 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 the 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 decentralized biodiversity management with Biodiversity Management Committees (BMCs) at local level, State Biodiversity Boards at State level and National Biodiversity Authority (NBA) at National level. In accordance with the provisions of the Act of 2002, the Kerala State Biodiversity Board (KSBB) was established in 2005 and subsequently the Kerala Biological Diversity Rules were framed in 2008.

### 1.3. The National Biodiversity Authority (NBA)

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.

### 1.4. Constitution of Kerala State Biodiversity Board (KSBB)

The Board was constituted on 28 February 2005 vide GO (Ms) No. 1/2005/STED dated 01 June 2005 in accordance with the provisions under section 22-25 of the Biological Diversity Act, 2002. Initially the Board was housed under Kerala State Council for Science Technology and Environment (KSCSTE).

Later on in February 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 attached to the Environment Department [vide order GO (Ms) No.64/2006/GAD dated 16.2.2006]. In exercise of the power conferred by section 63 of the Biological Diversity Act, 2002, the Government of Kerala formulated the Kerala Biological Diversity Rules, 2008 (vide GO(P) No.1/2008/Env. dated 10<sup>th</sup> June 2008). The Rule 12 specifies the functions of the State Biodiversity Board.

### 1.5 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 advocates for sustainable use of biological resources and equitable sharing of the benefits arising out of the utilisation of these resources.

The Board has the authority to grant approvals on requests for commercial utilisation or bio-

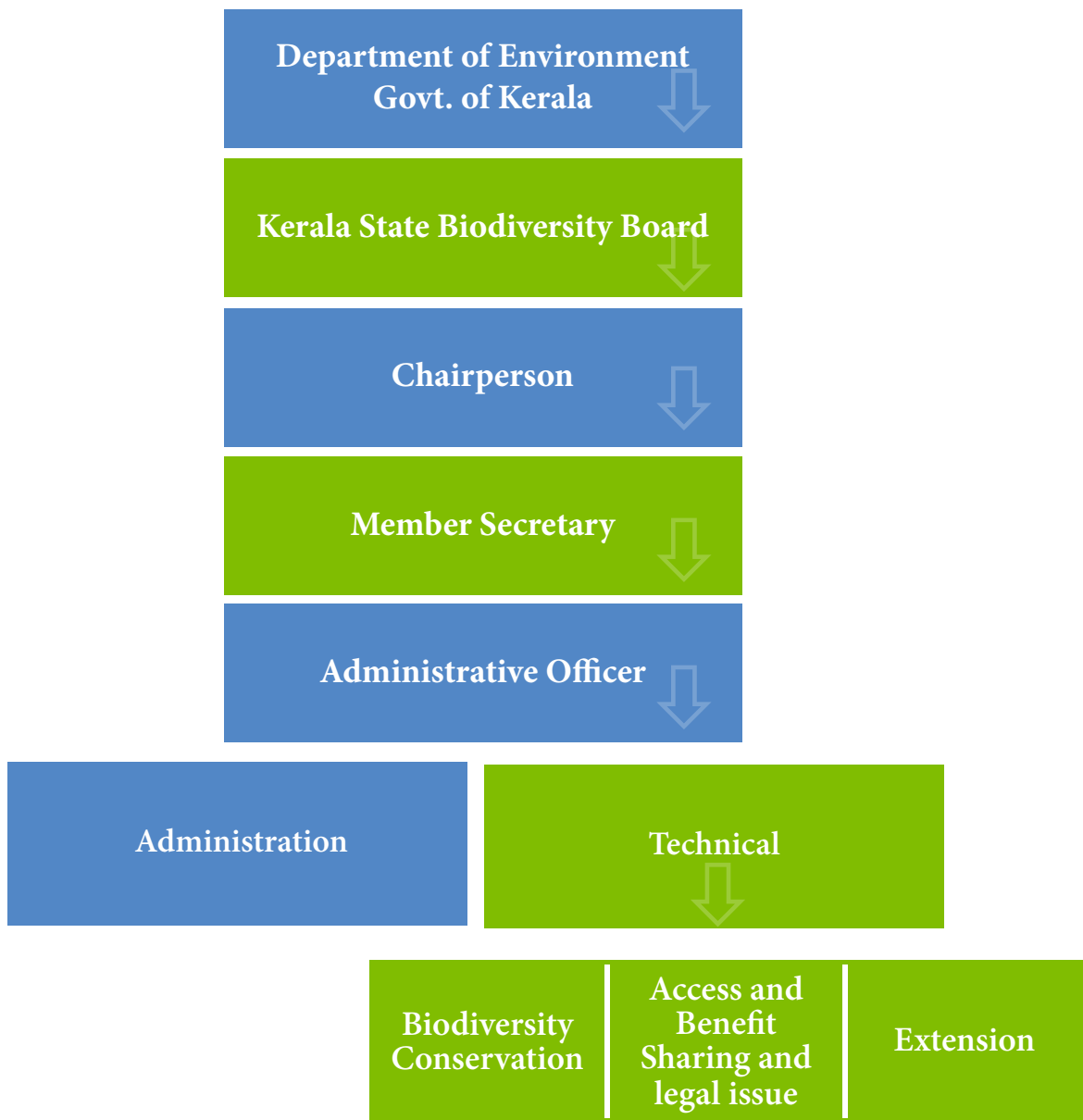
survey and bio-utilisation of any biological resource by Indians. The Board also performs functions necessary to carry out the provisions of the Biodiversity Act or as prescribed by the State Government.

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.

# 2

## Composition of the Board and Staff

### 2.1 Organizational structure



## 2.2. Details of Board members

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

SL.No	Name and Designation	Post
1.	<b>Chairman</b> Dr. S.C. Joshi IFS (Retd.)  Dr. Usha Titus, Principal Secretary, Environment Department (Additional charge)  Dr. C. George Thomas	18.09.2017 to 17.09.2020  From 21.09.2020 to 31.01.2021  23.02.2021 - Continuing
2.	<b>The Executive Vice President,</b> Kerala State Council for Science, Technology and Environment, SasthraBhavan, Pattom,Thiruvanahtapuram	Ex-officio Members
3.	<b>The Principal Secretary to Govt.,</b> Forest and Wildlife Department, Government Secretariat, Thiruvananthapuram	"
4.	<b>The Principal Secretary to Govt.,</b> Fisheries Department, Government Secretariat, Thiruvananthapuram	"
5.	<b>The Additional Chief Secretary to Govt.,</b> Environment Department, Government Secretariat, Thiruvananthapuram	"
6.	<b>The Agriculture Production Commissioner,</b> Government Secretariat, Thiruvananthapuram	"
7.	<b>Dr. K. Satheeshkumar</b> Principal Scientist & Head (Retd.), Biotechnology, JNTBGRI, Palode	Non-official Members
8.	<b>Sri. K.V. Govindan,</b> Member, D.P.C. Kannur Madhavi Nilayam, Chuzhali P.O., Kannur-670142	"
9.	<b>Dr. T.S. Swapna</b> Associate Professor, Department of Botany, University of Kerala, Karyavattom Campus, Thiruvananthapuram	"
10.	<b>Sri. A.K. Dharni IFS</b> Principal Chief Conservator of Forest (Forest Management), Kerala Forest Department, Thiruvananthapuram	"
11.	<b>Dr. K.T. Chandramohan</b> Department of Botany, Govt. Brennan College, Thalassery, Kannur.	"

## Member Secretary

**Dr.V. Balakrishnan**

Member Secretary From 01.11.2018 – 09.06.2020

**Smt. Mini V.**

Administrative Officer, Member Secretary in-charge From 10.06.2020 – 08.12.2020

**Smt. Reney.R. Pillai**

Member Secretary From 09.12.2020 – continuing

## 2.3. Staff Strength of the Board

### 2.3.1. Permanent staff (On deputation)

SL No	Designation	Sanctioned strength	Working
<b>Sanctioned staff on deputation</b>			
1	Member Secretary	1	1
2	Administrative Officer	1	1
3	Finance Officer	1	1
4	Principal Scientific Officer	2	1
5	Scientific Officer	1	1
6	Technical Assistant	1	1
7	Assistant cum Cashier	1	1
8	Data Entry Operator	1	1
9	Confidential Assistant	1	1
10	Helper	1	1
11	Part time sweeper	1	1

### 2.3.2. Contract Staff

1	Research Staff	9
2	Supporting staff	11
3	District Co-ordinators	14
4	Project fellows	35
5	Staff funded by NBA	4

## 2.4. Board meetings conducted during 2020-21

During the reporting period, two board meetings were conducted as follows

- » 52<sup>nd</sup> Board meeting was held on 26.08.2020 at Head Office, Kerala State Biodiversity Board, Thiruvananthapuram
- » 53<sup>rd</sup> Board meeting was held on 23.12.2020 at Layam Hall, Secretariat Annexe, Thiruvananthapuram.

# 3

## Major Achievements of KSBB

- The reconstitution of BMCs after local body elections in Kerala is ongoing.
- As part of promoting biodiversity conservation at local level, KSBB has initiated to establish Biodiversity Parks with the support of BMCs at 14 different locations.
- Declared 4 new LBHSs in Kerala through the support of BMCs during the reporting period.
- Conducted field visits to various LBHSs and initiated financial support for their conservation.
- Initiated three RKI projects namely: 'Database of tradable/commercially potential bio-resources and their Economic Evaluation' (Rs. 100 lakhs), 'Riverine Biodiversity Rejuvenation' (Rs. 200 lakhs), and 'Conservation of Agrobiodiversity' (Rs. 200 lakhs). These projects are under various stages of implementation.
- Successfully completed two studies awarded during 2019 as part of India UNDP GEF Munnar Landscape project. Studied the impact of production sectors and major drivers that led to land use change using GIS and PRA tools.
- Successfully completed National Medicinal Plants Board funded project on "Resource augmentation, sustainable harvesting and value addition of medicinal plants resources through biodiversity management committees (BMCs)". As part of the project, infrastructure facilities (warehouse & drying yard) were constructed in 5 Gramapanchayats at Wayanad.
- Successfully completed projects on Ecosystem valuation –Kadalundi Vallikunnu Community Reserve.
- Successfully completed the five year project titled "Genetic diversity conservation and population study of selected notified endangered plant species of Western Ghats region of Kerala for both in-situ and ex-situ conservation of endangered plants" notified as per Section 38 of Biological Diversity Act 2002.
- Successfully completed the project on "Preparation of detailed project report for the conservation of sacred groves" with action plan, time line, responsible agencies, sources of funds etc. under the project on "Enhancing coastal and ocean resources efficiency (ENCORE)" of national Centre for Sustainable Coastal Management, MoEF funded by World Bank.
- During the reporting period, 19 organizations commercially utilizing bio resources submitted applications for prior approval for access to bioresources
- Different awareness programmes like celebrating important days such as International Day for Biological Diversity, World Environment day, World Ocean Day and World Wildlife day were successfully conducted.
- Conducted a Homestead Biodiversity Photo inventory campaign in which more than 1200 entries received.
- Celebrated International Day for Biological Diversity by conducting a webinar.
- Conducted 14<sup>th</sup> Childrens Biodiversity Congress.

# 4

## Biodiversity Conservation Activities

### Major achievements:

- The reconstitution of BMCs after local body elections in Kerala is progressing well.
- As part of promoting biodiversity conservation at local level, KSBB has initiated to establish Biodiversity Parks with the support of BMCs at 14 different locations.
- Declared 4 new LBHSs in Kerala through the support of BMCs.
- Conducted field visits to various LBHSs and initiated financial support for their conservation.
- Initiated the RKI project namely: 'Riverine Biodiversity Rejuvenation' which was officially launched on 27.10.2020 by the Hon'ble Chief Minister of Kerala through Video Conference. Followed by the inauguration, a total of 1921 saplings of 21 plant species outsourced from Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Thiruvananthapuram has been planted in all the 10 Grama panchayats with the support of MGNREGS workers.
- Started the RKI project 'Conservation of Agrobiodiversity' in 8 districts, identification of 100 custodian farmers in all 8 districts were completed.

- PBR digitization works (e-PBR) has been completed in Kollayil Gramapanchayat in Thiruvananthapuram district, Guruvayur Municipality in Thrissur district and Perumbadappu Gramapanchayat in Malappuram district.

### 4.1. Reconstitution of Biodiversity Management Committees (BMCs)

BMCs are the statutory bodies constituted for ensuring biodiversity conservation at local level as per the provisions of Section 41 of the Biological Diversity Act, 2002, Rule 22 of the Biological Diversity Rules, 2004 and Rule 20 of the Kerala Biological Diversity Rules, 2008. In Kerala BMCs have been constituted in all the 1200 local bodies of the State including three tiers of Panchayats. As per the guidelines of the National Biodiversity Authority (NBA), the tenure of the BMCs is fixed as five years and it will be co-terminus with the tenure of the local body. Hence, in the context of 2020 Kerala Local Body Election held in December, both the Board and the Department of Local Self Government have given direction to the entire local bodies to reconstitute their BMCs along with proper guidelines and prescribed format. Accordingly during the reporting period, about 41% of BMCs were reconstituted and submitted the details in the prescribed format to the Board. District wise details of BMC reconstitution is mentioned below:

Sl. No	District	Total no. of BMCs (GPs + BPs + DPs + M + C)*	Total no. of BMCs reconstituted (GPs + BPs + DPs + M + C)*
1	Thiruvananthapuram	73 + 11 + 1+4 + 1	45 + 10 + 0+ 1 + 0
2	Kollam	68 + 11 + 1+4 + 1	32 + 11 + 1+ 2 + 0
3	Pathanamthitta	53 + 8 + 1+4 + 0	34 + 6 + 0+ 1 + 0
4	Alappuzha	72 + 12 + 1+6 + 0	13 + 3 + 0+ 2+0
5	Kottayam	71 + 11 + 1+6 + 0	31 + 5 + 1+ 1 + 0

6	Idukki	52 + 8 + 1+2 + 0	15+ 4 + 0+ 1 +0
7	Ernakulam	82 + 14 +1+13 +1	16 + 8 + 0+ 3 + 0
8	Thrissur	86 + 16+ 1+7 + 1	24 + 13 + 0+ 1 + 0
9	Palakkad	88 + 13 + 1+7 + 0	14 + 8 + 0+ 2 +0
10	Malappuram	94 + 15+ 1+12 + 0	33 + 6 + 1+ 3+0
11	Kozhikode	70 + 12 + 1+7 + 1	44+ 12 + 1+ 3 + 0
12	Wayanad	23 + 4 + 1+3 + 0	17 + 2 + 1+1 +0
13	Kannur	71 + 11 + 1+9 + 1	17 + 6 +1+ 2 + 0
14	Kasaragod	38 + 6 + 1+3+0	30 + 6 + 1+ 1+0
	<b>Total</b>	<b>941 + 152 + 14 + 87 + 6</b>	<b>365 GPs +100BPs +7DPs +24M + 0 C</b>
			<b>Total - 496</b>
*GPs- Grama Panchayats; BPs-Block Panchayats; DPs-District Panchayats; M-Municipalities & C-Corporations			

## 4.2. BMC Strengthening Activities:

### 4.2.1 Model BMC projects

In the year 2019-20, the Board has given financial and technical assistance to selected 28 BMCs (2 from each district) for undertaking various local specific biodiversity conservation projects. Of the sanctioned amount of Rs. 5 lakh to each BMC, Rs. 3 lakh has been allotted as the first instalment. On evaluating the progress of the project during the reporting year, it was informed that due to Covid 19 pandemic situation, the majority of the BMCs would not be able to complete the project components. Hence, it was decided to release the second instalment fund to those who have completely utilised the first instalment. Thus, based on the report and statement of expenditure given by the Oorngattiri Grama Panchayat BMC in Malappuram district, a second instalment has been released to them.

On evaluating the progress of Model BMC projects for the period of 2016-17 and 2017-18, the 53<sup>rd</sup> Board meeting of KSBB held on 23.12.2020 has recommended 9 BMCs to refund the unspent/ allotted amount along with interest to Government since they are not showing any progress in implementing their biodiversity conservation projects. Accordingly, two BMCs in 2016-17 period viz., Sree Narayanapuram Grama Panchayat in Thrissur and Kolacheri Grama Panchayat in Kannur and 7 BMCs in 2017-18 period viz., Adoor Municipality, Pathanamthitta;

Eraviperoor Grama Panchayat, Pathanamthitta; Poothrikka Grama Panchayat, Ernakulam; Vellangallur Grama Panchayat, Thrissur; Vanimel Grama Panchayat, Kozhikode; Meenangadi Grama Panchayat, Wayanad and Kolayad Grama Panchayat, Kannur were asked to refund the allotted amount to Government as per norms.

### 4.2.2 Establishment of Biodiversity Parks at local level through BMCs:-

As part of promoting biodiversity conservation at local level, KSBB planned to establish Biodiversity Parks with the support of BMC with the following outcomes:

- Conservation of local biodiversity.
- Conservation of threatened plant species.
- Conservation of locally important and endemic organisms.
- Create awareness among the public and children about biodiversity conservation.
- Impart biodiversity knowledge among students.

As part of this, District Coordinators of KSBB have submitted proposals by identifying suitable areas for the project. Based on their proposal, 13 BMCs from 11 districts have submitted their consent for undertaking the project in 14 sites by providing suitable area for its implementation. Accordingly, an amount of Rs. 60 lakh has been released as first instalment to the account of BMCs concerned, which is opened as per the provision



of the Biological Diversity Act, 2002 and Kerala Biological Diversity Rules, 2008. Land area ranging from 10 cents to 1.5 acres was selected for the parks. The project would be implemented in all the selected sites with the support of a competent agency identified by the Board under the supervision of BMC concerned after executing a tri-partite agreement. District wise details on selected BMCs, identified area, allotted amount, etc. for the project is detailed below:

<b>Sl. No.</b>	<b>Name of BMC/ Local body &amp; District</b>	<b>Project details</b>	<b>Area</b>	<b>Ownership of the land</b>	<b>Allotted amount</b>
1	Poothakkulam Grama Panchayat, Kollam	Champanchal area in 13 <sup>th</sup> ward	10 cents	Poothakkulam Grama Panchayat	3 lakh
2	Kanakkari Grama Panchayat, Kottayam	Govt Higher Secondary School, Kadappoor	46 cent	District Panchayat, Kottayam	5 lakh
3	Edavetty Grama Panchayat, Idukki	Near Malankara Dam	1 acre	Muvattupuzha Valley Irrigation Project	5 lakh
4	Cheranallur Grama Panchayat, Ernakulam	Land near Vaduthala bridge Resurvey no. 629/5 & 626/1	11.197 cent	Cheranallur Grama Panchayat	3 lakh
5	Elavally Grama Panchayat, Thrissur	Near Manichal canal at Kaniyamthuruthu	50 cent	Elavally Grama Panchayat	5 lakh
6	Mundur Grama Panchayat, Palakkad	Valiparambu area in 7 <sup>th</sup> ward	20 cents	Mundur Grama Panchayat	3 lakh
7	Tirur Municipality, Malappuram	Near Pottilathara Waste Treatment Centre, Pottilathara	1 acre	Tirur Municipality	5 lakh
8	Malappuram Municipality, Malappuram	Shanthitheeram in the District Collectorate compound	1 acre	Revenue department	5 lakh
9	Malappuram Municipality, Malappuram	Nechikutti, Munduparamba	50 cents	Malappuram Municipality	5 lakh
10	Perumpadappu Grama Panchayat, Malappuram	Near PHC, Cheruvalloor	40 cent	Perumpadappu Grama Panchayat	5 lakh
11	Feroke Municipality, Kozhikode	On the river bank at Chanthakadavu area	10 cents	Feroke Municipality	3 lakh

12	Mananthavady Municipality, Wayanad	Choottakadavu area in 27 <sup>th</sup> Division on the bank of Mananthavady puzha	1.5 acre	Mananthavady Municipality	5 lakh
13	Pinarayi Grama Panchayat, Kannur	Sree Paramban Madappura temple	50 cent	Temple Authority	5 lakh
14	Pilicode Grama Panchayat, Kasaragod	Kalikkadavu area, near NH 66	10 cents	Pilicode Grama Panchayat	3 lakh
<b>Total</b>					<b>60 lakh</b>

#### 4.2.3. Local Biodiversity Heritage Sites (LBHS)

As per the G.O.(MS) No. 5/2020/Env. dated 03.03.2020, Govt. of Kerala has given permission to BMCs for conserving local biodiversity rich areas/ecosystems/trees as 'Local Biodiversity Heritage Sites/Trees (LBHS)' with the consent of the Board. In accordance with the Government Order, four BMCs passed resolutions by declaring LBHS in their jurisdiction during the reporting period. The details on resolutions passed by the BMCs are given below:

Sl. No.	Name of BMC and District	Details on declared LBHS	Date of resolution passed
1.	Muliyar Grama Panchayat, Kasaragod	Wetland – Kanathur Neyyamkayam situated in the 8 <sup>th</sup> ward of the Panchayat, the deepest and biodiversity rich area of Payaswini River having endemic and rare fishes.	01.06.2020
2.	Manakkad Grama Panchayat, Idukki	Forest area – Biodiversity rich area of Puliya and Pulikkunnumala situated in the 9 <sup>th</sup> ward of the Panchayat.	22.06.2020
3.	Pramadam Grama Panchayat, Pathanamthitta	Hilly area – Biodiversity rich Thudiyuruliparamala having an area of about 26 acre under the survey no. 157, 150/1, 150/4 of Block No. 31 in V. Kottayam Village of Konni Taluk.	24.07.2021
4.	Muhamma Grama Panchayat, Alappuzha	Island - A small island known as 'Pathiramanal' situated at the centre of Vembanad Lake having an area of 64 acres.	22.10.2020

Of the resolutions passed by the above four BMCs, the Board has issued approval order to Muliyar Grama Panchayat BMC on 28.10.2020.

#### 4.2.4. Conservation of LBHS

- » DPR preparation for the management of LBHS:- As part of preparing the plan of action for the management of LBHS declared by various BMCs, KSBB officials visited the LBHS sites in Anchuthengu, Chirayinkeezhu and Mudakkal Grama Panchayats in Thiruvananthapuram district;

Pandalam Municipality, Pandalam Thekkekara, Mallappuzhasseri and Pallikkal Grama Panchayats in Pathanamthitta district; Ayarkunnam Grama Panchayat in Kottayam district; Alakkode Grama Panchayat in Kannur district and Muliya Grama Panchayat in Kasaragod district along with BMC and Technical Support Group (TSG) members. Based on the field visits and discussion with BMC members, prepared the DPR for the conservation and management of each LBHS.

- » Conservation of Local Biodiversity Heritage Trees in Pandalam Municipality:- Based on the proposal submitted by the Pandalam Municipal BMC for the conservation of two Local Biodiversity Heritage Trees (Nattumavu - *Mangifera indica* L.), a total of 2.20 lakh has been released to the BMC with the following objectives:
  - » Conservation through peoples participation.
  - » Awareness creation on importance of trees and birds among the public

### **4.3 Biodiversity Heritage Sites (BHS)**

**4.3.1. Asramam BHS:-** Asramam in Kollam was declared as the first BHS of its kind in Kerala, the following actions were carried out during the reporting period:

- » A Management Plan for Asramam BHS has been prepared and it was approved by the BMC.
- » Installed a sign board at the BHS site.
- » An area of 1 km stretch along the bank of Ashtamudi Lake where the block number 160 and 161 shares its boundaries has been identified for bio fencing and the processes were initiated.
- » Identified area in block number 161 opposite to the Boat club for the establishment of a butterfly park and the processes were initiated.

### **4.3.2. Kalasamala – Proposed BHS**

Kalasamala is a well known natural habitat of Kulavetti (*Syzygium travancoricum* Gamble), an endangered plant species. The region comes under the jurisdiction of Akathiyur Village of Porkkulam Grama Panchayat in Thrissur district. The proposed site is seen in association with the Kalasamala Chirayil Siva- Vishnu Temple and it is owned by the family of Killimangalam Mana. All the procedures for declaring BHS have been completed as per the guidelines of NBA and the proposal was submitted to the government for notification along with the consent of the land owner.

### **4.4 Rebuild Kerala Initiative – Riverine Biodiversity Rejuvenation of River Pampa:-**

Kerala is a biodiversity rich state in terms of species and ecosystem diversity. The studies conducted for reviewing the impacts on biodiversity due to the 2018 flood reveals that our ecosystems were drastically affected, especially the riverine ecosystems of major rivers of Periyar, Pampa, Chalakudy, Bharathapuzha, Achencovil, Meenachil and Kabini. Hence as part of Rebuild Kerala Initiative (RKI) program of Government of Kerala, KSBB is implementing a project titled “Riverine Biodiversity Rejuvenation of River Pampa”. The project is being implemented in selected 14 Grama Panchayats of Pathanamthitta District viz., Ayiroor, Cherukole, Kozhencheri, Ranni, Ranni-Angadi, Ranni-Pazhavangadi, Ranni-Perunad, Vadasserikkara, Naranammoozhy and Vechoochira. Furthermore the project is undertaken under the supervision of Biodiversity Management Committees (BMCs) and officials of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) of the above-mentioned local bodies.



**Objectives:**

1. Restoration of riparian vegetation on degraded river banks.
2. Ensure sustainable livelihood for the local people by providing training for developing microenterprises.
3. Develop a sustainable community based management and production model of aquatic ecosystems.
4. To create awareness and sensitize local population and students about the importance of riparian ecosystem services and development of an interpretation centre in the project area.

**Major Activities:**

- » Based on the 2018 Flood Impact Study on Biodiversity, the mostly affected areas along the bank of Pampa has been identified and thus 10 Grama Panchayats belonging to Koipuram, Elanthoor and Ranni Block Panchayats in Pathanamthitta district were selected for project implementation.
- » All the selected Grama Panchayats in association with Block Panchayats have submitted their individual plan of action as part of the project.
- » Based on the plan of action submitted by the Grama Panchayats concerned, identified locally important, endemic and threatened plant species to be planted for rejuvenating the riparian vegetation of Pampa.
- » The project was officially launched on 27.10.2020 by Hon’ble Chief Minister of Kerala through Video Conference.
- » Followed by the inauguration, a total of 1921 saplings of 21 plant species outsourced from Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Thiruvananthapuram has been provided to all the 10 Grama panchayats as detailed below and the saplings were planted in each Grama panchayat with the support of MGNREGS workers:

Sl. No.	Name of Grama Panchayat	No. of saplings planted
1	Cherukole	200
2	Kozhenchery	180
3	Ayiroor	187
4	Ranni-Perunad	240
5	Naranammoozhy	216
6	Vechoochira	205

7	Vadasserikkara	165
8	Ranni- Angadi	175
9	Ranni-Pazhavangadi	175
10	Ranni	178
	<b>Total</b>	<b>1921</b>

- » Maintenance of saplings in each Grama Panchayat is being carried out by the workers of MGNREGS under the supervision and coordination of Officials of MGNREGS, BMCs of local bodies concerned and KSBB.
- » For reviewing the progress of maintenance of saplings by MGNREGS, conducted two video conferences with BMCs and MGNREGS officials.
- » For monitoring the progress of the project at field level, a total of 18 field visits were conducted by KSBB officials during the reporting period including the Chairman and Member Secretary.
- » With the support of the local bodies, BMCs and MGNREGS officials, maximum number of saplings shall be planted along the riparian zone of Pampa and its tributaries in each Grama Panchayat during the II phase of the project.

#### 4.5 Rebuild Kerala Initiative –Conservation of Agro biodiversity

Conservation of Agro biodiversity, a flagship project of Kerala State Biodiversity Board funded by Rebuild Kerala Initiative of Govt. of Kerala. The project aims to explore the agro biodiversity status and impact of flood on agricultural diversity of severe flood affected districts like Pathanamthitta, Idukki, Alappuzha, Ernakulam, Thrissur, Palakkad, Malappuram and Wayanad districts. The project also aims to select 100 custodian farmers from each eight districts and selected twenty farmers giving financial assistance to run farm schools. Seed exchange programmes, identification of Agricultural Heritage Sites are also a part of this project. In the reporting period a preliminary survey is conducted in all the eight districts to identify potential agricultural biodiversity conservators to know the genetic diversity of species they are conserving. Identification of 100 custodian farmers in all eight districts was completed and formations of farm schools are progressing.

#### 4.6 Theme Based Biodiversity Conservation Projects.

##### 4.6.1 Restoration and protection of Poredam Kavu



The Poredam Kavu habitat restoration and conservation project in Chadayamangalam Grama Panchayat, Kollam district is being implemented by the Biodiversity Board in collaboration with Chadayamangalam Grama Panchayat BMC and JNTBGRI. The cost of the project is Rs 20 lakh. The first installment of Rs 4 lakh has been paid to the BMC. In the first phase, the construction of the

bio-fence was completed by planting about 100 seedlings of *Caesalpinia sappan* L. (Pathimugham) around the project area. About 60 native mango seedlings of 14 varieties and over 60 varieties of other wild fruit plants were planted in the project area. Project activities are in progress. Shri. Mullakkara Ratnakaran MLA inaugurated the project by planting a native mango sapling.

#### 4.6.2. Neyyar Riverine Conservation and Biodiversity Garden Project

The Neyyar River Conservation and Biodiversity Garden Project is being implemented by the Biodiversity Board through Maranalloor BMC in Thiruvananthapuram district. The project cost is Rupees 6 lakh. The first installment of Rupees 3 lakh has been paid to the said BMC. Construction of native mango orchard, medicinal plant garden and biodiversity garden has been completed at Kukkiripara in the project area.



#### 4.6.3. Kottila Govt. High School-Biodiversity Garden project

The Biodiversity garden project is being implemented in Govt. High school, Kottila by Biodiversity Board through Ezhome Grama Panchayat BMC in Kannur district. The project cost is 9 lakh. The first installment of 3 lakh has been sanctioned to BMC. In the first phase, the construction of a bio-fence, a medicinal plant garden and a biodiversity garden have been completed.



#### 4.7. e PBR.

At Block level, 136 master trainers have been selected to train Technical Assistants in all LSGs in the state for PBR digitisation. With the help of NIC, an online training has been given to these master trainers. An online training has also been given for Technical Assistants of all LSGs in Thiruvananthapuram district. Regarding PBR digitization, data entry has been completed at BMC level in Kollayil Grama Panchayat in Thiruvananthapuram district; Guruvayur Municipality in Thrissur district and Perumbadappu Grama Panchayat in Malappuram district.

# 5

## Major Activities Conducted in Various Districts

### 5.1. BMC meetings held in Thiruvananthapuram district

Sl.No.	Name of BMC	Date of Meeting
1	Kattakkada	30/04/2020
2	Perumkadavila	22/06/2020
3	Kuttichal	25/06/2020
4	Thiruvananthapuram Corporation	26/06/2020
5	Kuttichal	01/07/2020
6	Kalliyoor	02/07/2020
7	Kuttichal	07/08/2020
8	Maranalloor	09/09/2020
9	Chirayinkeezhu	29/09/2020
10	Kattakkada	08/10/2020
11	Varkala	12/10/2020
12	Kalliyoor	21/10/2020
13	Maranalloor	11/02/2021
14	Kattakkada	05/03/2021



BMC meeting at Varkala Gramapanchayat



Andhra team visit at Maranalloor Gramapanchayat



BMC meeting at Perumkadavila Gramapanchayat



Kotillam at Kalliyoor Gramapanchayat

### 5.2. BMC meetings held in Kollam district

Sl.No.	Name of BMC	Date of Meeting
1.	Kollam Municipal Corporation	25/08/2020
2.	Kollam Municipal Corporation	07/09/2020

3.	Alappad	04/07/2020
4.	Munroethuruth	10/03/2021
5.	Thekkumbhagom	15/03/2021



Alappad Model BMC Planting of Mangroves sapling



BMC meeting at Thekkumbhagam Gramapanchayat

### 5.3. BMC meetings held in Pathanamthitta district



RKI - Pamba rejuvenation project BMC meeting Ranni- Angadi

Sl. No.	Name of BMC	Date of Meeting
1	Ayiroor	10.07.2020
2	Cherukole	13.07.2020
3	Pramadam	24.07.2020
4	Mallappuzhassery	09.02.2021
5	Puramattom	12.02.2021
6	Naranammoozhy	24.03.2021

### 5.4 BMC meetings held in Alappuzha district

Sl. No.	Name of BMC	Date of Meeting
1	Ambalappuzha North	26/6/2020
2	Punnapra North	26/6/2020
3	Thrikkunnappuzha	29/6/2020
4	Ambalappuzha Block	16/7/2020
5	Haripad Block	18/8/2020
6	Kanjikkuzhi Block	24/8/2020
7	District Panchayat	25/8/2020
8	Champakulam Block	26/8/2020
9	Bharanikkavu Block	09/9/2020
10	Thaikkattussery Block	11/9/2020
11	Veliyanad Block	15/9/2020
12	Aryad Block	30/9/2020
13	Muhamma	23/10/2020
14	Mavelikkara Block	27/10/2020
15	Mararikulam South	02/11/2020
16	Pattanakkad Block	11/11/2020
17	Veliyanad Block	04/3/2021



BMC meeting Muhamma Gramapanchayat



Pathiramanal LBHS declaration Muhamma GP



Costal Biodiversity Register preparation field studies



### 5.5 BMC meetings held in Kottayam district

Sl. No.	Name of BMC	Date of Meeting
1	Njeezhoor	24/09/2020
2	Njeezhoor	02/11/2020
3	Ramapuram	27/01/2021
4	Ramapuram	10/02/2021
5	Kidangoor	10/02/2021
6	Njeezhoor	26/02/2021
7	Ettumanoor Municipality	05/03/2021



BMC meeting for DPR preparation LBHS at Ayarkunnam GP



Field visit by TSG members –LBHS site at Ettumanoor Municipality

### 5.6 BMC meetings held in Idukki district

Sl. No.	Name of BMC	Date of Meeting
1	Mariyapuram	20/04/2020
2	Velliyamattom	27/05/2020
3	Thodupuzha Municipality	30/06/2020
4	Mariyapuram	11/06/2020
5	Mariyapuram	18/06/2020
6	Purappuzha	22/06/2020
7	Manakkad	22/06/2020
8	Munnar	24/06/2020
9	Bisonvalley	29/06/2020
10	Upputhara	29/06/2020
11	Thodupuzha Municipality	30/06/2020
12	Mankulam	10/07/2020
13	Thodupuzha Municipality	13/07/2020
14	Vandanmed	17/07/2020
15	Mariyapuram	04/08/2020
16	Marayoor	12/08/2020
17	Peruvanthanam	24/08/2020
18	Mariyapuram	27/08/2020

19	Santhanpara	03/09/2020
20	Munnar	04/09/2020
21	Vandanmed	11/09/2020
22	Purappuzha	15/09/2020
23	Purappuzha	22/10/2020
24	Mankulam	23/10/2020
25	Peruvanthanam	27/10/2020
26	Idukki District Panchayat	05/11/2020
27	Mariyapuram	05/11/2020
28	Mariyapuram	9/11/2020
29	Thodupuzha Municipality	05/02/2021
30	Purappuzha	22/02/2021
31	Mariyapuram	25/02/2021
32	Edavetty	02/03/2021



BMC meeting –Edavetty GP



BMC meeting Purappuzha GP



Tradable bio resources project data collection

### 5.7 BMC meetings held in Ernakulam district

Sl. No.	Name of BMC	Date of Meeting
1	Kallookkad	05/06/2020
2	Poothrikka	07/10/2020



Tradable bio resources project data collection



Coastal sacred grove-Vayalil kavu in Edavanacad GP



Biodiversity Park site visit at Cheranalloor GP

### 5.8 BMC meetings held in Thrissur district

Sl. No.	Name of BMC	Date of Meeting
1	Vellangallur	16/09/2020
2	Eriyad	January 2021
3	Elavally	January 2021
4	Thrissur Corporation	January 2021
5	SN Puram	January 2021



BMC meeting at Elavally Gramapanchayat

### 5.9 BMC meetings held at Palakkad district

Sl.No.	Name of BMC	Date of Meeting
1	Mankara	01/07/2020
2	Sreekrishnapuram	17/07/2020
3	Vellinezhi	29/04/2020
		05/06/2020
		14/07/2020
		07/10/2020

	Vellinezhi	05/01/2021
4	Melarkode	26/06/2020
5	Kuthanur	22/05/2020
6	Thachanattukara	24/08/2020
7	Kappur	28/10/2020
8	Mundur	04/11/2020
9	Ambalapara	06/11/2020
10	Elavanchery	23/01/2021



ODK training to NCC cadets at Govt College, Pattambi



Butterfly garden Vellinezhi Gramapanchayat

### 5.10 BMC meetings held in Malappuram district

Sl. No.	Name of BMC	Date of meeting held
1	Othukkungal	05/06/2020
2	Elamkulam	29/06/2020
3	Ponnani Municipality	07/09/2020
4	Morayoor	14/09/2020
5	Urangattiri	11/11/2020
6	Malappuram Municipality	24/02/2021
7	Tirur Municipality	25/02/2021

8	Malappuram Municipality	05/03/2021
9	Tirur Municipality	08/03/2021



Model BMC Urgattiry GP, Malappuram

### 5.11 BMC meetings held in Kannur district

Sl No.	Name of BMC	Date of Meeting
1	Eramam-Kuttoor	03/07/2020
2	Kurumathur	14/07/2020
3	Kuthuparamba	07/09/2020
4	Kurumathur	09/09/2020
5	Kolayad	09/09/2020
6	Kurumathur	20/10/2020
7	Kurumathur	09/02/2021
8	Kannapuram	18/08/2020
9	Kolachery	07/09/2020
10	Pinarayi	25/02/2021
11	Mattool	25/02/2021



Model BMC meeting at Kolachery GP

### 5.12 BMC meeting held in Kozhikode district

Sl. No.	Name of BMC	Date of Meeting
1	Mavoor	06/11/ 2020

### 5.13 BMC meetings held in Wayanad district

Sl. No.	Name of BMC	Date of Meeting
1	Panamaram	25.09.2020
2	Meenangadi	29.09.2020

#### 5.14 BMC Meetings held in Kasaragod district

Sl. No.	Name of BMC	Date of Meeting
1	Muliyar	01/06/2020
2	Pilicode	04/06/2020
3	Pallikara	19/06/2020
4	Pilicode	15/07/2020
5	Pallikara	26/08/2020
6	Trikaripur	18/09/2020
7	Kinanoor-Karindalam	09/10/2020
8	Pallikara	13/10/2020
9	Nileshwaram Municipality	28/10/2020
10	Trikaripur	30/10/2020
11	Pallikara	06/11/2020

12	West Eleri	10/02/2021
13	Pilicode	26/02/2021
14	Pallikara	01/03/2021
15	Nileshwaram Municipality	02/03/2021
16	Udma	05/03/2021



Model BMC meeting at Pilicode Gramapanchayat

# 6

## Biodiversity Research

### Key achievements

1. The project on “Development of Database of Tradable / Commercially potential Bio resources and their Economic valuation in Kerala” funded by Rebuild Kerala Initiative of Government of Kerala is progressing and the first two deliverables of the project was submitted.
2. Successfully completed two studies awarded during 2019 as part of India UNDP GEF Munnar Landscape project. Studied the impact of production sectors and major drivers that led to land use change using GIS and PRA tools. Identified major gaps in the existing PBR through extensive consultative workshops for PBR data gathering and a methodology manual for ePBR updation was developed. Policy recommendations to mainstream biodiversity concerns in production sectors developed after extensive consultations. A Manual on ‘Tradable Bio-resources Documentation (Database) and Identification of its ABS potential with Supply Chain’ was developed and bio-resources traded/accessed from different Panchayats have been prepared.
3. Successfully completed National Medicinal Plants Board funded project on “Resource Augmentation, Sustainable Harvesting and Value Addition of Medicinal Plants Resources through Biodiversity Management Committees (BMCs)”. As part of the project, infrastructure facilities (warehouse & drying yard) were constructed at 5 Grama Panchayats in Wayanad. Medicinal plant nurseries for producing quality planting materials were constructed in association with MSSRF. Produced 50,000 saplings of various medicinal plant species in all five Grama Panchayats. Clusters of women groups produced 35,000 medicinal plants and planted in their homesteads, and buyback arrangements have been made with the local ayurvedic medicine manufacturing units.
4. Successfully completed the project on “Ecosystem valuation – Kadalundi Vallikunnu Community Reserve”. The estimated total economic value of the reserve is Rs 56.11 million and average net revenue by fishing is Rs 3.00 crore. The project was initiated during 2019 and was completed during 2020-21.
5. A five year project titled “Genetic Diversity Conservation and Population study of selected notified endangered Plant species of Western Ghats region of Kerala for both *in-situ* and *ex-situ* conservation of endangered plants” notified as per Section 38 of Biological Diversity Act, 2002 was initiated during 2016 and completed during 2020-21 in association with JNTBGRI.
6. Preparation of detailed project report for the conservation of sacred groves with action plan, timeline, responsible agencies, sources of funds etc. under the project on Enhancing Coastal and Ocean Resources Efficiency (ENCORE) of National Centre for Sustainable Coastal Management, MoEF funded by World Bank was completed with the support of Malabar Botanical Garden.
7. During the reporting period, 19 organizations commercially utilizing bio resources submitted applications for prior approval for access to bioresources

## **6.1. Research Projects**

### **6.1.1. Development of database of tradable/commercially potential bioresources and their economic valuation in Kerala**

A project on documentation of tradable bioresources of different sectors such as agriculture, horticulture, floriculture, forests (wild fruits, wild vegetables, medicinal plants, timber, honey, mushroom etc.) and aquatic resources (fish, crustaceans, bivalves, sea grass, sea weeds, etc.) was taken up as part of Rebuild Kerala Initiative. The project will be beneficial to multiple stakeholders including: the providers (collectors and cultivators) of bio-resources, different types of traders involved; wholesalers; industries that use bio-resources as raw-materials; exporters and the government departments which are responsible for designing strategies on biodiversity conservation. Further, the documentation of tradable bioresources is extremely useful for the enforcement agencies (National Biodiversity Authority (NBA), State Biodiversity Boards (SBBs), and Biodiversity Management Committees (BMCs) for implementing the Access and Benefit Sharing (ABS) principles prescribed under the BD Act. The valuation of biodiversity goods (bio-resources) derived from different ecosystems with the help of an appropriate methodology, is a fundamental step towards operationalizing the “Access and Benefit Sharing (ABS)”. As part of the project, during the reporting period, the following activities were undertaken:

- a. A statewide study to document the medicinal plant resources marketed through raw drug shops and ornamental plants and other agricultural crops through nurseries was initiated in all the 14 districts of Kerala. The survey is being undertaken in association with NCC cadets and a training program was conducted for 16 students in 14 districts of Kerala. The survey covering 40 raw drug traders and 50 nurseries in all the 14 districts of Kerala was completed. The survey is continuing.
- b. Data of marine bioresources landed in 131 marine landing centres spread over 9 districts was collected. PRA was conducted with 30 fishermen each in 131 landing centres to flag the issues encountered by the community regarding availability of resources.
- c. Data collection regarding non wood forest produce collected by tribal communities from forest areas and timber marketed through various depots of Kerala Forest Department during the last five years completed.
- d. Unique bioresources from 14 districts were prioritized for economic valuation.
- e. Two reports were finalized: Inception report detailing the methodology, major milestones and work plan. A report incorporating checklists of bioresources including microorganisms, lower group of plants, flowering plants, marine, freshwater and aquatic resources with 124 checklists was submitted.
- f. Case studies were compiled regarding the current net work of herbal raw materials and value added products and focus group discussions were conducted with raw drug dealers across the state. The program also identified the cultivation practice, harvesting, storage, value added products developed from Navara rice, mango products developed by Muthalamada Mango Farmers Producer Company Limited (MMFPC) and cultivation network of medicinal plants.

### **6.1.2. Ecosystem valuation –Kadalundi Vallikunnu Community Reserve**

The Kadalundi-Vallikunnu community reserve is the first community reserve of the State of Kerala. The project “Valuation of Marine and Coastal ecosystem in Kadalundi Vallikunnu community reserve” documented the present status of biodiversity of area including Mangroves, Mangrove associates, Molluscs, Birds, Fishes, Crabs, Shrimps, Phytoplanktons and Zooplanktons. The major

threat to the estuary identified was the presence of invasive species especially a brackish water mussel native to Central and South America. Sand bar formation, pollution etc are other major issues identified and the project also highlights the management options for the area. The estimated total economic value of the reserve is Rs 56.11 million and average net revenue by fishing is Rs 3.00 crore. The project was initiated during 2019 and completed during 2020-21. Final review and presentation of the project was held on 24.03.2021.

### **6.1.3. Propagation protocols on endangered plants listed under MoEFCC notification**

A five year project titled “Genetic diversity conservation and population study of selected notified endangered Plant species of Western Ghats region of Kerala” for both *in-situ* and *ex-situ* conservation of endangered plants notified as per Section 38 of Biological Diversity Act 2002 was initiated during 2016 and completed during 2020-21 in association with JNTBGRI. The population status and the threat status were evaluated for 6 of the 26 species notified under Biological Diversity Act, 2002. The project has flagged the necessity of species to be prioritized for restoration/relocation efforts also and has succeeded in restoring the species in selected forest areas of Idukki and Wayanad. Some salient observations include the population status of *Paphiopedilum druryi* (Bedd.) Stein., assessed as Critically Endangered, *Vanda thwaitesii* Hook. f., Critically Endangered based on IUCN Guidelines version 3.1. The area of occupancy of the species is less than 10 km<sup>2</sup> in area, severely fragmented, population and habitat declining as majority of mature individuals are outside protected habitats and have very low gene diversity. *Decalepis arayalpathra* (J. Joseph & V. Chandras.) Venter, due to slow regeneration and localized distribution, may be included as Vulnerable by B1a+B2a IUCN criteria. Final presentation and review of project held on 24.03.2021.

### **6.1.4. Preparation of Red Data Book and assessment of threatened species of Kerala**

KSBB during 2020 has initiated a project for listing comprehensive details of floral and faunal species under various threatened categories of IUCN, Schedule species (Notified by Ministry of Environment, Govt. of India) and other notifications/legislations in Kerala with the support of Jawaharlal Nehru Tropical Botanical Garden and Research Institute (JNTBGRI), Zoological Survey of India (ZSI) and Central Marine Fisheries Research Institute (CMFRI). The project aims to suggest recommendations for sustainable management measures for commercially important species. The project is ongoing and will be completed during 2021-22. A mid-term review of the project was held on 24.03.2021.

### **6.1.5. Sustainable models of biodiversity conservation**

KSBB has taken initial steps to establish a Butterfly garden in Kollam Ashramam BHS area with the financial support of KSBB and technical support from JNTBGRI through Kollam Municipal Corporation BMC.

### **6.1.6. Miyawaki model Urban Groves**

The process of establishing Miyawaki model urban groves in the Government land in Trivandrum and Kollam districts are under progress.

## **6.2. Externally Funded Projects**

### **6.2.1. Munnar High Range Mountain Landscape Project**

The UNDP funded ‘High Range Mountain Landscape Project’ was implemented by Kerala State Biodiversity Board in 11 selected Grama Panchayats in 3 districts of Kerala- Idukki, Ernakulam and

Thrissur. The project was initially sanctioned for one year and was successfully completed during the reporting period.

**Project 1:** Documentation and compilation of existing information on various taxa (Flora and Fauna):

**Project 2:** Review of ecological and development history of various sectors and changes in selected ecological units in GEF- Munnar landscape project area

### Key Achievements

1. Classes, awareness programmes and interactive sessions were conducted for Panchayat officials and BMCs in 10 Panchayats. PRA, RRA and Focal Group Discussions with different user groups and stakeholders conducted.
2. Prepared a complete list of floral and faunal taxa (Birds, Reptiles, Odonates, Butterflies, Moths and Mammals) in the study area, including current IUCN status, WPA status and Endemism and the data were incorporated in PBR.
3. Documented traditional knowledge associated with bioresources of major tribal communities in the study area.
4. Identified major gaps in the existing PBR through extensive consultative workshops for PBR data gathering; analyzed the applicability of mobile applications for PBR updation and conducted field trials at a pilot scale based on new methodology.
5. Prepared a methodology manual for updating and bridging existing gap areas in PBR (ePBR) after the field level implementation in a Panchayat which was peer reviewed by experts in the respective field.
6. A list of bio-resources traded/accessed from different Panchayats has been prepared based on the threat status, demand, availability of resources and its value in the market as well as importance for ecological functioning.
7. Data of 15 NTFPs traded in large quantities during the last two years documented. Detailed supply chain analysis of Kattu Kurumulaku (*Piper brachystachyum* Wall.), Karinkurinji (*Strobilanthes ciliata* Nees), Pinari (*Sterculia foetida* L.), Marotti (*Hydnocarpus pentandrus* (Buch.-Ham) Oken) and Pachottitholi (*Symplocos cochinchinensis* (Lour.) S.Moore) was done.
8. The movement of 'Kattupadavalam' (*Trichosanthes cucumerina* L.) from collection point to pharmaceutical companies was identified.
9. Analysed the dynamics/trends on: land use, vegetation covers and its nature (forests and agriculture practices), build-up areas, hydrological parameters, geological criteria, soil characteristics etc. during different periods (2006, 2016 and 2020) to identify reasons for biodiversity change (degradation) in Munnar landscape.
10. Studied the impact of production sectors and major drivers that led to land use change. The impact on different communities and social institutions was analyzed through PRA tools.
11. Studied the impact of production sectors and major drivers that led to land use change through GIS tools. The key findings are: Area under agricultural land in the study area had registered a marked increase from 26581 to 43710 hectares. The other land use / land cover classes that had registered an increase in area is built-up, which increased from 399 hectares to 1584 hectares. Area under forest, water body, wastelands, and grass/grazing had registered a decreasing trend. The area under forest decreased from 151131 hectares to 141474 hectares. The total decrease of forest area within the stipulated years as per the data is 9657 hectares, which comes about 6.3 % of the total forest area. This loss of forest cover is mainly registered in the five Panchayats of the study area, i.e., Chinnakal, Devikulam, Kanthalloor, Munnar, and Vattavada.



12. Local perceptions regarding major drivers of change in the landscape were collected from different resource user groups. Socio-economic and perceptions of climatic change at Mankulam Panchayat analyzed among local people, tribal communities and Biodiversity Management Communities separately for resource mapping and resource use change.
13. Policy document on mainstreaming biodiversity in agriculture and fisheries sector for health and nutrition developed after extensive consultations.

### **6.2.2. National Medicinal Plants Board funded project on Resource Augmentation, Sustainable Harvesting and Value Addition of Medicinal Plants Resources Through Biodiversity Management Committees (BMCs)**

The district of Wayanad has the largest concentration of tribal population in the State which is one third of the total tribal population in Kerala, and equivalent to 18.5% to the district population. The Tribal communities are currently engaged in collecting medicinal plants from the forest areas and selling through Vanasamrakshana Samithies or the Girijan societies and generating income for their livelihood. The project aimed to establish a linkage with Biodiversity Management Committees of five LSGs and industry and generate better income to improve their livelihood. The three year project was extended for two more years and was successfully completed during the reporting period. The key achievements of the project are:

1. Infrastructure facilities (warehouse & drying yard) were constructed in 5 Grama Panchayats (Thavinjal, Noolpuzha, Poothadi, Thirunelli and Pozhuthana). A Chopping & Powdering machine was installed at Thirunelli Grama Panchayat. Weighing & Sealing machine in all five Grama panchayats.
2. Constructed a medicinal plant nursery for producing quality planting materials in association with MSSRF.
3. Produced 50,000 saplings of various medicinal plant species in all five Grama Panchayats.
4. Clusters of women groups produced 35,000 medicinal plants and planted in their homesteads and buyback arrangements have been made with the local ayurvedic manufacturing units.
5. During the implementation of the various phases of the project trainers training program for plantation, value addition and preparation of home remedies were given to members of Kudumbashree and Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). The major programs conducted during the project period are,
  - » Conducted 7 trainings for awareness/ capacity buildings about the project and its implementation to BMC members
  - » Two industry meet between stakeholders and manufactures
  - » As a part of value addition programme, two trainers training programme were conducted, involving the selected target groups like Kudumbashree, self-help groups, farmers, tribal healers, VSS and EDC etc. to produce 6 home remedies.
  - » Extended training for core group members, selected from Kudumbashree (5 each from 5 Grama Panchayats).
  - » Medicinal plant trust registered in each GPs under the patronship of BMCs.
  - » For marketing of plants, three training programmes for sustainable method of collection, storage etc to VSS, tribal community, farmers and EDC conducted.
6. Awareness materials generated
  - a. Resource augmentation, sustainable harvesting and value addition of medicinal plant resources through Biodiversity Management Committees (BMCs) during 2015.

- b. Published a handout entitled 'Good collection, processing, storage and selling practice of medicinal and aromatic plants guidelines' during the year 2020.
- c. 'Insight into Biodiversity - Immuno boosting wild medicinal plants' related to selected 10 medicinal plant species exclusively having immune enhancing and antiviral activities medicinal plants specifically used by tribal communities of Kerala with photographs.
- d. 'Insight into biodiversity - Immuno boosting wild edible plants' specifically used by tribal communities of Kerala with photographs. Selected 10 medicinal plant species exclusively having edible qualities.

Final assessment of the project was held in 2020 under the chairmanship of Shri. C.K. Saseendran MLA and Shri. K.V. Govindan, Board Member. It was decided that this will be continued as part of Wayanad special package programme of Govt. of Kerala for ensuring the sustainability of the project.

### 6.2.3. Conservation of sacred groves

Preparation of detailed project report for the conservation of sacred groves with action plan, timeline, responsible agencies, sources of funds etc. under the project on "Enhancing Coastal and Ocean Resources Efficiency (ENCORE)" of National Centre for Sustainable Coastal Management, MoEFCC funded by World Bank was completed with the support of Malabar Botanical Garden. This study aims to bring out a comprehensive study on the sacred groves in the 113 coastal panchayats in Kerala along with their geographical location, area, and ownership details and peoples concept of sacred groves. It also covers the dominant flora of each sacred grove with special emphasis on endemic and threatened species. A total of 745 sacred groves distributed in different coastal panchayats of the state could be located during study. Among the districts, Alappuzha dominates with 214 sacred groves in the coastal zone followed by Kozhikode and Thiruvananthapuram. The district Ernakulam with 3 numbers has the lowest number of sacred groves in the coastal zone. 92 tree species, 144 shrubs, climbers, and herbs are documented.

Sacred groves are also playing a key role in conservation of avian fauna in the urban as well as coastal ecosystems. A total of 111 bird species were observed belonging to 49 families and 16 orders. The sacred groves of northern Kerala support many of the 'forest-birds' such as the Grey Junglefowl (*Gallus sonneratii*), Asian Fairy-bluebird (*Irena puella*), Tickell's Blue-flycatcher (*Cyornis tickelliae*), Malabar Trogon (*Harpactes fasciatus*), Heart-spotted Woodpecker (*Hemicircus canente*), Malabar Whistling-Thrush (*Myophonus horsfieldii*), Little Spiderhunter (*Arachnothera longirostra*), etc. The sacred groves of northern Kerala also support two endemic bird species of the Western Ghats, such as the Malabar Grey Hornbill (*Ocyrceros griseus*) and Rufous Babbler (*Turdoides subrufa*). Five species of raptors and four owl species were reported from the sacred groves of north Kerala during the present study. The breeding of the White-bellied Sea-Eagle (*Haliaeetus leucogaster*) has been reported at Edayilakadu Kavu, a coastal sacred grove in Kasaragod District. The sacred groves of northern Kerala also support 17 species of long distant migratory birds. Thazhe Kavu, recorded the Black-headed Ibis (*Threskiornis melanocephalus*), a Near-Threatened bird according to IUCN. The nature and extent of threats and pressures are often region and even grove-specific. The magnitude of these threats varies from region to region as well as from one type of grove to another.

### 6.3. Access and Benefit Sharing

1. According to the provisions under section 3 of Biological Diversity Act, 2002 and subsequent agreements signed with NBA. Suitable projects for conservation of biodiversity will be implemented with the active involvement of concerned benefit claimers.

2. The Board, as mandated by Section 7 of Biological Diversity Act, 2002 and Rule, 16 of Kerala Biological Diversity Rules, 2008, issued notices to organizations commercially utilizing bio-resources, and 19 industries have sought prior approval for access to bio-resources.
3. During the reporting period, nine applications in Form I for the commercial utilization of bio resources in Kerala and eight applications in Form III were received from NBA.

#### **6.4. Government orders and reports submitted to Government**

1. **Pesticides use in Pineapple farms:** KSBB had undertaken a project earlier to study the impact of pesticide use in pineapple farms on the basis of a direction from Hon'ble. High Court of Kerala. The Government considering the direction of the Hon'ble High Court of Kerala and the recommendations of KSBB has issued guidelines for GAP (Good Agricultural Practices) and Good Agricultural Standards (Gazette notification Agriculture (NCA) Department No. GO (P) 21/2020/Agri Dated, Thiruvananthapuram, 21/12/2020) to minimize the use of chemical pesticides in pineapple farms.
2. Comments on the Draft Amendments proposed to be made to the Biological Diversity Act, 2002, submitted to National Biodiversity Authority.
3. **Implementation of Kerala Biological Diversity Rules, 2008:** The Subordinate Legislative Samithi had examined the implementation of Kerala Biological Diversity Rules 2008 and SRO No 602/2008 and 772 / 2015 and conducted detailed discussion with officials of KSBB on 15.06.2017 and conducted sittings at Wayanad and Nelliampathy on 25.07.2017 and 26.09.2017. A total of 35 recommendations were incorporated in the 11<sup>th</sup> report of the Subordinate Legislative Samithi and Action taken report of the same was submitted to the Government on 27.11.20.
4. **Reforms Agenda for Biodiversity Sector to Rebuild Kerala Initiative :** The recommendations included in the report are a) Developing a monitoring framework for regulating access to bioresources to control unsustainable use and over exploitation to be incorporated in the single window compliance monitoring framework. b) Developing an ecosensitive area conservation policy including Biodiversity Heritage Sites and Other Effective Area Based Conservation Measures (OECMs) towards conserving the biodiversity wealth of the state. c) Empowering BMC for formulation of Local Action Plan for Biodiversity conservation and their implementation and monitoring at Panchayat level, to generate local biodiversity funds, regulate access to bioresource, Biodiversity budgeting and to function as Environmental watch groups. d) Establishment of a State quarantine authority.
5. Report on Taxonomic diversity of flora and fauna to the Ministry of Statistics & Programme Implementation of the Government of India for Environmental Economic Accounting (SEEA Envi Stats India 2020; Vol. II Environment Accounts).
6. A set of recommendations to be considered by Department of Fisheries in order to promote conservation of native species while implementing the schemes of the department and for mainstreaming biodiversity
7. A set of recommendations to be considered by Department of Agriculture and Farmers Welfare in order to promote conservation of native species while implementing the schemes of the department and for mainstreaming biodiversity.
8. Report on Biodiversity of nine coastal districts.
9. Environmental issues: During the reporting period, 32 different environmental issues ranging from ecosystem destruction, quarrying, felling of trees, water pollution etc were handled and enquiries conducted with the help of Technical Support Group/Range Forest Officers as the case may be. Some of them are issues related to Peringamala Biomedical waste treatment

plant, dumping of plastic debris into the sea by Sea Hut Home Stay, Kollam Medicity Hospital establishment and related biodiversity destruction, Panniyar river infringement, Manimalayar river bank protection, Idayan rocks quarry and biodiversity destruction, Ramanattukara wetland conservation and sacred grove protection etc.

### **6.5. Legal cases**

1. Six court cases relating to ABS are pending in High Court of Kerala. The petitioners are industries commercially utilizing bioresources and the petition is given in response to the order send by KSBB directing all companies commercially utilizing bio-resources to comply with provisions of Section 7 of Biological Diversity Act, 2002 and Rule, 16 of Kerala Biological Diversity Rules, 2008.
2. KSBB is a respondent in W.P (C)No.21048 of 2020 regarding encroachments and illegal construction in Asramam Biodiversity Heritage Site.
3. During the reporting period two cases were filed in the National Green Tribunal. One of which was alleging that the first respondent Kunnathunad Grama Panchayat is attempting to destroy a patch of forest coupled with sacred pond with its presiding deity "Nagaraja" known locally as Kuruvichira Nagaraja Temple comprised in Survey No.521/1 in Block No.35 of Pattimattom Village, Kunnathunadu Taluk of Ernakulam District. The Hon'ble National Green Tribunal had directed Kerala State Biodiversity Board to submit a report on the impact of the implementation of a drinking water project, proposed by the Kunnathunad Grama Panchayat, in Kuruvichira with reference to its existing biodiversity and the prevailing environment. A team consisting of officials of KSBB and Kerala State Pollution Control (KSPCB) visited the site on 01.12.2020 and submitted a report on 11.12.2020. The Hon'ble NGT directed to prepare a scientific plan as to how they are going to rejuvenate the pond keeping the biological diversity intact as recommended by the Kerala Biological Diversity Board in the report mentioned above and they must also get the action plan approved by the Kerala Biological Diversity Board.
4. In OA 263 of 2017- NGT- Lawyers Environmental Awareness Forum (LEAF), impleaded KSBB as 3<sup>rd</sup> respondent. Kerala State Biodiversity Board is directed to submit a status report regarding the constitution of Biological Management Committee at the local self institution level and the manner of functioning of those committees and also regarding the maintenance of Peoples Biodiversity Register and also report about the activities conducted by them in order to protect the biodiversity resources. The report filed by KSBB was found to be satisfactory and the case disposed off.

### **6.6. Expert Meetings conducted**

1. Expert consultation for documentation of bio-cultural heritage of Kerala part of Western Ghats: Western Ghats which covers a distance of 1490 kilometres is one of the eight hottest hotspots of biodiversity across the world and has been declared a UNESCO World Heritage site. Documentation of biodiversity of Western Ghats and traditional knowledge and practices is essential for the food security and overall health and wellbeing of people of Kerala. A Project conceptualization workshop with experts in the field for prioritizing the issues to be addressed was conducted on 03.07.2020.
2. State level steering committee for Biodiversity (vide G.O 60/2018/Env. dated 11/05/2018) was constituted with Secretaries of LSGD, Water resources, Agriculture, Forest, Fisheries, Tourism, Animal Husbandry, Department of Environment and Climate Change for integration of activities and schemes of different departments utilizing biodiversity and to ensure that

biodiversity concerns are addressed in the policies of the line departments. The 3<sup>rd</sup> State level Steering Committee meeting presided by Chief Secretary, Government of Kerala on Biodiversity was held on 20.05.2020. The major points of discussion were compliance of Hon'ble NGT Order in the matter of O.A. 347/2016 dated 09.08.2019 in preparation of PBR, ensuring compliance on ABS (Access and Benefit Sharing) by Industries Department, public sector organizations, levy of collection fees by BMCs (Biodiversity Management Committees), creation of ABS Cell and upfront payment for auction of high value timber by Forest department.

3. As part of the project on database of tradable/commercially potential bio-resources training programs for program coordinators and consultations of subject experts were held on 2/11/2020, 4/11/2020 and 6/11/2020 and 16/11/2020.



4. Trainings to NCC students for state wide survey of raw drug dealers and ornamental plants traded through nurseries were conducted on 28.12.2020 and 03.02.2021 in 4 batches.



5. A consultative meeting regarding data sharing for Rebuild Kerala Initiative projects awarded to KSBB was conducted with officials of various Departments including Forest and wildlife, Fisheries, AYUSH (Department of Indian system of medicine), Drug control, Industries and commerce, Agriculture, Animal Husbandry and Dairy development and on 17/11/2020, under the Chairmanship of Dr. Usha Titus IAS, Principal Secretary, Department of Environment to ensure cooperation, collaboration and synergies of different sectors.
6. Departmental monitoring committee for RKI projects has been established vide GO(Rt.) No. 87/2020/Env. dated 23.10.2020 with the Principal Secretary, Department of Environment; the Chairman, KSBB; Dr. C Bhaskaran, Chairman State Expert Appraisal Committee and Dr. K Satheesh Kumar, Board Member, KSBB. Departmental Monitoring Committee meeting chaired by Principal Secretary, Department of Environment to review the progress of the work held on 09.12.2020.
7. Three regional consultative workshops were held with representatives of Ayurveda industries during February 2021. The workshops were held at Thiruvananthapuram on 02/02/2021, Thrissur on 18/02/2021 and Kozhikode on 20/02/2021. The workshops aimed to assess the raw drugs requirement for the Ayurveda sector in Kerala, evaluate the availability of resources, quantity of

bioresources consumption, procurement method and trade and to arrive at recommendations for sustainable utilization of resources. More than 300 manufacturers, medicinal plant cultivators and indigenous healers attended the workshop. The programme was supported by Ayurveda Medicine Manufacturers Association of India (AMMOI). The major outcome of the workshop is to evolve recommendations to ensure sustainable utilization of resources, and promote cultivation of species which are over exploited and depleting.



8. A round table conference on traded bio-resources with scientific officers of research institutes in government sector was held at Oushadhi, Thrissur on 26.03.2021. The meeting was attended by representatives of Kerala Agriculture University, Vellanikkara; Kerala State Bamboo Corporation; The Kerala State Homoeopathic Co-Operative Pharmacy Ltd; Malabar Botanical Garden and Institute for Plant Sciences and State Medicinal Plant Board. The programme was supported by Oushadhi. The major outcome of the workshop was to evolve recommendations to ensure sustainable utilization of resources, and promote cultivation of species which are over exploited and depleting.



# 7

## Extension and Training

### **Biodiversity awareness, workshops, public awareness and publications**

#### **7.1. Homestead Biodiversity photo inventory campaign**

KSBB is making use of the COVID-19 lockdown period for updating PBRs in the state with information gathered from the households of the state. One can click the picture of plants, animals fungus, lichens etc inside and outside the home and send them to KSBB with a brief note on the picture. More than 1200 entries received from all over the state. Photographs received were categorised according to the kingdom and kept for inclusion into the PBR. Participation certificates were given to all participants.

#### **7.2. International Day for Biological Diversity (IDB)- 2020**

KSBB with the support of NBA celebrated IDB on May 22, 2020. The theme for IDB 2020 was 'Our Solutions are in Nature'. As part of the celebration, KSBB has brought out a series of Webinars on the focal themes with the cooperation of experts in the field. Themes are:

1. Traditional Knowledge: Ethno Medicine to Modern Medicine.
2. Avian Diversity- Ecosystem and Human Health.
3. Aquatic Ecosystem and Biodiversity.
4. Agrobiodiversity for food and health security.

**7.3. Childrens Biodiversity Congress 2020 :** In connection with this, KSBB conducted various competitions for students such as Project presentation, Essay writing, Photography, Pencil drawing, Mobile video making, Poster presentation, Painting competitions etc. Received 1000 applications under the seven categories.

**7.4. World Environment Day celebration with BMCs:** On the occasion of World Environment Day on June 5<sup>th</sup>, KSBB organized a webinar on the "Role of Local Self Governments in Biodiversity conservation" in collaboration with 8 BMCs which are actively participated in biodiversity conservation activities. BMCs participated are Meenangadi (Wayanad), Kollam Municipal Corporation (Kollam), Veeyapuram (Alapuzha), Marancherry (Malapuram), Mallapuzhasery (Pathanamthitta), Velliyamattom (Idukki), Pilicode (Kasaragod) and Kurumathoor (Kannur).

#### **7.5. A Day Branding through All India Radio - International Day for Biological Diversity 2020**

A Day Branding programme for International Day for Biological Diversity through All India Radio was broadcasted on May 22, 2020. A total 4500 seconds in 10 stations and 10 greetings each in each of the 10 stations. Programme started with the message by Hon'ble Chief Minister of Kerala, Sri. **Pinarayi Vijayan**. Talk on the theme 'Our Solutions are in Nature' was delivered by Dr. S.C. Joshi IFS (Retd.) the then Chairman of KSBB.

**7.6. World Ocean Day 2020** - On the occasion of World Ocean Day, June 8<sup>th</sup> 2020, KSBB organised a webinar on "Innovations for the Sustainable Ocean". Dr. Joshi K.K., Principal Scientist and Head, Central Marine Fisheries Research Institute, delivered a lecture on this occasion.

7.7. KSBB participated in VAIGA 2021 exhibition conducted by Department of Agriculture, Government of Kerala at Thekkinkad maithanam from February 10 to 14, 2021. KSBB installed stalls and displayed biodiversity related photographs and distributed KSBB brochures and publications.

7.8. As part of the World Wildlife Day, KSBB organised an online webinar on March 3<sup>rd</sup> 2021. Dr.Pramod G.Krishnan, Chief Conservator of Forests, Kerala Forest Department delivered a lecture on “Human – wildlife conflict issues.”

### 7.9. International Women’s Day celebration

International Women’s Day 2021 was celebrated on March 8 at Biodiversity Museum, Vallakadavu. Dr. C. George Thomas, Chairman, Kerala State Biodiversity Board presided over the function. In this function, the book prepared by the women employees of Kerala State Biodiversity Board ‘Sudakshina’, dedicated to those who spent their lives for conservation of nature,were released by Dr. K.G. Tara, former member, Disaster management Authority, Govt. of Kerala and received by the Environmental Activist Smt. Veena Maruthoor. Nature songs and poetry singing were also conducted in connection with this function.



### 7.10. Kerala State Biodiversity Conservation Award 2020 - evaluation

The Kerala State Biodiversity Conservation Award is an annual award instituted by the Kerala State Biodiversity Board for recognising of individuals, organizations, educational institutions and media personal who have made significant contributions in the field of environmental protection and biodiversity conservation throughout the state of Kerala. The evaluation of the applications received in this regard was carried out in the months of February, March 2021 at the Biodiversity Museum, Vallakadavu in the presence of evaluation committee comprising of Board members and Judges.

### 7.11. Visit of Officials from Andhra Pradesh Biodiversity Board at Kerala Biodiversity Museum



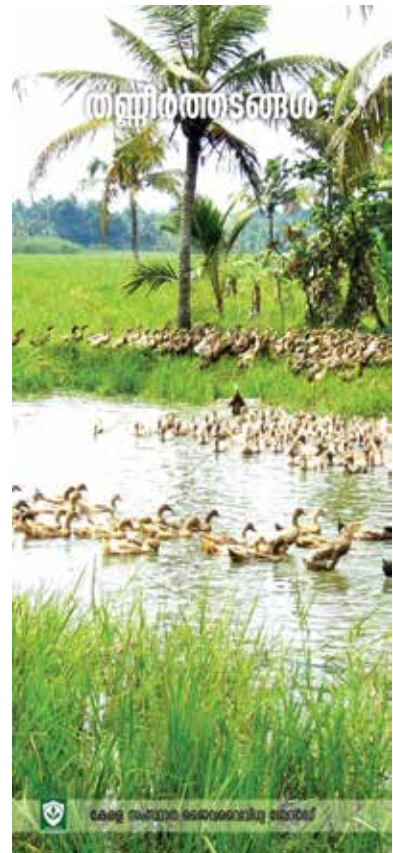
Andhrapradesh Biodiversity Board Member Secretary and team visited Kerala from 3<sup>rd</sup> to 7<sup>th</sup> March 2021. As part of this, they visited the Kerala Biodiversity Museum on March 6 and had a detailed discussion with the Member Secretary, KSBB about the facilities and activities of Kerala Biodiversity Museum.



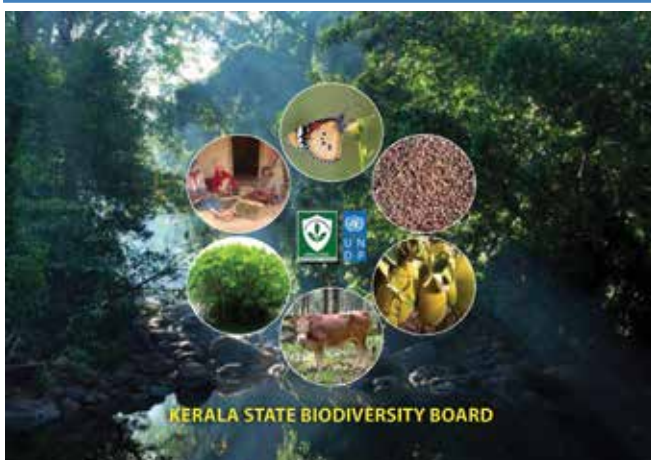
## 7.12. Publications/Brochures/Booklet

1. Theeradesha Niyamangal, Karshika Jaivavaividhyam
2. Kerala Biodiversity Museum
3. Key Achievements
4. KSBB Brochures
5. Management plan for the First Biodiversity Heritage Site ( Asramam BHS, Kollam)
6. Thanneerthadangal

### Brochures



### Booklet



### **7.13. Biodiversity Museum**

Kerala Biodiversity Museum is an initiative under the auspices of Kerala State Biodiversity Board. The main objective of the museum is to create awareness among public about the importance of biodiversity and its conservation.

Due to the widespread of COVID-19, the museum had been closed from April 2020 to November 15, 2020. It was reopened and started functioning by strictly following the COVID protocol declared by the Government.

#### **Major activities done in the Museum.**

- » Number of students visited during this period – 294
- » Number of adults visited during this period – 363
- » Colleges / Institutions visited KSBB Museum
  - University college, Thiruvananthapuram
  - Iqbal College, Palode
  - SN College, Cherthala
  - B.Ed College, Kumarapuram

#### **Important visitors to the Museum**

- Andhra Pradesh Biodiversity Board Member Secretary and the Team visited Biodiversity Museum on 06.03.2021 .

#### **Other Activities/Celebrations conducted in Museum**

- Biodiversity Award evaluation 25.02.2021 and 1.03 2021
- Conducted World Women's Day celebration on 08.03.2021

#### **Physical works done in the Museum**

- Repair of the false ceiling by KSSTM
- Fitting of wire mesh in the open gaps all around the roof portion of the museum building was done to restrict the entry of palm civets.
- Maintenance works are carried out regularly to keep the equipment clean.

### **7.14. Expert committee representation and major meetings attended**

#### **Travel details of the Chairman, Dr. C.George Thomas for the financial year 2020-2021**

- 27.02.2021- Review meeting of the RKI Pamba project with BMCs and MGNREGS at Ranni, Pathanamthitta
- 18.03.2021- Inauguration of the online conference of 'Life below water', perspectives on systematic, sustainable livelihood and Citizen Science", 18-20th March, University of Kerala, Thiruvananthapuram.
- 22.03.2021- Inauguration of World Water Day celebrations at CTCRI, Thiruvananthapuram "Valuing water"
- 26.03.2021- Round table discussion on Development of database on Tradable bioresources at Oushadhi, Kuttanellur, Thrissur.

## Travel details of the Member Secretary, Reney R Pillai for the financial year 2020-2021

- 22.01.2021 Kuruvichira Sri. Nagaraja Temple Case hearing, High Court of Kerala, Ernakulam
- 23.01.2021 BHS Asharamam Case hearing, High Court of Kerala, Ernakulam
- 27.02.2021 Review meeting of the RKI Pamba project with BMCs and MGNREGS at Ranni, Pathanamthitta
- 26.03.2021 Round table discussion on Development of database on Tradable bioresources at Oushadhi, Kuttanellur, Thrissur.

## 7.15. Publications during the year

### Research papers published.

1. “Experiences of biodiversity documentation in People’s Biodiversity Register. Munnar landscape area”. (Best Paper Award). Bindya. A, Shahnas. K.F, Aneesh Kumar. A.L., Reshnu Raj. R.S. , Justin M.K , Anand Zacharias,Preetha. N, Joshi.S.C. Webinar on ‘Best Practices for Biodiversity Conservation’ held by UNDP on July 17, 2020.
2. A Comparative analysis of Agriculture Practices among Communities of Idukki for Mainstreaming Biodiversity in Agriculture Sector Reshnu Raj. R.S, Justin M.K, Shahnas K.F, Aneesh Kumar A.L, Bindya A., Anand Zacharias, Preetha. N, Joshi S.C. Webinar on ‘Best Practices for Biodiversity Conservation’ held by UNDP on July 17, 2020.
3. Spatio - Temporal Drought Assessment of Mankulam Panchayath in Idukki using Geospatial Techniques. Anand Zacharias, Reshnu Raj R.S, Justin M.K, Aneesh Kumar A.L, Bindya A, Shahnas K.F, Preetha. N, Joshi S.C. Webinar on ‘Best Practices for Biodiversity Conservation’ held by UNDP on July 17, 2020.
4. Status of Plant Bioresources Utilised in Herbal Industries and the Need for Conservation – Kerala. Shahnas K.F., Reshnu Raj R.S., Preetha N., 4<sup>th</sup> Global Ayurveda Festival 12-19 March 2021 Webinar on ‘Best Practices for Biodiversity Conservation’ held by UNDP on July 17, 2020.

## 7.16. Details of sales made during year (2020-21)

SL.No.	Name of Publications	Total sold during the period
01	Common Trees of Kerala	13
02	Keralathile Oushada Sasya Vaividhyam	20
03	Kerala Theerathe Kadaljeevikal	33
04	Keralathile Chitrashalabangal	13
05	Invasive Plants of Kerala	12
06	Keralathile Sudha Jala Maltsyangal	12
07	Jaivakrishi Oru Prayogika Paadam	24
08	Mushrooms of Kerala	11
09	Cacelian Diversity of Kerala	13
10	Prakrithi Geethangal	11
11	Paristhithi Vijanavum Jaivavaividhya Nattarivum	13
12	Marine Gastropods of Kerala	12
13	Mangroves & Mangrove Associates of Kerala	12
14	Common Amphibians of Kerala	11

15	Feathers of Vellayani	15
16	Snakes of Kerala	263
17	Vrikshayurveda	15
18	Biodiversity Richness of Kerala	12
19	Flying Colours of Vembanad	11
	<b>Total books</b>	<b>526</b>

Sale proceeds = 60,875/-

(Rupees Sixty Thousand Eight Hundred and Seventy Five only/-)

### 7.17. Details of Books, Brochures, Booklets, distributed to Institutes and in various events during 2020 April to 2021 March

#### Books and Booklets

1. Experiences of decentralized Biodiversity Management- Kerala (2020). Dr. S.C. Joshi, Preetha Nilayangode, Mithrambika N.B. ISBN NO: 978-81-934231-4-1 Published by - Kerala State Biodiversity Board, Thiruvananthapuram. Pages 160
2. Guidelines for Range Forest Officers to enforce regulatory provisions of Biological Diversity Act 2002 of Kerala.
3. Methodology Manual "Biodiversity Documentation and Monitoring- ePBR".
4. "Tradable Bio-resources' Documentation (Database) and Identification of its ABS potential with Supply Chain: A Manual"
5. Two Booklets (KSBB activities and Milestones on KSBB).
6. Four Brochures on "Access and Benefit Sharing". Conservation of Agrodiversity, Coastal zone regulations, Wetlands rules, PPVRF Act.

#### Implementation of Right to Information Act Officers In- charge

Name & Designation of Officer (s)	Designated post
<p><b>Dr. S.C.Joshi IFS (Retd.)</b> Chairman (From 18.09.2017 - 17.09.2020 )</p> <p><b>Dr. C.George Thomas</b> 23.02.2021 continuing</p>	Appellate Authority
<p><b>Dr. V. Balakrishnan</b> Member Secretary 01.11.2018 - 09.06.2020</p> <p><b>Smt. Mini V.</b> Administrative Officer, Member Secretary in-charge From 10.06.2020 – 08.12.2020</p> <p><b>Ms. Reney R. Pillai</b> 09.12.2020 continuing</p>	State Public Information Officer
<p><b>Dr. Sudheesh. N</b> Scientific Officer</p>	State Assistant Public Information Officer

**SUO MOTO DISCLOSURE UNDER SECTION 4(1) (b)**

Reporting Year: 2020-21

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)
	Kerala State Biodiversity Board	NIL	NIL	NIL	NIL

**DESIGNATION OF PUBLIC INFORMATION OFFICERS/ APPELLATE AUTHORITIES**

Reporting Year: 2020-21

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)
	Kerala State Biodiversity Board	-	1	1	1

**DISPOSAL OF INFORMATION REQUESTS BY PUBLIC INFORMATION OFFICERS**

Reporting Year: 2020-21

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)
Kerala State Biodiversity Board	Nil	11	11	10	NIL	NIL	0

**INFORMATION REQUESTS REJECTED BY PUBLIC INFORMATION OFFICERS**

Reporting Year: 2020-21

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**

Name of the Department	No. of first appeals pending with appellate authorities on 1.4.2019	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)
Kerala State Biodiversity Board	Nil	1	1	1	NIL	0	NIL

**PENALTIES IMPOSED & COLLECTED**

Reporting Year: 2020-21

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)
Kerala State Biodiversity Board	NIL	NIL	NIL	NIL

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

Reporting Year: 2020-21

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)
Kerala State Biodiversity Board	NIL	NIL	NIL

**SUMMARY OF COSTS, FEES & CHARGES COLLECTED BY PUBLIC AUTHORITIES REPORTING YEAR: 2020-21**

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	NIL	110	NIL	NIL	NIL	110



**Kerala State Biodiversity Board**

Kowdiar Thiruvananthapuram Kerala

Annexures to Accounts for the year ended 31/03/2021

**Annexure 2 - Grant Accounts**

	As at		Receipt		Transfer		Payment		As at			
	01-04-2020		Grants	Others	Total	Trf (IntraHead)	Trf (InterHead)	Utilized Revenue	Utilized Assets	unutilized grant refunded	Total	31-03-2021
1	GoK 3435-03-101-99 (Plan)	-74,67,884	7,04,86,860	-	7,04,86,860	27,840	-1,02,33,332	-3,12,67,932	-7,67,640	-2,30,63,972	-5,50,99,544	-22,86,060
	Plan Fund 02F- Agrobiodiversity Conservation	-84,11,328	5,00,00,000	-	5,00,00,000	27,840	-	-3,33,17,692	-3,70,246	-2,28,18,175	-5,65,06,113	-1,48,89,601
		9,305	-	-	-	-	-	-	-	-	-	9,305
	GoK Plan	2,55,355	-	-	-	-	-	-	-	-	-	2,55,355
	Plan Fund PF 03/KS88-2011-2012 Coastal Conservation	65,600	-	-	-	-	-	-	-	-	-	65,600
	Unidentifiable credit by bank	57,487	-	-	-	-	-	-	-	-	-	57,487
	GoK Plan 2018 - 2019	-3,96,36,823	-	-	-	27,840	-	-	-	-	-	-3,96,08,983
	GoK Plan 2019 - 2020	3,08,10,000	-	-	-	-	-	-3,33,17,692	-3,70,246	-2,28,18,175	-5,65,06,113	-2,56,96,113
	GoK Plan 2020 - 2021	-	5,00,00,000	-	5,00,00,000	-	-	-	-	-	-	5,00,00,000
	Interest accrued on Plan Funds	27,748	-	-	-	-	-	-	-	-	-	27,748
2	State Biodiversity Fund	9,43,444	-	-	-	-	-	58,61,749	-	-	58,61,749	68,05,193
	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	6,13,439	-	-	-	-	-	-24,881	-	-	-24,881	5,88,558
	2017-2018	3,61,258	-	-	-	-	-	-	-	-	-	3,61,258
	2018 - 2019	-13,02,006	-	-	-	-	-	-	-	-	-	-13,02,006
	2019-2020	-45,000	-	-	-	-	-	-	-	-	-	-45,000
	2020-2021	-	-	-	-	-	-	-90,000	-	-	-90,000	-90,000
	Disbursement returned	-	-	-	-	-	-	59,76,630	-	-	59,76,630	59,76,630
3	GoK 2406-02-110-59-31 (NP) Salary	-	1,04,79,129	-	1,04,79,129	-	-1,02,33,332	-	-	-2,45,797	-2,45,797	-
	Trf to I&E Account	-	1,04,79,129	-	1,04,79,129	-	-1,02,33,332	-	-	-2,45,797	-2,45,797	-
4	GoK 2406-02-110-59-36 (NP) Non Salary	-	7,731	-	7,731	-	-	-	-7,731	-	-7,731	-
	Trf to I&E Account	-	7,731	-	7,731	-	-	-	-7,731	-	-7,731	-
5	RKI Scheme	-	1,00,00,000	-	1,00,00,000	-	-	-38,11,989	-3,89,663	-	-42,01,652	57,98,348
	RKI 2020 Scheme - H/A 5475-00-115-94	-	1,00,00,000	-	1,00,00,000	-	-	-38,11,989	-3,89,663	-	-42,01,652	57,98,348



**Kerala State Biodiversity Board**

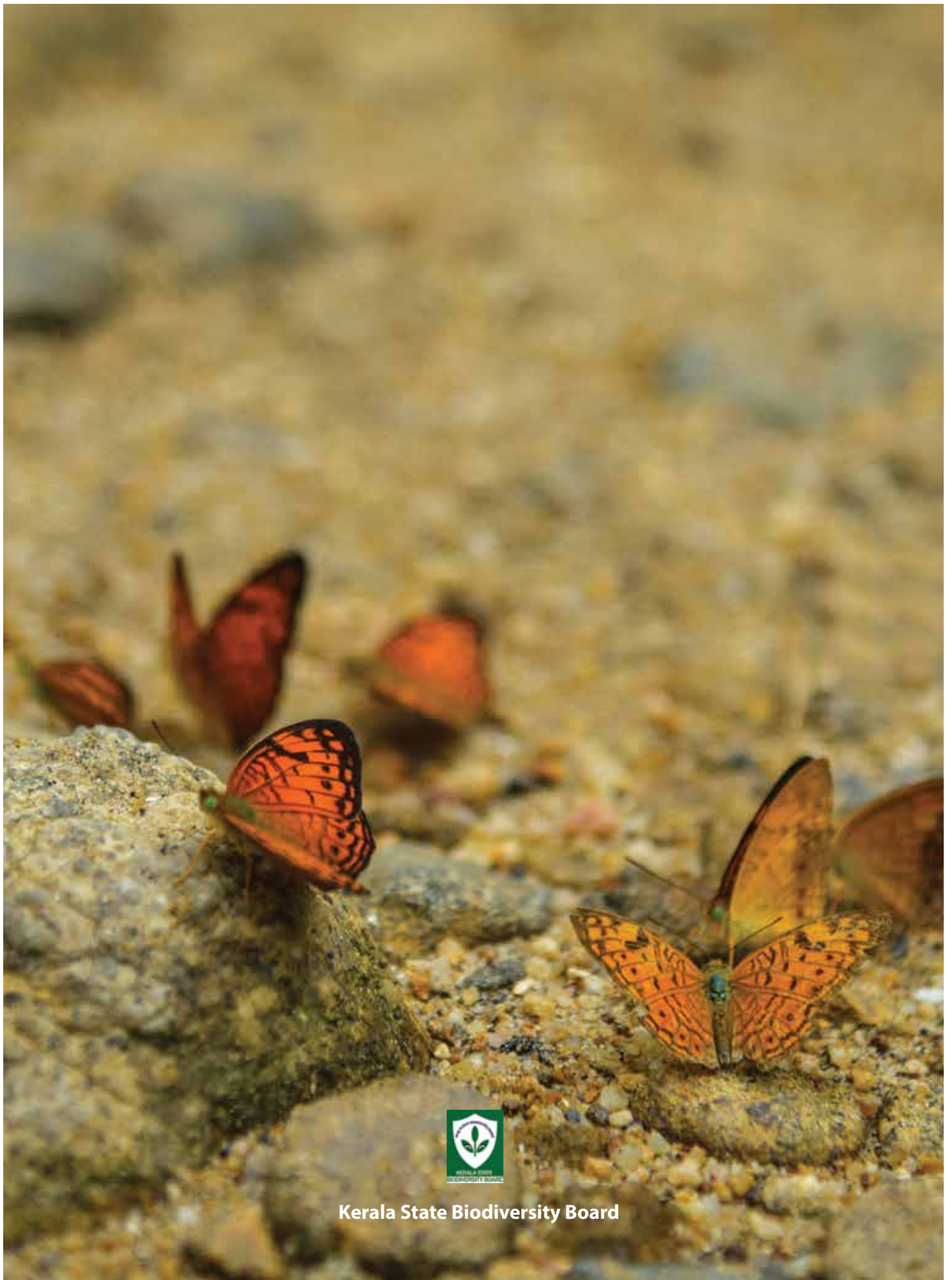
Kowdiar, Thiruvananthapuram Kerala  
Annexures to Accounts for the year ended 31/03/2021  
Annexure 4 - Funded Projects

	As at		Receipt			Payment			As at	
	01-04-2020	Funds received	Interest	Refund IN	Total	Utilised	Assets	Refund OUT	Total	31-03-2021
<b>1 DoECC</b>	<b>1</b>	<b>70,99,803</b>	<b>3,53,247</b>	<b>7,55,741</b>	<b>99,86,989</b>	<b>-34,95,001</b>	<b>-2,23,466</b>	<b>-9,70,628</b>	<b>-46,89,095</b>	<b>1,23,97,697</b>
Canal Works 2015 - 2016	1	27,20,000	-	-	-	-	-	-	-	27,20,000
Gramavanam 2013 - 2014		2,20,000	-	-	-	-	-	-	-	2,20,000
<b>2 UNDP</b>	<b>1</b>	<b>19,86,371</b>	<b>39,712</b>	<b>-</b>	<b>39,712</b>	<b>-11,19,510</b>	<b>-1,40,516</b>	<b>-</b>	<b>-12,60,026</b>	<b>7,66,057</b>
GEF Munnar Landscape Project 2014 - 2015		-18,307	-	-	-	-	-	-	-	-18,307
GEF Munnar Landscape Project 2015 - 2016		2,23,952	-	-	-	-	-	-	-	2,23,952
GEF Munnar Landscape Project 2018 - 2019		8,55,621	-	-	-	-11,19,510	-1,40,516	-	-12,60,026	-4,04,405
GEF Munnar Landscape Project 2019 - 2020		7,99,920	-	-	-	-	-	-	-	7,99,920
Interest Received		1,25,185	39,712	-	39,712	-	-	-	-	1,64,897
<b>3 National Biodiversity Authority (NBA)</b>	<b>1</b>	<b>14,12,651</b>	<b>3,13,535</b>	<b>6,63,065</b>	<b>98,54,601</b>	<b>-16,74,606</b>	<b>-</b>	<b>-8,77,952</b>	<b>-25,52,558</b>	<b>87,14,694</b>
Component Training Material and Printing (14 - 15)		20,726	-	-	-	-	-	-20,726	-20,726	-
Developing and Revamping of Website (14-15)		1,95,072	-	-	-	-	-	-1,95,072	-1,95,072	-
Peer to Peer Learning (14-15)		56,484	-	-	-	-	-	-56,734	-56,734	-250
Plan Fund from NBA		14,04,919	-	-	-	-	-	-	-	14,04,919
Thematic Expert Committee (14-15)		2,48,713	-	-	-	-1,38,308	-	-1,10,405	-2,48,713	-
Printing of BMC Reports (14-15)		93,398	-	-	-	-80,563	-	-8,593	-89,156	4,242
Benefit Sharing Component to Concerned BMC		77,52,666	-	-	77,52,666	-	-	-	-	77,52,666
NBA - Capacity Building		7,00,000	-	-	-	-89,881	-	-	-89,881	6,10,119
NBA Fund (COP 11 engagement) 2018-19		-11,49,600	-	-	-	-	-	-	-	-11,49,600
NBA Fund (COP 11 engagement)-2019-20		24,665	-	-	-	-	-	-24,665	-24,665	-
NBA Fund (COP 11 engagement)-2020-21		11,25,335	-	24,665	11,50,000	-10,83,607	-	-	-10,83,607	66,393
NBC 2017 Fund from NBA		-	-	-	-	-	-	-	-	-
NBA - Exposure Visit of PCCF & MS of APSBB		-50,349	-	54,690	54,690	-54,690	-	-	-54,690	-
E-PBR - National Informatics Centre NBA		-3,23,804	-	50,349	50,349	-	-	-	-	-
PBR Monitoring Committee - Second Meeting		-	3,37,875	3,37,875	3,37,875	-14,071	-	-	-14,071	-
LSG Biodiversity Conservation and Development		-	-	-	-	-	-	-	-	-
International Biodiversity Day		3,511	-	-	-	-	-	-	-	3,511
International Biodiversity Day 2020		-	1,95,486	1,95,486	1,95,486	-1,95,486	-	-	-1,95,486	-
Integrating Biodiversity Conservation		-	-	-	-	-	-	-	-	-
Biodiversity Award		-	-	-	-	-18,000	-	-	-18,000	-18,000
State level workshop on biodiversity action plan		-73,894	-	-	-	-	-	-	-	-73,894
Interest received		2,62,810	3,13,535	3,13,535	3,13,535	-	-	-4,61,757	-4,61,757	1,14,588
<b>4 Coastal Ecosystem Conservation 2011 - 2012</b>	<b>1</b>	<b>43,215</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>43,215</b>
		43,215	-	-	-	-	-	-	-	43,215

	As at		Receipt		Payment		As at			
	01-04-2020	Funds received	Interest	Refund IN	Total	Utilised	Assets	Refund OUT	Total	31-03-2021
5 Plan Fund EMA	1	31,907	-	-	-	-	-	-	-	31,907
		31,907								31,907
6 MoEF	1	23,631	-	-	-	-	-	-	-	23,631
WGEEP		23,631								23,631
7 National Medicinal Plants Board (NMPB)	1	8,82,028	-	-	-	-7,00,885	-	-	-7,00,885	1,81,143
NMPB 2014 - 2015		-2,44,702				-6,60,641			-6,60,641	-9,05,343
NMPB 2018 - 2019						-40,244			-40,244	-40,244
Resource Augmentation, Sustainable Harvesting and Value addition of medicinal plant resources through BMC		11,26,730								11,26,730
8 National Centre for Sustainable Coastal Mgt (NCSCM)	1	-	-	92,676	92,676	-	-	-92,676	-92,676	-
Preparation of DPR for Conservation of Sacred Grove				92,676	92,676			-92,676	-92,676	-
7 PCC 2020-21	1	-	-	-	-	-	-82,950	-	-82,950	-82,950
Project Coordination Cell							-82,950		-82,950	-82,950







Kerala State Biodiversity Board