

KERALA STATE
BIODIVERSITY BOARD

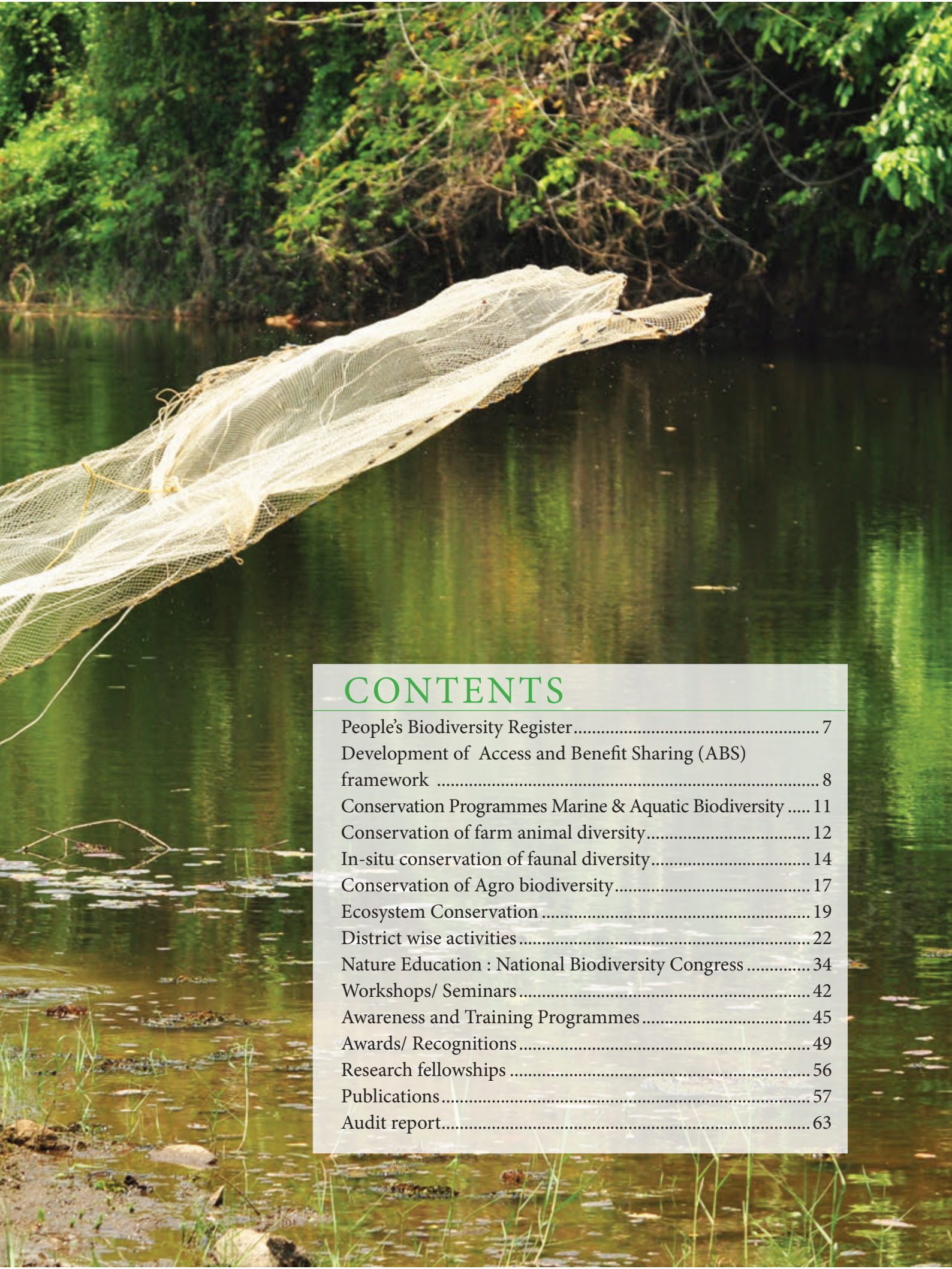
ANNUAL REPORT
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Photo: Dr. C.P. Shaji





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Dr. Oommen V. Oommen
Chairman



FORWARD

Kerala State Biodiversity Board put in place a series of activities related to conservation, sustainable use of biological resources and associated traditional knowledge and had taken all efforts to responsibly implement the Access and Benefit Sharing (ABS) provisions of the Biological Diversity (BD) Act during 2014-2015. The benefit sharing regime proposed by India suggests that providers of bio-resources are entitled to receive fair benefits from the commercial users. In the light of the Guidelines on ABS notified by MoEF, KSBB had initiated the process of implementation of ABS in Kerala. National Biodiversity Congress 2015 with focal theme Access and Benefit sharing was conducted to provide clarity to the issue and the salient outcomes were communicated to all State Biodiversity Boards. A key point raised during the conference was that ABS should be considered as one of the elements for sustainably raising finance for development and not as a regulatory regime. ABS mechanism should not restrict users, but on the other hand, should facilitate sustainable development. With this vision, KSBB is promoting a green ABS policy, which will create incentives to conserve and sustainably use genetic resources, and therefore enhance the contribution of biodiversity to development and human well-being. At the grass root level, the major constraint identified was the lack of awareness among stakeholders on ABS. During the reporting period KSBB conducted meetings with senior government officials, awareness programmes for Ayurvedic industries, Capacity building of BMC for implementing ABS, discussions with Ayurvedic Medicine Manufacturers Association (AMMOI), Kerala Small Industries department, The Sea Food Exporters Association, Association of Planters of Kerala, Ayurveda Medical officers Association etc. to address this issue. Let us hope that in the coming years the Board will be able to implement the ABS provisions of the Act and prevent misappropriation of Kerala's biological resources and associated traditional knowledge. I am optimistic that all stakeholders in Kerala will realize their roles and responsibilities in sharing the benefits of commercialization, based on principles of equity and fairness.



Dr. K.P. Laladhas
Member Secretary



PREFACE

It gives me great pleasure in presenting the Annual report of Kerala State Biodiversity Board for the year 2014-2015. During the reporting period, the district level activities of the Board were strengthened and the field staff had taken up several conservation projects and environmental awareness programmes at the local level. The Board was able to complete various projects taken up during the last year successfully. The Marine Biodiversity Register programme taken up during 2013-2014 has yielded significant results. More than 400 marine organisms were identified in the rocky regions of the project area, 42 Matsyagramam wise details of the fishing related activities, traditional crafts and gears were collected and specimens of more than 300 marine organisms were collected and preserved for future reference. The research centre has become functional and research fellowships were awarded to give impetus to biodiversity research. This year the Children's Biodiversity congress was conducted at two levels i.e. district and state level to ensure more active participation. This resulted in the participation of schools throughout Kerala. Without an awareness of the importance of biodiversity to human well-being, citizens and stakeholders are not likely to take the steps needed to mainstream biodiversity considerations into their daily lives and practices. The Convention on Biological Diversity's (CBD) Communication, Education and Public Awareness (CEPA) programme is an important instrument for the Aichi Biodiversity Target 1. National Biodiversity Congress (NBC) was conducted during February 2015 as part of Communication, Education and Public Awareness programmes of Kerala. The Biodiversity expo conducted together with NBC, exhibited about 100 stalls set up by institutions and organizations from public, co-operative and private sectors. By protecting nature we are creating the future we want and it gives me great pleasure to say that KSBB had attempted to achieve this vision. I would like to thank the Hon'ble Minister for Environment and Forests, the Board, the Executive team and all the field level staff for their support in our endeavor.



Photo: Dr. Linda John

People's Biodiversity Register

During 2014-15, Kerala State Biodiversity Board conducted PBR trainings in 72 LSGs, which included 65 Grama panchayats, 5 Municipalities and 2 Corporations. The Corporations where PBR preparation is progressing are Thiruvananthapuram and Kollam, Wayanad is the first district in the state where PBRs preparation was successfully completed in all BMCs. District wise details of total PBRs completed till date and the number of trainings undertaken in each district is furnished below:

Sl. No.	District	No. of BMCs where PBR preparation has been completed up to March 2015	No. of BMCs where PBR trainings were given during 2014-15'
1	Thiruvananthapuram	71 GP	1 GP+1M+1C
2	Kollam	58 GP	4 GP+1M+1C
3	Pathanamthitta	49 GP+1M	1 GP
4	Alappuzha	69 GP+1M	2 GP
5	Kottayam	52 GP	5 GP+1M
6	Idukki	43 GP +1 M	1 GP
7	Ernakulam	54 GP +2 M	8 GP+1M
8	Thrissur	78 GP	3 GP
9	Palakkad	47 GP	6 GP
10	Malappuram	61 GP +1 M	16 GP+1M
11	Kozhikode	47 GP +1 M	11 GP
12	Wayanad	25 GP +1 M	Completed
13	Kannur	53 GP +1 M	6 GP
14	Kasaragod	30 GP +1 M	1 GP
	Total	737 GPs + 10 M	65GPs+5M+2C (72)

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



Development of Access and Benefit Sharing (ABS) frameworks

➤ Green ABS policy

The Nagoya Protocol which entered into force on 12th October 2014 provides a transparent legal framework for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources. In Kerala the segments where ABS will be applicable includes the Ayurvedic medicines, seafood, seeds, spices and plantation sector to name a few.

State Biodiversity Board has developed the draft 'Kerala State ABS Policy and Guidelines' with an aim to achieve the following:

- ◆ Elaborate and clarify the rationale and purpose of having a functional ABS system at the State level;
- ◆ Outline the role of various sectors and stakeholders in implementing the state level ABS mechanism;
- ◆ Suggest the implementation options for ABS system, at state level, as suggested in Section 7 of the Biological Diversity Act and the Kerala State Biodiversity Rules; and
- ◆ Provide clarity and direction for state level action on ABS regime that is responsive, inclusive and forward-looking to contribute to conservation and sustainable development.

The Kerala ABS Policy and Guidelines are developed with the following over-arching elements:

- ◆ Enhancing Kerala's opportunities for conservation, sustainable management and sharing of benefits
- ◆ Promoting the conservation and sustainable use of Kerala's biological resources
- ◆ Supporting research and innovation in science and technology
- ◆ Improving economic and livelihood opportunities for communities in Kerala using ABS as a sustainable financing option.

The draft Green ABS policy is based on the following core principles: Environment and Development Centered, Economically Sound Equity and Efficiency Based Enabling Implementation. Through the ABS mechanism, the Board is looking forward for contribution in kind from the stakeholders, where they will have to see they engage in conservation activities in their area of operation by planting trees and tending it. The policy will ensure that the benefits flow back to conservation of bioresources and will advocate contribution in kind from the stakeholders. A green ABS policy will create incentives to conserve and sustainably use genetic resources, and therefore enhances the contribution of biodiversity to development and human well-being. The policy is in the process for ratification.



Photo: Dr. K.P. Laladhas

▶ Regulation of biological resources for commercial utilization

- ✓ For implementing the provisions of Section 7 of Biological Diversity Act 2002 and Section 16 of Kerala Biological Diversity Rules 2008, Form I along with a checklist of documents to be submitted for seeking approval for access to bioresources for commercial utilization was made available in website and more than 1500 notices were issued to industries. Eighty eight organizations have sought approval for access to bioresources in the prescribed form.
- ✓ A consultation meeting was organized on 4th November 2014 at Thiruvananthapuram with senior government officials of KFRI, SACON, Food and Drugs department, JNTBGRI, Rubber Board. All concerned Govt departments were requested to cooperate in enforcing the provisions of Biodiversity Act in an amicable way. During the meeting it was suggested that as a first step it is necessary to create awareness among all stakeholders, Capacity building of BMC for implementing ABS and sensitizing BMC to bioresources commercially accessed from their jurisdiction. The other recommendations included development of data on trade networks and supply chain, preparation of a hand book of species under various regulations and distribution of a directory of resource persons with expertise in identification of species to all stakeholders and guidelines incorporating the salient features of the BD Act and Rules.
- ✓ Discussion with Dr. Balakrishna Pisupati on ABS implementation in Kerala at KSBB, Head office was held on 08th and 09th January 2015, for developing an ABS policy based on NBA guidelines.
- ✓ The first ABS expert committee meeting was convened on 3rd February 2015 at Trivandrum. Dr. Oommen V Oommen explained about the duties and specific ToR of the committee. Dr. Balakrishna Pisupati gave an overview of the ABS policy. The draft ABS policy was discussed and modifications incorporated.
- ✓ The first round of discussions were conducted with senior representatives of various sectors as Ayurvedic Medicine Manufacturers Association, Sea Food exporters, Planters Association, etc on 3rd February 2015 at Trivandrum. The meeting was attended by Dr. Balakrishna Pisupati, UN consultant, Dr. Oommen V. Oommen and Dr. KP Laladhas and senior representatives of AMMOI, Kerala Small Industries department The Sea Food Exporters Association of India, Association of Planters of Kerala, Indian Coir Association, Ayurveda Medical officers Association. The meeting attempted to reach out to stakeholders groups in various sectors to ensure better understanding of the Biological Diversity Act in Kerala. The meeting set to clarify the doubts on the provisions of the Act and ensure better compliance by the participating agencies. The respective Associations were also requested to come out with a) suggestive ABS framework for the sector, b) the range of non-monetary benefits the sector could think of in supportive ABS, conservation and sustainable management of resources c) the appropriate monetary contribution the sector would think appropriate for accessing, procuring biological resources and sharing the benefits d) incentives can be provided to the sector in recognition of their compliance to the ABS mechanism e) the priority areas in which the sector sees is important to use the benefits accrued through



the ABS mechanism for the sustainable development of the sector.

- ✓ Chairman and Member Secretary met the PCCF, Kerala on 10.02.2015 and discussed about the implementation of ABS mechanism in Kerala. It was requested to ensure that the provisions of Biodiversity Act 2002 and Rules 2004 and Kerala Biological Diversity Rules 2008 are being adhered to by the successful bidders during auction of the bioresources, other than those notified as Normally traded commodities.

➤ Conservation of MoEF notified species

As per section 38 of Biological Diversity Act 2002 twenty six species of flora and 13 species of fauna have been notified the species of plants and animals on the verge of extinction in Kerala. In collaboration with JNTBGRI, KSBB has initiated studies of habitat identification, and propagation protocol for in situ an ex situ conservation of these species..

➤ Constitution of expert committees

In order to implement various provisions of the BD Act in Kerala expert committees were constituted to provide direction and suggest recommendations. Expert Committees (EC) on various subjects as Animal and Fish biodiversity, Conservation of Land races and wild floral diversity, Invasive and exotic plants and animals, Legal issues for implementation of ABS in state and Intellectual Property Rights (IPR) issues related to bio resources, Notification and Management of BHS, Aquatic ecosystem management and Assessing environmental and

biodiversity issues in Kerala. The broad Terms of Reference of the committees includes a) To make suggestions for development of database of floral and faunal biodiversity of state b) Formulate conservation programmes for MoEF notified threatened species c) Identification of species to be notified as threatened species under section 38 of BD Act 2002 d) Provide inputs for development of district wise PBR collaborating with TSG members) Provide directions for conservation of domesticated stocks and breeds of animals and native fishes of Kerala f) Updation of PBR g) Identification of invasive and exotic flora and fauna of Kerala h) Give inputs in reviewing and deciding on the ABS applications and benefit sharing mechanisms i) Provide directions for action against activities violating Biodiversity rules, acts, and notifications

➤ Prior approval for access to bioresources

- ◆ Five applications referred to KSBB by National Biodiversity Authority for obtaining IPR were processed during the reporting period. The IPR was sought for the inventions :
 - 1) Method of processing of Xenografts
 - 2) Processed dry prawns meat
 - 3) Processed dry yellow clams meat
 - 4) Herbal composition effective against Rhabdovirus and process of preparation thereof
 - 5) Composition comprising probiotic lactobacillus strains.
- ◆ Four applications were received from different national and international organisations during 2014 -15 seeking access to bioresources for research and biosurvey.

Sl. No.	Name & Address of the organisation	Details of application
1	M/S Royal Botanic Garden Edinburgh (RGBE) Scotland, UK	Access to biological resources for the study on taxonomic, phylogenetic and biogeographic affinities of Sri Lankan and South Indian members of the Angiosperm Plant family Gesneriaceae
2	Tomas MELICHAR Director of Sphingidae Museum Orlov, Czech Republic	Access to Bioresources (<i>Lepidoptera: Sphingidae</i> butterflies) from Periyar National Park and Wild life Sanctuary
3	CIRAD 42 rue Scheffer, Paris, France	Access to bioresources for research on the assessment of genetic and phenotypic diversity within the <i>Vanilla</i> Genus.
4	M/S Gangabishan Bhikunal Investment and Trading Limited (GBIT) Mumbai, Maharashtra	Access to mosquito larvae, pupae and adults for research purposes for disease control.

CONSERVATION PROGRAMMES

Marine & Aquatic Biodiversity



Photo: Sirsendu Gayen

➤ Marine Biodiversity Register

A unique initiative to document the marine biodiversity and traditional knowledge of people in 20-km stretch of the Thiruvananthapuram coast from Valiathura to Puthukurichy was implemented by KSBB during 2013-14. The “Marine Biodiversity Register” thus prepared was first of its kind and included documentation of traditional knowledge, underwater ecology of the inshore areas, traditional knowledge of fishermen in the State and suggested conservation measures that concern the traditional fisher folk. During 2014-2015 Marine Biodiversity Register of Thiruvananthapuram coastal area (58km) from Puthukurichy to Kollam and Valiyathura to Pozhiyoor is being prepared. As part of the project the underwater details were documented with the help of scuba divers and traditional underwater divers

➤ Key achievements

- ◆ More than 400 marine creatures were identified in the rocky regions of the project area
- ◆ Detailed list of the marine reefs were prepared
- ◆ Demographic details of coastal population were collected
- ◆ 42 Matsyagramam wise details of the fishing related activities, crafts and gears owned by the fisher folk were collected
- ◆ Coastal vegetation details were collected and also documented
- ◆ Traditional knowledge of the fishing community in relation to ocean currents, winds, astronomical knowledge, kannicham etc. were documented.
- ◆ specimens of more than 300 marine creatures were collected and preserved for future reference

Conservation of farm animal diversity



Vechur Cow

Conservation and genetic improvement of native breeds of Kerala such as Vechur and Cheruvally cattle is one of the projects funded by KSBB for the past two years. The project is implemented by Vechur Conservation Society along with financial assistance of agencies like NABARD and GEF (UNDP). The animals from hot or hot humid conditions as in Kerala and other places would be an insurance for future. In the eventuality of global warming the animals adapted to the cold climate may not thrive and tropical animals would be needed.

The main objectives of the project are

1. Conservation of Cheruvally and Vechur cattle.
2. Strengthening the Germplasm centre of native cattle to enable it to act as the nucleus herd with superior genetic merit.
3. Production and processing of semen of Cheruvally and Vechur bulls for conservation and genetic improvement of the variety.

4. Conservation can be done in-situ only by farmers and they need incentives in the form of technology, awareness, marketing support

Key achievements

1. A sample survey on the Cheruvally animals was done
2. It was reported that animals belonging to Cheruvally (one male and four females) purchased during the previous year are maintained.
3. One cow and a calf were supplied to a farmer.
4. Five births took place in Cheruvally and one Vechur in the Germplasm centre.
5. Total breeding bulls including Vechur maintained during the period were 8. Apart from this frozen semen from 5 bulls were also used in different localities. Regular semen collections were done from these bulls and semen supplied to farmers.
6. Registering farmers to the project is in

- progress.
7. Three breed associations have been started. One is for Vechur and the other for Kasargod and another one for Wayanad native cattle.
 8. The greatest achievement is starting a proper animal identification with micro chipping. Microchip implantation helps in accurate selection of animals for breeding, pure breeding & conservation, and in avoiding inbreeding (i.e. mating between relatives, prevent fraud practices in sale, tracing lost animals)
 9. Issue of Pedigree certification is in progress.

- The Trust is giving different grades to the animals depending on the details of pedigree
10. Observations were made on the incidence Foot and Mouth disease, during the outbreak of the disease in crossbred animals. No case of Foot and Mouth was seen in Vechur animals.
 11. Trainings were given by the Trust for the production and marketing of value added products to make conservation programme profitable and sustainable. Main products developed are Vechur ghee Bhoosjeevani (Manure from dung, urine and minor ingredients), Gomaya Bhasmam.



Photo: Anwar

Kasaragod dwarf

In-situ conservation of faunal diversity



Photo: Dr. K.P. Laladhas

➤ Documentation and Conservation of avian fauna at Wayanad

Birds are projected to be particularly sensitive to climate change. Long-term drought and sudden extreme weather creates stress on habitats that many threatened species depend on. While bird species that can move easily to new habitat are expected to continue to do well, bird species that thrive only in a narrow environmental range are expected to decline. Bird surveys are being conducted in the human habitations and agricultural areas and other critical habitat for endemic as well as endangered species birds in Wayanad. Areas such as Kallor paddy field, Vemome paddy fields, Panamaram Heronry were covered for assessing the diversity, abundance and distribution of bird species. The survey recorded species as Red headed vulture, White rumped vulture, Crested serpent eagle, Black eagle, Booted eagle, Bonellis eagle and endemic species as Nilgiri fly catcher. It is proposed to develop a database of birds of specific locality both native and migratory and develop a data on changes in migratory pattern and nesting preferences which will facilitate conservation measures for birds sensitive to climate change.

➤ Conservation of marine turtles with community participation

A collaborative project for Conservation of the endangered Olive ridley turtles involving KSBB, Central University (Kasargod), local NGOs in association with Biodiversity Management committees and Local self government of the respective area is being carried out. The project involves survey and mapping the distribution of nesting sites, (2) Increased public awareness and participation in sea turtle conservation through public education. (3) Establishment of hatcheries (4) Establishment of turtle conservation and education centre (5) Tagging of turtles for long term monitoring. The public awareness programmes will be carried out by volunteers or students of Biodiversity clubs established by KSBB and students of Central University under the supervision of experienced biologists and/or educators and will include workshops and training programmes.





Turtle Rescue centre of "Neythal"

➤ Conservation of native inland fishes

For conservation of native inland fishes of Pampa river 5 ponds each from 3 Panchayats, i.e. Koyipram Panchayath of Pathanamthitta District, Mannar and Pandanad Panchayath of Alappuzha District were selected. 88 Kg of *Clarias dussumieri* were released in all the ponds, 20 Kg *Horabagrus brachysoma* were released in ponds of Mannar Panchayath.

➤ Documentation and Conservation of avian fauna at Punchakari- Vellayanai wetlands

Conservation of Vellayani lake and preservation of adjoining Punchakari wetland biodiversity is one of the agenda of KSBB. Towards the above a Biodiversity register is being prepared. Water birds are well-known indicators of the quality of wetlands and for incorporating details bird survey is being conducted during both breeding and non breeding season. The use of wetlands by birds during the breeding cycle ranges widely, with some depending almost totally on wetlands for breeding, feeding or shelter during their breeding cycles. The data of avian fauna is being taken to obtain information on an



Release of fish fingerlings in Pampa river

annual basis of water bird populations at wetlands, identify population sizes, and to determine trends in numbers and distribution. More than sixty species of birds have already been identified.

➤ Conservation of Indigenous Fish Diversity of Vellayani Lake

Kerala State Biodiversity Board has initiated Conservation of Indigenous fresh water fish species to ensure food security as well as indigenous fish diversity in the water bodies of the state. Vellayani, the largest fresh water lake of the capital city has revealed decline in the total biomass of indigenous fishes in the recent surveys due to heavy fishing pressures on the lake. So as to enhance the biomass as well as the fish diversity of the lake seedlings of native varieties of prawn (*Aattukonchu-Macrobrachium rosenbergii*), 3500 nos. and Pearl

spot (*Karimeen-Etroplus suratensis*) 20,000 nos. were released in to the lake.



Release of fish fingerlings in Vellayani lake



Photo: K. Gopakumar

Conservation of Agro biodiversity

➤ Conservation of tuber diversity at of Onattukara

This project was implemented for the conservation and dissemination of rare and indigenous varieties of tuber crops which are edible, nutritious but are now underutilized due to lack of popularity. Planting materials of ten varieties of such tuber crops were procured from the traditional farmers of Wayanad district and distributed to 127 farmers belonging to Chennithala, Thazhakkara, Mannar, Chettikkuangara, Thekkekkara Gramapanchayats and Mavelikkara Municipality of the Onattukara region. Organic manure were also supplied to them free of cost for organic cultivation. The purpose of the project is to increase the diversity of tuber crops in Onattukara region and their dissemination.



➤ Genetic conservation of Banana varieties and Ecotypes through public participation

The purpose of the project was to reintroduce diverse varieties of banana in farmer's field and make them commercially viable. The initiative aims to popularise local varieties of banana among the consumers of Kerala, apart from those which are in common use. This will facilitate to conserve rare banana varieties in the farmers fields and homesteads so as to prevent their extinction as also to popularise crops which can mitigate climate change. Planting materials of 18 banana varieties conserved at Banana Nursery Peringammala were procured and distributed to 444 farmers of Kalliyoor Gram Panchayat. Rare varieties such as Adukkan, Krishnavazha, Matti, Perumpadaly, Karpooravally are some of the varieties distributed.



Indigenous tuber crops



Seed bank and conservation of plant diversity and wild crop diversity

KSBB has already prepared Peoples Biodiversity register incorporating the local land races and cultivars of agricultural crops and wild biodiversity for more than 700 panchayats. KSBB in association with Department of Botany, Kerala University is establishing a state of art seed bank for the long term and medium-term storage of seeds for facilitating germplasm distribution for research in genetic diversity, and for conserving the wild relatives of priority crops. Rare, endangered and threatened plants as well as landraces within species, wild crop relatives and farmers varieties will be identified, including landraces of staple crops such as cereals, indigenous fruit trees and local vegetable species. The seed bank will serve as a seed repository of wild flowering plants of Kerala, Plant diversity of Western Ghats and wild crop relatives, traditional varieties, local land races, farmers varieties etc. This state of art seed bank will be one of a kind in Kerala and can serve as a nodal centre for research and conservation of endemic species and landraces of crop plants.



Photo: Jijin J. Smith

Ecosystem Conservation

➤ Eco restoration of Aduppukoottanpara Quarry

Aduppukoottanpara quarry of Peroorkada Village, Thiruvananthapuram was in an abandoned condition for long time. The large quarry pond approximately 4 acres was in a polluted condition with dumped plastic and other wastes accumulated over several years. As the depth of the quarry pond was uneven and unpredictable, cleaning the pond was risky. This polluted water body was becoming a potential source for health hazards to the local community and also a threat to environment. With the help of local supporting group, KSBB took the responsibility, and the following activities were undertaken.

- ◆ Cleaning the quarry pond
- ◆ Disposal of Collected wastes of recycling centre
- ◆ Clearing road connecting Peroorkada junction
- ◆ Levelling and cleaning of the area available at the entrance of quarry

There is ample scope for recreational tourism linked conservation activities in this abandoned area. As a next step KSBB intent to establish a butterfly garden, introduce native fishes in the water body, set up ornamental vegetation and other recreational activities. The project was launched by Shri K Muraleedharan, MLA on 06.12.2014.

➤ Conservation and Greening Sasthamcotta watershed

A joint biodiversity management committee of three panchayats of Sasthamkotta, Mynagapally and West Kallada was constituted with Sasthamkotta block panchayat president as the chairman and the chairperson of the other two BMC as joint convenors. Chairman KSBB visited Sasthamcotta lake and inaugurated the tree planting at the West Kallada Region on 11.07.2014. A planned catchment management plan by afforestation with indigenous species is being implemented and about 2000 saplings of various species of bamboo, canes, neem etc were planted and are being maintained by panchayat.



Aduppukoottan para after cleaning



Inauguration of Sasthamkotta conservation programme

➤ Greening Palakkad gap

As a part of the sustainable development scheme, the Kerala State Biodiversity Board is implementing a project for community afforestation in the rain shadow region of Palakkad. Palakkad Gap is the major break in the Western Ghats mountain range, in southwestern India. The project aims to arrest the depletion of the green cover of the area and enhance the green cover in the rain shadow region of Palakkad by carrying out greening activities in selected Grama Panchayaths of Palakkad. The project

is being implemented with the help of Biodiversity Club Members of Palakkad, Social forestry division of Kerala, Forest Department, Palakkad, Farmers and BMCs of 17 GPs. As per the action plan of the project, initial interaction with the key players and target group was done on 22/12/2014 at Govt. Moyan Model School, Palakkad. The program was launched at 5 Grama panchayats on 05/02/2015 at Collectorate conference hall Palakkad. A Hand Book on Greening Palakkad Gap was prepared. The expected outcomes of the Project are enhanced green cover, improved hydrological regime and minimized water and soil erosion, and restoration of habitats and planting of endemic species.



Greening Palakkad gap - inauguration



➤ Biodiversity information system

A project funded by National Biodiversity Authority is in progress to develop a Biodiversity information system of flora and fauna of Kerala that is easily accessible to the public. KSBB has already collected and compiled primary/ secondary data regarding the flora and fauna of Kerala. The database includes species checklists, species images, habitat, conservation status, morphology as well as distribution data and descriptions of endemic species. A repository of high-resolution digital images in JPEG format / TIFF format is also being developed. The database will have features to search plants/animals based on family, genus, geographical distribution along with the botanical/zoological name, and important synonyms. The digitized data of biodiversity is expected to offer an important aid for taxonomic identification during PBR preparation and teaching.

➤ Sustainable harvesting of medicinal plants at Wayanad

The Kerala State Biodiversity Board (KSBB) has launched a project 'Resource Augmentation, Sustainable Harvesting and Value Addition of Medicinal Plant Resources through Biodiversity Management Committee (BMC) at Thavinjal, Ambalavayal, Moopainad, Poothadi, and Noolpuzha grama panchayats of Wayanad to conserve the critically endangered medicinal plants

in the Western Ghats region. The three year project being implemented with financial assistance of the National Medicinal Plant Board aims at ensuring sustainable income to the tribals. The project is being executed in association with the biodiversity management committees functioning at the grama panchayat level. Many a times the lack of processing facilities leads to fungal attack and less price for the collectors due to high moisture content. The plant part is collected without paying attention to the stage of maturity, dried haphazardly and stored for long periods under unsuitable conditions. The development of a taluk wise common processing facility including storage and drying yard is underway to ensure quality raw materials and prevents wastage. The project also aims to promote sustainable management of collection of medicinal plants for commercial purposes by strengthening LSG & BMC for monitoring and developing sustainable harvesting calendar and non destructive method of collection for priority species. Capacity building workshops are being conducted for identification of species, post harvesting processing, storage and sustainable harvesting and nursery techniques for identified species under the project. Minor forest products such as Kurmthotti (*Sida alnifolia*); Nellikka (*Phyllanthus emblica*), Thanika (*Terminalia bellirica*), and Moovila (*Pseudarthria viscida*) would be collected and processed under the project and support provided for manufacture of value-added products from medicinal plants.



Photo: G.S. Unnikrishnan Nair

District wise activities

Thiruvananthapuram

PBR Activities: Submitted 18 PBRs from various grama panchayats; PBR preparation started in Kadakkavoor GP, Attingal Municipality and Thiruvananthapuram Corporation with the support of concerned BMCs; A total of 71 PBRs have been completed in the district.

Conservation and Awareness programmes:

1. Conducted awareness programme at schools on World Environment Day and participated in planting tree saplings at various grama panchayats along with BMCs.
2. Successfully completed the Awareness and Familiarization Programme funded by National Biodiversity Authority, Chennai in selected five schools in the district.
3. On Farmer's Day (August 17th), Kalliyoor BMC conducted a farmer's meet and distributed the saplings of banana varieties to the farmers.
4. Conducted district level Children's Biodiversity Congress (CBC) with the support of Deputy Director of Education at SMVHSS, Thiruvananthapuram on 24th November 2014. First and second place winners of various competitions attended the state level competitions of 7th CBC held on 26th and 27th February 2015 at Institution of Engineers Hall, Thiruvananthapuram.
5. Participated in the BMC meetings of various grama panchayats such as Aruvikkara, Manickal, Vithura, Kuttichal, Kalliyoor, Kadakkavoor, etc, Attingal Municipality and Thiruvananthapuram Corporation.
6. Participated in the KSBB's programme – Introduction of indigenous fish varieties at Vellayani freshwater lake along with Kalliyoor BMC.

7. Collected the list of ponds in Kalliyoor Panchayat with the support of BMC.
8. Constituted about 65 Biodiversity Clubs (BDCs) in various schools.

Urban Plant diversity documentation

In Kerala domesticated landscapes and species are mostly interspersed with patches of wilderness areas. These small patches of greenery in the urban ecosystem significantly improve the quality of life in urban areas by their aesthetic and recreational value. These human-managed ecosystems contain an important segment of biodiversity, and if they are managed in conjunction with a system of protected areas they can significantly contribute to the maintenance of biodiversity. Although the vegetation in protected areas is mostly well documented little systematic knowledge has been gathered on wild plants that grow spontaneously in self-maintaining populations in semi-natural ecosystems or human dominated ecosystems. These landscapes are rapidly changing due to developmental activities. In order to document this diversity KSBB initiated a project to capture the photographs of all the wild plants growing in the corporation area of Thiruvananthapuram under the leadership of a plant taxonomist. Efforts are underway to digitalize the data so that it will function as a ready reference for wild plant diversity in urban area.



➤ Documentation of biodiversity of Pangode military head quarters- Green Lungs

KSBB along with the cooperation of military officials conducted survey in the campus of military headquarters at Pangode. The initial survey documented 21 species of birds, 3 species of mammals, 18 species of butterflies and 225 species of plants.

Kollam

PBR Activities: Conducted PBR trainings in 4 GPs, 1 Municipality and 1 Corporation. PBR works are completed in 58 GPs till date.

➤ Conservation and Awareness programmes:

1. Actively participated in Environment Day and Biological Day Celebrations.
2. Involved in Sasthamcotta Lake Conservation Project through the participation of joint BMCs of Sasthamcotta, West Kallada and Mynagappally GPs.
3. Constituted about 18 Biodiversity Clubs in various schools.
4. Welcomed the Science Express Biodiversity Special train at Kollam railway station and provided all means of help during its stationing on 27th – 30th November 2014.
5. Organized district level Children's Biodiversity Congress.
6. Involved in the preparation of Marine Biodiversity Register (MBR).
7. Started the project- Mangrove Nursery at Clappana GP.
8. Gave awareness classes to all BMCs on Mangroves.
9. Actively involved in Mangrove Reforestation Programme through people participation along the coast of T S Canal.
10. Started preparation of Biodiversity Register of Ashramam Mangroves.



Pathanamthitta

PBR Activities: A total of 50 PBRs were completed in the district till date. PBR preparation in Ezhumattoor GP, Ranni Pazhavangadi GP, Thiruvalla and Pathanamthitta Municipalities is progressing. Only 3 GPs are left for PBR preparation in the district.

➤ Conservation and Awareness programmes:

1. CBC - District level Children's Biodiversity Congress was held with the support of Deputy Director of Education, Pathanamthitta at Marthoma Higher Secondary School, Pathanamthitta on 29th November 2014. Various competitions like project presentation, essay writing and painting for both UP and HS students were held. Prizes and mementos were given to the winners. First and second place winners of various competitions attended the state level competitions of 7th CBC held on 26th and 27th February 2015 at Institution of Engineers Hall Thiruvananthapuram.
2. 65 Biodiversity Clubs constituted at various schools in the district.
3. Gramavanam Project – Eraviperoor BMC in Pathanamthitta undertook the Gramavanam project. They planted trees and shrubs in a plot of Panchayat land having an area 40m x 30m on the banks of river 'Poorva Pampa' east of Chelurkadavu Bridge.
4. Fish Conservation project – KSBB conceived a project to increase native fish population in Pampa river. Koipram GP was selected in the district for

implementing the project. The project was formally inaugurated by Adv. K. Sadasivan Nair MLA on 6th May 2014.

5. Actively participated in the meetings and seminars conducted by Pampa Parirakshana Samithi (PPS) on the subject 'Riverine and river plain biodiversity conservation' of Pampa river.

Alappuzha

PBR Activities: Out of 73 GPs and 5 Municipalities in the district, PBRs were completed in 69 GPs and 1 Municipality. PBR preparation in rest of the 4 GPs is in final stage and will be completed within two months.

Conservation and Awareness programmes:

1. Organized district level CBC for students of UP and HS section.
2. Around 138 Biodiversity Clubs are constituted in various schools and colleges.
3. Onattukara Tuber Conservation Project
4. Inspection was conducted in all Shanthisthals in the district along with the expert team from KSBB head quarters.

Kottayam

PBR Activities: Out of 73 GPs in the district, 52 GPs submitted their PBRs and the preparation of PBR are progressing in 9 GPs. BMCs are functioning in all LSGs in the district and the district co-ordinator and the project fellows visited every GP and tried to create awareness about the activities and importance of BMCs.

Conservation and Awareness programmes:

1. Biodiversity Clubs: Project fellows visited Colleges and Schools in the district and gave necessary directions to the authorities regarding the functioning and relevance of having such clubs in education institutions. A total of 6 BDCs constituted in the district till date.

2. Shanthisthals: Three Shanthisthals are functioning in the District. The venues are at SB College, Changanacherry, Tropical Institute of Ecological Sciences, Velloor and DB College, Thalayolapparabu. A scientific team from KSBB visited the Shanthisthals on 14th Oct 2014 and reviewed the functioning. Periodical inspections are being conducted at Shanthisthals as per the directions from KSBB.
3. Conservation of Kodur River at Puthuppally: With the support of Technical Support Group (TSG) in the district, conducted awareness programme for the conservation of Kodur River and to protect the river from degradation and the threat of *Cabomba caroliniana* infestation.
4. Protection of Aattuvanchikkavu: As per the direction from KSBB, the DC and the Project fellows along with the TSG member, Dr. Unnikrishnan visited Aattuvanchikkavu in Kidangoor Grama Panchayath on 27th November 2014. After a detailed study, send a report to KSBB about the threat at the place and instructed the remedial measures to be taken up



Photo: Sanjay B.

to protect the Aattuvanchikkavu and Meenachil River from sand mining.

5. World Environment Day: As part of the World Environment Day celebration, actively participated in the “Haritha Sree” photo exhibition conducted on 4th and 5th of June 2014 under the auspices of Forest Department at KPS Menon Hall, Kottayam and it was a grand success.



6. Children’s Biodiversity Congress: As part of the district level 7th Children’s Biodiversity Congress, different competitions were conducted with the active support and co-operation of Deputy Director of Education (Schools). Projects were invited from UP and High School Sections and about 150 projects were received. From this, ten best projects were selected from each section.

Inaugural function of the competitions was convened at Baker Memorial Auditorium on 15th November 2014. Smt. Nirmala Jimmy, District Panchayat President inaugurated the ceremony and Smt. Jessy Jacob, Deputy Director of Education, presided over the function. After the inaugural ceremony, competitions in different items like essay writing, drawing, project presentation, etc. were conducted. 450 students participated in the competitions from UP and High School sections. Hundred students participated in the project presentation.

As a part of the 7th children’s Bio Diversity Congress, competitions and other functions were conducted in Kottayam District and was a grand success due to the whole hearted support and co-operation of Deputy Director of Education and their staff, project fellows and above all the participants, teachers and parents.





Views of KSBB stall in Agro fest, Kottayam

Review meetings of PBR project staff: District co-ordinators and project fellows attended the review meeting held on 22nd May 2014 at Institutions of Engineers Hall, Thiruvananthapuram regarding the PBR and related activities. Also attended the Annual Review Meeting of District Co-ordinators and project fellows held at National Adventure Academy, Devikulam, Idukki on 11th and 12th November 2014.

In the meeting, both the Chairman and Member Secretary reviewed the activities of Kottayam District and pointed out the short comings and at the same time appreciated efforts they have taken for the implementation of the PBR project.

7. Agro fest: KSBB actively participated in the 17th Agro fest organised by the Kottayam Social Service Society, at Chaithanya Pastoral Centre, Thellakom, Kottayam from 26th to 30th November 2014. In the exhibition panels and photos were exhibited regarding biodiversity and conservation.

Idukki

PBR Activities: Out of 53 GPs and 1 Municipality, PBRs in 43 GPs and 1 Municipality has been completed. PBR preparation in 4 GPs is progressing and 6 GPs are remaining in the district to start PBR preparation.

Conservation and Awareness programmes:

1. Conducted BMC meetings in 11 GPs.
2. Reconstituted BMCs in 12 GPs.
3. Constituted 125 Biodiversity Clubs in various schools and organized meetings in 23 clubs.
4. Organized school co-ordinator's workshop at Thodupuzha and Kuttikkanam on 27-06-2014 and 11-12-2014 respectively.
5. Organized a Nature Camp for Biodiversity club teacher co-ordinators at Thattekkad Bird Sanctuary and Chinnar wildlife Sanctuary.
6. Proposed new Shanthisthals in 6 schools.
7. Started Herbal Garden in 3 schools.

8. Gave help by all means for preparing Cadastral maps in various GPs in the district.
9. Conducted district level CBC at Thodupuzha on 10th November 2014.
10. Provide all assistance for conducting State Level Annual Review Meeting of PBR project staff at Devikulam, Idukki on 11th and 12th November 2014.
11. Started data collection in grama panchayats coming under UNDP project.



Ernakulam

PBR Activities: Out of 84 GPs, 11 Municipalities and 1 Corporation in the district, 54 GPs and 2 Municipalities have completed the PBR preparation. 13 PBRs are under preparation and it is expected to be completed by this financial year.



Conservation and Awareness programmes:

1. Awareness and Familiarization Programme based on PBR: This programme has been undertaken in 5 schools in 5 different grama panchayats such as Valakom, Mulanthuruthy, Pampakkuda, Chottanikkara and Okkal. The programme was successfully completed in the district with the support and active participation of DC, project fellows, teacher co-ordinators, BMC members, Panchayat Presidents and members of concerned GPs and students of five selected schools.
2. Review meetings: The DC and Project fellows attended the review meeting held on 22nd May 2015 at Institution of Engineers Hall, Thiruvananthapuram and Annual Review meeting held at National Adventure Academy, Devikulam, Idukki on 11th and 12th November 2014.
3. World Environment Day Observance: The World Environment Day observance on 5th June 2014 in various schools in the district was attended by Project fellows and District co-ordinator. Awareness classes, competitions, etc. were conducted and more importantly planting of tree saplings provided by Forest Department were the programme in schools to mark the day.

4. Children's Biodiversity Congress: On 26th November 2014, a one day programme for students was held at SRVHSS, Ernakulam, jointly by KSBB and Deputy Directorate of Education, Ernakulam. Various competitions like project presentation, essay writing and painting were held as directed from KSBB headquarters. First and second place winners of various competitions attended the state level competitions of 7th CBC held on 26th and 27th February 2015 at Institution of Engineers Hall Thiruvananthapuram.
5. About 15 Biodiversity clubs are constituted in various schools in the district.



7th CBC at Ernakulam District – Painting competition

Thrissur

PBR Activities: Out of 88 GPs, PBR work is completed in 78 GPs. PBR preparation is progressing in 3 GPs and 1 Municipality and it is expected that the PBR preparation will be started in Thrissur Corporation before March 2015.

Conservation and Awareness programmes:

1. Biodiversity clubs: Around 65 Biodiversity clubs are formed in various schools and colleges in the district.
2. District Level CBC: District level Children's Biodiversity competitions were conducted on 21st November 2014 at Thrissur Town Hall. Mr. Santhosh, Deputy Director of Education, Thrissur, inaugurated the competitions. About 100 students participated in project presentation, essay writing and painting competitions.
3. Biodiversity Science Express: The Science Express Biodiversity Special Train (SEBS) organized by Ministry of Environment and Forest (MoEF) in association with Indian Railways reached at Thrissur railway station on 24th November 2014 and was stationed there up to 26th November. Warm welcome was given to the SEBS. Mr. Rajan Pallan, Mayor, Thrissur Corporation inaugurated the exhibition. More than 15000 people including students visited the express. All the project fellows and DC were present and helped the authorities during its three days halt.
4. Visited Kalasamala, proposed Biodiversity Heritage Site in Porkkulam GP along with project fellows on 27th June 2014 to collect seeds of Kalluvetti (*Syzygium travancoricum*) for its conservation through germination. Some viable seeds have been sent to the Board for further conservation.
5. Along with project fellows visited and made report on 'Gramavanam' at Porkkulam GP on 19th July 2014.
6. Actively participated in planting tree saplings in connection with the World Environment Day celebration on 5th June 2014 at local bodies and other institutions.
7. Visited KFRI and collected tree saplings for bio fencing at Sashamkotta on 3rd and 4th June 2014 as per the directions of KSBB head quarters.
8. Conducted awareness classes in various schools and colleges regarding biodiversity and its conservation.
9. Projects fellows conducted a survey on sacred groves of Porkkulam GP along with NSS volunteers.
10. Actively participated in the 'One goal-One tree' project of Fr. Joy P.T. and planted more than 500 local varieties of mango tree saplings in various parts of the district.
11. Visited and made evaluation report on Shanthisthal at Sree Krishna College, Guruvayur.
12. Visited and made report on Attappadi Goat Conservation Project at Mala funded by KSBB.
13. Attended the Wetlands Day Celebration of Christ College, Irinjalakkuda and Carmel College, Mala on 2nd February 2015.
14. Participated in a meeting of Biodiversity Club members of Christ College, Irinjalakkuda along with Dr. Oommen V. Oommen, Chairman, KSBB on 4th February 2015.

Palakkad

PBR Activities: Out of 91 GPs and 4 Municipalities in the district, PBRs were completed in 47 GPs. PBR preparation is progressing in 19 GPs.

Conservation and Awareness programmes:

1. Started the work of constitution of Biodiversity Clubs at schools in this year and clubs were formed in 28 Schools.
2. Started new Shanthisthals in Abhayam at Pattambi (50 cents) and in Kongad UP School (30 cents).
3. Started 'Gramavanam' Project in Mankara GP and now it is progressing well.
4. As part of World Environment Day Celebration, actively involved in the

programmes of panchayats and planted trees.

5. Participated in Panther Foundation Education Camp at Melarkode and the District Co-ordinator gave a lecture on Biodiversity and International year of family farming.
6. Attended the meeting of organic farmers conducted by Karshaka Samithi at Thennur.
7. Visited the 'Gramavanam' at Mankara and Shanthisthal at Mercy College and sent report to KSBB.
8. Welcomed and gave whole hearted support to Dr. Satyan, Member Secretary of Meghalaya Biodiversity Board during his visit in the district. He visited Mankara GP and detailed him the activities of Mankara BMC.
9. Conducted District level Children's Biodiversity congress with the support of District Deputy Directorate of Education.
10. Participated in the Ozone day programmes of Mankara BMC and the DC spoke to the students of Mankara School.
11. Attended the Review meetings held by the Board at Institution of Engineers Hall, Thiruvananthapuram on 22nd May 2014 and at National Adventure Academy, Devikulam, Idukki on 11th and 12th November 2014.
12. Along with Jana Jagratha Secretary, Dr. P.S. Panicker, actively involved and tried to stop demolishing of hills in Palakkad.
13. Welcomed the Science Express of Biodiversity Special (SEBS) train at Shornur railway station and provided all assistance during its stationing from 1st to 3rd December 2014.
14. Conducted a meeting regarding the implementation of the project – Greening of Palakkad Gap at Govt. Moyan Model HSS, Palakkad on 22nd December 2014 under the leadership of Dr. S. Rajasekharan, Senior Programme Coordinator, KSBB.
15. Officially launched the KSBB's project – Greening of Palakkad Gap by Dr. Oommen V. Oommen, Chairman, KSBB at Peruvembu Panchayat Hall on 5th February 2015.

Malappuram

PBR Activities: Out of 100 GPs and 7 Municipalities in the district, 61 GPs and 1 Municipality have completed PBR work in their respective local body. PBR preparation is progressing in 27 GPs and 1 Municipality.



Conservation and Awareness programmes:

1. Awareness and Familiarization Programme: It is one of the five districts selected for student's awareness programme. Five schools were selected for the programme in the district and it was completed successfully in all selected schools.
2. Attended the International Biological Diversity Day programme held by KSBB at Institution of Engineers Hall, Thiruvananthapuram on 22nd May 2014 and the review meeting of DCs and Project fellows. Also attended the review meeting of PBR project staff held at Devikulam, Idukki on 11th and 12th November 2014.
3. District level competitions like project presentation, essay writing and painting were held as part of 7th CBC on 3rd November 2014, at G.G.H.S.S. Malappuram.
4. A total of 52 Biodiversity clubs were formed in various schools and colleges.
5. Two Shanthisthals were formed in two institutions.
6. DC delivered a lecture on Biodiversity and its conservation on 23rd August 2014 at Sreekrishnapuram govt. Engineering College.
7. DC along with project fellows attended a workshop on 'shore birds' conducted by Dr. Jafer Palot at Art Gallery, Kottakkunnu on 8th October 2014. A photo exhibition of 'Water birds' was also arranged.
8. Organic Farm: An organic farming unit has been set up at Melevaram, Farook College, under the convenorship of DC. The majority of the partners are retired or working professors. 'The professor's farm' has already caught attention of media. The farm is characterized by the use of bio fertilizers. 'Palekar Model' cultivation is practiced. It is planned to extend the cultivation practice in two more areas in this year.



Kozhikode

PBR Activities: Out of 75 GPs, 2 Municipalities and 1 Corporation in the district, 47 GPs and 1 Municipality completed PBR preparation and in 17 GPs PBR work is progressing.

➤ Conservation and Awareness programmes:

1. Participated in International Biological Diversity Day celebrations held at Institution of Engineers Hall, Thiruvananthapuram by KSBB.
2. World Environment Day celebrations were organized in association with Regional Science Centre (RSC) and Scientists Association of Malabar (SAM).
3. Started to form Biodiversity Clubs at various schools and colleges and constituted 15 clubs.
4. District level CBC was conducted during October 2014 in association with Deputy Director of Education, Kozhikode.
5. Attended the annual review meeting of KSBB held at Devikulam, Idukki

6. Attended a seminar on Management Action Plan for Ashtamudi Lake organized by CWRDM as directed from KSBB Head quarters.
7. Visited Eliyottumala in Kozhikode district and submitted a report to KSBB on a complaint of illegal laterite mining during December 2014.

Wayanad

PBR Activities: First district in the state where PBR preparation was completed in all LSGs.

➤ Conservation and Awareness programmes:

1. Tuber conservation project at Edavaka GP: The project is completed and as part of the project, various awareness campaigns, food festivals, exhibition of tubers, distribution of tuber seeds to the farmers, etc. were conducted with the support of BMC.
2. Common Bird Monitoring Programme: The programme is conducted to detect the changes in nature according to the climate



Photo: Justin Johny

- changes through the presence of common birds in the locality. Birds are monitored continuously in a locality and their features recorded. The survey started in June and the details are documented in data sheet accordingly.
3. Started the project entitled “Resource Augmentation, Sustainable Harvesting and Value Addition of Medicinal Plants Resources” through Biodiversity Management Committees (BMCs) – Conducted the core group meeting, internal meeting with DC and project fellows and meeting with BMCs involved in the project as per the project working plan. Identified the land for constructing ware house and drying yard for the project in three GPs and the agreement for construction was made with Nirmithi Kendra, Wayanad.
 4. About 54 Biodiversity Clubs were constituted in most of the schools in the district and conducted awareness classes among children.
 5. Awareness and Familiarisation Programme based on PBR was successfully completed in six schools of five GPs. As part of the project, tried to upgrade the PBRs already prepared by concerned BMCs.
 6. Planted tubers at Edavaka on 21st April 2014.
 7. Brought Cadastral Maps of Panchayats in Wayanad from KSBB head quarters and handed over them to the District Collector.
 8. Conducted a district level meeting and training on 11th August 2014 for BMC Presidents and Secretaries of the district with the support of District Panchayat, Wayanad under the auspices of Dr. K.P. Laladhas, Member Secretary, KSBB.
 9. A documentary presentation and lecture was given on ‘Elephant and forest’ for Kuruva Elephant Protection Samithi as part of International Elephant day observance on 12th August 2014.
 10. Observed International Bamboo Day along with Edavaka BMC on 18th September 2014.
 11. Participated in the Seminar conducted at Mananthavady Govt. College on ‘Conservation of Western Ghats’ from 22nd to 24th September 2014.
 12. As part of Wildlife Week Celebration, conducted classes on ‘Spotting Birds’ for students at Tholppetty on 7th October 2014.
 13. Participated in the Butterfly Survey conducted at Periyar Wildlife Sanctuary on 23rd and 24th October 2014.
 14. Tuber harvesting at Edavaka on 19th November 2014.
 15. Participated in the Seed Conservation Camp at Panavaaly organized by Thanal on 23rd and 24th November 2014.
 16. Conducted an awareness programme on Nature conservation and forest trekking for students of Shree Pranavam Yoga School, Mananthavady on 25th November 2014.
 17. Conducted, awareness programme for BMCs in the district under the leadership of Dr. Oommen V. Oommen, chairman, KSBB on 26th November 2014.
 18. District level Children’s Biodiversity Congress was held on 6th December 2014.
 19. Organized a camp at Thirunelli regarding environment, forest and biodiversity conservation for the students of selected colleges in the district during 13th and 14th December 2014.
 20. On 15th December 2014, under the leadership of Dr. S. Rajasekharan, Senior Programme Co-ordinator, KSBB, assessed the importance of biodiversity in the area where NATPAC is proposed to conduct a pre feasibility study in the routes through forest section of NH – 766.
 21. Officially launched the project entitled “Resource Augmentation, Sustainable Harvesting and Value Addition of Medicinal Plants Resources through Biodiversity Management Committees (BMCs)” at Thavinjal GP on 16th December 2014 under the auspices of Dr. S. Rajasekharan, Senior Programme Coordinator, KSBB.
 22. In association with MSSRF, organized one day workshops in all Grama Panchayat BMCs in the district to make aware them

about their responsibilities and activities during the months of December and January.

23. In addition to these, took classes in various environmental camps organized by the forest department in the district and also in NSS camps. As part of National Green Corps (NGC) programmes, gave environmental awareness classes in various schools and camps in the district.

Kannur

PBR Activities: Out of 81 GPs and 6 Municipalities in the district, 53 GPs and one Municipality completed the PBR preparation and it is progressing in 18 BMCs.

➤ Conservation and Awareness programmes:

1. Participated in World Environment celebration of different institutions.
2. Cadastral maps are collected from KSBB Head quarters and distributed in concerned GPs in the district.
3. Constituted 38 Biodiversity clubs in various schools.

4. Visited six Shanthisthals and one Gramavanam in the district and submitted their activity report in the district.
5. Conducted district level CBC in November 2014.
6. Organized seminar in seven Biodiversity clubs on 'Need of Biodiversity Conservation'.
7. Conducted seminar on Organic farming in two institutions in the district.
8. Classes were given on butterfly gardening in three UP schools.
9. Organized a workshop on the need of Biodiversity clubs in schools for existing Science club Secretaries of Kannur district.
10. Organized a one day seminar for Thalassery Teachers club on 'Biodiversity conservation- the need for the hour'.

Kasaragod

PBR Activities: Out of 38 GPs and 3 Municipalities in the district, 30 GPs and 1 Municipality completed their PBR work and the PBRs will be completed in rest of the 8 GPs within 2 months.



Photo: G.S. Unnikrishnan Nair

➤ Conservation and Awareness programmes:

1. Around nine Biodiversity Clubs are constituted in schools.
2. Visited Shanthisthal in the district and reported their activities accordingly.
3. Organized a BMC empowerment programme for BMC Presidents and Secretaries of grama panchayats in the district through Kasaragod District Panchayat under the auspices of Dr. Oommen V Oommen, Chairman, KSBB.
4. Conducted district level CBC at Kanjhangad with the support of Deputy Director of Education. Various competitions like project presentation, essay writing and painting were held and a total of 100 students participated from various schools in the district. Winners of each competition participated in the state level CBC competitions held at Thiruvananthapuram.
16. Received the Science Express of Biodiversity Special (SEBS) train at Kasaragod railway station and provided all assistance during its stationing from 4th to 6th December 2014. About 60,000 people including students visited the train.
5. Submitted enquiry reports on various environmental issues to the Board like Laterite Mining at Karinthalam, Cool drinks project of Neeleswaram Municipality, Muthappan quarry issue and Narimala quarry issue, etc.
6. Tried to make aware the BMCs about their role as 'environment watch group' and distributed the copy of the government order to interested groups.



Photo: Justin Johny

NATURE EDUCATION

National Biodiversity Congress

The second National Biodiversity Congress NBC 2015 organized by the Kerala State biodiversity Board took place at Trivandrum from 23rd February to 27th February 2015. The five-day long Congress began with the National Biodiversity Expo at Kanakakkunnu Palace which remained as the main venue of the Congress. The focal theme for this year's Congress was 'Biodiversity: Access and Benefit Sharing'. More than 500 delegates participated in the Congress and discussed various aspects related to biodiversity and its conservation.

Inaugurating the Congress and the Biodiversity Expo on 23rd February, Shri. K. Muraleedharan MLA praised the State Biodiversity Board for cleaning up the ponds in Thiruvananthapuram, the capital city of Kerala. He shared the example of Aduppukoottan Para in the suburb of the city where a polluted water body is about to be turned to a tourist place with attractions like boating facility. Dr. K.P. Laladhas, Member Secretary, State Biodiversity Board, during his welcome address, said that the events and

meetings organized as part of the Congress could help the efficient implementation of the Biodiversity Act within the state, which would become possible only if every citizen of India and every common man should be actively involved in protecting and conserving the biodiversity and environment around them. During his presidential address, Dr. Oommen V. Oommen, Chairman, State Biodiversity Board, stated that the Board plans to encourage commercial enterprises using biological resources to set aside one percent of their income for biodiversity conservation activities. Shri. Yalakki IFS, Director, Department of Environment and Climate Change said that it takes centuries for biodiversity to attain its level of diversity and such virginal biodiversity found in the forests must be protected. State Medicinal Plant Board CEO, Dr. K.G. Sreekumar, Jawaharlal Nehru Tropical Botanic Garden and Research Institute Director Dr. P.G. Latha and Kerala Biodiversity Board Senior Programme Coordinator Dr. S. Rajasekharan were among those present.



Inauguration of NBC by MLA Shri. K. Muraleedharan



A view of NBC Expo Entrance

Prakruthi Varnangal



Honourable Chief Minister Shri. Oommen Chandy inaugurating "Prakruthi Varnangal"

'Prakruthi Varnangal', an exhibition of paintings drawn by 40 artists on-spot, upon themes like biodiversity, threats faced by it was organized at the premises of the Kanakakkunnu Palace. The exhibition was inaugurated by Hon'ble Chief Minister Shri. Oommen Chandy. The artists selected a variety of themes like conservation of biodiversity, sustainable use of biodiversity, protection of forest, protection of medicinal plants, protection of the indigenous varieties including fishes and plants, agricultural biodiversity and the sad plight of endangered flora and fauna. The event was organized in association with *Lalithakala Sankham*, Nedumangadu.



Nattarivu Sangamam

A meeting of the traditional healers and experts from the field of traditional Medicine was held on 23rd February. The gathering was organized with an objective of providing a venue to share and exchange the experiences and skills inherited by the traditional healers from their fore-fathers. The interaction between the healers and the other participants was immensely successful, where 10 distinguished practitioners of Traditional Medicine belonging to tribal and non-tribal communities shared their expertise in their respective subjects like Traditional/folk medicine, *Vishachikilsa* (treatment of poisonous bite), *Nadichikilsa* (Traditional pulse





reading techniques), *Rasayana chikilsa* (Traditional Rejuvenation Therapy).

The following ‘Vaidyars’ shared remedies for a wide variety of issues, ranging from hair loss to

heart attack: Shri. T.M. Shahul Hameed Vaidyar, Traditional Healer from Karunagappally, Smt. Lakshmykutty from Kallar, Thiruvananthapuram (Tribal medicine), Dr. Mannar G. Radhakrishnan (*Rasayana chikithsa*), Shri. Jose Parassery (Traditional healer), shri, Shine Vaidyar (*Visha chikilsa*), Shri. Sivanandan Vaidyar (*Nadichikilsa*) and Smt. Radha Kuttykrishnan (Tribal medicine).

Shri. K.J. Varughee IFS, Additional chief Conservator of Forests during his special address on Forest biodiversity and Associated Traditional Knowledge, highlighted the successful model of Access and Benefit Sharing in which the traditional knowledge relating to the health rejuvenating properties of the plant *Trichopus zeylanicus* (locally known as *Arogyappacha*) possessed by the *Kani* tribe living in the Western Ghats was utilized for producing the drug ‘*Jeevani*’ by the researchers at Jawaharlal Nehru Institute of Tropical Botanic Garden and Reseach Institute in collaboration with Coimbatore Aryavaidya Pharmacy.

Haritha sangamam

Harithasangamam, a meet of farmers’ who strive hard to maintain and conserve a wide range of indigenous crops and varieties was convened as part of the NBC 2015. Meet was inaugurated by Honourable Minister for Irrigation, Shri. P.J. Joseph. Dr. K.P. Laladas, Member Secretary, State Biodiversity Board, welcomed the audience. Dr.

Oommen V. Oommen, Chairman, State Biodiversity Board, Dr. V. S. Vijayan, Former Chairman, State Biodiversity Board, Dr. P.G. Latha, Director, JNTBGRI and G.S. Unnikrishnan Nair, Scientific Officer, State Biodiversity Board were present. R. Hali, Former Director of Agriculture was the moderator for the technical session. 20 selected farmers shared their experience.



Inauguration of Haritha Sangamam by Minister Shri. P.J. Joseph

Biodiversity Management Committee Meet

A meeting of the Biodiversity Management committees (BMCs) was arranged in connection with the Biodiversity Congress. BMC members representing various Panchayats, Corporations and Municipalities took part in the gathering. The BMC-meet served as a platform for sharing of experiences, issues faced, implementation of the Biological Diversity Act and rules and ABS provisions and to suggest/propose various projects for conservation of biodiversity within their jurisdiction. Addressing the BMC representatives and the audience, Dr. K.P. Laladhas, Member Secretary, State Biodiversity Board, stated that Kerala will soon become the first state in the country to have a policy document on

biodiversity conservation related to 'Access and Benefit Sharing (ABS)'. Dr. Oommen V. Oommen, Chairman, State Biodiversity Board, pointed out the fact that Kerala is the only state in the country that has established the biodiversity management committees at all panchayats under the Biological Diversity Act. The ABS policy and its provisions are intended to contribute to the conservation and sustainable use of biological diversity and traditional knowledge in Kerala. Representatives of different BMCs shared their experiences in implementing Biodiversity Act and various conservation activities undertaken by them.

Children's Biodiversity Congress (CBC) - 2015

7th Children's Biodiversity Congress was organized at Institute of Engineers Hall near to Kanakakkunnu as part of the NBC-2015. The Children's congress was inaugurated by Shri. K.C. Joseph, Honourable Minister for Cultural Affairs. The minister stressed the urgent need of protecting the rich biodiversity of Kerala through eco-friendly agriculture, during his inaugural address. The inaugural function was chaired by Smt. Sugathakumari, well known

poet and environmental activist. Many of the blessings that we derive from nature today are the outcomes of the biodiversity that the Nature had been preserving for us through centuries and millenniums, the poet said. She wanted the new generation to be made aware of this, so that the children of today must know that, if we are not protecting the natural wealth that we have today, they will be lost forever.



Minister Shri. K.C. Joseph inaugurating CBC - 2015



Views of CBC - 2015

Dr. K.P. Laladhas, Member Secretary, State Biodiversity Board, welcomed the audience. Dr. Oommen V. Oommen, Chairman, State Biodiversity Board, Dr. M. R. Thamban, Director, State Institute of Languages were present. Dr. Annie Mathai, Programme Coordinator, Kerala State Biodiversity Board extended Vote of Thanks.

As part of CBC the state level final competitions for the first and second positions in the competitions held at the district level were held. There were about 200 contestants representing the 14 districts in Kerala. The five best projects were selected for oral-presentation. Different subjects relating to biodiversity were pre-assigned for the Project Presentations. For U.P. Section, it was 'how the

rivers in a locality are linked to the culture and living of the people there' and 'how the changes in the Monsoon affect the land and people' for the High School Section.

There was also a State Level Painting Competition for Children. 'Making of a garden in the home or school premises' was the subject given for U.P. Section. 'A village family hood' was the subject given for high School section. Essay Competition for the children followed. 'Conserving the biodiversity for the sustainable future of mankind' was the subject for the U.P. level and 'Western Ghats in the life of people in Kerala' for the High school section. Honourable Governor Justice P. Sathasivam distributed prizes to the winners of the contests on 27th February.



Honourable Governor Justice P. Sathasivam distributing CBC prizes

Biodiversity Club Meet

A meet of the Biodiversity Clubs established in several institutions across the state under the auspicious of the State Biodiversity Board, was arranged at the Institute of Engineers Hall as part of the NBC-2015. Biodiversity Clubs play a great role in furthering biodiversity education and experiences related to the nature and environment outside the class room. Biodiversity Clubs are now functioning under various schools, colleges and other educational institutions across the state. The districts represented were Thiruvananthapuram, Alappuzha and Idukki. Dr. K.P. Laladhas, Member Secretary, State Biodiversity Board, welcomed the audience. The meeting of the Biodiversity Clubs was inaugurated by H.G. Dr. Joseph Mar Dionysius, Metropolitan of Calcutta Diocese, and was presided over by Dr. Oommen V. Oommen, Chairman, Kerala State Biodiversity Board. The future generations are to be alerted about the imminent dangers posed by the tremendous loss of biodiversity within our state and all over the globe and it is high time that the whole of human race are involved in the efforts towards its



H.G. Dr. Joseph Mar Dionysius inaugurating Biodiversity Club Meet conservation. Dr. K.N.P. Kurup, District Coordinator, Pathanamthitta offered the Vote of Thanks.

The 'Club Meet' was followed by interactive sessions by scientists from Jawaharlal Nehru Tropical Botanic Garden and Research Institute, on various subjects like Conservation of Medicinal Plants (Dr. Mathew Dan), The Need for Protection of Trees (Dr. N. Mohanan), Bio-prospecting of Biodiversity (Dr. V. George), Role of Medicinal Plants in Healthcare (Dr. Vinod Kumar) and Ethno botany (Dr. K. Radhakrishnan).

Biodiversity Expo

The Biodiversity Expo relating to the National Biodiversity Congress was inaugurated by Hon'ble Chief Minister Shri. Oommen Chandy. There were about 100 stalls set by institutions and organizations from both public and private sectors. The expo featured an array of eco-friendly products based on the biological resources of the region.

Different types of solid waste management techniques, crops, organic manure and other agricultural products used by farmer groups were also exhibited. While the stall of the Kerala Forest Research Institute featured a collection of different types of bamboo, rattan and seeds, the Worldwide Fund for Nature-India had an outlet displaying desk



Chief Minister Shri. Oommen Chandy inaugurating NBC Expo 2015

calendars, coffee mugs, caps, T-shirts, notebooks and key chains carrying colourful pictures of wildlife.

The stall 'Koonpura' run by the Mushroom Farmers and Byproducts Welfare Society at Kaimanam, Kottayam offered instant mushroom burgers, cutlets where as the Peringammala Banana Stall amused visitors with the display of over one-metre-long banana called 'Perum Kadhali'. The stall also showcased 25 varieties of bananas and 45 rice varieties cultivated using organic farming-techniques.

The stall of the Western Ghats regional centre of the Zoological Survey of India featured a rich collection of preserved specimens of snakes, butterflies, moths,



dragonflies, wasps, bees, crickets and grasshoppers as well as models of threatened species such as the pangolin, toddy cat, star tortoises and various types of amphibians.

Valedictory function

The valedictory function of the Second national biodiversity Congress took place at Kanakakkunu Palace Auditorium, Thiruvananthapuram. The valedictory address was made by Governor for State, Justice P. Sathasivam. As per him, the emerging market for biodiversity-based products and services could generate alternative sources of income and livelihood. The rural ecosystem could kick-start the shift to a green economy, helping to maintain environmental quality and ecological balance, the Governor said. In his presidential address, Hon'ble Minister for Environment Shri. Thiruvanchoor Radhakrishnan stressed on the need to take all sections of society into confidence

while implementing biodiversity conservation projects. Biodiversity supports the livelihood and ways of life of millions of Indians. In this scenario, it is vital that India strengthens its biological wealth resources through conserving it. He also stressed that developmental activities have to take environmental concerns into consideration in the interests of the future generations. The Governor distributed prizes to the winners of the contests organized in connection with the Children's Biodiversity Congress. Dr. K.P. Laladhas, Member Secretary, State Biodiversity Board, Dr. Oommen V. Oommen, Chairman, State Biodiversity Board were present.



Governor releasing book during the valedictory function



Prize distribution



Cultural programme by school children during NBC 2015



A view of the audience

Workshops and Seminars

➤ Capacity building workshop for BMC

Capacity building workshop for BMC was conducted at Kalpatta on 11/08/2014 to create awareness about Biological diversity act, its importance, structure, powers, responsibilities, funding and accountability of BMC and duties as Environmental watch group.

➤ Control of bird menace at Thiruvananthapuram Airport

Due to the dangers posed by bird collision to aircrafts the Airport officials contacted KSBB and a meeting was held at the Training Hall of International Airport, Thiruvananthapuram on 27.11.2014. Mr Sreenidhi, Wing Commander, Indian Air Force (IAF), gave an overview of the major causes of bird activities near airports. The main cause of bird activity in the airport premises was identified as Proximity to the beach and inadequacy of solid waste management. Another reason attributed to bird activity is thermals generated by aircrafts which cannot be controlled. It was brought to the attention of all of the existing rule that no landfill should be allowed within 10 km radius of the Airport. It is to be ensured that the waste generated inside the airport which is being removed by an agency on contract is processed either at source or outside satisfactorily through the technical assistance of agencies such as Suchitwa mission and also to intensify police patrolling. Dr. Oommen V.Oommen, Chairman, Dr. K.P.Laladhas, Member Secretary, Dr. Preetha N., Technical Associate and Dr. Linda John, Principal Scientific Officer attended the meeting.



➤ Meeting on “Genetically Improved Farm Tilapia (GIFT) Cultivation in Kerala”

An expert level meeting on ‘Genetically Improved Farm Tilapia (GIFT) Cultivation in Kerala’ was conducted on 2nd July 2014 from 11.00 a.m. to 1.00 p.m. at Thiruvananthapuram. Dr. Oommen V. Oommen, Chairman, KSBB chaired the meeting, welcomed the experts and gave a brief introduction on the matters pertaining to GIFT Tilapia cultivation in Kerala scenario and its implications. Member secretary Dr. K.P. Laladhas stressed the need for an alternative thinking when it comes to the introduction of exotic varieties, since Kerala is a state facing adverse impacts of alien and invasive species on biodiversity. All the members of the committee expressed their apprehension on GIFT Tilapia farming in Kerala since the same is impossible to practice as per the ‘Guidelines of India on GIFT farming’ in a state where monsoon flooding is a common phenomenon. (As per the Guidelines of India on GIFT farming it should be practiced in farms not less than one acre area and in a strictly no flood area). The escape of GIFT Tilapia in to our natural water bodies could be a serious threat especially for our indigenous state fish *Etroplus suratensis* with whom Tilapia share same Domain and Niche. Also was shared the apprehension on the implications of residual - methyl testosterone used to induce sex reversal in farmed Tilapia in relation to human health. Hence it was suggested that strict measures should be ensured for preventing escape of fishes to the natural water bodies, a governing body must be constituted to monitor the farm establishment and activities, Licensing committee should investigate the site before issuing license and make sure that security measures are fine. Development of farming techniques for economically viable native species and priority to propagate indigenous species such as *Etroplus suratensis*, *Horabagrus brachysoma*, *Channa sps* was also recommended.

➤ Seminar on IPR & Biodiversity

Kerala State Biodiversity Board in association with Andhra Pradesh Technology Development and

Promotion Centre (APTDC) of Confederation of Indian Industry (CII) organized a One Day Seminar on IPR & Biodiversity focusing on IPR issues and concerns over Biodiversity on 30th September 2014 at Trivandrum. The seminar was inaugurated by Hon'ble Minister for Environment and Forests Shri Thiruvanchoor Radhakrishnan. Delivering the inaugural address he called for steps to arrest the depletion of biodiversity and maintain the equilibrium of nature. In his special address to the session, KSBB Chairman Dr. Oommen V. Oommen sought the help of the industry in implementing an access and benefit sharing (ABS) mechanism relating to the utilisation of biological resources in Kerala. Calling for better access to genetic resources in India, Smt. Kalpana Reddy, first secretary for IP, U.S. Patents and Trademark Office, U.S. Embassy, said this would help to promote innovation and investment in the use of biological resources. She said it was important to balance the country's commitments to the global agenda of ABS with national priorities. The seminar provided a platform to learn and share experiences on the procedures and practices in IPR with focus on Biodiversity and helped to create awareness and improve factual understanding on implications that Biodiversity and IPR has for Industry and stakeholders using bio-resources commercially. There was also a discussion on framework and guidelines on access and benefit sharing. An elaborate discussion was also held on the international perspective on IPR regimes by linking to CBD as compared to Trips Agreement and also on exploring the country's biodiversity for value based products for the Agri Industry.

Seminar on Gandhian thoughts on Sustainable Development

Kerala State Biodiversity Board organized a seminar on 'Gandhian thoughts' on 21-01-2015, at Thiruvananthapuram. The theme of the seminar was Sustainable Development and seminar and was organized in association with International Centre for Gandhian Thoughts (ICGT). Shri. Thennala Balakrishna Pillai, Chairman ICGT presided over the function. Honourable Minister for Environment and Forest, Shri. Thiruvanchoor Radhakrishnan inaugurated the seminar. Dr. K.P. Laladhas, Member Secretary of KSBB welcomed the gathering. Shri. P. Gopinathan Nair, Chairman of Gandhi Smarakanidhi shared his experiences in Sabarmathi Ashramam and spoke about Gandhi's thoughts on sustainable development. He released KSBB's

Publication – 'Prakrithi Geethanagal' - poetry of environment related poems, published by KSBB by giving its first copy to Adv. V.S. Harindranath, PSC Member. A booklet on 'Prakrithisamrakshanam – Gandhijiyude Kazhchappad' prepared by KSBB was also released in the function by Dr. P.K. Radhakrishnan, Vice chancellor of Kerala University and the first copy was received by Dr. Oommen V. Oommen, Chairman, KSBB. Around 120 people participated in the seminar.



Minister Thiruvanchoor Radhakrishnan inaugurating Seminar on Gandhian thoughts



Dr. K.P. Laladhas, Member Secretary KSBB addressing the seminar

Review workshop of Urban Biodiversity Programme

Under Urban Biodiversity Programme KSBB had taken up restoration of 14 urban ponds in Thiruvananthapuram during 2012-2014. A review meeting involving the residents associations was held on 24/11/14 at Trivandrum Guest house. The ponds were graded based on specific parameters and recommendations for maintaining the ponds were enumerated. Dusiyoorakonam Pond, Pongumoodu was adjudged the best maintained followed by Pengottukonam Pond, Vattiyoorkavu and Mangannoorkonam Pond, Pattom.





Workshop on Greening Palakkad Gap

An initial workshop was organized at Palakkad on 22/12/2014 as part of the project Greening Palakkad Gap. The workshop was attended by President and Secretary of Gram Panchayat, Forest officials, NGO, District Co-ordinator, project fellows and members of Biodiversity club.

PBR preparation of Thiruvananthapuram Corporation

Training workshop on PBR preparation of Thiruvananthapuram Corporation was launched on 5th December 2014. The programme was inaugurated by Standing Committee Chairperson of Development, Thiruvananthapuram Corporation. Deputy Director of Agriculture, Agriculture Officers, Senior Programme Coordinator, District Coordinators and Project Fellows were attended.



Photo: G.S. Unnikrishnan Nair

Awareness and Training Programmes

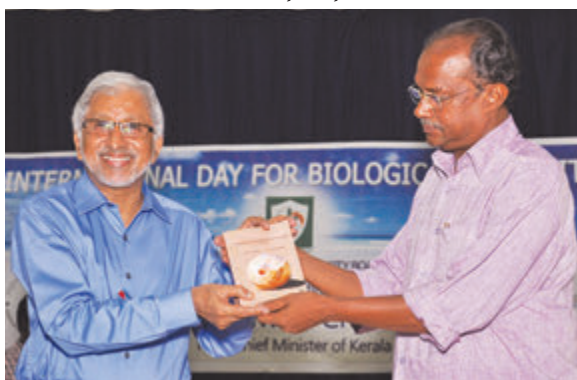
Notable commemorative days observed

International Biodiversity Day, 22nd May 2014

Kerala State Biodiversity Board organized the state celebrations of International day for Biological Diversity with focal theme Island Biodiversity on 22nd May 2014 at Institution of Engineers Hall, Thiruvananthapuram. The function was inaugurated by Shri Oommen Chandy, Hon'ble Chief Minister of Kerala and presided over by Shri. Thiruvanchoor Radhakrishnan, Hon'ble Minister of Environment and Forests. The program was attended by District coordinators, BMC members and Project fellows from different districts, school and college students.



Chief Minister distributing prize during International Biodiversity Day 2015



Book release by Chairman KSBB

In connection with the celebrations KSBB organized a range of programmes for public as well as school children. The programmes photography contest, short film contest, exhibitions etc. helped in creating awareness about the richness of biological, cultural and ecological heritage of our country, the need

for conservation of biodiversity and the ecological services it provides. A digital Amateur Photography contest **Green Images 2014** was organized for two categories 1) Age group 10 years to 18 years 2) 18 years and above with the theme “The diverse nature” and “Biodiversity – Our heritage, our wealth”. The contest received enormous response from amateur photographers including children and was given wide publicity through social media networks. Public participation was ensured by giving awards to most liked entries. Green Images 2014 showcased the diversity of nature ranging from landscapes of mountains to marine biodiversity. **Amateur short film contest “Green snippets 2014”** was conducted on the theme Life, Biodiversity and Man. The short films focused on the issues of Biodiversity conservation. As part of the International day of Biological Diversity essay competitions were held for higher secondary students, Poster and painting competitions for high school students with the theme Marine Biodiversity. The competition received good response from children from all categories In accordance with this year's focal theme a talk on Islands - Biodiversity Hotspots by Dr. Oommen V Oommen was organized. The presentation gave a brief overview of the importance of Island biodiversity, their conservation significance and biodiversity hotspots such as Galapagos, Madagascar and Andaman and Nicobar islands. The unique characteristics of Islands as a “**world unto itself**,” with species found nowhere else on Earth such as the land iguana and the giant tortoises were elaborated upon. The prizes for all the events were awarded by the Hon'ble Chief



Children's painting contest

Minister, Kerala: A book entitled Marine Gastropods of Kerala published by Kerala State Biodiversity Board and authored by Dr. K.P.Laladhas, and Dr. J.B. Franklin was released during the function. The function came to a close with vote of thanks by Dr. KP Laladhas, Member secretary, KSBB.

Environment day Celebrations

Kerala State Biodiversity Board along with Department of Forest and Wildlife organized an exhibition at KPS Menon Memorial Hall, Kottayam in connection with Environment day, June 5, 2014. Many dignitaries including Shri Thiruvanchoor Radhakrishnan, Minister for Environment and Forests visited the exhibition. The exhibits included 50 display panels and 300 photos. Five hundred copies of various brochures published by KSBB were distributed. Video documentaries directed by KSBB were screened. The exhibition took the audience through the rich biodiversity of Kerala, critically endangered flora and fauna, domesticated biodiversity, traditional varieties and breeds and conservation measures adopted. The exhibition was successful in enhancing public awareness of the importance of conserving biodiversity, of the threats and factors leading to biodiversity loss and the multiple aspects of biodiversity contributing to human well-being. The programme was widely appreciated by the visitors as well as media.



Distribution of of tree sapling on Environmental day

State Level Review meeting for District Coordinators and Project Fellows

A State Level Review meeting for District Coordinators and Project Fellows was held on

November 12 and 13, 2014 at National Adventure Academy, Devikulam, Idukki. Shri. N.Ravindran, District Co-ordinator, Idukki welcomed the participants. The programme was inaugurated by Dr. Oommen. V. Oommen, Chairman, Kerala State Biodiversity Board. Dr. K.P. Laladhas, Member Secretary (MS) presided over the function. During the presidential address, MS stressed the need for strengthening the functioning of BMCs. He also urged the DCs and PFs to accelerate their effort to finish the preparation of remaining People's Biodiversity Registers (PBRs) at the earliest. MS further highlighted some of the new programmes especially implementation of new projects both from plan and externally funded projects through BMCs including the National Medicinal Plant Board's project at Wayanad and Munnar Landscape Project at Idukki district. He sought their help and co-operation during the implementation of the project. Dr. S. Rajasekharan, Senior Programme Co-ordinator (SPC) has given an introductory address about the two days exercise and also focussed on the current status of the PBR work and the gaps identified in the PBR. During his inaugural address, he stressed the need for improving the current functioning of BMCs and the necessity for the completion of the remaining PBRs. The ultimate objective of the documentation of the PBR is to conserve our biodiversity and how best we can sustainably utilise the bio resources for the livelihood of the common people, he added. The Chairman motivated the participants to work with their best ability to fulfil the objectives of the programmes assigned to them. A review of the PBR work being undertaken, issues faced and conservation projects to be undertaken during the financial year 2014-2015 and review of ongoing conservation programmes were done. Smt. Mithrambika. N.B., Project Associate proposed the vote of thanks.

"Samoohya padam" Phone-in Programme

A special talk on Biodiversity and phone in programme as a special episode of Samoohya padam by Dr. Oommen V Oommen, Chairman, KSBB was telecasted on Doordarshan on May 21st 2014 from 2.00 pm to 3.00 pm. The telecast elicited keen interest on issues of biodiversity degradation.



Photo: P. Karunakaran

Awareness and Familiarization of PBR

➤ Biodiversity awareness classes

As the second phase of the NBA funded project on Awareness and Familiarization of PBR, biodiversity awareness classes were conducted at 28 selected schools from 5 districts. 6 schools from Thiruvananthapuram district, 5 schools from Kollam district, 5 schools from Ernakulam district, 6 schools from Malappuram district and 6 schools from Wayanad district participated in the awareness programme. Classes started from July 2014 onwards. For this a detailed curriculum based on 'Awareness and Familiarisation on biodiversity conservation and sustainable use based on PBR' were prepared and distributed to all student participants. 150-200 students participated in each of the biodiversity classes. Total 20-25 hours of classes were organized. Initially, district co-ordinators gave an introductory lecture, following this, eminent personalities and teachers working in biodiversity conservation, environmentalists, people engaged in conservation of local and endemic biodiversity, programme co-ordinators and project fellows took classes based on the prescribed curriculum

➤ Onattukara fest

KSBB participated in Onattukara fest from 19- 23 December 2014. Panels on activities of KSBB, tuber diversity of Kerala etc were displayed.



➤ Exhibition on Biodiversity by Kottayam Social Service society

KSBB participated in the exhibition on Biodiversity conducted by Kottayam Social Service society from 27-30 November 2014. About 50,000 people visited the stall and it was a grand success due to the whole hearted co-operation and support of all well wishers.





➤ Science express

The Science express, Biodiversity Special halted at Kasargod, Kollam, Shoranur, and Thrissur from

24/11/2014 to 7/12/2014. The MoEF initiative was given wide publicity and KSBB representatives along with Biodiversity club members welcomed the SEBS at all the four destinations in Kerala.



Photo: Benny Ajantha

Awards/ Recognitions

Awards received

The English documentary titled “Breeds of Wealth”, produced by KSBB and directed by G.S.Unnikrishnan Nair was screened at the Rashtriya Vigyan Chalachithra Mela organized by Vigyan Prasar at Lukhnow and was awarded Bronze Beaver Award for the third best popular science documentary. The award was presented at Luknow Science city by Chandraprakash Dwivedi, noted Hindi actor and Director.

Biodiversity Awards 2014-2015

During 2014-15, 15 persons/organizations were selected for the State Biodiversity Awards. All awards except award for best Biodiversity Management Committee consists of Rs.50000, plaque and citation. BMC Award include Rs.1 lakh, plaque and citation. Biodiversity Management Committee, Mankara, Palakad was selected as the best BMC. The Kerala State Biodiversity Board has selected Shahul Hameed from Kasargod as the best environment activist for the year 2014. K.R. Jayan from Thrissur will be given the prize for protecting the original species of plants; Rajan Babu from Kayamkulam was selected as the best organic farmer. N.V. Balakrishnan from Kozhikode was selected for the prize for conservation of indigenous cattle breeds. Dr. M.V. Vishnu Namboothiri from Kannur was selected for the award considering his contribution in conserving traditional knowledge. Dr. K.S. Anoop Das will be awarded the prize for being the best biodiversity researcher. The prize for best biodiversity club will be given to Irinjalakuda Christ College and the prize for best practices will be given to Cherthala St Michael’s College. The prize for best school will be given to Kozhikode Thrikuttesseri Government Upper Primary School. Shantigram in Thiruvananthapuram was selected as the best biodiversity organisation. Other than these JNTBGRI, Palode, Thiruvananthapuram and Carmel Jyothi School, Adimali has been selected for Special awards.

Shahul Hameed K.

Shahul Hameed is a High school teacher at GVHSS Mulleria; Kasaragod. He has planted many species

of trees and plants in his 7 acres inherited land and made it into a man-made forest. Hundred of trees like Mango, Jack, Palms, Gooseberry, Portia, Wild banana, Gmelina, Terminalia, many types of Ficus and Bamboos are there in his forest. Medicinal plants, climbers and creepers also grow here. This ecosystem is also home to animals like monkeys, many types of birds, lizards, snakes and insects. Shahul Hameed also organizes various environmental protection activities like tree planting, organic farming, eco-friendly waste disposal, bio-fencing and protection of natural eco systems in and outside the school campus. Forest camps, medicinal plants awareness programme, biodiversity field studies, exhibitions, rallies are also organized by him for students as well as general public.

K.R. Jayan

Known in his home state as ‘Plavu Jayan’ (which means ‘jackfruit tree Jayan’ in Malayalam), he has been on a mission since his childhood to plant and nurture these trees across villages in his native Thrissur district, a mission which has now spread all over the state and outside. Jayan has an emotional bond with the jack tree, which kept him and his eight siblings from starvation as the family struggled to make ends meet with the meagre income of his father, a newspaper distributor. Since 2006, he has been planting jack trees across his home state and freely distributes jackfruit saplings to anyone who comes knocking at his home in Avittathoor. He has organized many jack fruit festivals to popularise jack fruit farming as well as to promote its product diversification.

Rajan Babu

Rajan Babu has been doing organic farming for the past 25 years since he returned from Gulf. He does organic farming in 70 cents inherited land and 5 acres leased land in Kayamkulam. Rajan Babu collects cow dung and cow urine from neighbouring farmers. Various organic mixtures like Beejamrith and Rajamrith are prepared by mixing cow dung and urine with other ingredients. By applying these manures crop plants gains good resistance and yields well. Various vegetables, fruits and tubers are grown organically in his farm. At 65, he does all the farm work himself assisted by his wife. All the

produce is sold through his shop and they fetch a higher price. His farm is visited by farmers and farm enthusiasts within and outside the state, to learn organic farming techniques.

➤ N.V. Balakrishnan

N.V. Balakrishnan belongs to Atholi in Kozhikode district. In his “Kamadenu” Natural farm, Balakrishnan keeps 15 desi breeds of cattle including Vechur, Kasaragod dwarf, Cheruvalli, Ponvar, Krishnavalley and Red Sindhi. The Guinness World record holder for the smallest cow, Manikyam is also owned by Balakrishnan. Manikyam is a Vechur cow having a height of only 61.5 cm. The cows are given natural, organic feed only and factory feed is completely avoided. Breeding is done using bulls and artificial insemination is avoided. Milk of desi breeds are sold at a higher price of Rs.130 per kg while ghee is sold at Rs.2000 per kg.



Shahul Hameed K.



K.R. Jayan



Rajan Babu



N.V. Balakrishnan



Dr. M.V. Vishnu Namboothiri



Dr. K.S. Anoop Das

➤ Dr. M.V. Vishnu Namboothiri

Dr. M.V. Vishnu Namboothiri, belonging to Ramanthali, Kannur is devoted to the study and compilation of indigenous knowledge for the past 45 years. He has travelled to the remotest places of the state to meet traditional knowledge holders and document their knowledge in various areas like farming, biodiversity, nature conservation, indigenous medicines etc. Dr. Vishnu Namboothiri has written 60 books including Folklore Dictionary. He is the former Chairman of Kerala Folklore Academy.

➤ Dr. K.S. Anoop Das

Dr. K.S. Anoop Das is Assistant Professor at Department of Zoology, MES College, and Mampad. He had completed many projects as Principal Investigator funded by various national and international agencies. For the past one decade, his research was focused on conservation ecology. His PhD was on the Bird community structure along the altitudinal gradient in Silent Valley National Park. He also worked on butterflies on natural tree falls and aquatic insect fauna of natural tree holes. Dr. Anoop Das has many publications in various national and international journals. He had presented his studies in the conferences conducted in India and abroad.

Biodiversity awards-educational institutions/organizations

➤ Government UP School, Thrikkuttissery

Government UP School, Thrikkuttissery in Kozhikode district has won Biodiversity award for the best school. This school has implemented various programmes towards conservation of environment and organized programmes for creating awareness in this regard. “Ente Maram” - tree planting programme, medicinal plant garden in school premises, planting of coconut palms in student’s home, environment awareness rally, rain water harvest, farm nursery, organic farming and upland rice farming are some of the schemes that were successfully implemented by the school.

The efforts of the school in the preservation of tree cover are being honoured with the Vanamitra Award. Under “Ente Maram”, students had participated in planting of trees in their own household compounds

and in places available to them nearby. The school had earlier won the Paryavaran Mitra Puraskar for 2011-12 and the State Energy Conservation Award for 2012-13. The progress of the school under various events like 'Smruthivanam,' 'Kaavu Vanavalkkaranam,' 'Biodiversity Register' and 'Vidyalaya Muttathoru Oushadappura' has been widely appreciated. Since the school has a limited area of 65 cents, most of the activities were done with the cooperation of the grama panchayat and in public places like roadsides and vacant plots.

➤ Christ College, Irinjalakkuda

Christ College, Irinjalakkuda won award for the best biodiversity club. The college maintains a "Santhisthal" in 20 cents area. 48 species of plants including 14 species of RET plants are planted in the Santhisthal. Campus greening, mango germplasm, one house one mango sapling and poly-house farming are some of the activities successfully undertaken by the club. Awareness programmes are being organized on various commemorative days like World Environment day and World Bamboo day.

➤ St. Michael's College, Cherthala

St. Michael's College bagged the Award for the best college. The recognition has been bestowed on the institution for its nature friendly approaches and its enviable role in conserving biodiversity. The college is on the forefront in vegetable cultivation and motivating several farmers and students in the village to take up vegetable cultivation.

➤ Santhigram, Thiruvananthapuram

Santhigram at Chappath, Thiruvananthapuram has won award for the best Non Governmental Organization promoting Biodiversity conservation. This organization is involved in environmental activities for the past 3 decades. 8 indigenous cattle breeds are maintained in the Ghosala. Other than encouragement of native cattle breeds, campaigns for promoting jack fruit farming and product diversification, Zero budget farming, indigenous medical practices. Herbal garden is also maintained.

➤ JNTBGRI, Thiruvananthapuram

JNTBGRI has won Special Award considering the outstanding contribution in plant biodiversity

conservation. The JNTBGRI is functioning as one of the Institutions of the Kerala State Council for Science Technology and Environment (KSCSTE). The Government of India has recognized the JNTBGRI as a National Centre of Excellence. There is no ideal organization at present in India with such diverse habitats and vegetation to undertake research on plant diversity conservation and sustainable utilization of plant wealth. The institute is currently conserving more than 4000 species of flowering plants and about 300 species of non-flowering angiosperms, which is the highest number of plant species conserved among the botanic gardens in Asia.

➤ Carmel Jyothi Centre for Mentally Retarded Children

This school for mentally challenged children has been on the forefront in Environmental related activities. Various vegetables including cool season vegetables are cultivated in the 2 acre vegetable garden organically. Indigenous fruit trees are also planted and maintained. Cow, Pig and chicken rearing are also practiced. Cleaning and water conservation activities are also undertaken by the school.

Media awards

The following media persons selected for State Biodiversity Awards.



Jayamohan Nair S
(Electronic)



Nishanth Mavila Veetil
(Electronic)



Vinoy Mathew
(Print)

➤ Onam Pageantry

KSBB participating in the Onam Pageantry 2015 and presenting a float on Biodiversity conservative.



Representation in expert committees and outreach programmes

➤ KSBB representation in Expert Committees

Dr. Oommen V. Oommen, Chairman, KSBB

1. State Expert Appraisal Committee (SEAC) - Vice Chairman.
2. State Level Committee on Conservation of Water resources.

3. Expert Committee on Curriculum revision (SCERT), Kerala.
4. Research Committee-Department of Environment and Climate Change (DOECC).
5. State Level Committee on Paddy and Wetland Conservation.
6. Task Force on Biodiversity Management Committee, National Biodiversity Authority, Chennai.
7. Kerala State Government Expert Committee on Kasturirangan Report- Chairman
8. Expert Member, Science Board, Indira Gandhi National Open University (IGNOU) New Delhi.
9. President, Kerala Academy of Sciences
10. Hon. Director, Centre for Venom Informatics, University of Kerala.

➤ Participation in International and National level conference & meetings

1. Chairman and Member Secretary attended the Twelfth meeting of the Conference of the Parties to the Convention on Biological Diversity, COP -12, Pyeongchang, Republic of Korea, 6 - 17 October 2014.
2. Chairman and Member Secretary, attended and gave lectures during a Training and capacity building programme for line department, BMC, members of other local bodies at Goa from 17-19 November 2014. The lectures focused on need for conserving Indigenous breeds and varieties, Conservation of endemic species and Implementation of Biodiversity Act and Rules.



Dr. Oommen V. Oommen, Chairman, KSBB

- ◆ Chairman, KSBB attended the 29th Authority meeting of NBA on 15.5.2014 at New Delhi.
- ◆ Chairman KSBB attended the 2nd ABS Dialogue on Key Challenges and Practical Ways Forward for the Implementation of the Nagoya Protocol, from 4-6 August 2014, Goa, India. The meeting reviewed the national approaches to implement the Nagoya protocol, implementation of national access and benefit sharing legislations and regulations and compliance and monitoring mechanisms.
- ◆ Attended the School Board meeting in IGNOU on 28.04.2014 and 29.09.2014 at New Delhi.
- ◆ Attended the Hearing in Original Application No.26/2012 in compliance with the orders of Hon. National Green Tribunal on 30.04.2014 deputed by GoK.
- ◆ Attended the NGT case meeting on 19.05.2014 at New Delhi.
- ◆ Attended the Executive Board meeting of Malabar Botanical Garden on 20.05.2014 at Kozhikode.
- ◆ Attended the workshop on climate change organised by TERI University and Dept. of Environment & Climate Change on 17.06.2014.
- ◆ Visited NMPB at New Delhi on 28.08.2014 to present the project on Medicinal plant conservation and utilisation in 5 panchayat of Wayanad dist. for a sum of Rs.50 lakhs.
- ◆ Attended the first EC meeting of KSCSTEC on 19.08.2014

Outreach programmes

- 1) Delivered a one hour live- programme at Doordarsan on Biodiversity Conservation.
- 2) Chief Guest in Santhigiri Ashramam for World Environment Day Celebration on 05.06.2014.
- 3) Chief Guest in Malakara College, Kollenkote, Tamil Nadu for the graduation day ceremony on 11.06.2014.
- 4) Took part in the fruit tree planting on 23.06.2014 by His Excellency the Governor, Sheila Dikshit organised by 'WE Plant' India in the Museum Compound, Thiruvananthapuram.
- 5) Chief guest in Holy Angels Convent School during 10th Anniversary celebration of SEENs, Eco club on 01.07.2014. The trees of the campus were named and identified with name tags and around 1000 students participated.
- 6) Took part in the discussion on Karamana Kili, Parvathiputhanar, Akkulam, Veli water body cleaning & conservation programme on 04.07.2014 convened by ACS in Govt. Guest House.
- 7) Visited Sasthamcotta lake and inaugurated the tree planting on 11.07.2014 at the West Kallada Region. Around 2500 saplings were planted including 1500 bamboo.
- 8) Attended the meeting of climate change on 18.07.2014 organised by Malayalam Manorama at Kottayam.
- 9) Attended the meeting of Biodiversity and community participation organised by Forest Department, at Hotel Muscot on 07.08.2014.
- 10) Attended the Govardhanagiri project and traditional cow farmers union at Mamman Mappila Hall, Kottayam on 08.08.2014.
- 11) Attended the Panchayat level conservation meeting in Kalliyoor Grama Panchayat and distribution of Kasargod dwarf cows
- 12) Attended the SCERT workshop on alternatives to animal expert in High School & HSS in Kerala on 16.08.2014.
- 13) Visited the PMS College of Dental Science 01.09.2014 at Vattappara and was the Chief Guest for the introduction ceremony.
- 14) Chief Guest in the Aramada Residents Association a Thirumala and gave a talk on Biodiversity Conservation at Local level on 14.09.2014.
- 15) Chief Guest in the Honey fest organised by the Honey growers in VJT Hall on 16.09.2015.
- 16) Inaugurated the seminar on 'Not for you greed, but for your need' organised by the Gandhi Chair at Calicut University on 26.09.2015.
- 17) Attended the meeting on 'IPR and Biodiversity' organised by APTDC, CII and KSBB in Hotel South Park, Trivandrum on 30.09.2014 and gave a talk on Biodiversity Act and Rules.
- 18) Chaired the Infosys Science Talk in association with KAS at Govt. Women's College, Kannur on 01.10.2014.

- 19) Chief Guest in Christ Nagar School for their Science exhibition.
- 20) Judge at the Great Debate held at Kariavattom on 21.10.2014 by British Deputy High Commission.
- 21) An expert in the selection of Govt. College Teachers for placement abroad in the capacity building programme of FLAIR at Dept. of Higher Education on 23.10.2014.
- 22) Gave talk on solid waste management in Trithala panchayat, Pattambi, Palakkad on 27.10.2014.
- 23) Attended the Governing body meeting of Malabar Botanic Garden at CMO on 29.10.2014.
- 24) Attended the IPR meeting at Govt. Guest House, Thycaud on 31.10.2014.
- 25) Gave a talk on Western Ghats conservation in Kanakakunnu Palace in the Science Book Festival organised by KSCSTE and Kerala Bhasha Institute on 03.11.2014.
- 26) Released a book and gave a talk in VJT Hall organised by KIIDC on 8.11.2014.
- 27) Participated in the IPR meeting in KILA at Thrissur on 10.11.2014.
- 28) Participated in the DCs and PFs meet at Devikulam, Idukki on 11.11.2014.
- 29) Gave a talk on Biodiversity conservation in the Institute of Cooperative Management at Mudavanmugal, Poojappura on 13.11.2014.
- 30) Attended the ABS program organised by AMMOI, Thrissur on 22.11.2014 and gave a talk on Biodiversity Act and Rules
- 31) Interacted with Scientists of MSSRF on issues of mutual interest on 25.11.2014.
- 32) Gave talk in the District Panchayat office, Wayanad on Capacity building of GP presidents on biodiversity conservation and discussed the organisational aspects of Wayanad Seed Fest on 26.11.2014.
- 33) Attended the selection committee to select Kerala Young Scientists for the Kerala Science Congress on 16.01.2015.
- 34) Inaugurated the conservation activities for the migratory birds in Vellayani on 17.01.2015.
- 35) Participated in the meeting on Kerala wetland inventory and authority formation convened by the Principal Secretary, Environment Department on 19.01.2015.
- 36) KSBB and International Centre for Gandhian thoughts jointly organised a seminar on 21.01.2015 conservation in which the book 'Prakrithigeethangal' was released in the YMCA hall. Thiruvanchoor Radhakrishnan took part in the seminar.
- 37) Delivered keynote talk on 'Climate change and developing world' in an international conference held in CMS college, Kottayam on 22.01.2015.
- 38) Attended the BSc (Zoology) meeting held in Mar Ivanous College as University representative 23.01.2015.
- 39) Delivered the keynote talk in Kottayam in the function organised by Vechur conservation trust on electronic chip plantation in Vechur cows. 26.01.2015
- 40) Attended the student -interactive session held in the 27th Kerala Science Congress 29.01.2015 at Camelot convention centre Alappuzha. There were round 300 students and 12 panellists to interact with.
- 41) Participated in the 11th sitting of the TK & IPR Bill committee held at Govt. Guest House Thycaud on 30.01.2015 convened by the Law Department.
- 42) Attended the school anniversary in the KNNMHSS at Puthur and unveiled the photography of retired teachers on 31.01.2015.
- 43) Chaired the meeting of the expert committee on ABS and interacted with 7 industrial concerns about the proposed ABS introduction in Kerala on 03.02.2015. Dr.Pisupati was the Chief Guest for interactive session.
- 44) Inaugurated the 51st college day celebration and farewell to retiring teachers in St.Josephs College Iringalakkuda on 04.02.2015.
- 45) Addressed the Biodiversity Club and inaugurated the Santhisthal in Christ College, Iringalakkuda
- 46) Inaugurated the Palakkad greening gap project in Perumbu panchayat and planted trees in Panchayat property on 05.02.2015.
- 47) Inaugurated the PBR CD in Mankara Panchayat, Palakkad
- 48) Inaugurated the Shanthisthal in Abhayam a Voluntary organisation in Koppu in Palakkad
- 49) Felicitated the seed fest in MSSRF Kalpetta and chaired an interactive session on conservation of traditional seeds and empowering BMC on 06.02.2015.
- 50) Participated in the Sasthamcotta lake conservation programme in CMS conference

hall and explained KSBB's projects there on 13.02.2015.

- 51) Went with the MBR diving team to Kovalam area and participated in the underwater ecosystem study and video graphing on 14.02.2015
- 52) Participated in the meeting on relocating the Thrissur Zoo to Puthur in CMS conference hall on 18.02.2015.
- 53) Organised the Second national Biodiversity Congress, Feb 23-27,2015, Kanakakuunnu Palace, Thiruvananthapuram.
- 54) Chaired the National Science Day programme at MG College, Trivandrum talk on 28.02.2015.
- 55) Delivered a lecture on 'Science for National Building' organised by KSCSTE for college students held in S & T Museum, Priyadarshini Hall as part of National Science Day.
- 56) Participated in the Two day Workshop on Global Environmental Issues conducted by National Green Tribunal held at Vigyabhavan, New Delhi on 14 & 15 March 2015.



Chairman KSBB Dr. Oommen V. Oommen inaugurating the programme at Goa

➤ Dr.K.P.Laladhas, Member Secretary, KSBB

- ◆ Member secretary, KSBB attended the 28th ABS expert committee meeting at the Conference Hall of NBA, Chennai on 25-26 July 2014
- ◆ Member secretary, KSBB attended the orientation programme for BMC members on 22, 23 August 2014 at Goa state biodiversity board.
- ◆ Attended the Meeting of District Panchayat Presidents for BMC empowerment at Wayanad on 11.08.2014.
- ◆ Attended the UNDP meeting on analysing the project on 'Developing an effective multiple use management framework for conserving biodiversity in the mountain landscape of high

ranges' held on 16.09.2014 at the Wild life Institute of India, Dehradun.

- ◆ Member secretary, KSBB attended the 30th Expert committee meeting of ABS at Hyderabad on 29th November 2014.
- ◆ Member Secretary, KSBB attended a brainstorming workshop on Developing a framework for capacity development of Institutions for effective implementation of Biodiversity Act at Delhi on 30/9/2014
- ◆ Chairman and Member Secretary, attended and gave lectures during a Training and capacity building programme for line department, BMC, members of other local bodies at Goa from 17-19 November 2014. The lectures focused on need for conserving Indigenous breeds and varieties, Conservation of endemic species and Implementation of Biodiversity Act and Rules.
- ◆ Member secretary along with representatives of NABARD visited Sasthamcotta on 5/12/2014 in connection with a project Adapting to climate change for clean water and safe food at Sasthamkotta proposed to be funded by Adaptation Fund. A meeting of the BMC members of the three panchayats of Sasthamcotta, West Kallada and Mynagapally was conducted and the key issues on conservation of biodiversity of Sasthamcotta discussed. Concrete adaptation measures and management practices aimed at enhancing the climate resilience of wetlands of Kerala and reducing both man-made and climate change induced vulnerability of the people of Kollam district dependent on Sasthamcotta lake were identified.
- ◆ Attended the two day Workshop on Global Environmental Issues conducted by National Green Tribunal held at Vigyabhavan, New Delhi on 14 & 15 March 2015.

➤ Visits by Officials from foreign countries

- ◆ First secretary of Embassy of Japan Tomofumi Fukamiya visited KSBB and discussed with Chairman and Member secretary about the environmental issues faced by Kerala and the technological developments in Japan to tackle environmental pollution.
- ◆ Hajima Morioka, Team Leader, ABS Task Force Team for Academia, National Institute of Genetics visited KSBB and discussed about implementation of ABS mechanism in Kerala.

Research fellowships

KSBB has awarded five Junior Research Fellowships and one Post Doctoral Fellowship for 2014-2015 for research related to Biodiversity. Research on the following topics is underway.

Ethnobiological Studies of Forest Dwellers: A Case of Malai Pandaram in the Southern Western Ghats.

The work deals with the scientific study of plants used by the Malai Pandaram tribes in the Southern Western Ghats region. Main objectives of this study are the documentation of indigenous knowledge and harvesting impact of plant resources by them. Preliminary survey conducted in various Divisional Forest Offices show that there are 19 settlements of Malai Pandaram tribes spread over five forest divisions namely Ranni, Konni, Achan Kovil, Thenmala and Punalur. *Myristica beddomei*, *Myristica malabarica*, *Canarium strictum*, *Vateria indica* and *Symplocos cochinchinensis* are the major NTFPs collected by them for commercial purposes. Field studies on the foraging areas of the Malai Pandaram tribes shows that the harvesting of commercially important NTFPs species is done in an unscientific and unsustainable manner. Permanent sample plots were selected for studying the impact of unsustainable harvesting of these commercially important NTFPs in Ranni, Konni and Achan Kovil divisions during this period

Characterization of biologically active snake venom proteins with pharmacological potential

The proposed study is to explore the snake venom proteins and peptides by comprehensive proteomic approaches. Snake venom possesses diverse biological and pharmacological activities. Many bioactive components in venoms may be a particularly rich source for drug design and development. Main objectives of this study are (a) Extraction of venom from the snake specimens (b) Separation, isolation and purification of venom proteins and peptides. (c) Characterization of purified fractions and setting up a proteomic database (d) Biochemical evaluation and Biological activity studies on the characterized venom fractions.

Studies on the actions of endocrine disruptor chemicals on selected fish fauna in rivers of Kerala

Main objectives of this study are the Prediction of environmental effects of endocrine disruptors, Comparison of ECDs on fishes of Pamba river, Mechanisms for Reduction in the use of ECDs, Explore the future pathways of analysis in the study of endocrine disruption and Understand the scientific basis of endocrine disruption and histopathological studies on selected fish fauna. ECDs interfere with the synthesis, secretion, transport, activity, or elimination of natural hormones. This interference can block or mimic hormone action, causing a wide range of effects. Many endocrine disruptors are persistent in the environment and accumulate in fat, so the greatest exposures come from eating fatty foods and fishes from contaminated water bodies. Preliminary survey was conducted in various stations of Pamba river. Biological parameters and physio chemical parameters were measured.

Assessment of the influence of biotic and abiotic factors on the life history traits of three sympatric Bulbuls (Aves: Pycnonotidae) in the Silent Valley National Park, in The Western Ghats

As part of the work 86 nests of *Iole indica*, 52 nests of *Hypsipetes ganeesa* and 36 nests of *Pycnonotus jocosus* from Silent Valley National Park were observed. The various nest parameters such as nest placement, nest size, nesting materials etc. were also recorded from the sites. The breeding habitat was measured at various scales. In addition to such life history assessment, the bird diversity, competitors, predators and food abundance (insects & Fruits) of the study locations were recorded. The project aims to develop long term breeding data on the life history traits of three sympatric Bulbuls.

Evaluation of the Spatio-temporal variation in diversity patterns of Ants in Silent Valley National Park, Southern Western Ghats.

The proposal aims to record the Ant diversity, and their distribution patterns in different micro-habitats of tropical evergreen forest. The collected specimens were preserved for further references and identification. Most of the species were identified by using identification keys and online resources.

Publications

➤ Signature Song of Kerala State Biodiversity Board

A signature song with visuals of biodiversity of Kerala was produced by KSBB. The lyrics of the song were composed by eminent Malayalam poet Shri. Kavalam Narayana Panicker.

Biodiversity Conservation – challenges for future (eds) Laladhas K P, Oommen V Oommen and Sudhakaran P R was published by Bentham Science Publishers (e- book)

The book has its roots in talks given at National Biodiversity Congress 2012 in addition a wider range of topics have been covered by chapters contributed by international experts. The thematic e book serves as a cross cutting initiative linking biodiversity, food and nutrition, organic farming, role of traditional and indigenous seeds in food security and peoples’ participation in sustainable management of biodiversity. The target audience for the book is the scientific community consisting of policy makers, academicians, scientists, environmentalists, students and grass root level conservationists.

➤ Handbook for identification of species in the field

Preparation of handbook for identification of many group of animals and plants are one of the programmes of KSBB. The objective is preparation of illustrated handbooks in English and Malayalam to help identification of species of Kerala for facilitating PBR preparation. In this financial year two handbooks on Snakes of Kerala, a monograph on Caecilians amphibians (Amphibia: gymnophiona) of South Western Ghats has been prepared and is under publication.

➤ Prakruthi Geethangal

During the report year KSBB published a book titled “Prakruthi Geethangal”. It is a compilation of Malayalam poems on Environment and related topics. 44 poems of 37 poets are included in the book. The contributors comprise well known poets like PKunjiraman Nair, N.N.Kakad, Viloppilli, K.Ayyapa Panicker, Kadammanitta, Kavalam, ONV Kurup and Sugathakumari. Foreword is written by Dr.M.G.Sasibhushan.

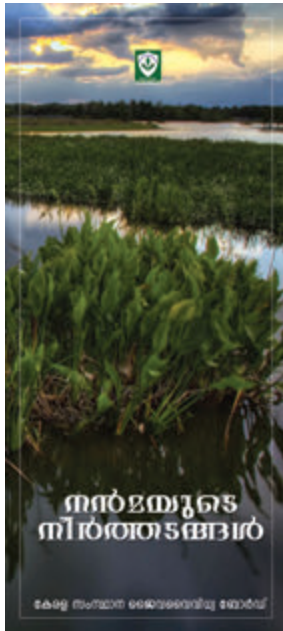
➤ “Green Life” Newsletter

Three issues of the Newsletter “Green Life” were published. Other than current activities of the Board, the Newsletter carried important developments in Biodiversity conservation, success stories of conservators, details of endangered species, Biodiversity tips and stories for young readers etc.



➤ Brochures and other publications:

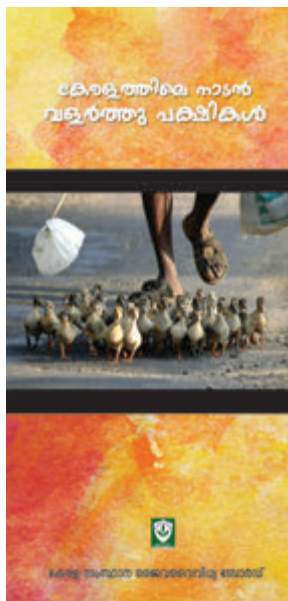




Shri. Marapandian IAS, Principal Secretary, Env't.
Dept. releasing KSBB Planner

Video documentaries

- ✓ KSBB produced 2 Malayalam documentaries on indigenous cattle breeds of Kerala; 'Vechur-Gokkalile Kunju Thaaram' (Vechur-The little star among cattle) and 'Nadinatha Nadan Pasukkal' (Native Cattle breeds suitable for the Land).
- ✓ A documentary for social awareness and education on biodiversity was produced by KSBB in collaboration with Natures green foundation highlighting sustainability of biodiversity and responsibility of travellers. The documentary focussed on biodiverse areas as Arippa, Bonacaud and Pathiramanal.



- ✓ Planner 2015
- ✓ Flyer- Peoples Artificial reefs, Access and Benefit sharing, Nagoya Protocol on Access and Benefit sharing
- ✓ Brochures on Island Biodiversity, Water birds of Kerala,
- ✓ Book of Abstracts- NBC 2015
- ✓ Proceedings NBC 2015-03-24 (CD)
- ✓ Access and Benefit sharing –information's (CD)

Research publications

1. *Biodiversity Conservation – Challenges for Future*(2015) eds Laladhas KP, Oommen V Oommen, Sudhakaran P R, Bentham Science Publishers Ltd.
2. *Biodiversity Conservation - Challenges for future and way forward* (2015) Preetha N., Laladhas K. P. and Oommen V. O. *Biodiversity Conservation – Challenges for Future*, Bentham Science Publishers Ltd.
3. The diversity and the ecological status of snakes in Kerala region- A view to prioritize conservation measures (2015) Dileepkumar R., Anaswara Krishnan S., Laladhas K. P. and Oommen V. O. *Biodiversity Conservation – Challenges for Future*, Bentham Science Publishers Ltd.,
4. Conservation of medicinal plant resources through community born biodiversity management committee, Kerala, India (2015) Laladhas K. P., Preetha N., Baijulal B. and

Oommen V. O. *Biodiversity Conservation – Challenges for Future*, Bentham Science Publishers Ltd.

5. Identification, purification and mass spectrometric characterization of two novel cyclic peptides from *Clitoria ternatea* (2015) Sudarshal S., Balaram P. and **Laladhas K. P.** *Biodiversity Conservation – Challenges for Future*, Bentham Science Publishers Ltd, pp. 203-210.
6. Preetha.N, Laladhas K. P and Oommen V Oommen (2015) Stratagem for sustainable utilization of medicinal plant resources, TIM – research conference on sustainability and management strategy (TIM-CSMS) organized by TKM Institute of management, Kollam

Popular Articles :

- 1) A Second Career of the Farm, G S Unnikrishnan, Kerala Calling April 2014
- 2) Raise Your Voice, not the Sea level, G S Unnikrishnan, Kerala Calling June 2014
- 3) Ideas for Energy, Water and Food Security, G S Unnikrishnan, Kerala Calling August 2014
- 4) Unhidden Treasures of Maveli nadu, G S Unnikrishnan, Kerala Calling August 2014
- 5) Towards a globally competitive farming, G S Unnikrishnan, Kerala Calling December 2014

➤ Chairman

Dr.Oommen V.Oommen

➤ Member Secretary

Dr.K.P.Laladhas

➤ Ex-officio Members

1. The Executive Vice President, Kerala State Council for Science, Technology and Environment, Sasthra Bhavan, Pattom
2. The Principal Secretary, Forest and Wildlife Department
3. The Principal Secretary, Fisheries Department
4. The Principal Secretary, Environment Department

5. The Agriculture Production Commissioner, Government of Kerala

➤ Non-official Members

1. Dr.K.G.Sreekumar, Chief Executive Officer, State Medicinal Plant Board, Kerala
2. Dr.N.Omanakumari, Arunima, Bapuji Gardens, Mannanthala P.O., Thiruvananthapuram
3. Dr.Achuthsankar S. Nair, Hon. Director, Centre for Bioinformatics, University of Kerala, Karyavattom Campus, Thiruvananthapuram - 695581
4. Dr.A.K.Sherief, Cloud – 9 Apartment, Law College Road, Vachiyoor P.O., Thiruvananthapuram
5. Dr.K.Mohana Kurup, Neriampallil House, Elippakulam, Pallickal P.O., Alappuzha – 690 503

➤ Board meetings

During the reporting period three regular meetings were conducted

Sl. No.	Date	Venue
1	03.05.2014	Thycaud Guest House, Thiruvananthapuram
2	20.08.2014	Thycaud Guest House, Thiruvananthapuram
3	28.03.2015	North Committee Room, Secretariat, Thiruvananthapuram



Board meeting



Staff

Senior Administrative Officer	K.Mini
Principal Scientific Officer	Dr Linda John
Scientific Officer	G.S. Unnikrishnan Nair
Technical assistant	S.Sunitha Menon
Assistant-cum-Cashier	S.Manu
Part time Sweeper	V.Prabhakumari



Project Personnel

Sr. Programme Coordinator	Dr. S. Rajasekharan
Asst. Programme Coordinator	Dr. Annie Mathai
Asst. Programme Coordinator	Dr. Mary Reena
Assistant Programme Coordinator	Dr. Pradeep C.G.
Project Associate (accounts)	G.Ramachandran Pillai
Administrative Assistant	Sivanesan V.
Project Associate	Mithrambika N.B.
Project Associate	Sandhya Rani S.K.
Project Associate	Shyni N. Mony
Project Associate	Dr. Chithra V.S.
Data Entry Operator	Ashalatha L.R.
Data Entry Operator	Revathy P.
Data Entry Operator	Priya S. Nair
Data Analyst	Madhumathi Balachandran
Skilled Assistant	Biju M.
Project Assistant	Vishnu T.
Project Fellow	Jithinka M.
Project Fellow	Jijin J. Smith
Helper	Praveen S.
Security	Kunjumon K.N.
Security	Sivankutty A.



NBA Aided Project Personnel

Technical Associate	Dr. Preetha N.
Technical Associate	Dr. Baijulal B.
Administrative Assistant	Geetha
Library Assistant	Vinod Sen



Details of financial assistance given to various Institutions for Biodiversity Awareness Programmes for the year 2014-15

Sl. No	Institutions	Programme	Amount
1	Organic Kerala Charitable Trust Organic Bazar, Opposite Girls High School, Ernakulam south Kochi – 682 016	9 th Organic Fair 2014 conducted from 3-6 April 2014 at Ernakulam	Rs.30,000
2	Pampa Parirakshana Samithy, Maramon P.O, Thiruvalla – 689 549	one day seminar on 'Biodiversity Conservation' on 18.07.2014 at Pathanamthitta	Rs.10,000
3	State Director, WWF	World Migratory Bird Day, 2014 on 10-11 May 2014 at Kollam and Ashtamudi lake	Rs.15,000
4	Kerala Academy of Sciences Thiruvananthapuram	Seminar on Science & Technology on 20 Dec.2013 at Priyadarshini Hall, Science & Tech.Museum, PMG, Trivandrum	Rs.15,000
5	Confederation of Residents Association (CONFRA) Pattom, Thiruvananthapuram	biodiversity awareness programme to students on 12, 19, 26 November 2014 at Trivandrum, Kollam and Kozhikode	Rs.10,000
6	Association of Non-Governmental Organizations Reg.No.T 940/2011, Marayamuttom P.O Thiruvananthapuram - 124	A seminar on role of NGOs in Biodiversity Conservation held on 26.11.2014 at Mithraniketha Hall, West Fort, Thiruvananthapuram	Rs.25,000
7	Ayurvedic Medicine Manufactures Organisation of India Room No.33, Arafa Towers Veliyannur Road, Thrissur - 21	ABS related seminar on 22.11.2014 at Hotel Elite International, Thrissur	Rs.25,000
8	Sree Ponnakkudam Bhagavathy Devaswam Trust Vadakkode P.O, Thrikkakkara Kochi – 682021	one day biodiversity awareness programme on 17.1.2015	Rs.5,000
9	Federation of Indigenous Apiculturists A.T.House, Malayam P.O, Thiruvananthapuram - 571	Honey Fest held on 16,17,18 Sep.2014 at VJT Hall, Trivandrum	Rs.30,000
10	M.G.College, Kesavadasapuram, Thiruvananthapuram	National Seminar on Vector Borne Diseases on 22-23 January 2015	Rs.10,000
11	Navara Foundation Karukamani Kalam Chittur College P.O Palakkad - 678104	Navara Utsav 2014 held on 17 July 2014 at Chittur, Palakkad	Rs.15,000
12	Kerala Agricultural University Regional Agricultural Research Station (Southern Region) College of Agriculture, Vellayani	One day workshop on Agriculture, Human-Natural Resource Management in the Era of Climate Change and Global Warming-A Retrospective held on 4 th December 2014	Rs.10,000
13	International Centre for Gandhian Thoughts T.C.27/2411, Vazhuthacaud Thiruvananthapuram - 695014	Seminar on Gandhian Thoughts on Sustainable Development on 21.01.2015 at YMCA Hall, Thiruvananthapuram	Rs.30,000
14	International Centre for Gandhian Thoughts T.C.27/2411, Vazhuthacaud Thiruvananthapuram - 695014	Seminar on Gandhian Thoughts on Nature Conservation on 09.02.2015 at Kozhikode Malabar Christian College Auditorium	Rs.30,000



15	Kerala Local Cattle Breeders Society (Kelbos), Reg.No.KTM/T.C/354/2012, Payyappady .P.O Puthuppally, Kottayam	Seminar and Exhibition of Traditional cattle breeds on 08.08.2014 at Maman Mapila Hall, Kottayam	Rs.10,000
16	Santhigram Chappath, Kazuvur P.O, Pulluvila Trivandrum - 526	Kerala Nattuvaidya Sangamam on 19.12.2014 at Thiruvananthapuram	Rs.20,000
17	Sanmargadayini Smaraka Vayanasala, Chanappara P.O, Kadakkal, Kollam	seminar on biodiversity conservation in connection with Karshikotsavu 2015 held from 19-23 November 2014 at Kollam	Rs.20,000
18	Friends of Nature Charitable Society Haritha Mangat Calicut Airport P.O, 673 647	Biodiversity related field training programme 30,31 January 2015 at SSHS School, Moorkanadu, Kollam	Rs.10,000
19	Kalliyoor Gramapanchayat Kalliyoor P.O, Trivandrum- 695 042	Karshika jaivavaividya samrakshanam programme in connection with Bhakshya swaraj yajnjam	Rs.20,000
20	CMS College, Kottayam - 686001	National Conference on 'Climate Change and the Developing World from 21 to 25 January 2015	Rs.20,000
21	M S Swaminathan Research Foundation Community Agrobiodiversity Centre Puthoorvayal P.O, Kalpetta, Wayanad - 673 577	Wayanad Seed Fest Jointly conducted by KSBB and MSSRF on 6,7 Feb 2015 at Wayanad	Rs.2,50,000

KERALA STATE BIODIVERSITY BOARD

L-14, Jai Nagar, Medical College P.O, Thiruvananthapuram - 695 011

BALANCE SHEET AS AT 31st MARCH 2015

LIABILITIES	Sch No	31.03.2015	31.03.2014	ASSETS	Sch No	31.03.2015	31.03.2014
CAPITAL RESERVE	1	20,41,352.80	16,35,582.05	FIXED ASSET	6	20,41,352.80	16,35,582.05
CURRENT LIABILITIES				CURRENT ASSET			
Unspent Balances:				Staff Advance	7	[2,567.00]	58,025.00
Plan Funds	2	4,23,243.00	6,18,712.00	Cash in Hand-NBC		4,566.00	753.00
Project Funds	3	84,18,940.00	60,83,616.00	Cash in Hand-Non Plan		5,46,858.00	3,348.00
State Biodiversity Fund 2014-15		7,17,998.00		Cash in Hand-Plan		12,117.00	-
Other Current Liabilities	4	20,62,532.32	25,85,727.32	Cash At Bank	8	1,31,39,307.00	91,46,462.00
Income & Expenditure A/c	5	20,77,567.68	2,25,255.68	Interest Due on Deposit		-	3,04,723.00
TOTAL		1,57,41,633.80	1,11,48,893.05	TOTAL		1,57,41,633.80	1,11,48,893.05

Notes to Accounts form part of Financial Statements

Thiruvananthapuram
29th June 2015

Prof. Dr. Oommen. V. Oommen
Chairman
Kerala State Biodiversity Board



Dr. K.P. LALADHAS
Member Secretary
Kerala State Biodiversity Board
Thiruvananthapuram-695 024



For JVS & ASSOCIATES
Chartered Accountants
FRN 01176795

R.VINOD KUMAR, FCA
M.NO. 217216
Partner



KERALA STATE BIODIVERSITY BOARD
L-14, Jai Nagar, Medical College P.O, Thiruvananthapuram - 695 011

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2015

EXPENSES	Sch No	31.03.2015	31.03.2014	INCOMES	Sch No	31.03.2015	31.03.2014
Plan Expenditure	9	2,78,96,700.00	2,36,64,917.00	Income From Projects	18	3,46,72,109.00	2,74,25,459.00
NBA Expenditure	10	42,77,890.00	19,98,219.00	Non Plan Income	19	93,06,000.00	70,81,863.85
DoECC Expenditure	11	2,55,380.00	1,53,973.00	Receipts from NBC 2015	20	12,51,025.00	-
State Biodiversity Fund Expenditure	12	17,86,629.00	16,05,037.00	Receipts from Operations	21	2,12,020.00	1,01,055.00
UNDP Expenditure	13	3,92,678.00	-	Other Incomes	22	1,85,988.00	-
NMPPB Expenditure	14	12,68,398.00	-	Deferred Income on Assets		4,16,856.25	4,18,443.16
Non-Plan Expenditure	15	84,40,811.00	76,77,985.17	Prior Period Incomes	23	8,98,162.00	-
Depreciation	16	4,16,856.25	4,18,443.16	Excess of Expenditure over Income			4,91,753.32
Prior Period Expenses	17	3,54,506.00					
Excess of Income over Expenditure		18,52,312.00					
TOTAL		4,69,42,160.25	3,55,18,574.33	TOTAL		4,69,42,160.25	3,55,18,574.33

Notes to Accounts form part of Financial Statements

Thruvananthapuram

29th June 2015

(Signature)

Prof. Dr. Oommen. V. Oommen
Chairman
Kerala State Biodiversity Board



(Signature)

Dr. K.P. LALADHAS
Member Secretary
Kerala State Biodiversity Board
Thiruvananthapuram-695 044



For JVS & ASSOCIATES
Chartered Accountants
FRN 011879S
(Signature)
R. VIJAY KUMAR, FCA
M.NO. 217216
Partner

