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National Biodiversity Authority India
2003

प्रकृति संरक्षति रक्षितः
Nature Protects if She is Protected
Ministry of Environment, Forest and Climate Change

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TRAINING BIODIVERSITY MANAGEMENT COMMITTEES

A PACKAGE OF MODULES AND METHODS FOR TRAINERS

INTRODUCTION

The 'Training Biodiversity Management Committees - A Package of Modules and Methods for Trainers' provides comprehensive guidance for conducting training of trainers (ToT) on operationalising Biodiversity Management Committees. This package of modules and methods consists of three parts - 1. Curriculum - with six modules, namely, 'Biodiversity and Human Wellbeing', 'The Biological Diversity Act, 2002', 'Biodiversity Management Committees', 'Functions of Biodiversity Management Committees', 'People's Biodiversity Registers' and 'Access and Benefit Sharing. 2. Training Methods - describes participatory training methods and steps to conduct various training sessions, and 3. Implementation - guidance for implementing the ToT. We highly recommend that the readers be familiar with the Curriculum for BMCs to effectively conduct the training using the methods and implementation guide presented in this publication. We encourage trainers to use the 'Simply Explained' series of films on 'The Biodiversity Act', 'Biodiversity Management Committees' and 'People's Biodiversity Registers' available in 16 vernacular languages as communication tools to conduct the training for BMCs.

TARGET GROUP

This Handbook is meant for the State Biodiversity Boards (SBBs) and Biodiversity Councils, organisations engaged by them to conduct capacity development and training programmes for BMCs. This publication will serve as the resource book for the persons/organisations and trainers supporting the capacity development of BMCs, community resource persons, and others engaged in documenting the People's Biodiversity Registers.

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बी.वी. उमादेवी
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Additional Secretary

सत्यमेव जयते

भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE

MESSAGE

Commitments for safeguarding environment and protection of natural resources are amply reflected in the Constitution of India and through several policies and legal instruments enacted since independence. India also holds the unique distinction of being one of the leading countries to establish national legislation to implement obligations under the UN Convention on Biological Diversity adopted in 1992. The Biological Diversity Act 2002 enacted by the Parliament of India is a comprehensive legislation that covers all forms of biological diversity and associated knowledge.

The Biodiversity Act has established institutional structures aligning with the spirit of the federal framework and Panchayati Raj system to decentralise biodiversity governance in India. There is a Biodiversity Management Committee (BMC) for each village, taluk or urban body and municipality established by the local body.

The Ministry of Environment, Forest and Climate Change and the NBA have in recent years been focusing on institutional strengthening, capacity-building of State Biodiversity Boards and Union Teriitory Biodiversity Councils and BMCs to fulfil the objectives of the Act. Fully functional BMCs can bring in a transformative change in biodiversity management and also provide opportunities for livelihood enhancement.

I compliment officers of the National Biodiversity Authority and GIZ for their excellent guidance in preparing this publication titled “Training Biodiversity Management Committees – A package of Modules and Methods for trainers”. This publication comprises of specially customised curriculum with case studies and examples on ABS and functioning of BMCs, along with training methods and implementation guide. I would also like to thank the Federal Ministry for Economic Cooperation and Development (BMZ), Government of the Federal Republic of Germany and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH for their support through the Access and Benefit Sharing Partnership Project.

I am confident that this publication will help the State Biodiversity Boards, Biodiversity Councils and training institutions in designing and implementing training for BMCs and contribute further to the effective management of our unique biodiversity.

B. V. Umadevi

16 May, 2021

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National Biodiversity Authority
भारत सरकार
Government of India

FOREWORD

India's biodiversity encompasses a myriad of habitats and ecosystems, with a wide range of plants, animals and microorganisms. This biodiversity also includes hundreds of indigenous breeds of livestock and native crop varieties bred and grown in equally diverse agro-climatic regions in the country that are sustainably managed by farmers, pastoralists and fishers.

Conservation of biodiversity is fundamentally essential for sustaining ecosystem services such as clean air, freshwater, temperature regulation, food security, fibre and medicine – all of which are critical for our survival on the planet. Now, more than ever, it has become crucial to conserve and sustainably use our biological resources, particularly in the context of both inter and intra-generational equity.

The Government of India has set up a robust legal framework through the Biological Diversity Act, 2002, which aims to ensure the conservation and sustainable use of all biodiversity and the access and benefit-sharing processes in the country. The Act has also established comprehensive institutional structures throughout India at various levels; the Biodiversity Management Committees (BMCs) are particularly important as they represent the local communities to manage biodiversity at the grassroots level. To this end, capacity development of BMCs is of paramount importance to effectively implement the Biological Diversity Act, 2002.

This training package includes meticulously designed modules on various aspects of biodiversity and the Biological Diversity Act and operationalisation of BMCs. It is well-complemented with a guide on implementing the training and methodological tools. The training package also has successful case studies on benefit-sharing and effective functioning of BMCs. I am confident that this will inspire and generate many more examples of effective functioning of all BMCs in India and will assist the State Biodiversity Boards, Biodiversity Councils and training institutions in strengthening capacities of the BMCs of India.

I commend the efforts of officers NBA, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Kerala Institute of Local Administration, State Institute of Rural Development and Panchayati Raj in Tamil Nadu in preparing this training package. I gratefully acknowledge the support from the Federal Ministry for Economic Cooperation and Development (BMZ), Government of the Federal Republic of Germany and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH through the Access and Benefit Sharing Partnership Project.

Chennai
7 December 2020

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TRAINING
BIODIVERSITY MANAGEMENT COMMITTEES

CURRICULUM

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Photo credits: GIZ/Mira Amtmann

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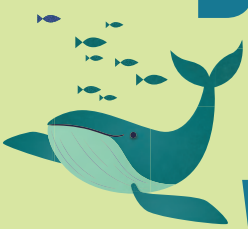
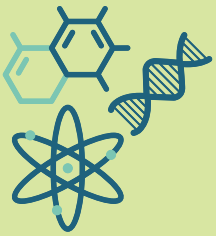
MODULE 1

BIODIVERSITY & HUMAN WELL-BEING





INTRODUCTION

What is commonly referred to as ‘nature’ in everyday conversation has an inherent element of life within it. That life, in all its forms, from the mighty tiger to the humble honeybee, products of over three-billion years of evolution, is biodiversity. It is the variety of all life in any area, irrespective of how small or large that area might be, connected by ecosystem processes such as nutrient cycling. All of life in a particular area evolved together as part of an interconnected network, or web of life. To understand it further, imagine a pond which provides drinking water to elephants and other animals. The surrounding vegetation provides food, nesting and breeding ground for a myriad of organisms such as birds, butterflies, caterpillars, grasshoppers, and spiders. Within the pond are algae and aquatic plants, fed upon by fish, snails, and other fauna, which in turn form prey to frogs and reptiles. The detritus from plant and animal life contributes to building up the soil, with earthworms, insects, and micro-organisms breaking down plant matter into its organic components. This is just one example of a familiar environment and its biodiversity and ecosystem processes.

THE ECOSYSTEM CYCLE

Trees carry out photosynthesis, a process by which carbon dioxide in the atmosphere is converted to carbohydrates, and oxygen is released. This oxygen supports the basis of life on Earth. The carbohydrates produced by plants provide food to plant-eating animals, or the herbivores and micro-organisms collectively termed as primary consumers. In turn, these herbivores are consumed by carnivores, the predators. The detritus produced is broken down, and the carbon dioxide is released back into the atmosphere. These processes at the ecosystem level contribute to sustaining biodiversity.

Human activity can also release carbon dioxide by burning ancient biological material that has been converted to oil and gas. Therefore, it can increase the carbon dioxide in the atmosphere to unsustainable levels causing global warming.

Biodiversity is primarily affected by the local and global climate, which depends on latitude and elevation. There are different scales at which biodiversity is measured – local, within a given ecosystem, biome, or on the entire Earth. A biome is an assemblage of plants and animals within a region associated with specific ranges of temperature and rainfall.

Globally, the tropics (between Cancer and Capricorn) contain the highest number of species of plants and animals due to a more equable climate that sustains life throughout the year. In contrast, the ice-covered poles




Photo credits: Aravind Madhyastha

or hot deserts support few forms of life adapted to extreme climatic conditions[1]. Within the tropics, the rainforests that occur in regions with high rainfall which support the highest biodiversity. These tropical rainforests occupy almost 7% of the total land area on Earth. Yet, they shelter about 50% of all the species found on the planet.

BIODIVERSITY - DEFINITION

The term "biodiversity" is a broad concept that includes all organisms and the variations therein that have evolved together in a particular environment[2].

According to the internationally accepted definition, "Biological Diversity" means the variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems.

BIODIVERSITY IS NOT LIMITED TO WILDERNESS

Biodiversity is not limited to the 'wild' jungles and other landscapes of perceived wilderness, such as grasslands. It extends into the heavily 'engineered' landscapes as well. Agriculture has been the cornerstone of human civilisation with a rich history of people cultivating a wide variety of food and cash crops.

Photo credits:GIZ/Pradeep Mehta

Agricultural biodiversity, also known as "Agrobiodiversity," is the variety and variability of animals, plants, and micro-organisms that have been selected and domesticated by farmers over centuries to provide food, and other purposes. Humans have altered the genetic makeup of many species to such an extent that the domesticated variety no longer resembles their wild ancestors. These include species that are used for food, fodder, fibre, fuel, and medicines[3].

HUMANS ARE A PART OF 'NATURE.'

The relationship between humans and nature has varied over time and place. Some ancient cultures have identified nature as a higher power, ascribing the status of divinity to natural elements such as certain trees and animals. Others saw nature as a broad set of resources that needed to be conquered and used. Nevertheless, humans are an integral part of nature as we are a product of evolution, and our social systems have changed over time based on the location and resources. Human social systems range from forest dwellers that rely on hunting and gathering to highly advanced agricultural technologies where genes are artificially modified to increase yields or reduce pest attacks.



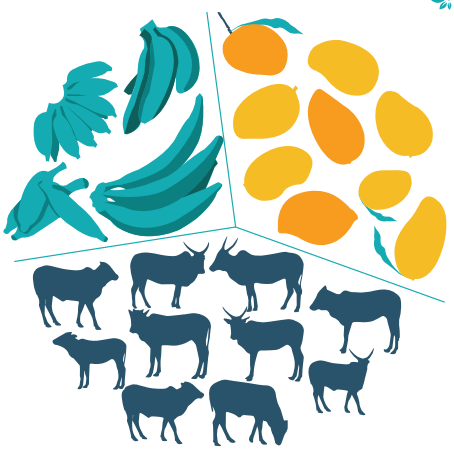
Photo credits: Aravind Madhyastha

TYPES OF BIODIVERSITY

There are three levels of biodiversity - diversity between species - **species diversity;** diversity within species - **genetic diversity;** and between ecosystems - **ecosystem diversity.**

SPECIES DIVERSITY - Species diversity is the number and the abundance of species in a particular region. Scientists have estimated that around 5 to 30 million different species exist on the planet. Approximately 1 million species of animals and plants globally are now threatened with extinction. Further, the abundance of indigenous species in all the major terrestrial habitats has fallen by at least 20% in the past century[4]. In India, we have over 45,000 species of plants and 91,000 species of animals. More than 7,000 species of plants are used in traditional medicine systems such as Ayurveda, Siddha, Unani, and folk medicines of local communities.

SPECIES DIVERSITY



GENETIC DIVERSITY

GENETIC DIVERSITY - The variation in genetic composition among the different individuals of a species, community or population is genetic diversity. For example, we have different types of rice, mangoes, or bananas, different breeds of cattle such as Gir from Gujarat, Maharashtra, and some part of Rajasthan, Ongole from Andhra Pradesh, Amritmahal from Karnataka, and Kangayam from Tamil Nadu, each with a distinct appearance, and are bred for different purposes. The mango variety Banganapalli from southern Indian states tastes different from the Dasheri variety of the north. The genetic diversity in the species of cattle or mango makes one variety distinct from the other. As an example of genetic variation among humans, studies pointed out that Native American populations who migrated into the American continent from Northern Asia around 15,000 years ago differ genetically from their Asian ancestors[5].

ECOSYSTEM DIVERSITY

ECOSYSTEM DIVERSITY - The variety of different ecosystems within an area is ecosystem diversity. For example, in the Western Ghats, ecosystems range from rainforests, dry forests and grasslands to freshwater lakes and rivers. Other important ecosystems in India are deserts, mangrove forests, oceans, estuaries, etc.

Understanding the concept of the ecosystem is important within the context of biodiversity. Biodiversity is an essential element of ecosystem functioning. Loss of biodiversity has a cascading effect on ecosystems.

ECOSYSTEM

A set of interconnected or interdependent components, both living, including flora, fauna, microbes, and humans, and non-living, connected by the food chain is an ecosystem. In other words, an ecosystem is an assemblage of living beings in a defined habitat that interacts with the non-living elements of nature and vary greatly in extent. A small pond is a complete aquatic ecosystem. So are the enormous oceans, with a diversity of fish, mammals, plants, and microbes. The complete set of all the habitats on Earth is, a complex ecosystem called the **biosphere**. At a regional scale, the river Ganga, from the source to the delta, can be regarded as one living unit composed of different ecosystems. Therefore, all ecosystems are connected, and together make up the 'biosphere' which is all life on the planet (the biodiversity) interacting with the non-living elements.

Ecosystem – definition

"Ecosystem" means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Photo credits: Gowrish Prabhu

WHY IS BIODIVERSITY IMPORTANT?

Earth is the only planet in our solar system, which supports life, enabled by a combination of factors. The Earth is located at the right distance from the sun, not too close nor too far. The metabolic processes by plants that have led to an increase in oxygen in the atmosphere, support all life forms. Any disruption of these processes, such as the increase in carbon dioxide in the atmosphere, will destabilise the ecosystem and eventually cause extinction of all life forms. Biodiversity contributes directly and indirectly to the survival and growth of humankind. The functions of ecosystems and their respective biodiversity, which sustain the welfare of humanity in one way or another, are referred to as ‘ecosystem services’.

> Ecosystem services are the benefits that people obtain from functional ecosystems. Different ecosystems provide a wide variety of services. An example of ecosystem services is the regulation of local and regional climates by forests which are also the source of drinkable water and clean air.

PROVISIONING COMMODITIES

Provisioning commodities are the goods or products produced by ecosystems. The biodiversity in the forest and marine or aquatic ecosystems also offers numerous commodities such as freshwater (for irrigation, drinking, household purposes), food (seeds, fruits, animals, fish), wood (for local constructions, fuel for cooking), medicinal herbs, fabric (wool, leather), etc. Aquatic, coastal, and marine ecosystems support the fishing industry and the livelihoods of thousands of fishing villages in coastal India.

Photo credits: Mira Amtmann

COMMODITIES FROM THE FORESTS

Many tribal communities collect leaves and fibres from their surrounding forests to make disposable utensils, ropes, bamboo baskets, and mats. Their livelihood revolves around the biodiversity of a healthy forest.

The Kurumba, Irula, Palayan, and Malai Malasar tribes of Tamil Nadu gather forest produce such as honey and wax. Similarly, the indigenous communities in Central India collect the leaves of tendu and sal, flowers of mahua, cocoons of tussar, etc.

TEMPERATURE REGULATION - As observed for urban areas, trees and plants directly decrease heat stress by providing shade and adding moisture in the air around them as they respire[6]. Scientific research demonstrates that forests have a significant cooling effect in summers and a warming effect in winters[7]. Thus forests play a direct role in balancing local temperatures.

AIR QUALITY CONTROL - Forests in rural and urban areas improve the quality of air by removing pollutants.

RAINFALL - Forests draw in moist air from the surrounding areas, the excess moisture results in the formation of clouds. When the forest cover is plentiful, enough moist air is absorbed to cause high rainfall[8].

FOOD FROM FORESTS

The uncultivated food from the forests is known to be one of the richest sources of unique nutrients which can help beat malnutrition in people. An NGO, Living Farms, working with the Kondh tribe of Odisha, identified 357 types of forest foods, including wild vegetables, animals, fruits, and tubers used by them. Out of these, 63 foods were high in micro-nutrients. Forests have been recognised as highly efficient food-producing systems that yield rich nourishing foods. If these forests are razed down, the tribal communities deriving their nutrition from these forests shall be forced to consume staple commodities such as wheat and rice. These dietary changes may have a crippling effect on their health and well-being.

PROTECTION AGAINST DISEASES

New research points out that environmental degradation makes pandemics more likely to occur, as pathogens and vectors of zoonotic diseases come into close contact with humans. Intact functional ecosystems buffer the transmission of zoonotic diseases. For example, the spread of Lyme disease to humans in the United States is enhanced due to lack of predators to control the population of its intermediate rodent host[9]. Modifying and transforming natural environments and the unregulated consumption of wild animals can promote the spread of infectious diseases such as Ebola and Covid-19. While our understanding of the role of ecosystems in defending us from the spread of diseases is limited, it is crucial to protect the environment to avoid any unknown risks to public health[10].

WHAT IS CAUSING THE LOSS OF BIODIVERSITY?

The Indian subcontinent supports ecosystems containing myriad species, many unique to this region. Human disturbances has irrevocably altered ecosystems, causing loss and fragmentation of habitats, endangering the survival of many species. Different ecosystems face different kinds of pressures and thus varying levels of threats. The most common threats are -

Eutrophication

Photo credits: Aravind Madhyastha

NON-SUSTAINABLE EXTRACTION OF FOREST RESOURCES

Studies have shown that forest resources such as fuelwood, fodder, and green leaves for manure are extensively harvested locally for sustenance and cash income in the Western Ghats[12]. In the southern Western Ghats, wealthier households collected forest products for household and farm use, whereas poorer landless families for cash income[13]. Extraction of these products reduced species abundance and diversity, and plant regeneration, thereby indicating that it was not sustainable[14].

EUTROPHICATION - It is the overgrowth of plants, such as algae, in a pond due to nutrient overload that reduces oxygen content and causes suffocation of aquatic animal life. Phosphate is an essential ingredient in the manufacture of agricultural fertilisers, detergents, and has many industrial applications. Phosphate from agricultural run-off and wastewater ends up in water bodies, causing accelerated growth of aquatic plants such as algae that reduce dissolved oxygen in the water and release toxins that kill fish and other aquatic organisms[11]. This process is known as eutrophication.

OVER-EXTRACTION OF BIO-RESOURCES - Nowadays human development comes at an immense cost to our environment. The felling of trees for the paper and timber industry, over-harvesting of medicinal plants, destruction of forest areas for infrastructure development, or conversion of agricultural fields all disturb the delicate balance of nature. Moreover, the degradation of forest land reduces the ability of forests to provide ecosystem services such as food, water, local climate regulation, preservation of soil nutrients, destruction of wildlife, and impact the livelihoods of forest-dependent communities.

Photo credits: GIZ/Mira Amtmann

DEFORESTATION - The destruction of forests causes irreparable damage to other ecosystems such as rivers. It has been estimated that rainforests, one of the most productive, species-rich, diverse ecosystems on the planet that has evolved over millions of years, shall be wiped off within 100 years. The Amazon rainforest contributes to 20% of the world's oxygen. Figures revealed in November 2019 showed that, 3769 square kilometres of the Amazon rainforest was destroyed for the 'economic growth' of Brazil within a year. Forest fires also pose a significant threat to forests; it is estimated that about 60% of forest cover in India is exposed to some degree of forest fires originating from anthropogenic activities.

HUNTING - Humans continue to hunt wildlife, resulting in the extremely vulnerable condition of already threatened species of birds, fish, reptiles, and especially large mammals. The hunting of animals for body parts such as the tiger for its skin or teeth or claws, rhinoceros for its horn, elephant for its ivory, peacock for its feathers, etc. threatens these charismatic species[15]. Loss of these species can destabilise ecosystems. For example, the loss of key predators can cause a cascading effect on biodiversity as shown by the example of the restoration of lost ecosystems in Yellowstone National Park of the USA after the re-introduction of the wolf[16].

CHANGING PATTERNS OF AGRICULTURE - Indian societies have developed a very sophisticated system of agriculture over millennia. The crop species consist of numerous varieties with remarkable genetic diversity. For instance, a single species of rice *(Oryza sativa)* has been diversified into at least 50,000 or quite possibly around 2,00,000 variants. The same is true of mangoes, where one species has been diversified into more than a thousand varieties. However, the changes in Indian agriculture over the last few decades, by the introduction of High Yield Varieties, and the indiscriminate use of chemical fertilisers, pesticides, and herbicides, has resulted in the loss of agrobiodiversity and traditional varieties. And thus, many of the genetically diverse crop varieties have been lost, eroding a considerable chunk of our heritage of cultivated biodiversity[17].

HARMFUL AGRICULTURAL PRACTICES - The use of an excessive amount of pesticides and herbicides has become integral in modern agricultural practices. However, this practice is a major environmental and public health issue worldwide. It affects human health and leads to the destruction of many non-target species such as pollinators (bees, butterflies), and predators (wasps, beetles) of agricultural pests that perform major ecological functions. Heavy use of pesticides also leads to chemical contamination of soil, water, and air, which leaves poisonous residues in both primary and derived agricultural products.

The introduction of a species from a different region or continent for agricultural production can destabilise ecosystems. For example, many tree species introduced for fodder have spread unmanageably, affecting ecosystems, and reducing biodiversity. The introduction of *Lucaena leucocephala* (Subabul), a native of Hawaii for fodder, has resulted in this species spreading rapidly and affecting native biodiversity in many regions of the world[18]. Another example is introducing exotic bee species for pollination services which has led to them competing with native pollinators such as bees and birds. In Arizona, USA, introduced honeybees competed directly with hummingbirds and functioned as a deterrent in their foraging. Southern Australia witnessed exotic honeybees removing close to 80% of the floral nectar resources produced by the bird pollinated plants[19].

CLIMATE CHANGE AND SHOLA FOREST-GRASSLAND MOSAIC IN HIGH ALTITUDE FORESTS OF THE NILGIRIS

The high altitudes of the Nilgiri and Palni hills in the southern part of the Western Ghats hosts a unique vegetation type, the shola forest which co-occurs with the montane grasslands. The sholas forests, consisting mostly of trees of tropical origin are confined to the valleys and hollows of the hillsides, and the ancient grasslands, resistant to frost and fire, occur in the intervening slopes. During global cooling, as during the ice-ages, the grasslands expanded due to low temperatures and rainfall, and during global warming, the sholas expanded. Now, as temperatures rise, the sholas are in the expanding phase. However, the dynamism of this unique ecosystem has been affected as most of it has been destroyed by pine and eucalyptus plantations along with faulty land uses[20].

Photo credits: Aravind Madhyastha

POLLINATION OF APPLE FLOWERS BY EXOTIC BEE SPECIES

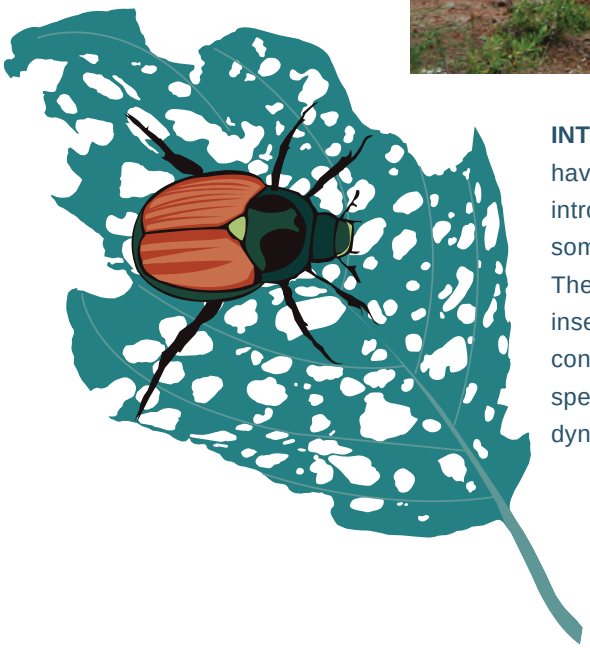
Himachal Pradesh is a mountainous state in the north-western part of India, well-known for its apples. During the past few years, the state has reported reduced apple production due to climate change and the decline in pollinators. Indiscriminate use of pesticides has affected biodiversity, including the bee population. In the absence of adequate bee population, farmers resort to the hand-pollination method to ensure flowers are pollinated. However, hand-pollination is labour-intensive and increases the cost of production. In recent times, farmers have hired commercial bees, mostly an exotic species called ***Apis mellifera,*** for pollination. ***Apis mellifera*** colonies are easy to manage, but they are known to compete aggressively towards native bees, infecting them with pathogens such as mites that destroy colonies, causing population declines.

Photo credits:Pixabay/Emilia Baczynska

CROSSBREEDING IN ANIMAL HUSBANDRY - India hosts one of the largest varieties of livestock animals (cattle, goats, sheep, camels, etc.) in the world, but a considerable percentage of Indian livestock was crossbred with exotic breeds (e.g. Jersey) to increase milk production, thereby affecting the genetic diversity of indigenous species. The exotic breeds were not adapted to India's climatic conditions, while the indigenous cattle were finely interwoven into the cultural fabric of the country's rural societies.

SOIL EROSION AND ACIDIFICATION - Soil is another resource depleted rapidly due to forest degradation, harmful agricultural practices, overgrazing by livestock, and other factors. Soils are vital to the stability of an ecosystem and form the very basis of the food production. Soil harbours a vast part of all biodiversity that stays underground. The earthworm, numerous essential bacteria, and fungi, crucial to both natural forest growth and agriculture are destroyed upon the degradation of soil[21].

Photo credits: Aravind Madhyastha



INTRODUCTION OF INVASIVE SPECIES - Species that have not evolved in a particular region but have been introduced by humans are termed 'aliens.' They can sometimes spread rapidly and destroy native biodiversity. The threat from invasive species of plants, mammals, and insects causes immense biodiversity loss and can be considered second only to habitat destruction. Invasive species cause species extinctions and affect ecosystem dynamics by altering the food chain[22].

INVASIVE SPECIES ENDANGER FORESTS

In the Shivalik Hills of Himachal Pradesh, three invasive plant species have reduced the habitat available for many native plant species. The diversity of native species in the invaded area has declined by 47%, and ecosystem productivity has declined.

In Bandipur Tiger Reserve in Karnataka, which has been infested by the invasive alien shrub Lantana camara, ground fires have replaced canopy fires, thereby killing many native trees.

Photo credits: Aravind Madhyastha

SAND MINING - In India, the impacts of sand mining include the collapse of riverbanks, habitat loss, depletion of groundwater, and destruction of coastal mangroves which leads to flooding and erosion. Urbanisation drives the demand for sand, particularly the construction of housing complexes. The increased demand for sand, thus acts as a driver for the illegal trade of sand, which is valued at 2.3 billion USD[23].

Photo credits: Pixabay/RitaE

COMMUNICATING THE IMPORTANCE OF BIODIVERSITY TO PEOPLE

We need to understand the dynamics of life forms, from a bacterium to the largest mammal, as included in the definition of the term biodiversity, and value the function and contribution of every single living organism for human well-being. The extinction of plants, animals, insects or micro-organisms is not an isolated event. Ecosystem functioning is affected by species extinction. Functionality reduces as each species is removed, finally resulting in ecosystem collapse. For instance, a particular plant species might rely on a bee species for pollination and if the bee becomes extinct, eventually, the plant population will also be affected[24]. Because of these deep linkages among all species within the web of life, one species' loss will affect the others.

Conservation of biodiversity will protect against climate change. For example, intact forests keep carbon fixed in their plants and soil. When these forests are destroyed the carbon escapes into the atmosphere as carbon dioxide destabilising the processes that regulate the global climate.

However, in practice, biodiversity is not an easy concept to convey to the relevant stakeholders. The term 'biodiversity' is usually equated to a forest that is easy to relate to. Agricultural biodiversity is hugely significant to human welfare. Preserving the genetic diversity or purity of native or wild crops is also an effort to conserve biodiversity. In the same vein, smaller animals such as earthworms and even microbes play a critical role in agriculture and should be protected. Similarly, safeguarding the fish stocks from lakes, rivers, ponds, and seas is vital for human welfare.

HOW TO COMMUNICATE THE IMPORTANCE OF BIODIVERSITY?

A few ways in which the importance of biodiversity can be communicated to people are presented here -

THEATRE - Local NGOs, colleges, and schools could be involved in acting out plays focused on the interlinkage of biodiversity with human well-being.

DOCUMENTARIES/ SHORT FILMS - A vast collection of information on biodiversity is available in television media. Documentaries could be shown, followed by a discussion on the locally relevant issues and actions needed.

STORY/POEM RECITATIONS – Many literary works on nature and wildlife exist in English and regional languages. Short stories or parts of stories or poems about the functioning of nature and the delicate balance of ecosystems could be read out in training, followed by discussions. Apart from this, storyboards could be created for specific issues, such as demonstrating the effect of loss of bees on a forest and dependent tribal community where the issue communicated by visual images knit together in the form of story-like narration.

GAMES – A digital game could be created that starts with a healthy and stable ecosystem of a forest or river. Then, as one component of biodiversity changes (increases or decreases), it could reflect on the other interlinked components. For example, if a particular bird becomes extinct, the seeds of native trees of the forest would not get dispersed, and other birds and animals who depend on that tree would have lower survival. A similar game could also be played by role-playing involving people in the village.

Photo credit: Aravind Madhyastha

Photo credit: Aravind Madhyastha

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Photo credit: GIZ/Mira Amtmann

TRADITIONAL KNOWLEDGE RELATED TO BIODIVERSITY

Before defining traditional Knowledge, let us understand the contextual meaning of 'tradition.' A set of inherited customs and beliefs is called tradition. It helps establish certain key elements of cultures and represents distinct societies while forming an essential part of the social identity[25].

Traditional Knowledge (TK), also referred to as Indigenous Traditional Knowledge (ITK), Traditional Ecological Knowledge (TEK), and Indigenous Knowledge (IK) is any information, set of practices, or innovation of a local indigenous community that could be considered relevant to the conservation and sustainable use of biological resources.

Traditional Knowledge is usually passed down from one generation to the next through cultural practices, oral traditions in the form of folklore, songs and stories, laws and norms, rituals, and medicinal practices. This Knowledge is believed to have been formulated by the ancestors and handed down for the collective welfare of future generations.

A survey of the tribal area in Malkangiri district, Odisha, reported that tribal people used 34 varieties of plant species to treat common ailments in their everyday lives[26].

TRADITIONAL KNOWLEDGE AS COMMON KNOWLEDGE

Traditional Knowledge is not limited to indigenous communities. It could be the common Knowledge of a large society or a set of societies. For instance, Turmeric is the go-to remedy for the common cold and is well-known for its wound healing properties, use in skincare and cosmetic products in India. Knowledge of the wide range of benefits of Turmeric is thus universal for numerous societies in different states in India and not limited to a local community.

Traditional Knowledge is vital in the everyday functioning of many communities, and at times this Knowledge becomes associated with cultural identities. Due to their reliance on biodiversity for subsistence, Indigenous communities gain a profound understanding of their local environment, ecosystems, and biodiversity.

Consequently, traditional Knowledge transforms itself into a valuable tool for protecting biodiversity, as generation after generation of communities, safeguards trees, plants, and wildlife, which are an essential component of their lives.

Traditional Knowledge has been preserved for ages in both codified (such as Ayurveda, Siddha, Unani systems of medicine) and non-codified forms as in orally transmitted Knowledge of folk medicine. TK-based medicine, agricultural practices, cosmetology, art, etc. have inspired many modern-day research and development of drugs and products.

Traditional Knowledge depends upon its practice. Therefore, this Knowledge is extremely sensitive to the changing relationships of people with their environment. When people use synthetic chemical drugs as medicines for common ailments, their dependence on the traditionally used herbs and spices decreases. The need to safeguard their survival also reduces.

TODA AND THE ENDEMIC GRASS ERIOCHRYSIS RANGACHARII IN TAMIL NADU

Eriochrysis rangacharii C. E. C. Fisch., a swamp grass, was considered by the Red Data Book of Indian Plants as extinct. However, this ancient grass was re-discovered as it was very much utilised by the Todas, an indigenous community of the high plateau of the Nilgiris. They use it as thatching material for their temples and their traditional houses. It also provides fodder to their buffaloes. This plant, which constitutes a major resource for perpetuating their traditions, was managed carefully over centuries. Today, the swamps where it grows are threatened with destruction by inappropriate management such as livestock grazing and agriculture. This rediscovery - which is not a rediscovery for the Todas - shows that traditional Knowledge should be taken into consideration for better management of biodiversity[27].

STRATEGIES FOR CONSERVATION

- Reintroducing traditional Knowledge into decision-making regarding the extraction of all kinds of resources from an ecosystem. A community-based approach could be used where the members adhere to the norms and practices to reduce unsustainable use of resources. For example, Tribal people from the Central Indian forests harvest the leaves of the tendu tree only after Akshaya Tritiya (a festival in April-May), based on their Knowledge of this plant's growth process since the leaves become ripe only around April-May. Thus, the tree to mature before it is harvested.
- Most villages in India depend on agriculture as their primary source of income. Famers and communities in agricultural villages can form cooperatives to set up seed banks, market native, genetically diverse crop varieties in rural areas and urban centres. These cooperatives could be linked to larger markets through platforms provided by the government agencies, which would help market their products. 'Restore,' an organic store in Chennai, has helped create awareness and revive minor millets in the region. The Bharat Beej Swaraj Manch has been promoting traditional rice varieties, tubers, pulses and carving out a new market for these products[31].

Photo credits:GIZ/Geetha Nayak

Photo credits: GIZ/Suddhabrata Chakraborty

- All grassroots efforts towards conservation of resources need to be community-based. The development of strong community-level institutions is essential for the implementation of any strategy. India's Biodiversity Act has established institutional structures at every panchayat level called "Biodiversity Management Committees" or BMCs, specifically for the conservation of biological diversity, its sustainable use and promoting fair and equitable sharing of benefits arising from the use of biological resources. A detailed account of BMCs and their functions are discussed in modules 3 and 4.

- Religious and cultural identities associated with biodiversity go a long way in their conservation and instil a sense of respect towards the local environment. Villages could maintain or revive their sacred groves. Panchayats and other community councils in villages could restore their sacred groves with the support of NGOs and other agencies working towards the conservation of biodiversity. The local BMC could facilitate these collaborations and facilitate in identifying Biodiversity Heritage Sites (BHS).

REFLECTIVE QUESTIONS

Now that you have learnt about the concept of biodiversity, ecosystems and its importance, it is time to reflect on the following questions. Use these questions when you conduct training.

1. What species of plant, animal, bird, insect, or reptile have you seen in the area you live in, and which of these have disappeared?
2. How has the land around you changed over time?
3. How has the weather changed (temperature, rainfall, humidity, etc.)?
4. What are the changes in agriculture and its practices in your village?
5. What practices contribute to biodiversity loss?
6. How can you help protect biodiversity?
7. How can you create awareness of biodiversity and the ecosystem in your village?
8. Identify traditional practices that contribute to the preservation of seed banks in your village.

NOTES

MODULE 2

THE BIOLOGICAL DIVERSITY ACT, 2002

PBR

ABS

Photo credits: GIZ/Mira Amtmann

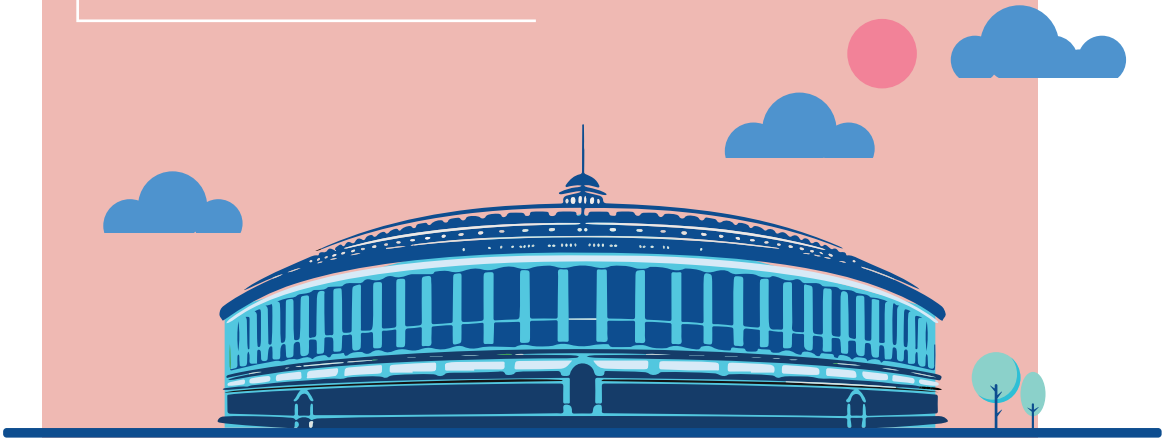
INTRODUCTION

The Constitution of India is noteworthy for its clear-cut position on environmental protection, which is now considered as a fundamental law of the land. Environmental protection, along with the right to a pollution-free environment is a prerequisite to ensuring basic human dignity[1].

The Supreme Court of India has been a champion in safeguarding the principles of environmental protection. In the 1996 case of the Vellore Citizens Welfare Forum vs Union of India, a petition was filed against tannaries and other industries for causing severe pollution to the river Palar in Tamil Nadu from the discharge of untreated effluents. The polluted water of the river had contaminated about 35,000 hectares of agricultural land, thereby making it unfit for agriculture. The Supreme Court observed that while the tanneries contributed towards employment generation and economy, the pollution had affected human health and livelihoods. The landmark verdict directed the tanneries to pay a fine, highlighting the “polluter pays principle” and mandated the constitution of Green Benches to deal with matters related to the environment.

INDIAN CONSTITUTION ON ENVIRONMENTAL PROTECTION

Supreme Court's stance on environmental protection is the result of the evolution of the Constitution, in particular, the broad scope of interpretations of the fundamental rights enshrined therein. Article 21, a Fundamental Right, provides that no person shall be deprived of his life or personal liberty except according to the procedure established by law. The Supreme Court has applied this principle to consider the environment as a fundamental human right, which means access to a pollution-free environment. Article 51A, which enshrines the Fundamental Duties of the Citizens of India, explicitly states their duty towards safeguarding the environment by protecting the country's forests, lakes, rivers, and wildlife and also having compassion for living creatures.



A crucial factor that has shaped constitutional and judicial discussions in India favouring environmental protection is the progressive stand of the Indian Government in international conventions. However, to understand the origins of international level discussions on biodiversity conservation and environmental protection, it is essential to know the context in which those discussions began.

EMERGENCE OF INTERNATIONAL LAWS FOR PROTECTION OF ENVIRONMENT AND BIODIVERSITY

The Anthropocene is defined as 'the current geological age, viewed as the period during which human activity has been the dominant influence on climate and the environment.' Although the beginning of the Anthropocene is still under discussion, the radical change of the environment by humans has impacted life on earth to the extent that the number of species going extinct will increase with time. The combustion of fossil fuels, such as oil and gas, has affected the atmosphere and the biogeochemical cycles that maintain the Biosphere to be suitable for life.

Planetary boundaries are defined as the 'safe operating space for humanity' and crossing them would heighten the risk of abrupt and irreversible fluctuations in the environment, making the earth uninhabitable for living organisms[2]. Therefore, life on earth is in danger of extinction if the current trends continue.

Photo credits: Aravind Madhyastha

Life on earth has evolved over 3.5 billion years ago. The complexity of diversity and the metabolic processes that drive organisms have evolved over geological time, and the disruption of these processes will affect all of life. The loss of global biodiversity due to deforestation, unsustainable harvest, and pollution have led to the loss of many species, including agro-biodiversity and wild fishes that humans depend upon[3]. This loss has severe consequences for the global economy as natural ecosystems provide services vital to human welfare.

In the 1960s, there was a surge in public concern about the environment, with pollution and biodiversity conservation issues taking centre stage. This momentum continued in the 1970s in various countries, and it eventually led to a focused demand to bring environmental protection into all levels of decision making[4]. A 1972 book titled 'Limits to Growth[5]' expressed grave concern that the lack of initiatives in developing a sustainable economy would cause environmental and economic collapse.

Fossil fuels powered the Industrial Revolution, creating new processes for manufacturing goods on a large scale, advances in medicine, and an increase in food production. This revolution led to urbanisation and an unprecedented rise in the global population. While agricultural production tripled between 1960 and 2015 due to the Green Revolution, this also led to the destruction of natural ecosystems[6]. The resulting industrialised agricultural practices used fast-growing monoculture crops. Now more than 75% of global crop diversity has vanished from fields under cultivation, and over half the breeds of domesticated livestock have been lost.

AGRO-BIODIVERSITY

The first settled human communities practised agriculture and domesticated many plants and animals for their use. These domesticated species evolved over thousands of years due to selective breeding, careful human-mediated selection, and have now diverged from their wild ancestors. In 1940, Nikolai Vavilov, a Russian agronomist, found that till about 11000 to 5000 years ago, different wild plants and animals were domesticated by various human societies, which led to the emergence of the first recorded food production economies. He identified seven centres of plant domestication in the world[7].

European colonisation of tropical regions led to intensive exploitation of biological and genetic resources. Thus, the commencement of unrestricted, constant and unregulated flow of genetic resources worldwide, accelerated the growth of the pharmaceutical and agricultural economies of the industrialised world.

INTERNATIONAL AGREEMENTS FOR THE PROTECTION OF ENVIRONMENT AND BIODIVERSITY

In response to the demand for the abatement of pollution and the conservation of natural resources, there were numerous multilateral environmental agreements adopted internationally. The foundation of international environmental law commenced with the United Nations Stockholm Conference on the Human Environment in 1972, wherein the United Nations Environment Programme (UNEP) was established[8].

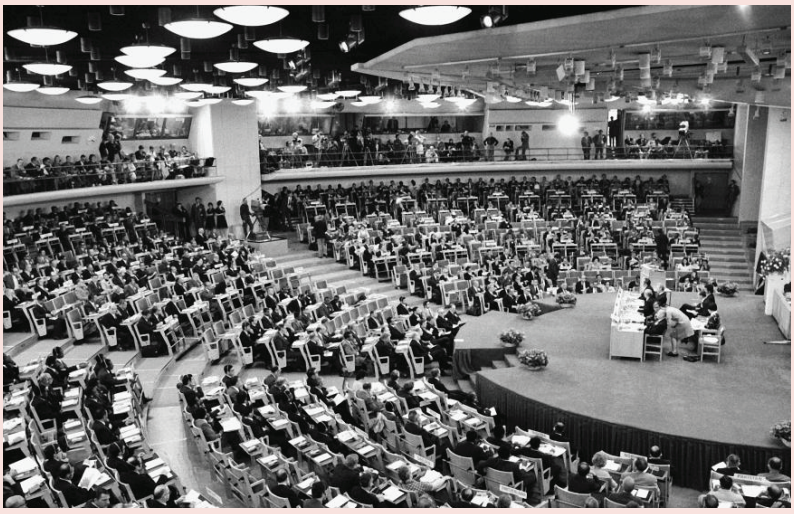


Photo credits: UN Photo/Yutaka Nagata

Photo credits: UN Photo/Michos Tzovaras

Photo credits: UN Photo/Yutaka Nagata

Mrs. Indira Gandhi, Prime Minister of India, addressing the conference. 05 June 1972 Stockholm, Sweden

As a legal concept, the preservation of natural resources was relatively slow to emerge in international environmental law[9]. This lag was because the governments of both developed and developing countries needed to exploit their natural resources to attain economic growth and development. However, gradually progress was made leading up to the Rio declaration of 1992. For instance, the World Charter for Nature adopted in 1982 by the United Nations with an overwhelming majority (111 votes for, USA the only country voting against), established 24 principles for protecting and conserving nature[10].

In 1962, an American marine biologist Rachel Carson, published 'Silent Spring', a book that proved to be a turning point in shaping people's understanding of their changing environments. 'Silent Spring' revealed how nature was in peril using synthetic pesticides, especially DDT. She pointed out that once chemical pesticides and insecticides entered the environment, these toxins would make its way into the food chain and accumulate at different levels, ultimately reaching humans. These toxic substances would result in the death of organisms, thus affecting ecosystem processes.

The impact of 'Silent Spring' was such that it led to policy decisions to restrict pollutants in the soil, water, and atmosphere.

Scientists, indigenous groups, citizens, and certain institutions came out in support for the need to safeguard entire ecosystems and habitats to save the 'richness of life on the planet' and not just the few endangered species. The new approach emphasised the need for an international convention on biological diversity. The Earth Summit, held in Rio de Janeiro from 3 to 14 June 1992, was also known as the United Nations Conference on Environment and Development (UNCED). This summit resulted in the Convention on Biological Diversity or, in short, CBD, an international legally binding treaty, which entered into force on 29 December 1993. The CBD obliges countries to protect biodiversity in all levels, i.e. species diversity, genetic diversity and ecosystems. By 2015, 196 countries had joined the CBD as parties, making it one of the most widely accepted agreements[11].

THE CONVENTION OF BIOLOGICAL DIVERSITY HAS THREE OBJECTIVES

- Conservation of biodiversity,'
- Sustainable use of biological resources,' and
- Fair and equitable sharing of benefits arising out of the utilisation of genetic resources including by appropriate access to genetic resources' or Access and Benefit Sharing (ABS).

A very significant element of the CBD was that it recognised the sovereign rights of countries over their natural resources and that access to genetic resources is subject to prior informed consent(PIC). It means that a nation is an ultimate authority in the decision-making process concerning the natural resources within its boundary. The CBD also acknowledged the conservation of biological diversity as a common concern of humankind.

SUSTAINABLE USE

Sustainable use means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

The CBD, the most widely recognised international agreement between countries of the world, stated the absolute right of all nations to their genetic resources, both wild and domesticated. It also emphasised the need for protection of knowledge and innovations of indigenous and local communities.

Further, countries were required to frame their domestic legislation to determine how to provide access to genetic resources and knowledge and innovations associated with it, found within their boundary. User countries can access these provider countries, only after obtaining Prior Informed Consent (PIC) for the use of genetic resources and signing Mutually Agreed Terms (MAT) or ABS agreement. Benefits, if any, arising out of the commercialisation or other forms of the utilisation are to be shared in a fair and equitable manner. Therefore, the regime under CBD aim to establish a balanced partnership between biodiversity-rich countries and technology-advanced countries.

India ratified the CBD in February 1994 and established national legislation called "the Biological Diversity Act" in 2002 and has since then been a pioneer in implementing its provisions.

India is also a member of many other global conventions to aimed at protection of biological diversity and natural resources. A list of international Conventions that India is party to, is provided at the end of this chapter.

THE BIOLOGICAL DIVERSITY ACT, 2002

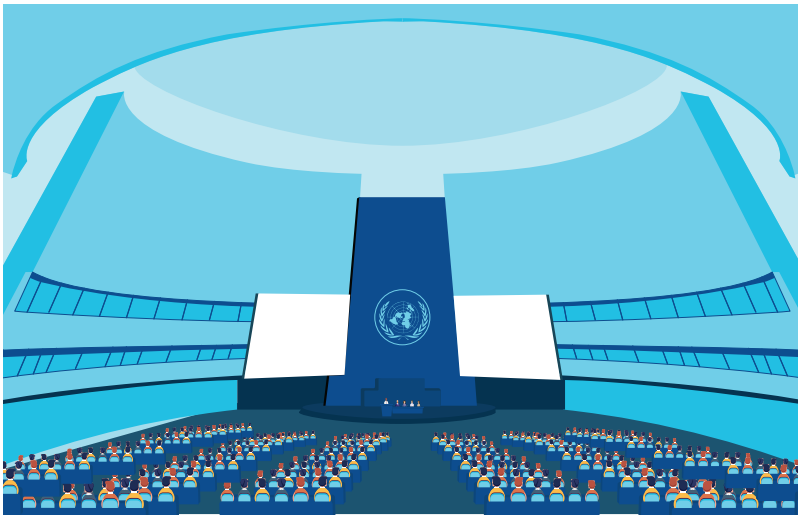
India enacted its national legislation “the Biological Diversity Act” in 2002 to fulfil its commitment agreed under the CBD. The Biological Diversity Act, 2002, aims to conserve biodiversity in the country, sustainably utilise the components of biodiversity, and share benefits arising out of the use of biological resources and the associated traditional knowledge in a fair and equitable manner.

The Biodiversity Act in India is a complementary Act applied in addition to other legislation relating to the forest, wildlife, protection of plant varieties and plant breeder’s rights, etc. The Biodiversity Act regulates access to biological resources (BRs) and traditional knowledge. The Biodiversity Act does not intend to stop or restrict researchers or companies, whether Indian or foreign, from using biological resources. The Act facilitates access through a legal process involving the signing of an ABS agreement with the competent authorities to use biological resources in research, commercial utilisation, etc.

In India, laws and policies to protect, conserve and sustainably use the natural or biological resources are not new. The Biological Diversity Act, 2002 in addition to supporting the objective of conservation and sustainable use of biological resources introduces a new set of legal principles known as ‘fair and equitable sharing of benefits arising from the use of biological resources’ or in short called as ‘Access and Benefit-Sharing’ or ABS.

Module 6 explains the concept of ABS and related case studies.

The Biological Diversity Act, 2002 regulates access to India’s biological resources and traditional knowledge. It seeks to prevent misappropriation of these resources and bio-piracy.



OBJECTIVES OF THE BIOLOGICAL DIVERSITY ACT, 2002

The Parliament of India promulgated the Biological Diversity Act in 2002 to fulfil its obligation of signing CBD. In line with the goals of CBD, India's Biodiversity Act has three objectives:

Conservation of biological diversity

Sustainable use of its components

Fair and equitable sharing of benefits arising from the use of biological resources

The biological diversity of a country is like its wealth. The protection of this biodiversity and the knowledge associated with it is of paramount importance. There are several examples of unregulated use of biological resources. Some researchers and companies in the United States patented traditional knowledge of India such as the healing properties of turmeric described in the ancient system of medicine 'Ayurveda'; and appropriation of rice varieties such as 'basmati' rice, an aromatic variety developed by farmers in the Indian Subcontinent.

THE PRIMARY INTENT OF THIS LEGISLATION IS TO PROTECT INDIA'S INHERENTLY RICH BIOLOGICAL RESOURCES AND THE ASSOCIATED TRADITIONAL KNOWLEDGE.

BIODIVERSITY AND TRADITIONAL KNOWLEDGE

Biological diversity and diversity in traditional knowledge systems have existed as a part of cultural practices in many societies, including those in India. Natural resources and traditional knowledge have immense cultural value to these societies and preserved like heritage. However, the countries, entities, researchers or individuals seeking access to these resources or this traditional knowledge may perceive them merely as raw materials to be researched, commercialised and used for profits. The value of this biodiversity and the associated traditional knowledge is, therefore, widely different for the two parties. The ABS regime ensures benefit-sharing through mutually agreed terms (MAT) when biological resources are accessed and used for research and commercialisation of products.

CASES OF MISAPPROPRIATION OF TRADITIONAL VARIETIES AND KNOWLEDGE THROUGH IPR

Intellectual property rights (IPR) could refer to the ownership of an idea or design by the person who then files a patent, copyright, or trademark which results in that person exclusively owning all decisions regarding the use of the item determined to be her/his property.

BASMATI RICE

A famous example is that of the Basmati rice, grown widely in the North-Western parts of India and Pakistan for thousands of years. Yet, a patent was granted by the US Patent Office (USPTO) to an American company Rice Tech Inc. for the development of lines and grains of Basmati rice derived from the Indian variety and crossed with other rice varieties. A PIL was filed in the Supreme Court of India in March 1998, that directed the Government of India to challenge this patent at the USPTO. Ultimately the USPTO narrowed the scope of the patents rejecting 15 out of the 20 claims filed by the company.

Photo credits: Freepik (valeria_aksakova)

TURMERIC

A patent was granted to the University of Mississippi Medical Centre, USA (Patent No. 5, 401,504 28 March 1995), to two US-based Indian nationals over the use of turmeric for healing wounds. The Government of India challenged this patent with references to traditional knowledge enlisting the usage of turmeric for healing wounds submitted before the US Patent Office. The USPTO finally revoked the patent in April 1998.

Photo credits: Freepik (jigsawstocker)

NEEM

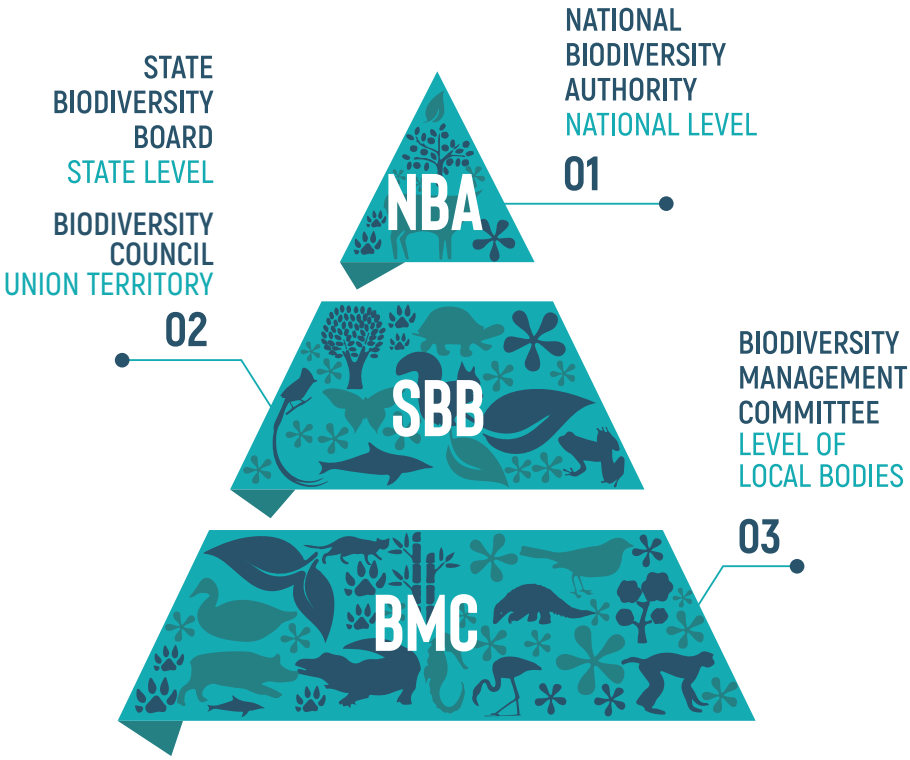
W.R. Grace of New York and the US Department of Agriculture were granted a patent (Patent No. 436257 14 September 1994), by the European Patent Office for a method which restricted growth of fungi on plants, with the help of a substance extracted from Neem oil. Neem seed extract as a potent fungicide has been used in India for centuries in the Ayurvedic system of medicine. There are several products derived from Neem seeds to cure skin diseases and stop fungal growth and infections in crop plants. India filed a legal opposition against the grant of the patent as this use of Neem was part of Indian traditional knowledge and had no novelty or invention on the part of the parties who had filed the patent.

Photo credits: Shutterstock

Keeping in mind the challenges of unauthorised access, the Biological Diversity Act, 2002, specifically focused on regulating access to biological resources, protection of traditional knowledge and innovation and safeguarding the interests of local communities. It has already accomplished a great deal in establishing a robust system to protect India's rich biological resources.

INSTITUTIONAL SETUP FOR THE IMPLEMENTATION OF THE BIOLOGICAL DIVERSITY ACT, 2002

The Biodiversity Act has established a three-tier structure for implementation. For matters at the national level, the National Biodiversity Authority (NBA) is the competent authority. The State Biodiversity Boards (SBBs) and Biodiversity Councils are responsible for matters at the levels of the state and Union Territories, respectively. The Biodiversity Management Committees (BMCs) are the structures established at the level of every local body in the country to implement the provisions of the Act.



NATIONAL BIODIVERSITY AUTHORITY

The National Biodiversity Authority (NBA) constituted in 2003, with its headquarters at Chennai is the apex body for implementing the Biological Diversity Act, 2002. Its functions include drafting procedures and guidelines to govern the activities of access and benefit-sharing as well as intellectual property rights. The NBA provides technical assistance and guidance to the SBBs and BMCs.

The NBA is the advisory body to the Government on matters relating to the conservation and protection of biodiversity, the sustainable use of its components, fair and equitable sharing of benefits arising out of their utilisation, and the notification of areas as biodiversity heritage sites (BHS) under the Act.

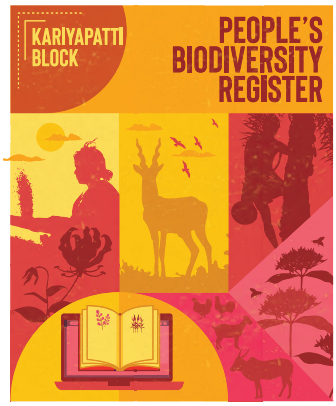
STATE BIODIVERSITY BOARDS

All states of India are mandated to constitute State Biodiversity Boards (SBBs). These Boards function as advisory bodies to state governments on all matters relating to the state's biodiversity and the regulation of biological resources for commercial utilisation.

BIODIVERSITY MANAGEMENT COMMITTEES

The Biological Diversity Act, 2002 states that every local body should constitute a Biodiversity Management Committee (BMC) within its area of territorial jurisdiction. The functions of a BMC are to promote the conservation, sustainable use as well as the documentation of all local biological diversity.

BMCs are responsible for the conservation and sustainable utilisation of biological or genetic resources in their local area. The BMCs can verify if granting access to a particular biological resource would result in the depletion of said resource or in any way affect the ecosystem or livelihood of people.



Each BMC maintains a People's Biodiversity Register (PBR) for documenting local biodiversity. The PBR maintained by the BMC should have a record of availability of bio-resources, and species that are in danger so that in case that particular biological resource is requested for access by an applicant, they can share appropriate feedback with the NBA or the SBB.

The Biodiversity Act mandates the NBA and SBBs to consult BMCs when approving access to biological resources or associated knowledge sought by the researchers or companies. BMC's feedback on the ABS application or any conditions laid down by them becomes part of Prior Informed Consent or PIC[12].*

SCOPE OF THE BIODIVERSITY ACT

The Biodiversity Act applies to a variety of activities that uses biological resources and knowledge associated with it. The complex techno-legal nature of topics covered in the Act makes it difficult to explain in simple terms and is, therefore, often prone to misinterpretation. The following sections detail the applicability of the Act to different categories of persons, activities, and biological resources. We encourage readers to check with authorities, State Biodiversity Boards or National Biodiversity Authority, and legal professionals in determining the scope and interpreting the provisions of the Act.

TO WHOM DOES THE BIODIVERSITY ACT APPLY?

The Biodiversity Act makes a distinction between two types of users of biological resources. Broadly they are classified as category I in section 3 of the Act and category II in section 7, this legal classification roughly translates to non-Indians and Indians respectively. However, the Non-Resident Indians or NRIs are under category I. Category I applications are dealt with by the National Biodiversity Authority and the State Biodiversity Boards deal with category II applications.

NATIONAL BIODIVERSITY AUTHORITY	STATE BIODIVERSITY BOARDS
CATEGORY I	CATEGORY II
• A person who is not a citizen of India; • A non-resident Indian (NRI) • A company or institution not registered in India • A company or institution registered in India but has non-Indians in its share capital or management	• Citizen of India • A company or institution registered in India

* A Guide to conducting BMC consultations on ABS applications.

WHICH BIOLOGICAL RESOURCES ARE COVERED?

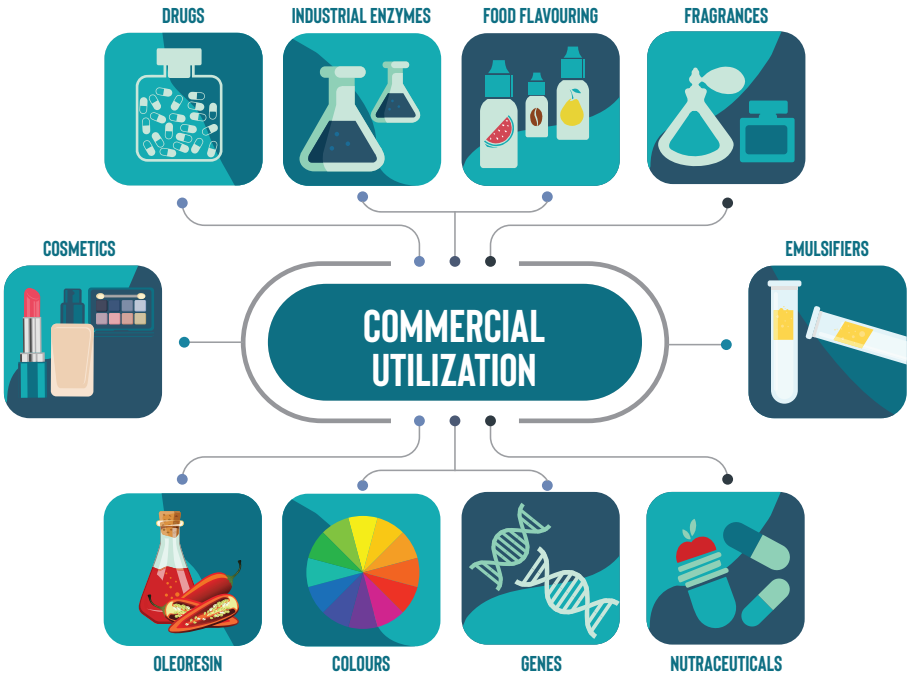
The Biodiversity Act applies to biological resource and its associated knowledge.

BIOLOGICAL RESOURCES - plants, animals and microorganisms or parts thereof, their genetic material and by-products with actual or potential use or value, but does not include human genetic material

ASSOCIATED KNOWLEDGE - this is traditional knowledge and knowledge, or invention generated from research on Indian biological resources.

WHAT ACTIVITIES ARE REGULATED?

The Biodiversity Act is applicable to a range of activities using Indian biological resources or its associated knowledge which include commercial utilisation, IPR claims, transfer of results of research on Indian biological resources or traditional knowledge.



"COMMERCIAL UTILIZATION" defined in the Act is not the same as trade and commerce in common parlance. The term "commercial utilisation" refers to end uses of biological resources for commercial utilisation. Commercial use includes drugs, industrial enzymes, food flavours, fragrance, cosmetics, emulsifiers, oleoresins, colours and extracts. It also covers genes used for improving crops and livestock through genetic intervention, but not conventional breeding or traditional practices used in any agriculture, horticulture, poultry, dairy farming, animal husbandry or beekeeping.

A SUMMARY OF ACTIVITIES AND REGULATING AUTHORITIES UNDER THE BIODIVERSITY ACT

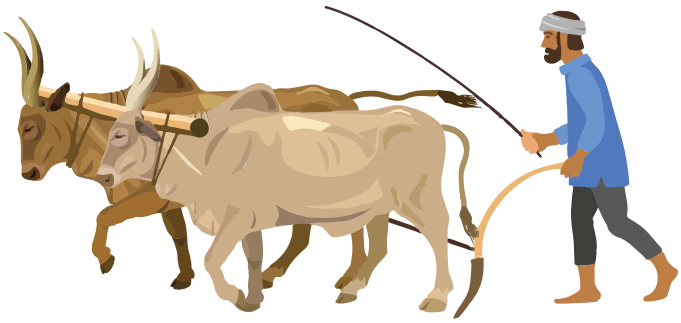
ACTIVITIES	WHO SHOULD APPLY?	COMPETENT AUTHORITY
Accessing Indian biological resources for research, commercial utilisation, bio-survey and bio-utilisation	Non-Indian citizens and entities or entities, having foreign participation.	National Biodiversity Authority
Transferring the results of any research relating to any biological resources in India or obtained from India to any non-Indians or non-Indian entities	Indians, Indian entities and non-Indians and non-Indian entities	National Biodiversity Authority
Any inventions based on research or information relating to biological resources obtained from India to secure IPR within or outside India	Indians and non-Indians	National Biodiversity Authority
Obtaining biological resources for commercial utilisation or bio-survey and bio-utilisation for commercial utilisation	ndians and Indian entities	State Biodiversity Board

EXEMPTIONS UNDER THE BIODIVERSITY ACT

Although the definition of “biological resources” given in the Biodiversity Act covers plants, animals, microorganisms and their parts along with genetic material, the use of some biological resources are exempt from the Act. For example, a category of biological resources called “normally traded as commodities” provides an exemption to certain items such as spice, agricultural commodities, fodder crops and even some commonly available medicinal plants. Therefore, it is necessary to check the latest notification given by the National Biodiversity Authority from time to time. Similarly, not all activities are regulated by the Act. For example, buying medicinal plants from the market for household use does not require permission from the authorities. **It is important to keep in mind that trade and commerce is different from the “commercial utilisation” definition given in the Act.**

SOME OF THE EXEMPTIONS GIVEN IN THE ACT ARE AS FOLLOWS:

- Local people and communities can freely use bio-resources within India.
- Growers and cultivators, vaids and hakims (practitioners of traditional medicinal systems) can use bio-resources for their medical practice.
- Biological resources that are “normally traded as commodities” notified by the Central Government under section 40 of the Act.
- Indians can use biological resources for research without the permission of the NBA or SBBs.



VIOLATIONS AND PENAL PROVISIONS UNDER THE BIODIVERSITY ACT

The Biodiversity Act has strict penal provisions for dealing with violations, wherein arrests can be without warrant and non-bailable. The penalties are also huge.

VIOLATIONS	SANCTIONS
Category I or non-Indians	Imprisonment up to 5 years or with a fine up to 10 lakh rupees or both
Category II or Indians	Imprisonment up to 3 years or fine up to 5 lakh rupees or both

OFFICERS AUTHORISED TO FILE COMPLAINTS UNDER THE BIODIVERSITY ACT

The court can take cognisance over complaints through the officers who are authorised to file them under the Biodiversity Act. The BMC members and the public should approach the officers listed below, to report any violation or offence of the provisions of the Act.

OFFICERS	AREA OF JURISDICTION
Officers of the National Biodiversity Authority, not below the rank of Scientist 'C'	Whole of India
Officers of the State Biodiversity Boards, not below the rank of Scientist 'C'	Whole of India
Officers of the Regional Offices of the Ministry of Environment and Forests, Government of India, not below the rank of Scientist 'C'	Whole of India
Advisor (Law). National Biodiversity Authority, Chennai	Whole of India
Forest Officers not below the rank of Range Officers	In their respective jurisdictions

In instances of failure or non-action by the concerned officer to stop the violation as per the law, the BMC member or benefit claimer or public have the option to approach the local court after giving 30 days' notice using form VII (see annexure I, on page 138). Illustrated below are the steps for filing complaints under the Biodiversity Act:

STEPS FOR FILING COMPLAINTS UNDER THE ACT

01 WHAT IS THE ACTIVITY?

Activities without approval of NBA/SBBs| Activities detrimental to conservation, sustainable use or fair & equitable sharing of benefits | Non-payment of collection fees levied by the BMC | Violation of T&C of approval given by NBA/SBBs.

02 NATURE OF VIOLATION

Whether it fits into listed offence or a violation | Who are involved?!!

03 COLLECT PHOTOGRAPHS & OTHER EVIDENCE

Documentary evidence | Name of the persons and organisations | Impact of said activity on the environment.

04 INFORM FOREST RANGE OFFICER OR OFFICIALS OF NBA/SBB USING FORM VII

When notified, based on merits of the complaints, the concerned officers may proceed to stop the violation as per the law.

05 COMPLAINT IN THE LOCAL COURT AFTER 30 DAYS

If said officer has not taken any steps to stop the violation, the Benefit Claimer or BMCs can go to the local court.

GLOBAL CONVENTIONS ON BIODIVERSITY AND ITS PROTECTION

The unprecedented loss of biodiversity, including plants, animals, wild and domesticated crop species in the world has prompted the establishment of many global treaties. These international legally binding treaties address conservation of specific species or habitats and their use in a sustainable manner. The Convention on Biological Diversity (CBD) is the first comprehensive legal instrument covering species, their ecosystems, and genetic diversity in its entirety. Currently, there are eight global treaties and three protocols. India has committed to all these conventions and protocols.

CONVENTION	OBJECTIVE & YEAR OF ITS ESTABLISHMENT
Convention on Biological Diversity	The Convention on Biological Diversity (CBD) has three objectives: 1. The conservation of biological diversity 2. The sustainable use of the components of biological diversity 3. The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources Established in 1992, it has 196 member countries. India became a member in 1994 and has enacted national legislation to fulfil obligations made under CBD - "the Biological Diversity Act 2002."
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments. It aims to ensure that international trade of wild animals and plants does not threaten their survival. Established in 1973, it has 183 member countries, India became a member in 1977.
CMS	The Convention on the Conservation of Migratory Species of Wild Animals (CMS) is an environmental treaty of the United Nations provides a global platform for the conservation and sustainable use of migratory animals and their habitats. CMS brings together the States through which migratory animals pass, the Range States, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range. Established in 1992, it has 131 countries which have signed the Convention, India became a member in 1984.

	International Plant Protection Convention (IPPC) The International Plant Protection Convention (IPPC) is an intergovernmental treaty that aims to protect the world's plant resources from the spread and introduction of pests and to promote safe trade. Established in 1951, it has 184 member countries, India became a member in 1956.
	The objectives of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGFRA) are the conservation and sustainable use of all plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity, for sustainable agriculture and food security. Established in 2001, it has 148 countries, India became a member in 2003
	The Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world". Established in 1971, it has a membership of 170 countries, India became a member of the Convention in 1982.
	The United Nations Convention to Combat Desertification (UNCCD) is the sole legally binding international agreement linking environment and development to sustainable land management. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found. Established in 1994, India became a member in 1996.

The most significant feature of the World Heritage Convention is that it links together in a single document the concepts of nature conservation and the preservation of cultural properties. The Convention recognises the way in which people interact with nature, and the fundamental need to preserve the balance between the two.

Established in 1972; India has 38 World Heritage Sites, which includes 7 natural sites namely, Manas Wildlife Sanctuary in Assam, Keoladeo National Park in Rajasthan, Sundarbans National Park in West Bengal, Nanda Devi and Valley of Flowers National Parks in Uttarakhand, the Western Ghats or Sahyadri Mountains in Kerala, Karnataka, Maharashtra and Tamil Nadu, Great Himalayan National Park in Himachal Pradesh and Khangchendzonga National Park in Sikkim.

NATIONAL BIODIVERSITY AUTHORITY

STATE BIODIVERSITY BOARDS

ANDHRA PRADESH

MANIPUR

HARYANA

WEST BENGAL

GUJARAT

TRIPURA

TAMIL NADU

MEGHALAYA

MADHYA PRADESH

UTTAR PRADESH

ARUNACHAL PRADESH

KERALA

ASSAM

UTTARKHAND

GOA

TELANGANA

CHHATTISGARH

NAGALAND

PUNJAB

ODISHA

MAHARASHTRA

REFLECTIVE QUESTIONS

1. Can you think of a medicinal herb or some form of traditional knowledge associated with a community in your area?
2. Can you list out 5 biological resources that come under the scope of the Biodiversity Act? Examine if any traditional knowledge associated with those 5 resources.
3. What are the objectives of the Biodiversity Act? How would you explain this to people in your village?
4. Can you identify 5 practices that contribute to sustainable use of biodiversity in your region?
5. A vaid (traditional medicine practitioner) has collected some medicinal plants found in your village. Do you think this activity is covered under the Biodiversity Act? Substantiate your answer.

NOTES

MODULE 3

BIODIVERSITY MANAGEMENT COMMITTEES

Photo credits:Aravind Madhyastha

INTRODUCTION

India's Biological Diversity Act, 2002 including its related notifications, is one of the most comprehensive pieces of legislation to implement the obligations under the Convention on Biodiversity and its supplementary agreement, the Nagoya Protocol. The Biodiversity Act has established institutional structures aligning with the federal framework and Panchayat Raj administration system in India. A three-tier institutional structure was formulated under the Act for the governance of biodiversity at different levels. A National Biodiversity Authority (NBA), State Biodiversity Boards (SBBs) and Biodiversity Management Committees (BMCs) perform the functions allocated to them at the national, state and local levels respectively.

The philosophy behind the implementation of the Biodiversity Act is that of the public trust doctrine, in which the sovereign, i.e. Government is the trustee of all natural resources, and has an obligation to protect these resources. The Government and its agencies hold numerous common properties such as rivers, lakes, forests, grasslands etc. in the role of a trustee to facilitate its access and use by the public, and the conservation of such resources. The people, therefore, act as custodians of these resources. Such a relationship between public agencies and the people can be observed in the implementation of the Biological Diversity Act, wherein the NBA and SBBs act as trustees and the local communities and people associated with BMCs in their areas as custodians of biological resources.

WHAT IS BIODIVERSITY MANAGEMENT COMMITTEE?

Biodiversity Management Committee or BMC is a seven-member committee at every local body consisting of people enlisted in the local electoral rolls. The BMC formed under the Biological Diversity Act, 2002, is for the management, conservation and sustainable utilisation of bio-resources.

SOME OF THE MAIN FUNCTIONS OF THE BMCs ARE:

- Promoting the sustainable use of bioresources
- Preparation of People's Biodiversity Register (PBR)
- Conservation of local varieties, breeds and protection of traditional knowledge
- Providing feedback on ABS applications to NBA and SBBs
- Raising awareness about biodiversity and the need for its sustainable use

PANCHAYAT RAJ SYSTEM AND BMCs IN INDIA

The Indian subcontinent or South Asia has enormous plant, animal, microbial, human and cultural diversity blended over its natural history. The complexity of cultures, languages and societies mediated by history, geographical processes and climate, has resulted in regional differences in traditional knowledge that are of immense value.

The structure of governance over the subcontinent known for its heterogeneity, nevertheless, has some common elements such as the Gram Sabhas and Panchayats that have been an integral part of villages for many years. These institutions carry forward the age-old tradition of ensuring local participation in the administration and decision-making process. Since its independence in 1947 from British rule, India acquired a new, unitary system of Government which was centralised. Over time, with the realisation of the importance of devolution of power and resources, the country introduced local self-government in villages and cities through constitutional amendments in 1992.

With the enactment of the Biological Diversity Act, 2002, the Government of India reinforced its trust in the effectiveness of decentralisation as a tool for efficient local administration and management of biodiversity. Chapter X of the Biodiversity Diversity Act, under Section 41, specifies that Biodiversity Management Committees shall be constituted by every local body in the country, to promote the conservation, sustainable use as well as the documentation of biodiversity within its area. Maintaining a record of the local traditional knowledge related to biodiversity is also one of the primary responsibilities of the BMC.

CONSTITUTION OF BMCs

The process of the constitution of a BMC is consultative, which encourages the inclusion of local stakeholders and actors whose participation is essential in the effective management of local biodiversity. Tribal communities and marginalised groups must participate in the process. The local Civil Society Organisations (CSOs) and Technical Support Groups (TSGs) mediate these consultations. Further, the SBBs or rural development department need to allocate funds to enable the involvement of CSOs, TSGs or resource persons so that they can help to identify priority areas to operationalise BMCs, and document People's Biodiversity Registers. The local body may also integrate BMCs with other village level committees related to natural resource management. The local body may support in establishing the office of BMC in its premises.

Photo credits:GIZ/Suddhabrata Chakraborty

The tenure of the BMC will be five years or co-terminus with the local body. Readers should check the available state-specific information in this regard.

COMPOSITION OF THE BMC

The composition of a BMC as described under Rule 22 of the Biological Diversity Rules, 2004 states that a BMC is to consist of seven persons who shall be nominated by the local body. Of these, at least one third should be women, and not less than 18% of the total members should be from the Scheduled Castes or Scheduled Tribes. The nominated individuals should include traditional knowledge holders and indigenous medicine practitioners, as well as people from the fishing and farming communities, tribal heads, herbalists, collectors of Non-Timber Forest Produce (NTFP) and academicians. The BMC can also include members of other local committees dealing with natural resources or rural development or any others who represent the interests of the local community. The nominated persons should be residents within the territorial jurisdiction of the concerned local body and registered on the electoral voter's list. SBBs may also issue a suggestive list of persons to include in the BMC based on local conditions. The representation may also be flexible to meet the local requirements .

SELECTION OF THE CHAIRPERSON OF BMC

To elect the Chairperson of the BMC, the head of the local body will call a meeting of the nominated members. In case of a tie, the head of the local body has the right to vote. The tenure of the Chairperson of the BMC is three years.

Photo credits:GIZ/Suddhabrata Chakraborty

ROLE OF BMCs IN ACCESS AND BENEFIT SHARING

The Biodiversity Act and rules have laid out the procedure for obtaining permits for accessing and using the biological resources or knowledge of local communities. As explained in module 2, foreign companies or researchers are required to apply for access to the NBA and Indian users or companies can approach the SBBs to obtain approval for accessing biological resources. The NBA or SBBs scrutinise all such access requests in consultation with the concerned BMC. The BMCs act as a representative forum for the thousands of panchayats and urban local bodies across India. Thus, consulting the BMCs signifies deliberation with those bodies. In fulfilment of its task of the documentation of biodiversity and traditional knowledge, every BMC must prepare the People's Biodiversity Register (PBR) in consultation with the local people.

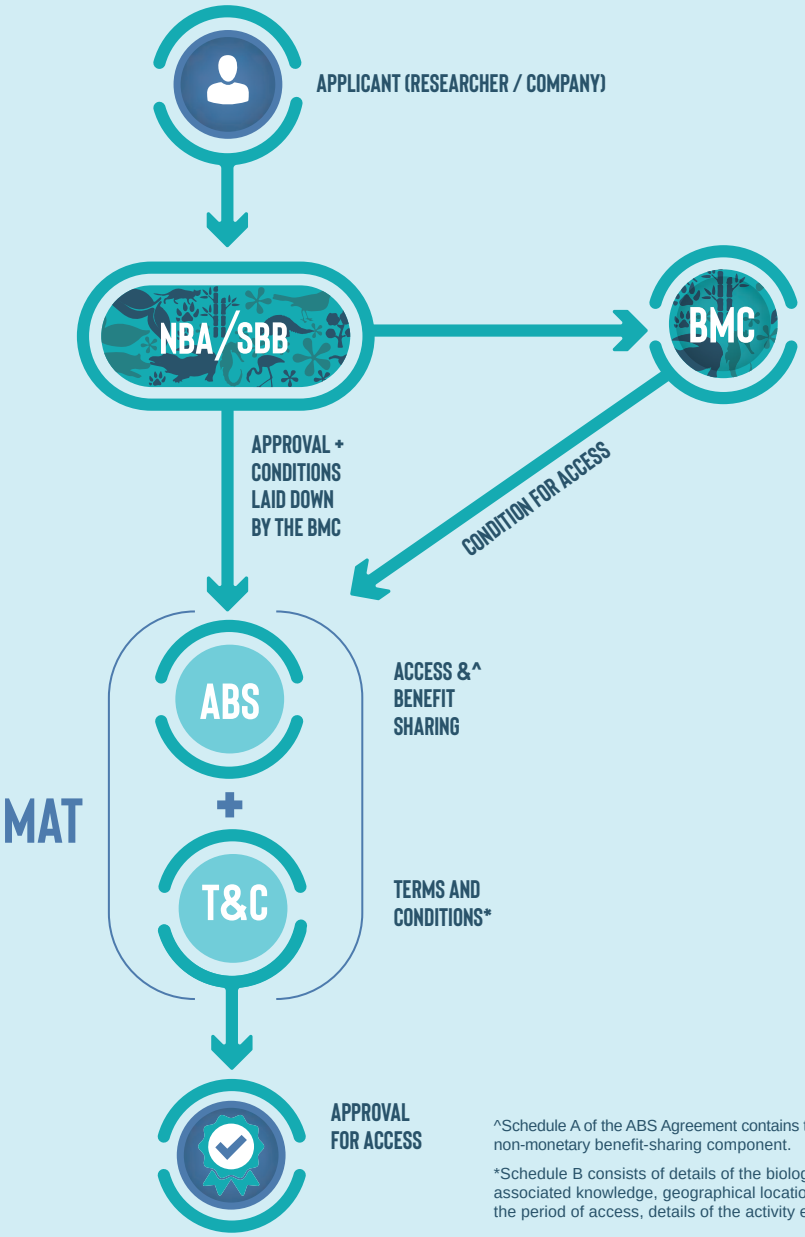
FEEDBACK ON ABS APPLICATION

FEEDBACK ON ABS APPLICATIONS

When the NBA or SBBs receive a request for access to a biological resource or knowledge related to biodiversity, they consult the BMCs in the source location of the bio-resources for information on the availability and knowledge of that resource and its uses, medicinal value, etc. If the resource requested is available in plenty, the BMC can recommend granting access. However, in case the bio-resource in question is threatened according to BMC's records or People's Biodiversity Registers, the BMC can deny access to ensure its conservation. BMCs can also lay down certain conditions for sustainable harvesting of resources.

For detailed information on how to conduct a consultation with the BMC to obtain feedback on ABS applications, readers may refer to publication titled “A guide to conducting BMC consultations on ABS applications.”

The strategic role of BMCs in the ABS process shown in the flowchart will also explain the steps involved in obtaining permits to access biological resources and knowledge associated with it.



^Schedule A of the ABS Agreement contains the details of the monetary or non-monetary benefit-sharing component.

*Schedule B consists of details of the biological resources used, quantity, associated knowledge, geographical locations, reporting requirements, the period of access, details of the activity etc.

Photo credits: GIZ/Kunal Sharma

ROLE OF BMCs IN ACCESS AND BENEFIT SHARING PEOPLE'S BIODIVERSITY REGISTERS

People's Biodiversity Register (PBR) is a record that contains information on the availability of biological resources (wild and domestic species of plants and animals) in the local area along with its traditional knowledge, medicinal value and other uses. The PBR, documented in consultation with local people, farmers, fisherfolk, traditional knowledge holders, etc., facilitates sustainable harvests and knowledge-based management of biological resources.

DOCUMENTATION OF PBR

The registers are to contain extensive information on both the availability and knowledge of local biological resources and their associated traditional knowledge if any. NBA and SBBs provide technical support and guidance to BMCs in the preparation of PBRs. PBRs are legal documents which safeguard the traditional knowledge of people or village community. Where access to a biological resource or traditional knowledge has been provided, the register maintained by the BMC will document the specifics of the accessed bio-resource such as, information of the person accessing the resource, collection fee charged by the BMCs, its intended use etc.

COLLECTION OF FEES BY THE BMCs

The BMC is further empowered to collect a fee from anyone who collects biological resources for commercial purposes from areas falling within its territorial jurisdiction. However, it is advisable to consult the State Biodiversity Boards to learn more about the procedure and modalities established in the state for the collection of fees by the BMCs.

CONSERVATION OF BIODIVERSITY

The functions of BMCs may vary according to the context of the regions of their operation. However, in general, the following activities can be undertaken by BMCs to promote the conservation and sustainable management of local biodiversity, including preservation of habitats, conservation of landraces, folk varieties and cultivars and domestic of animals.

CULTIVAR is a variety of plant that has originated and persisted under cultivation or specifically bred for cultivation. For example.

FOLK VARIETY is a cultivated variety of plant developed, grown and exchanged informally among farmers. For example.

LANDRACE is a primitive cultivar that was grown by ancient farmers and their successors. For example.

In rural areas, where agriculture is predominant, establishing community seed banks can promote the preservation of local varieties of crops, vegetables and medicinal plants.

In cases where villages or a group of villages produce specific local crops or horticultural products, the concerned BMC could facilitate in the marketing of that produce to nearby markets. BMCs could also promote in marketing organically grown and sustainably harvested produce and products from local artisans.

Mapping the geographical distribution of biological resources in consultation with the local people can help to maintain and regularly update the People's Biodiversity Register.

"KNOW YOUR BMC" CAMPAIGN IN TAMIL NADU

The 'Know Your BMC' poster campaign aimed at raising awareness of the BMCs, their functions, and the local biodiversity in their region. The posters showcase information on the local varieties of crops and fruits, the local breeds of livestock, wildlife of the area and highlight the importance of traditional knowledge associated with biodiversity, particularly medicinal plants, their use etc.

The Block Development Office, Forest Office, as well as the offices of other Govt. line departments and local bodies have displayed these posters. BMC members also took the initiative to develop People's Biodiversity Registers for documenting the biodiversity of their region.

Photo credits: Subanathan S

English and Tamil versions of the 'Know Your BMC' posters of Sedapatti Block displayed at the Sedapatti Panchayat Union Office

BMCs IN URBAN AREAS

BMCs in urban areas could engage in awareness generation about the local biodiversity, the ecosystem services it provides and the role that people could play in its conservation. Enacting skits and short plays in schools and colleges, and inviting the public and other civil society organisations to consultations and meetings of the BMC can enhance their knowledge of the surrounding ecosystems.

Further, the BMCs in urban areas could organise awareness drives about the importance of biodiversity and sensitise urban dwellers about activities that harm biodiversity and ecosystems. BMCs situated in rural areas could connect with the BMCs located in urban areas to establish a market in cities for any unique produce or products from the villages.

The responsibility of BMCs is to ensure that the access provided to biological resources or traditional knowledge does not result in the depletion of the local biodiversity or exploitation of traditional knowledge holders. BMCs also need to ensure that they use the benefits accrued from the ABS agreements for the conservation and promotion of sustainable use of biological resources. A fully functional BMC is a pre-requisite for the establishment of an effective ABS mechanism in India.

BENEFIT-SHARING WITH BIODIVERSITY MANAGEMENT COMMITTEES

Based on the ABS provisions of the Biodiversity Act, the BMC or benefit claimers will receive 95% of the amount collected by the NBA or SBBs for providing access to the biological resource. This amount will aid the BMC or benefit claimers in their conservation efforts and support economic development in the region.

Photo credits: GIZ/Suddhabrata Chakraborty

AMARCHINTA BMC IN ANDHRA PRADESH

In the Amarchinta village BMC in Andhra Pradesh, more than 2000 kg of neem leaves were collected by the villagers and sold to a company in Hyderabad called Bio-India Biologicals (BIB) Corporation. The BIB Corporation then exported the product to Japan for the production of neem leaf extract to use in dietary supplements. Upon signing of the ABS agreement between the NBA and BIB, a sum of ₹ 55,035 was accrued for benefit-sharing, and the BMC in Amarchinta village received 95% of the money. The BMC utilised that money to plant new saplings of neem and create further awareness among the villagers.

KODAIKANAL BMC IN TAMIL NADU

Firmenich Grasse, a fragrance and flavour company, based in France applied to the NBA for collection of 1 kg of Kurinji honey from *Strobilanthes kunthiana* (Neelakurinji plants) to carry out research. Kurinji is a shrub found in forests of high altitudes known as the “shola forests” of the Western Ghats in southern India. The Kurinji plants flowers once in 12 years. The Adivasi communities, Paliyan and Toda tribal communities in Tamil Nadu harvest honey from the forests for their consumption as well as for sale in markets. Firmenich Grasse intended to buy Kurinj honey marketed by an enterprise based in Kodaikanal called “Hoopoe on a Hill”, run by a group of women working together to market wild honey.

NBA consulted the Kodaikanal BMC in Dindigul district before approving the collection of Kurinji honey. Upon receiving feedback from the BMC members, the NBA signed an ABS agreement with Firmenich Grasse and charged an upfront payment of ₹ 7000. This amount has been transferred to the BMC for activities as it may deem fit to support objectives of the Biodiversity Act.

Photo credits: GIZ/Geetha Nayak

Photo credits: GIZ/Geetha Nayak

THIRUPORUR BMC IN TAMIL NADU

The Irula tribal community of northern Tamil Nadu is well-known for their skills as snake-catchers, both locally and internationally. The Irula Snake Catcher's Industrial Cooperative Society, established over forty years ago, are currently the leading organised suppliers of snake venom in India. Snake venom is a derivative of biological resources as defined by the Biological Diversity Act, 2002. Venom is extracted from four species of venomous snakes, i.e. *Naja naja* (spectacled cobra), *Bungarus caeruleus* (common krait), *Daboia russelii* (Russell's viper) and *Echis carinatus* (saw-scaled viper), collected from the districts of Chennai, Kancheepuram and Thiruvallur in Tamil Nadu. The venom is partially processed and then sold for research and commercial purposes. iSERA Biological Pvt Ltd, an Indian company, applied to the Tamil Nadu Biodiversity Board for access to snake venom to develop anti-snake venom serum. Upon obtaining approval for their application, iSERA Biological Pvt Ltd signed the ABS agreement with the Tamil Nadu Biodiversity Board in January 2020, agreeing to a benefit-sharing obligation of 5% of the purchase price of the snake venom for three years. The company made an upfront payment of Rs. 17,700 as benefit-sharing. Through the Thiruporur BMC in Kancheepuram district, the Irula Society, as benefit claimers, received the benefit-sharing amount in November 2020.

Photo credits:Tamil Nadu Biodiversity Board

In module 4, we will learn more about the functions of BMCs.

REFLECTIVE QUESTIONS

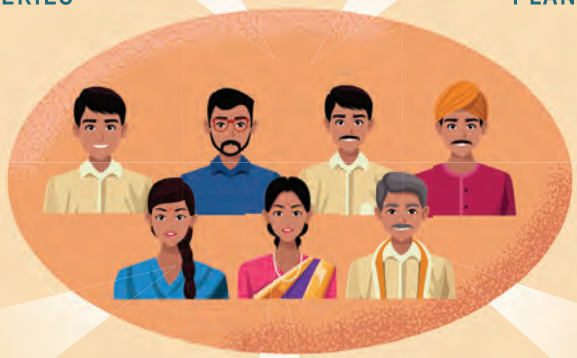
1. You have been designated as a member of Technical Support Group (TSG) to support constitution of BMC in your village. Make a suggestive list of people to be included as its members along with justification.
2. Make a list of activities that can be taken up by the BMC in your village.
3. A company signed an ABS agreement for collection of medicinal plants found in your village. The State Biodiversity Board shared INR. 30000 accrued from the ABS agreement with your BMC. How would you use that money?
4. A company has approached a traditional knowledge holder in your village to conduct research on medicinal use of a herb. How would you as a group provide feedback on ABS application? (refer to publication “A Guide to conducting BMC consultations on ABS applications”).
5. Using the template provided in Annexure II on page 138, prepare a poster to create awareness on BMC in your village.

NOTES

Photo credits: Gowrish Prabhu

NURSERIES

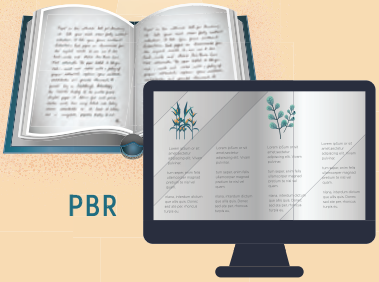
PLANTATIONS



BMC

CONSERVATION OF IMPORTANT SPECIES

VALUE ADDITION



PBR

MODULE 4

FUNCTIONS OF BIODIVERSITY MANAGEMENT COMMITTEE

INTRODUCTION

Conservation of ecosystems and sustainable development has emerged as a focus area for all governments and institutions, notably since biodiversity is being destroyed at an alarming rate affecting ecosystem functioning and local livelihoods. In the realm of public policy and governance, natural resource management (NRM) and biodiversity have now assumed critical significance as indicated by increased budgetary allocation to programmes focused around this and its allied components. The outlay for schemes of the Ministry of Environment, Forests and Climate Change, for example, has increased over the past years and currently stands at ₹1017.23 crores for the year 2020-21[1].

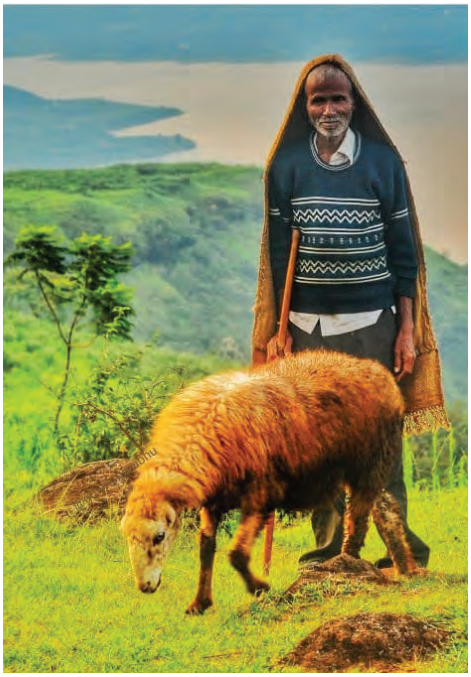


Photo Credits: Gowrish Prabhu

In the same vein, the institutional structure for biodiversity governance, as defined in the Biological Diversity Act, 2002 (Biodiversity Act), has become more established and comprehensive. The National Biodiversity Authority (NBA) is the apex organisation for implementation of the Biodiversity Act. State Biodiversity Boards support states (SBBs) support states and Biodiversity Councils support the Union Territories of India. SBBs have been constituted in all states. The third tier of institutions is the Biodiversity Management Committees (BMCs), established at every Local Body. As of March 2020, there are 244727 BMCs constituted in 28 states, and 4371 in the UTs of J&K and Lakshadweep.

The BMCs are particularly important as they involve the local communities in the management of biodiversity. Local communities are the custodians of biodiversity and the traditional knowledge associated with it, as its deeply intertwined with their cultural practices. Therefore, ensuring the active participation of local people in the process of biodiversity management is fundamental to the successful implementation of the Biological Diversity Act.

ROLE OF BMCs IN LOCAL AREA CONSERVATION

The BMCs perform numerous functions in their operational area, be it a village, town or city. For functions, such as the conservation and sustainable use of biological resources or creating awareness on biodiversity or any other activities to support the goals of the Biodiversity Act, the BMCs can decide how to implement them to suit the local needs or context.

Some other functions explicitly mentioned in the Biodiversity Act, include the preparation of People's Biodiversity Register (PBR) and management of biodiversity heritage sites (BHS) like sacred groves or sacred water bodies. They also include providing feedback on ABS applications forwarded by the State Biodiversity Boards or the National Biodiversity Authority[2].

Seed bank in Sanarpatti, Dindigul, Tamil Nadu

Photo credits: GIZ/Suddhabrata Chakraborty

FUNCTIONS OF BMC

- Conservation and sustainable use of biological resources
- Restoration of local biodiversity
- Documenting the People's Biodiversity Register (PBR)
- Providing feedback to the concerned State Biodiversity Board, and the National Biodiversity Authority, in matters related to ABS applications, traditional knowledge and issues of local biodiversity
- Management of Biodiversity Heritage Sites
- Monitoring the collection of biological resources or protection of traditional knowledge in the area
- Identifying benefit claimers and sharing of benefits accrued from the signing of ABS agreements
- Educating local people about issues of biodiversity

Photo credits: Aravind Madhyastha

BIODIVERSITY HERITAGE SITES

Biodiversity Heritage Sites (BHS) are well-defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal & inland waters and marine having rich biodiversity comprising of any one or more of the following components:

- The richness of wild as well as domesticated species or intra-specific categories;
- High endemism, presence of rare and threatened species, keystone species, species of evolutionary significance;
- Wild ancestors of domestic/cultivated species or their varieties;
- Past pre-eminence of biological components represented by fossil beds;
- Having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them.

The Section 37 of the Biodiversity Act empowers the State Government to notify areas of biodiversity importance as “Biodiversity Heritage Sites” in consultation with local bodies.

PROCESS OF THE ESTABLISHMENT OF BIODIVERSITY HERITAGE SITES

- BMCs play a vital role in the identification of Biodiversity Heritage Sites (BHSs). The State Biodiversity Boards invite suggestions for the declaration of biodiversity heritage sites through BMCs, institutions like Panchayats or Gram Sabhas. A list of areas, which comprise natural or human-made habitats containing a significant diversity of life forms, is consolidated. Following this, public discussions in local forums highlight the far-reaching benefits of conservation of the sites. Further, the restrictions that can be placed on developmental activities, if the area in question is eventually declared a biological heritage site, are also considered.

- Once the local forum approves, the SBB issues a notification specifying the boundary of the BHS. The public is made aware of this notification through media and public offices, and their suggestions are invited based on which the BMC constitutes a team to study the site. Local participation is encouraged in this process, and a final report is prepared to be deliberated in a joint meeting of SBB with all the stakeholders.

- A notification is issued throughout the state in the vernacular language to announce the declaration of BHS. Local communities and people have another opportunity to raise any objections regarding their traditional rights and privileges in and around the site. The BMC conducts a public hearing to address concerns of the local people. Upon the completion of this procedure, the SBB officially notifies all relavant government departments about the successful establishment of a BHS.

Photo credits: Aravind Madhyastha

MANAGEMENT OF BIODIVERSITY HERITAGE SITES

- The local BMC, prepares a management plan for the BHS.
- The management plan can include all practices of conservation and sustainable utilisation of resources in the BHS. It can also impose certain restrictions on developmental activities or suggest ways in which the site can be developed without causing any damage to the ecosystem for promotion of activities such as eco-tourism .
- Once the BMC finalises the management plan, the respective SBB constitutes an expert committee to evaluate the same.
- Upon its approved, the SBB should set up a state-level monitoring committee to oversee the effective implementation of the management plan.
- Formation of the BHS is notified by the state government, after which the NBA appropriates the required funds for its initial establishment. Further, a separate budget for the BHS is allocated in the annual budget of the local body[3].

The role played by BMCs in the identification and management of Biodiversity Heritage Sites, highlightsand significance of this institution in the preservation of local flora, fauna and their habitats. As the challenges faced by cities, towns and villages are very different from one another, the functions of a BMC should be firmly rooted in its local context. In identifying and conserving crucial biodiversity hotspots as BHSs, the BMCs can integrate their collective knowledge of local threats to conservation with the most context-specific solutions. Therefore, creating BHSs can be understood as one of the most effective tools to save biodiversity on relatively smaller scales.

Photo credits: GIZ/Mira Amtmann

The Biodiversity Management Committee of Mallappuzhassery Panchayat, in the state of Kerala, proposed Pannivelichira to be declared a Biodiversity Heritage Site. Pannivelichira, a water dyke, is a source of drinking water and a biodiversity hotspot. Many species of migratory and native birds, fish, butterflies, dragonflies and snakes inhabit this zone. While initially with an area of 170 acres, it has now reduced to almost 62 acres due to rampant encroachment to the extent of constructing houses on its bed. This encroachment will now change, with the decision to establish a BHS acknowledging the ecological sensitivity and importance of the site. The management of the BHS shall lie with the BMC, which can introduce preservation and restoration efforts to conserve the ecological integrity of Pannivelichira.

Image Source: Google Earth

BIODIVERSITY HERITAGE SITES

MAJULI RIVER ISLAND IN ASSAM

Majuli is the largest river island, located in the river Brahmaputra in North East of India harbouring unique ecological and cultural heritage. It is also one of the largest inhabited mid-river deltaic islands of Brahmaputra River covering an area of 875 sq. km. It has innumerable small islets, called Chaporis. Majuli island was formed as a result of periodical changes in the course of the river Brahmaputra caused by frequent earthquakes and high floods.

Majuli is home to unique riverine biodiversity and fertile soils. The island is also one of the identified 'Important Bird Areas' of Assam having more than 225 species of birds including rare, and endangered migratory species.

Apart from its rich biodiversity, Majuli is also the centre of 'Vaishnavite culture'. The influence of the Neo-Vaishnavite culture on the island, which restricts killing animals, has resulted in great reverence for wildlife and the environment. The Majuli island also represents an example of a symbiotic relationship between nature and culture, traditionally providing a pleasant environment for the protection of all life forms.

To safeguard its unique ecological and cultural heritage, the Indian Government upon recommendation of the State Government and Assam State Biodiversity Board notified Majuli as the first Biodiversity Heritage Site of Assam on 29th March 2017, under Section 37 of Biological Diversity Act, 2002 and Rule 24(1) of the Assam Biodiversity Rules 2010. Majuli BMC and Ujani-Majuli BMC manage and oversee sustainable utilisation of resources from Majuli Biodiversity Heritage Site.

Text - Sunanda Devi, Assam Biodiversity Board

Photo credits: Oinam Sunanda Devi

NALLUR TAMARIND GROVE IN KARNATAKA

The Nalluru village of Bengaluru Rural district in the state of Karnataka proposed the declaration of the Nallur Tamarind Grove as a Biodiversity Heritage Site. The grove, a 53.2-acre land, is believed to have its origins in the Chola dynasty. The site comprises of 300 gigantic trees, the carbon dating of which have proven them to be around 200 years old, some even over 400 years old. The grove is a refuge for many important faunas. Declared a Biodiversity Heritage Site in 2007, the Nallur Tamarind Grove is managed by the BMC at Nalluru village.

Photo Credits: Pritham Srini

AMBARGUDDA IN KARNATAKA

Ambargudda is a 3857.17-acre land located in the hilly regions of the Western Ghats belt, between the Sharavathi Wildlife Sanctuary, Someshwara Wildlife Sanctuary and the Kudremukh National Park, in the Shivamogga district of Karnataka. With evergreen, semi-evergreen and shola forests, t he site also has a rich diversity of insects, birds and amphibians. The BHS falls within the territorial jurisdictions of several villages in Shivamogga district and is managed by the Shakanna Shanuboga BMC.

Photo Credits: Pritham Srini

Text - Pritham Srini, Karnataka Biodiversity Board

SUSTAINABLE HARVESTING PRACTICES

The biodiversity richness in any region is closely associated with the sustainable management of its natural resources. Therefore, promoting sustainable harvesting practices is one of the responsibilities of the BMC.

In many biodiversity-rich regions, the lack of awareness on sustainable collection coupled with an increasing industrial demand for wild resources has led to the decline of biodiversity. Competition among various local collectors and inadequate incentives for primary gatherers have also contributed to these damaging practices. Therefore, the role played by BMCs to promote sustainable use of biological resources assumes even greater importance.

Photo credits: GIZ/Geetha Nayak

Photo credit: GIZ/Suddhabrata Chakraborty

The Aichi biodiversity targets established under the United Nations Convention on Biological Diversity in 2010 act as a roadmap for biodiversity conservation in all countries. Under the targets, Strategic Goal B focuses on reducing direct pressures on biodiversity and promotion of sustainable use. Further, target 7 aspires to manage areas under agriculture, aquaculture and forestry to ensure the conservation of biodiversity.

Destructive collection practices include cutting of tree branches, plucking immature fruits and leaves, ultimately lead to an increase in the mortality rate of trees, and diminished regeneration. The output of the resource thereby decreases year after year. When there is deterioration in the expected quality of the harvested resources, it fetches a lower price in the marketplace.

BMCs can initiate specific measures to ensure the promotion and endorsement of sustainable harvest practices.

- Mapping natural resources can estimate the possible quantity of resources that can be gathered. A value analysis of the products by assessment of the value chain and the benefits acquired by different stakeholders can further help in making informed choices.

- Using the participatory approach can help integrate a community and assign roles and responsibilities to various stakeholders in the selection of species and sites for sustainably harvesting biological resources. Traditional knowledge of the local people would act as a valuable tool in this process.

- Using local traditional knowledge can help devise context-specific protocols for the harvest of biological resources. Status of vulnerability threats to different species, their medicinal or other uses, the frequency of their trade and techniques of propagation can serve as useful parameters while outlining sustainable harvesting protocols[4].

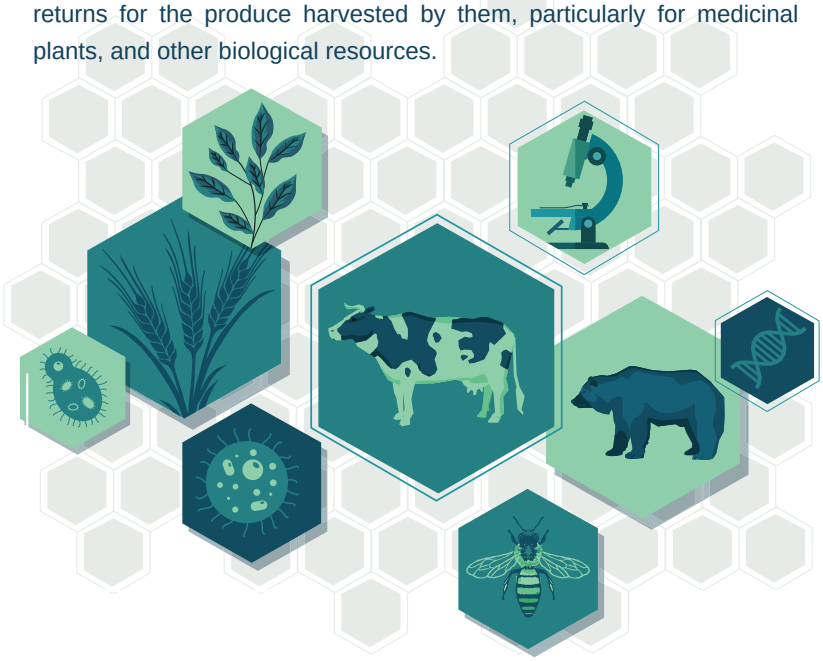
- Another crucial element in the advancement of sustainable collection practices is the identification of all stakeholders linked to that process. The details of local collectors and traders must be collated and updated regularly. Undertaking capacity-building measures for all stakeholders

and issuing permits for collectors is necessary. All the local government departments, such as the state's Forest Department, must be encouraged to include local indigenous communities and people whenever resources which have traditionally been governed by them, are utilised in any way. Women, who tend to play a significant role in the collection of local forest produce, should be urged to participate in all discussions.

- Efforts should be made to raise the quality of the product that is supplied by the adoption of post-harvesting techniques such as sorting, drying, storage labelling and branding. This could help generate additional revenue by fetching higher prices for the finished product.

- It has been observed in a lot of biodiverse regions that the rights of the collection are auctioned or sold off to external agents and contractors. The indigenous people and individuals from tribal communities work as daily labourers for the contractors. They are paid based on the weight of the collection amassed by them, which may encourage destructive forms of harvesting. It is imperative to increase the stake of local communities in resource harvesting. The integration of knowledge held by tribal and indigenous communities into the harvesting protocol of the concerned forest departments is beneficial.

- Primary gatherers and collectors may form community enterprise or cooperatives under their respective BMC, to negotiate for an increase in returns for the produce harvested by them, particularly for medicinal plants, and other biological resources.



EXAMPLES OF SUSTAINABLE HARVESTING PRACTICES

Sustainable harvesting has been an intrinsic element in most traditional collection practices. Tribes in the Pachmarhi Biosphere Reserve of Central India use *Madhuca Indica* (Mahua) in different ways. Raw flowers are consumed and also used to make liquor. The tree branches, used during wedding ceremonies, are harvested only after the celebration of the 'Chait' festival in March. Cultural norms while collecting required plant and tree species are followed in most areas[5].

Photo Credits: Wikimedia Commons

Madhuca Indica

Texts of Ayurveda elaborate that the branches and leaves of plants of medicinal value are to be collected in spring and rainy seasons, their roots in summer or late winters after the leaves have fallen or fully matured. Autumn season is recommended for the collection of barks, tubers and latex. Heartwood can be collected in early winters, and fruits and flowers gathered according to their seasons.

- When the roots of *Chlorophytum borivilianum* (Safed Musli/ Tiravanticham/ Veluttanilappana/ Dravanti) are harvested, one or two roots along with the disc are left intact in the soil. These roots lie dormant and sprout into a new plant in the rainy season.

- In Karnataka, the resin of the White Palle tree (*Ailanthus triphysa*) is collected for its use in local traditional medicine and as an incense. The rough cuts made on the tree eventually lead to rot and the trees to fall during the heavy rains of Agumbe. To minimalise the wound, alternate methods such as the fishbone incision provide higher yield, thus making the harvest more sustainable[6].

COMMON PROPERTY RESOURCES

Resources, which are accessible to and are collectively owned or managed by a community and to which no person has exclusive property rights, are called common property resources (CPRs). Members of a community all share co-equal rights to the usage and have obligations to protect the common property; for example, pasture lands in and around villages. All members of the village have access to it and can take their cattle to graze there. At the same time, when the grass starts to diminish, it is customary to leave that tract of land, to let it regenerate on its own.

Photo credits: GIZ/Mira Amtmann

CPRs form an intrinsic part of life in rural and tribal areas. BMCs constituted at the panchayat level, may be put in change of the management of resources in CPRs. Oftentimes, CPRs do not find enough importance on development policies, as indicated by a continuous decrease in their areas in India. This decrease is alarming given many people are directly dependent for their livelihood and daily needs of food, medicines, fodder for cattle, drinking water etc. on them.

Being responsible for local biodiversity governance, BMCs can make radical changes to past approaches of neglect and over-exploitation of CPRs. The rights of communities over certain CPRs are historically well established and recognised, and thus BMCs can facilitate the involvement and participation of communities in their management.

Photo credits: Creative Commons - Edweed

The Bugun Liocichla bird, named in honour of the Bugun tribe of Arunachal Pradesh, survives in a 17 km2 community reserve forest over which the Bugun tribe has ownership. It is found nowhere else in the world. The acknowledgement that their forests were home to many rare and threatened endemic species led the indigenous people to push for declaring the area as a community reserve and protecting biodiversity. Their efforts realised in 2017 with the declaration of the Singchung Bugun Village Community Reserve. The management committee of the community reserve draws its members from the indigenous people who use their traditional knowledge to protect the bird and its habitat. The youth have become actively involved in saving other endangered species within the forest. The community has worked closely with the forest department to ensure that the reserve is safeguarded which has led to the conservation of forest catchment areas and endemic medicinal plants[7].

GRAM SABHAS AS A FORUM FOR OPERATIONALISING BMCs

The enactment of the 73rd Constitutional Amendment Act provided constitutional status to Panchayati Raj institutions in India. Of these, Gram Sabhas trace their roots to ancient times. These are local gatherings organised by the panchayats and given the number of panchayats in the country, would easily qualify as an enormous exercise in deliberative democracy in the world. The Constitution (73rd Amendment) Act in 1992 meant to devolve powers and authority to Panchayati Raj institutions to empower and strengthen them. It observed that the distortions prevalent in the higher orders of Government have, in many ways trickled down to panchayats as well. However, the revival of Gram Sabhas brought about a new meaning to the idea of self-governance and direct democracy. The panchayats are responsible to the Gram Sabha and can be held accountable by it[8].

Photo credits: M Prabhagaran

The Sabha plays a crucial role in enabling democratic processes at the grass-root level in the management of resources, increasing awareness and promoting assertiveness among weaker sections in expressing their viewpoints.

The Constitution of India (Article 243 A), defines Gram Sabha to be a body of persons registered in the electoral roll of a village or the area coming under a Panchayat. The emphasis, therefore, is to ensure greater participation of people, and examine every point of view as policies and programs are implemented at local levels. Gram Sabhas are conducted on prescribed dates by each state and are ideally attended by almost all adult individuals of the village. Hence, they can serve as excellent forums to discuss environment and conservation-related issues.

The Gram Sabhas function as monitoring bodies and keep a close eye on the operations of the Panchayats. The Panchayats themselves can be held accountable by the Sabha if the work done by them is considered unsatisfactory. Therefore, Gram Sabha may become a forum for deliberating on conservation issues and supporting works of BMCs.

The functioning of Gram Sabha is democratic, and thus it can be assumed, that the decisions are taken on issues of the environment, and its conservation is an ideal representation of all opinions, including those of the poor and marginalised section of people. Thus, integrating the gram sabha in biodiversity governance can ensure the consideration of the interests of all groups. For the same reason, gram sabhas are the most appropriate forums to discuss the functioning of BMCs, protection of common property resources and their utilisation, and in the identification of stakeholders in the governance of biodiversity from within a village.

Photo Credit: Mira Amtmann

REFLECTIVE QUESTIONS

1. How can your BMC contribute in sustainable management of biodiversity in your area?
2. Make a list of Common Property Resources in your village and identify threats to them.
3. Are you aware of sustainable harvesting practices in your village? List out 5 such practices along with details on bio-resources
4. How would you explain functions of BMCs in your grama sabha?
5. Identify two potential Biodiversity Heritage Sites in your district.

NOTES

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FAUNA

FLORA

CROPS

MODULE 5
PEOPLE'S BIODIVERSITY REGISTER

TRADITIONAL KNOWLEDGE

DEMOGRAPHY

SOIL BIODIVERSITY

INTRODUCTION

Biodiversity provides numerous benefits to people. Many rural households are directly dependent on biodiversity for their livelihoods, the provision of food, shelter, health and well-being etc. Through market mechanisms, particular species in an area become fundamental parts of local as well as global supply chains. For example, many plants and herbs used in traditional medicine in India, have found immense popularity in both western countries as well as urban Indian cities. A considerable proportion of people all over the world now accept the motto of 'Return to Nature'. These lifestyle changes lead to much greater consumption of natural products and wild foods. The Ayurveda sector earned around $4.4 billion or ₹30000 crores in trade by the end of 2018[1]. Biodiversity loss, at any level, can therefore directly threaten the livelihoods and employment of people in any component of the global supply chains. The loss of even one species of plant, animal, or microorganism has a cascading effect which can bring down the entire ecosystem, resulting in local, regional as well as global impacts on trade.

Photo credits: Aravind Madhyastha

WHY IS THE MONITORING OF BIODIVERSITY NECESSARY?

Documentation of biodiversity can serve as a useful tool in monitoring changes in the population of a target species over time, and identify whether it is increasing, decreasing or stable. By its very nature, biodiversity in any ecosystem is dynamic, continually changing its composition and structure. Anthropogenic pressure has further exacerbated the decline of biodiversity globally. Numerous threats including over-harvesting, deforestation, livestock grazing, invasive species invasions that reduce the populations of native species, pest attack, unpredictable climatic events, have severely affected species population while some of these threats can be mitigated, others such as climatic changes are difficult to predict and offset.

The Government of India, by way of the Biological Diversity Act, 2002 paved the way for maintaining a record of local biodiversity throughout the country. Section 41(1) of the Biological Diversity Act directs every local body to constitute a Biodiversity Management Committee (BMC) within its area of operation. One of the primary responsibilities of a BMC is the documentation of People's Biodiversity Registers (PBR) in consultation with local people[2].

ROLE OF BMCs IN THE DOCUMENTATION OF PBR

BMCs advise on any matter referred to it by the SBBs and NBA before approving the access to biological resources or traditional knowledge. BMCs also keeps the record of local vaids and traditional mrdicine practitioners who use biological resources. Documentation of the PBR is one of the main functions of BMCs, and they facilitate the entire process as detailed:

- The BMC can conduct an inception meeting with the technical support group consisting of experts from agriculture, horticulture, forestry, conservation, knowledgeable members of the community, representatives from universities and NGOs, to begin the preparation of the PBR.

Photo Credits: GIZ/Suddhabrata Chakraborty

Photo Credits: GIZ/Pradeep Mehta

- The preparation of the PBR is done in collaboration with local people and experts in the area. A few members from the BMC can coordinate and arrange meetings with knowledgeable individuals from the village or town, members of Panchayat or local bodies, experts from the technical support group and other members of the BMC. BMC may also organise activities to spread awareness about the PBR among the local people.
- Land-use maps are essential components of a PBR. Resource mapping is a collaborative activity which requires the participation of knowledgeable local individuals, and the BMC can help validate information provided by them.
- The BMCs are authorised to levy charges in the form of collection fees from individuals who are provided access to biological resources for any commercial purpose. The PBR documents the quantity of resource accessed, the fees collected, and any benefits obtained as and when such transactions take place.
- The BMC verifies all the data recorded in the PBR and updates it from time to time. The PBR is a dynamic, living document which changes to reflect the variations in the area.

Photo Credits: GIZ/Pradeep Mehta

PEOPLE'S BIODIVERSITY REGISTER (PBR)

People's Biodiversity Register (PBR) is a record that contains information on the availability of biological resources (wild and domestic species of plants and animals) in the local area along with its traditional knowledge, medicinal value and other uses. The PBR, documented in consultation with local people, farmers, fisherfolk, traditional knowledge holders, and others, facilitates sustainable harvest and knowledge-based management of biological resources.

The concept of the PBR was to achieve an integration of modern conservation science and policy with indigenous knowledge. It is a concrete step towards the regular monitoring of the local biodiversity in any region in India. Indigenous knowledge of the local people applied in the direction of achieving greater resilience of ecosystems can lead to a more stable ecological community. A healthy ecosystem can combat the risks of climate change and diseases.

NGT ORDER ON ESTABLISHMENT OF BMCs IN INDIA

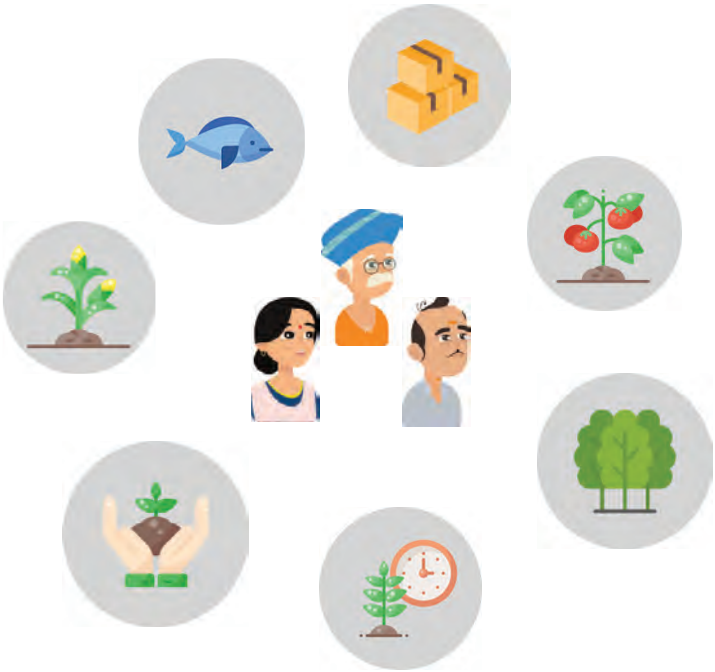
An activist named Chandra Bhal Singh filed a petition before the National Green Tribunal (NGT) in July 2016, for the non-implementation of the Biological Diversity Act, 2002, particularly the State's failure in the establishment of Biodiversity Management Committees and the documentation of People's Biodiversity Registers. An order passed by the NGT in August 2018 directed the Ministry of Environment, Forest and Climate Change (MOEFCC) and the National Biodiversity Authority (NBA) to monitor compliance on the constitution of BMCs and preparation of PBRs. However, noting the inadequate progress made, in Aug 2019, the NGT directed that every State should constitute 100% of BMCs, and complete documentation of People's Biodiversity Registers by January 2020. The NGT further directed that States not complying with the order should pay a monthly fine of ₹10 lakhs.

Photo Credits: Aravind Madhyastha

CONTENTS OF THE PBR

The People's Biodiversity Register is a document that contains comprehensive information on the availability and knowledge of local bio-resources, their medicinal or any other use or any traditional knowledge associated with them. In addition to biological resources, the PBR focuses on the following components:

- Local people and their dependency on biological resources
- Biodiversity and knowledge of the people, including agricultural and animal husbandry practices
- Landscape or waterscape of the area
- Perspectives of the people on management issues



The National Biodiversity Authority has prescribed indicative formats for the documentation of People's Biodiversity Registers in the country (pages 108-111)[3]. However, the State Biodiversity Boards may modify these formats to suit their state requirements. For example, the Access and Benefit Sharing partnership project, in addition to the prescribed formats, has included one on the trade of bio-resources to contain information on collectors, agents, agency and traders in the region. This information will help provide feedback on ABS applications (Annexure III).

CONTENTS OF A PEOPLE'S BIODIVERSITY REGISTER:

1. PROFILE OF THE STUDY AREA

Every region has its unique characteristics. The PBR provides information on the geographical location of the area, including information on the villages, taluks, blocks and districts. It includes details of the various levels of organisation such as Gram Sabha, Gram Panchayat or other local bodies, a map of the village with its demarcated boundaries and other physical parameters like its general topography, altitude, latitude, soil type, etc.

Photo Credits: Aravind Madhyastha

Photo Credits: Aravind Madhyastha

2. SOCIO-ECONOMIC PROFILE

Documentation of socio-economic profile is essential to understand the dependency of local people on the available biological resources around them. The most fundamental element of this profile is population data, collected through household surveys. Data on the total number of members in a house and the type of housing (kutcha or permanent), include age ranges, highest qualifications, occupations, source of drinking water, whether a functional toilet is present or not and details of land holdings such as sizes of agricultural land owned etc may be documented. Further information can include the monthly family income, whether the members avail healthcare, their dependency on traditional medicine, fuel use in the house, staple food, domesticated animals or cattle they own, including their number, type and breed. Additionally, documenting the awareness of the respondents on local biological resources is necessary.

Photo Credits: GIZ/Mira Amtmann

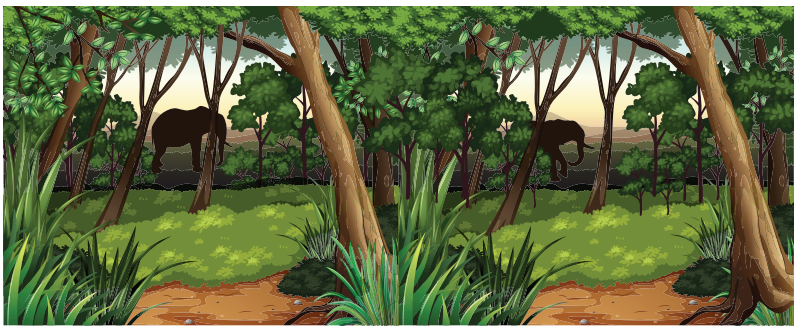
3. NATURAL RESOURCES

The PBR could include the natural resources of the area, such as the land and water resources. A land-use map of the area would serve as a vital tool in the management of local biological resources.

- **URBAN AREA -** Clear boundaries are required to map land use in an urban area, particularly for human settlements, with an analysis of the type of land preferred for these habitations. The details of the length of pucca and kutcha roads in the area, as well as industrial complexes, commercial spaces, markets and educational institutions or office buildings, are to be included. An aggregation of these details would help delineate human activities in the area. The total area allocated to green spaces, such as parks, gardens and open spaces,

should be calculated. If there are forests or wetlands in the region, then recording the local names, locations, details of ownership, and current uses is essential. The natural water sources in the city, such as rivers, canals, along with details of the length of the water source and its current uses should be included in the documentation.

- **NON-FOREST RURAL AREA -** In case of large agriculture-based rural areas, the data on land tenure system and socio-economic categories of land ownership should be collected from the local bodies. Revenue lands, reserved forests and other community lands are inventoried and mapped. The type of agriculture practised (rain-fed or irrigated, industrial/smallholder, contract farming), agroforestry practices, the major crops cultivated, rotation if any should be periodically updated. The number and type of livestock are updated from the Animal Husbandry Department. Inventory of fallow lands (seasonal or permanent), barren lands and wastelands in the area need to be maintained, which includes details of the human settlements, such as the type of land preferred for habitation, and the length of pucca and kutcha roads in the area.



FOREST AREA - The type of forest (evergreen, deciduous, savannah, or any other) should be noted. The extent of forest cover and % canopy cover measured and categorised: closed forests, open forests, degraded land, reserved forests, revenue forests, sacred groves or unclassified. The location and size of a forest in the village, if any, should be specified. Additionally, the types and lengths of any roads in and around the forest are recorded. Other details such as sacred trees, groves and temple ponds may be recorded.

Photo credits: Aravind Madhyastha

WATER RESOURCES - The sources of water can be groundwater, lakes, rivers, canals or creeks. Sources of water for household purposes, agriculture or industry, should be noted. For groundwater, the number of open wells bore wells, pumps and hand pumps, and existing mechanism to monitor the levels of the groundwater table must be documented. For surface water, the extent of rivers, canals or creeks together with their points of origin, lengths, and current uses should be noted. Also, their common names, locations, size (hectares) recorded. Wild biodiversity such as fish, flowers, aquatic plants and vegetables, crops etc. documented. The utilisation of wetlands during floods and the recreational or occupational uses of water resources, such as swimming or fishing, should be documented.

Photo Credits : Aravind Madhyastha

4. GENERAL INFORMATION

The comprehensive information of the region recorded in the PBR is an introduction to the area. After this, some other general details need to be listed.

- The details of the Biodiversity Management Committee of the Panchayat or local body.
- A list of the practitioners of traditional medicine residing in the jurisdiction of the village/town or accessing biological resources from that region. All the vaids, hakims and other herbal medicine practitioners for humans as well as animals including cattle, can be listed here along with their contact details.
- A list of individuals perceived to hold traditional knowledge related to the use of biodiversity in agriculture, medicine, fisheries, forestry, etc. by the villagers.
- Details of the schools, colleges, government departments and agencies, universities, NGOs, members of the Panchayat or local body and other individuals involved in the preparation of the PBR recorded.
- Accurate records of the details of access to biological resources or traditional knowledge maintained. It includes information on the number of resources used, collection fee imposed, benefits derived from the access granted, and the mode of benefit-sharing.

5. PBR FORMATS

There are formats for the different types of information recorded in the PBR. The NBA has a list of indicative formats for recording data on biodiversity. Some examples are:

- In case of agro-biodiversity, details of crop plants, fruit plants, crops used as fodder, weeds and invasive species, local pests harmful to crops, types of soils, markets for cattle and other animals are recorded.
- The information on domesticated and cultivated biodiversity such as fruit trees, medicinal plants and herbs, ornamental plants, timber trees, domestic animals, culture fisheries, and details of the market and their trade need to be documented.

Photo credits: GIZ/Carrot Films

Photo credits: GIZ/Suddhabrata Chakraborty

- For wild biodiversity, recording information on the trees, shrubs, herbs, tubers, grasses and climbers, as well as wild plants of economic importance is essential. Further, information on aquatic biodiversity, wild aquatic plants of economic and cultural significance, plants that provide medicinal benefits, wild relatives of domesticated crops, timber plants, wild animals (including birds, reptiles, amphibians, insects and others), as well as other plants recorded.
- There are two formats for urban biodiversity- one for flora and another for fauna.
- Supplementing all this information in the PBR are pictures depicting the area, its local biodiversity, the functioning of markets, etc.

Photo credits: Aravind Madhyastha

BENEFITS OF DOCUMENTING PBR

Documentation of PBRs is vital to facilitate the ABS process. The information documented in PBR can help in addressing concerns relating to biodiversity and guide the sustainable management of forest resources, fisheries, agriculture and livestock to support the livelihoods of the local people. Thereby creating opportunities to generate local income in return for access to biological resources. Benefits of documenting PBRs are discussed below:

- The PBR can help local communities understand and become aware of the value of biological resources harvested from their region. In the Chikmagalur district of Karnataka state, villagers from the Kigga village, noted the large-scale collection of mosses from the area for export to urban centres, only after the process of documentation for PBR started. Consequently, the villagers were motivated to organise themselves to regulate the harvest of mosses and negotiate better prices as returns.
- In addition to facilitating the ABS process, the exercise of creating a PBR helps in creating awareness on biodiversity and capacity building of the community.
- Documentation of biodiversity and traditional knowledge in consultation with local people would bring their interpretations of ecological processes into perspective. These views could be of immense value in decision-making regarding resource management practices.
- The process involved in the making of a PBR could also recognise the value of traditional practices of resource use, such as sacred groves and river water stretches of religious significance.
- The preparation of PBR can play a crucial role in inspiring social mobilisation. Local communities, as they get exposed to concerns related to biodiversity management, can take steps to ensure the conservation and restoration of their ecological heritage. For example, in the Mandi district of Himachal Pradesh, the local villagers became aware of forest degradation and enclosed the forest for conservation. The regeneration of biodiversity in the previously degraded forest area was extremely encouraging[4].
- Traditional knowledge is fast eroding, and documentation of TK is ultimately for its preservation and use at the appropriate time[5].
- Documentation of PBR will help in connecting science and local traditional practices together for the benefit and well-being of our society, today and in the future.

DOCUMENTATION INCREASES LEGAL CERTAINTY

Documentation of local biodiversity and traditional knowledge in the PBR increases legal certainty and helps identify benefit claimers or providers of biological resources and traditional knowledge associated with it. On the other hand, not documenting traditional knowledge and biodiversity, would lead to issues in the acceptance of any evidence related to ownership of that biodiversity (particularly in domesticated biodiversity) or TK. A case study below illustrates how evidence about TK preserved through oral traditions was rendered inadmissible.

In 1986, an American scientist and entrepreneur, Loren Miller, was granted a U.S. patent on a strain of the 'Ayahuasca' vine. This vine is native to the Amazon rain forest where healers and religious leaders have used it for generations to treat diseases and healing practices. When the tribal leaders of the Amazon heard of this patent several years later, they consolidated into a council representing over 400 indigenous tribes and groups in South America. The council claimed ownership of the knowledge of this medicine, by elucidating how their ancestors discovered it and sought the revocation of the patent. A traditional healer from the Amazon offered to give oral evidence of the traditional knowledge. However, this kind of oral evidence was treated as unacceptable[6].

DOCUMENTING TRADITIONAL KNOWLEDGE IN PBR

Although knowledge associated with biodiversity forms an integral part of the PBR, it is not mandatory to document such knowledge should the holder not want it so. Only individuals holding such traditional knowledge are listed in the PBR. The registered traditional knowledge holder may decide how much information they want to share. There are three options. The first is, people can provide only their area of expertise and contact details. In the second, if they wish, they can document their specific knowledge – but they do not have to. In the third option, people in the village can provide names of persons perceived to hold traditional knowledge. The ultimate objective is to protect this knowledge and practice. The knowledge itself remains the property of its holders.

Photo credits: GIZ/Geetha Nayak

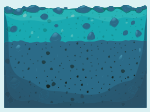
CONSERVATION PLANNING THROUGH PBRs

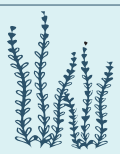
Conservation and promoting sustainable utilisation of bio-resources is the core objective of the Biodiversity Act. PBRs documented by the BMCs will aid in planning conservation at local levels.

- The enormous amount of information collected, verified and continually updated by the BMC also allows it to frame extremely relevant strategies to conserve local biodiversity.
- BMCs can use PBRs to prepare contextually specific biodiversity management.
- Based on the information about all the local species of flora and fauna, BMCs can implement specific measures to restrict the harvest of and trade in threatened, endemic or rare species.
- BMCs can also restrict activities which cause genetic erosion of the larger ecosystem and are thus detrimental to them.
- PBRs contain descriptions of resource markets in the area, based on which BMCs could develop new or enrich already existing markets of biodiversity-related products. The development of markets is pivotal and can have far-reaching effects on the conservation and sustainable management of local natural resources. A fully functional marketplace would become a source of stable livelihood for the local people and incentivise them to harvest biological resources sustainably. Traders can market their biological products through such a local market.
- The BMCs can identify specific ecologically rich, biodiverse areas within the region. These regions declared as Biodiversity Heritage Sites (BHS), can receive protection on many formal levels, thereby ensuring its conservation.

PBR FORMATS

FORMAT NO.	TITLE	DETAILS
1	 Crop Plants	Crops, Number of varieties along with the cropping season
2	 Fruit Plants	Most popular fruit crops and their management
3	 Fodder Crops	Fodder crops, uses and their landscape
4	 Weeds	Species and crops affected
5	 Pest of Crops	Crops affected and pests
6	 Markets for Domesticated Animals	Location, market name and number of livestock traded
7	 Peoplescape	Number of communities and their occupation
8	 Landscape	Area and number of the landscape elements present and their uses
9	 Waterscape	Waterscape element types and their uses

FORMAT NO.	TITLE	DETAILS
10	 Soil Types	Soil types and crops cultivated in them
11	 Fruit Trees	Fruit crops present
12	 Medicinal Plants	Details of endemic and common medicinal plants, their uses and their occurrence
13	 Ornamental Plants	Ornamental plants present in the respective block
14	 Timber Plants	Common species of timber trees cultivated
15	 Domesticated Animals	Domesticated livestock and their breeds
16	 Culture Fisheries	Common fish species cultivated
17	 Markets/ Fairs for Domesticated Animals, Medicinal plants and other products	Location, livestock sold and date of markets

FORMAT NO.	TITLE	DETAILS
18	 Trees, Shrubs, Herbs, Tubers, Grass, Climbers	Common/endemic species of Trees, Herbs and Climbers
19	 Wild plant species of importance	Wild plant species of importance
20	 Aquatic Biodiversity	Species of aquatic plants present along with their uses
21	 Wild Aquatic Plant Species of Importance	Wild aquatic plant species present along with their uses
22	 Wild Plants of Medicinal Importance	Species, parts collected, uses and occurrence
23	 Wild relatives of crops	Wild species with similarities to domesticated species
24	 Ornamental plants	Wild ornamental plant species
25	 Fumigate /Chewing plants	Species of chewing plants with their parts and uses.

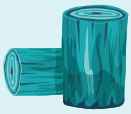
FORMAT NO.	TITLE	DETAILS
26	 Wild Timber Plants	Common/endemic Wild Timber Plants
27 A & B	 Other plants in the Coastal marine flora and fauna	Coastal flora and fauna present with their commercial uses
28	 Wild Animals Mammals, Birds, Reptiles, Amphibian, Insects & others	List of common/ endemic wild animals
29	 Urban Biodiversity (Flora)	List of common/ endemic Urban flora
30	 Urban Biodiversity (Fauna)	List of common/ endemic Urban fauna

Photo Credits: Aravind Madhyastha

- Linking the PBR to the planning processes and policies of the local bodies could help mainstream local biodiversity issues. The PBRs could capture perspectives from the local communities in decision-making processes.
- Information from the PBR could help determine the environmental impact of development projects and activities. The BMC could link the PBR to all EIAs (Environmental Impact Assessments) conducted in the area.

The process of PBR engages members from all sections of the community. BMCs could use it as a community-building exercise to encourage conservation and sustainable management of biological resources.

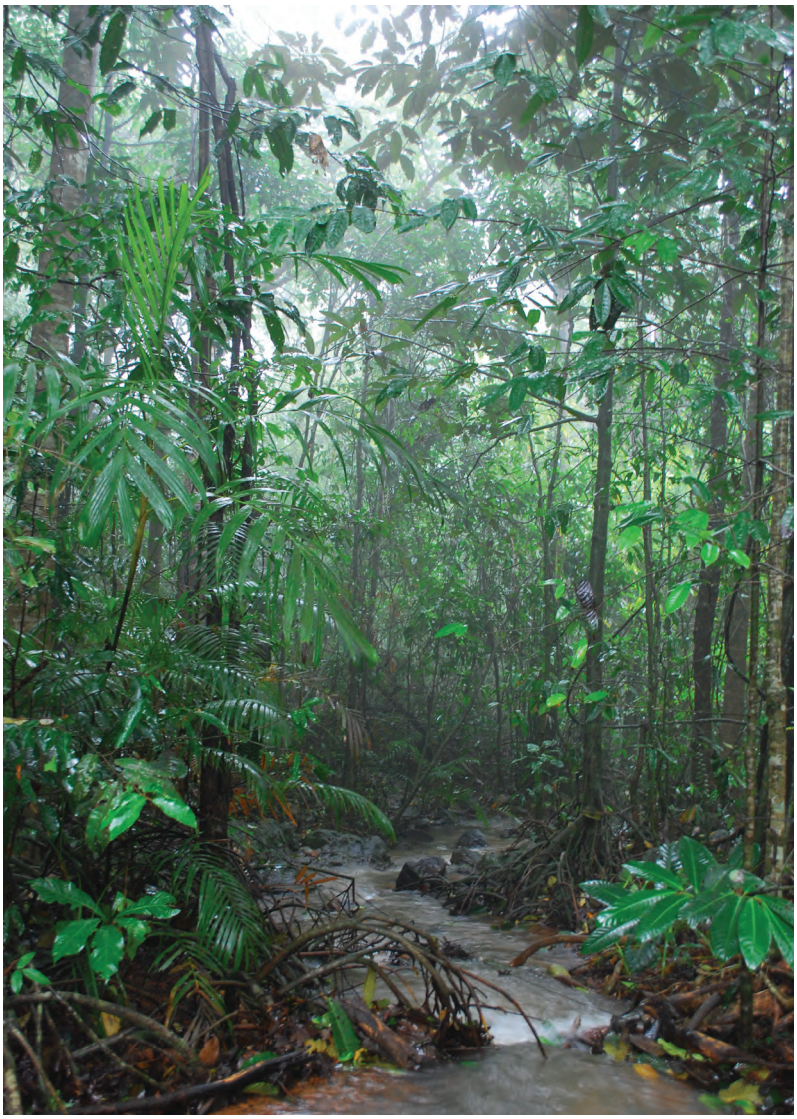


Photo Credits: Aravind Madhyastha

REFLECTIVE QUESTIONS

1. Reflect on benefits of documenting PBR in your village
2. Page through PBR formats listed at end of this chapter. Make a list of PBR formats that are relevant to your village. Also, identify experts and institutions to document the PBR.
3. A well-known nursery in the nearby city has recruited some people in your village to collect wild ornamental plants for propagation. As an advisor to the BMC in the village, what would you recommend about its collection?
4. Do you think it is necessary to document traditional knowledge in the PBR? (hint: read text box on Documenting Traditional Knowledge in PBR in page XX..)
5. Interview 2 traditional knowledge holders in your village. What did your learn about the past and present status of biodiversity?

NOTES

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ACCESS AND BENEFIT SHARING

— MODULE 6 —

INTRODUCTION

Access and Benefit Sharing (ABS) is a mechanism established under the Convention of Biological Diversity (CBD) to the benefits arising from the use of genetic resources with the providers in a fair and equitable manner. The legal framework for the implementation of the third objective of the CBD, i.e. the Access and Benefit-sharing, was defined through the adoption of the Nagoya Protocol in 2010 at Nagoya, Japan. India became a party to the Nagoya Protocol in 2012.

Photo Credits: GIZ/Mira Amtmann

ACCESS AND BENEFIT SHARING (ABS) – MECHANISM AND IMPORTANCE

The adoption of the CBD reaffirmed that the conservation of biological resources is a common concern of humankind, and countries are responsible for the conservation and sustainable utilisation of their biological resources. Biodiversity-rich countries could derive benefits from providing appropriate access to their genetic resources to meet the food, health and other needs of the growing population. The principle of ABS essentially has two elements – granting of Prior Informed Consent (PIC) by a provider country to the user for obtaining genetic resources based on Mutually Agreed Terms (MAT) in the form of an ABS agreement or permit. In India, the National Biodiversity Authority is the competent national authority to provide PIC for non-Indian users, and State Biodiversity Boards in the states or the Biodiversity Councils in the Union Territories are competent authorities to grant PIC to Indian users. In both scenarios, the BMC or the Local Body (or the provider of the resources/ TK holder) is consulted and provides feedback on the ABS application submitted by the user. The competent authority and the users then negotiate benefit-sharing conditions to establish Mutually Agreed Terms (MAT) and determine how to share the benefits between both parties[1].

Until the adoption of the CBD, biological heritage was considered a renewable resource assumed to belong to all of humanity. The adoption of the Convention recognised the sovereignty of all states over the genetic resources found within their boundaries. Benefit-sharing is thus, primarily a symbol of justice for the provider countries and the local communities. For users, it represents adherence to the principles of fair and sustainable use of biological resources. Further, benefit-sharing is an incentive to support the conservation and sustainable utilisation of biological resources. The concept of benefit-sharing also reaffirms the customary rights of indigenous tribes and communities.

TRANSLATION OF "ACCESS AND BENEFIT SHARING" IN INDIAN VERNACULAR LANGUAGES

The concept of Access and Benefit-sharing or ABS is new, complex and poorly understood. The exact translation of ABS in Indian vernacular languages sometimes leads to misinterpretation of the idea itself. For example, the term "access" when translated to some Indian languages indicates admission, entry, or entrance. This word, when combined with benefit-sharing, does not convey the actual concept of ABS. Therefore, the term "use" in vernacular language indicates "access", which translates to "benefit-sharing from the use (of biological resources or associated knowledge)".

LEGISLATIONS IN INDIA FOR THE PROTECTION OF BIODIVERSITY

India has established a robust legislative framework for the conservation of nature and natural resources, including biological resources. The Wildlife Protection Act, 1972, for example, was enacted for the protection of plants and animal species. The Biodiversity Act is all-encompassing with the scope far more expansive than any other legislation; it includes all biological diversity in all landscapes irrespective of ownership. The Act also decentralised biodiversity governance in India. It emphasises the need to involve local people in biodiversity conservation and sustainable utilisation, which in turn, renders greater scope to the application of the ABS mechanism in India.

KEY LEGISLATION AND POLICIES IN INDIA FOR THE PROTECTION OF NATURAL RESOURCES AND BIODIVERSITY

- Wildlife (Protection) Act, 1972
- Forest (Conservation) Act, 1980
- National Forest Policy, 1988
- Biological Diversity Act, 2002
- The Scheduled Tribes & other Traditional Forest dwellers (Recognition of Forest Rights) Act, 2006
- National Green Tribunal Act, 2010
- National Wildlife Action Plan
- National Biodiversity Action Plan
- National Environment Policy and
- National Action Plan on Climate Change

STAKEHOLDERS IN ABS

One of the most remarkable aspects of ABS is the involvement of an extensive array of actors right from the grassroots to the national level, from the local people and governments to private actors. The terrain of biodiversity governance in India is well-structured and participatory.

- **The National Biodiversity Authority (NBA)** at the national level, **State Biodiversity Boards (SBBs)** in states, the **Biodiversity Councils** in the Union Territories and **Biodiversity Management Committees (BMCs)** are the institutional structures established for the implementation of the Biodiversity Act.

- **Biodiversity Management Committees (BMCs)** represent local communities in an area. Members must be registered in the local electoral voter's list and preferably bring biodiversity-related expertise. BMCs are representatives of the local people, who are the custodians of these resources. Their mandate is to document biodiversity, provide feedback on ABS applications, and levy collection fees on biological resources collected for commercial purposes.

- **Line Departments,** such as agriculture, horticulture, animal husbandry or fisheries, are needed to help SBBs in the implementation of the Biodiversity Act. For example, the Rural Development and Panchayat Raj department support the establishment of BMCs, and other departments support in the documentation of People's Biodiversity Registers.

- **The Forest Department** is a strategic partner for SBBs in ABS implementation. It has a crucial role to integrate ABS in the trade of forest resources, and help establish BMCs and TSGs.

- **The Customs Office** has a more recent role in ABS to trace the trade of biological resources.

The Patent Office is a strategic partner of the NBA. Since 2003, the Indian Patent Act includes biological resources used in inventions. The Patent Office directs applicants to obtain PIC from the NBA, and forwards applications involving biodiversity to the NBA.

Technical Support Groups (TSGs) are constituted at the local level and tasked to provide training, capacity development and needs-based consultation for BMCs. They consist of individuals from NGOs, experts from various sectors of biodiversity such as forestry, horticulture, agriculture, etc. and government departments dealing with biodiversity.

Legal professionals have a crucial role in advising users and encouraging them to comply with regulations. However, given the novelty of the ABS concept – including trade, equity issues, biology, biotech - there seem to be very few specialised legal professionals.

Indian researchers do not come under the purview of the Act. However, as soon as their work involves partners from other countries, they require the approval of the NBA. All non-Indian researchers, including NRIs, require the approval of the NBA before accessing any biological resources or knowledge associated with it.

National companies form a substantial portion of users, predominantly in alternative medicines, nutraceuticals, cosmetics, herbal extracts, colours, flavours, etc. National companies must obtain permission from the State Biodiversity Board to access biological resources and associated knowledge.

International companies are mostly in pharmaceuticals, cosmetics, biotech, colour, flavours and oleoresins etc. They are mandated to obtain the permission of the NBA to access biological resources.

Industry Associations are key partners of the government for economic development and have a vital role in reaching out to companies. They can advocate the inclusion of ABS in corporate policies, facilitate consensus-building among companies, and provide advisory services to their members. Some associations have already formed policy groups to identify implementation challenges and hold dialogues with authorities.

ACCESS AND BENEFIT SHARING FROM INDIA - CASE STUDIES

The ABS process is implemented by the NBA, SBBs and Union Territories under the regulations and rules of the Biodiversity Act. Many ABS agreements signed in India are for accessing plants and microorganisms, with very few for accessing animal genetic resources. Some case studies are illustrated below:

SNAKE VENOM FROM TAMIL NADU –

Snake venom extraction is synonymous with the Irula tribal community in northern Tamil Nadu. The Irula Society is well-known, both locally and internationally, for their skills as snake catchers. The Irula Snake Catcher's Industrial Cooperative Society established in 1978, supports the sustainable trade of snake venom and the economic development of the Irula tribal community. The Irula Society is the largest organised supplier of snake venom in the country.

Snake venom is a derivative of biological resources as defined in the Biological Diversity Act, 2002. Snake venom extraction by the Irula Society is restricted to four species of venomous snakes, specifically the Spectacled Cobra, Common Krait, Russell's Viper and Saw-scaled Viper collected from three districts of Tamil Nadu – Chennai, Kancheepuram and Thiruvallur. The members of the society partially process the venom (freeze-drying). Industries and research institutions buy snake venom for various research and commercial purposes, such as the production of anti-snake venom (ASV) for the treatment of snakebites.

The Wildlife Wing of the Tamil Nadu Forest Department and the Department of Industries and Commerce has put in a mechanism to regulate the trade and obtain a fair price from the sales. However, there was no benefit-sharing arrangement in place as required under the Biological Diversity Act, 2002.

Tamil Nadu Biodiversity Board (TNBB) facilitated dialogue among various stakeholders, viz. Irula Society (providers or the benefit claimers as defined in the Biological Diversity Act, 2002), Tamil Nadu Forest Dept, Department of Industries and Commerce, and various researchers and companies using snake venom in their operations.

Photo credits: Archith Sridhar

Photo credits: Wikimedia Commons

A company, M/s iSERA Biological Pvt Ltd, which manufactures which antidotes for treating snake bites, applied under Rule 15 of the Tamil Nadu Biological Diversity Rules, 2017 in September 2019 to obtain snake venom from the Irula Society for commercial utilisation. The application listed four species of venomous snakes – Spectacled Cobra, Common Krait, Saw scaled Viper and Russell's Viper, as sources of venom. Tamil Nadu Biodiversity Board signed the first ABS agreement for access to snake venom with M/s iSERA Biological Pvt Ltd in January 2020.

The benefit-sharing obligation was 5% of the purchase price of the snake venom for three years. Thus far, in keeping with their benefit-sharing obligations, iSERA Biological has deposited ₹17,700 in January 2020 with the TNBB, which was shared with Thiruporur BMC and Irula society in Tamil Nadu. This example of benefit-sharing showcases the spirit of the Act, and the company's commitment towards the three objectives of conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of benefits arising out of the use of biological resources.

KURINJI HONEY FROM TAMIL NADU

Firmenich Grasse, a fragrance and flavour industry based in France, applied for access to biological resources occurring in India for research. Firmenich Grasse sought to use headspace technology to collect volatile molecules from honey from the nectar of the *Strobilanthes kunthianus* flower, commonly called the Kurinji flower. The technique does not involve any physical extraction of the flower or honey but only requires a sample of the honey. The sample could lead to the reconstitution of the scent using ingredients in perfumers' palette for the potential development of a fragrance or flavour.

The Kurinji is a shrub found in the forests of Tamil Nadu, which flowers only once in 12 years. The honey is gathered by local communities and sold in the market through a local enterprise called "Hoopoe on a Hill" based in Kodaikanal.

Photo credits: Aravind Madhyastha

In March 2020, the NBA signed the ABS agreement with the Firmenich Grasse and negotiated an upfront payment of Rs. 7000 for using 1 kg of Kurinji honey for research, as suggested in the ABS guidelines. Additionally, the agreement sets out several conditions, including:

- Prior approval of the NBA before any commercial utilisation of the biological resource
- Prior approval of the NBA before applying for any intellectual property rights
- Approval of the NBA before transfer to a third party
- Presentation of annual progress reports.

The benefit-sharing amount of Rs. 7000 has been shared with the Kodaikanal BMC to support the activities of BMCs. This is an example of the company's commitment comply with India's Biodiversity Act and international Nagoya Protocol under CBD.

NUTRACEUTICAL RESEARCH ON COMMONLY AVAILABLE BIO-RESOURCES

Tata Chemicals Limited, a company registered in India, applied to the National Biodiversity Authority for access to commonly available foods and food products from various sources in Maharashtra. The company intended to study the physio-chemical properties of several components of the accessed biological resources, to conduct food product and nutraceutical research. The company is categorised under Section 3(2) of the Biodiversity Act, as it has non-Indian participation in its share capital or management. Of the 36 biological resources, only six were under the purview of the Act – Bayleaf (*Cinnamomum tamala*), Saffron (*Crocus sativus)*, Kewda *(Pandanous odoratissimus),* Mahua *(Madhuca longifolia)*, Cinnamon *(Cinnamomum verum),* and Safflower *(Carthamus tinctorius).* The remaining 30 bio-resources are in the normally traded as commodities list, and therefore, exempt from the purview of the Act.

Photo credits: Wikimedia Commons

The NBA referred the application to the Maharashtra State Biodiversity Board for their consent for the six bio-resources obtained from Maharashtra. Upon obtaining their approval, the company Tata Chemicals Limited signed an ABS agreement with the National Biodiversity Authority, agreeing to an upfront payment of Rs. 18,000 as benefit-sharing for the six bio-resources. Nutraceutical industries often use commonly available bio-resources as the primary ingredients for their products. The Biodiversity Act exempts a list of items called as “Normally traded as commodities” as per section 40 to promote trade and commerce.

COCCULUS HIRSUTUS FOR TREATING DENGUE FEVER

Sun Pharmaceuticals, a multinational company, collaborated with CSIR-Indian Institute of Integrative Medicine, and the International Centre for Genetic Engineering and Biotechnology, to study the anti-dengue properties of the *Cocculus hirsutus* plant, based on information found in ancient Ayurvedic texts. *Cocculus hirsutus* plant is a creeper belonging to the family Menispermaceae located across India, particularly in dry regions. The company applied to the NBA for access to 1500 kgs of *C. hirsutus* plant from the Chhindwara district of Madhya Pradesh for the preparation of about 50 kgs of extract for animal and pharmaceutical trials.

Photo credits: Wikimedia Commons

The company intended to research the clinical effectiveness of *C. hirsutus*-based defined extracts (drug) as per the Ministry of AYUSH guidelines, to develop medicinal preparations for the treatment of dengue fever.

Regulation 14(2) of the ABS Regulations, 2014 states that special consideration may be given to cases when developing technology for controlling epidemics/diseases. With this consideration, the NBA and the company negotiated and signed a benefit-sharing agreement, containing an upfront payment of ₹4,50,000 and a non-monetary component. The non-monetary component included providing technical support in the preparation of People's Biodiversity Registers of Biodiversity Management Committees from the areas where the bio-resources are accessed, and organising four biodiversity conservation awareness programmes in a year.

BIOFUELS FROM PLANTS

Reliance Industries Ltd requested access to the stems and leaves of four species of plants – Cotton *(Gossypium hirsutum)*, Castor *(Ricinus communis),* Red gram *(Cajanus cajan)* and Sugarcane *(Saccharum officinarum)* cultivated in Jetpur village of Gujarat. The company intended to research the possibility of extracting biofuels from the plants' components.

Reliance Industries Ltd. is an Indian entity having non-Indian participation in its management, and therefore, is under Section 3(2) of the Biodiversity Act. The company applied to the National Biodiversity Authority (NBA) for access to the four species of plants from Gujarat. The NBA referred the application to the Gujarat State Biodiversity Board for their consent as the cultivation of the accessed bio-resources was in Gujarat. On obtaining consent for their research, Reliance Industries Ltd signed an ABS agreement with the NBA in September 2019 with an upfront payment of Rs. 6,40,000 as benefit-sharing.

CHALLENGES IN ABS IMPLEMENTATION

There are some underlying challenges in the implementation of ABS. Very often, the legal principles of ABS are prone to misinterpretations as the language of the law is not simple. Although a clear set of rules and regulations are in place in India, the procedures associated with its enforcement have not been uniform among the different states. Some challenges in the implementation of ABS are presented in this section.

CHALLENGES IN IDENTIFYING END-USERS OF BIOLOGICAL RESOURCES

A well-known cosmetics company based in Europe applied for access to biological resources occurring in India for commercial utilisation. In particular, the company was interested in purchasing 500 kilos of oil extracted from the seeds of various species of sea buckthorn from the genus *Hippophae,* family Elaeagnaceae. These are deciduous shrubs growing in the high altitudes of the Himalayas.

The company intended to collect sea buckthorn fruits from the wild within the Union Territory of Leh and Ladakh, coordinated by an Indian oleoresin extraction firm, which also would clean, dry and extract the oil for use in existing skincare products.

Photo credit: Wikimedia Commons

In its application, the company proposed sharing benefits through paying three per cent of the price of raw material - that is, the sea buckthorn oil purchased from the Indian intermediary company. As part of the approval process, the consultation with the BMC in Shey village was conducted, which revealed that tons of sea buckthorn, collected from private and public lands, were sold to different companies through local traders. However, it was not possible to trace the end-users or companies.

The cosmetics company withdrew its application submitted to the NBA without citing the exact reasons for the withdrawal. This case indeed demonstrates challenges in ABS implementation and highlights that not all ABS potential cases succeed, resulting in the loss of potential benefits to the providers of the resources. Therefore, a mechanism to establish traceability and identify end-users of resources is vital in the ABS process.

LACK OF TRACEABILITY OF BIO-RESOURCES

A laboratory developing active ingredients in France considered a project involving research into the extract of the leaves of *Ocimum tenuiflorum* as a potential cosmetic ingredient. That is, they intended to research the plant material for its biochemical composition, define an extraction process, and evaluate its cosmetic efficacy. Samples of the dried plant material would be purchased from traders and processed in Europe. The traders were not able to provide the information required in the application, such as the location, farmers, exact date of harvest or the actual quantity harvested or traded. As a result, the company did not wish to proceed with the project. This resource would have come under the scope of ABS, and prior permission from the NBA would be mandatory.

APPLICABILITY OF ABS FOR ITEMS LISTED UNDER NORMALLY TRADED AS COMMODITIES (NTC)

“Commercial Utilisation” as defined in the Biodiversity Act is not the same as “trade and commerce” in common parlance. The Biodiversity Act defines commercial utilisation as the “end uses of biological resources for products such as drugs, industrial enzymes, food flavours, fragrance, cosmetics, emulsifiers, oleoresins, colours, extracts and genes used for improving crops and livestock through genetic intervention, but does not include conventional breeding or traditional practices in use in any agriculture, horticulture, poultry, dairy farming, animal husbandry or bee-keeping”

Whether the provisions of the ABS mechanism apply to biological resources listed in the NTC category, when used for a product or as part of a process, is determined based on “common practice”. For example, the use of amla in Triphala churna is an age-old practice, and therefore, considered as common practice. However, when using amla for an entirely new product which resulted from research, then the exemption under NTC is not applicable.

One such case is illustrated here - A cosmetics company based in France considered purchasing mango butter, obtained from *Mangifera indica* kernels. A group of the local community in Chhattisgarh would collect the mangoes and crush the mango kernels. A local company would extract the butter and export it to Europe through traders. The cosmetic company would only have access to the butter (not the kernels or other parts). It would only include the ingredient in existing cosmetic products. Although mango butter used in cosmetic products is under the purview of ABS, the cosmetics company did not proceed with the purchase. The company in India sourcing the mango butter was not convinced about the applicability and implications of the Indian Biological Diversity Act - specifically as Mango fruits are in the list of biological resources normally traded as commodities.

TRANSACTION COST OF ABS COMPLIANCE

Resources required and time taken for obtaining ABS permits can sometimes incur a high cost to the company. A laboratory producing ingredients in India and falling under Section 3(2) of the Biodiversity Act, considered a project involving the purchase of Boswellia gum, a resin obtained from the *Boswellia serrata* tree. Farmers in the Shivpuri district of Madhya Pradesh would collect the Boswellia gum. A local trader would gather and sell the Boswellia gum to the company, which would then manufacture a natural extract. Companies may purchase the Boswellia extract for use in various products. Given the time and resources required for the process of compliance with ABS requirements, the company did not proceed with the project.

VIOLATIONS UNDER BIODIVERSITY ACT

The Biodiversity Act is quite technical, and its process for compliance vary for different regulated activities and biological resources. The BMCs and the authorised officers from within the forest department should check with the Nodal Officer of the district, State Biodiversity Boards and National Biodiversity Authority before booking an offence.

A FEW INSTANCES OF VIOLATIONS UNDER THE BIODIVERSITY ACT ARE PRESENTED BELOW:

ILLEGAL EXTRACTION OF SANDWORMS FROM THE SEASHORES OF PUDUKOTTAI

In July 2018, Forest Guards patrolling the Manamelkudi area were alerted to the illegal harvesting of sandworms from the coasts. Manamelkudi is a coastal town in the Pudukkottai district, Tamil Nadu, India. The sandworms, transported to cities, were useful as feed in aquaculture. Sandworms are known to contain fatty acids affecting the reproductive organs of shrimps, prawns, and fish by rapidly increasing their egg-laying capacity. Upon receiving the information, the Forest Department followed the trail and arrested three persons and confiscated 25 kgs of sandworms heading towards Chennai. Recognising the damage to the seacoast and marine life due to the rampant collection of sandworms, the Forest Department of Pudukottai booked a case under section 24(2) of the Biological Diversity Act, 2002. As per Section 58 of the Act, offences booked are cognisable and non-bailable. The detailed investigation brought to light several such cases of illegal collection of sandworms from many coastal districts such as

Thanjavur, Ramanathapuram and Pondicherry. The District Forest Officer of Pudukottai, Mr M. Anandakumar believes that this case leading to the arrest of the accused has created awareness among villagers who now regularly inform the Forest Department of any such attempts of collection of sandworms.

It is essential to note in this case that extracting sandworms from the seashore has detrimental effects on marine life and the sand-dune ecosystem, and falls under the activities that are contrary to the first objective of the Biodiversity Act. i.e. conservation of biodiversity. Therefore, sandworms are not and cannot be 'ABS potential' biological resources. BMCs must decline to collect fees or provide consent for the collection of species that will cause damage to the ecosystems

Photo Credits: Tamil Nadu Forest Department

KERALA – ARREST OF JAPANESE NATIONALS

In the year 2015 Japanese nationals were charged under the Biodiversity Act for collecting reptiles from the Athirappally forest in Kerala without prior approval of the National Biodiversity Authority. The Kerala Forest Department filed a case for the violation of the provisions of the Act. The punishment for this offence would be a jail term of up to 5 years or a fine extending to 10 lakh rupees.

IMPORTANCE OF MAINTAINING PBRs FOR ABS COMPLIANCE

The People's Biodiversity Register (PBR) is a comprehensive document prepared by the BMC in consultation with knowledgeable people and traditional knowledge holders, with the support of the technical support group (TSG). It maintains a record of local biological resources and details of traditional knowledge holders. The document also contains the innovations associated with biodiversity like its use in medicines, cosmetics, dyes, pest control, bioremediation etc. The PBR thus becomes the fundamental document legally construed as evidence of prior knowledge. The BMC of the region validates the information in the PBR and supports to keep bio-piracy in check.

Another critical point about maintaining a PBR is that it increases the bargaining power of the local communities during negotiations for ABS agreements as they have a clear idea of the status of biological resources in their region. The local communities can negotiate for a fair benefit-sharing in return for providing access to the resources.

In general, PBR can also play a vital role in estimating the economic value of biological resources. If benefit-sharing arises from the use of traditional knowledge, then the PBR discloses the number of people from the local community who are the custodians of that knowledge and should receive the benefits for the commercial use of the knowledge[3].

ABS AND BIODIVERSITY CONSERVATION

India is a mega biodiverse country, with a large section of its population directly dependent on biological resources for food, medicine, and livelihood. The nation has a rich tradition of conserving nature through the worship of trees, rivers, forests, mountains, animals, birds and reptiles. Therefore, the preservation of biodiversity assumes significant importance. The efficient implementation of the ABS mechanism can serve as a useful tool for the conservation and sustainable use of biodiversity.

Benefit-sharing acts as an incentive for communities to protect the biological resources in their surroundings. Local communities are aware of the potential value of natural resources, and for many, it is the source of monetary and non-monetary benefits.

Photo Credits: Aravind Madhyastha

The application of the principle of ABS can scale up the conservation and sustainable use of biological resources in India. Benefit-sharing can inspire the preservation of not just entire ecosystems but also the traditional knowledge of people who have been a part of these habitats for centuries. Successful cases of ABS would function as a boost to create awareness as people will be able to identify with the mechanism practically, and not just as a concept.

In India, the BMC receives 95% of the benefits obtained as part of the ABS agreement for its functions. The BMC may also levy a collection of fees for the biological resources collected for commercial purposes from its territorial jurisdiction. The ABS framework in India also has provisions for non-monetary benefits that can include a contribution to socio-economic activities. These can also provide livelihood security to the local people.

Photo Credits: Aravind Madhyastha

REFLECTIVE QUESTIONS

1. Illustrate an example of offence under the Biodiversity Act and explain how you would file a complaint. (please refer to module 2 and 6)
2. List various government departments that are dealing with biological resources, and traditional knowledge relating to medicine, livestock etc in your district.
3. How would you explain ABS process to people in your village in your vernacular language?
4. A researcher from a foreign country wishes to collect, an indigenous variety of millet from your district. Does this activity come under the purview of the Biodiversity Act?
5. A person from your village has been selling Amla pickle to various stores in the city. Is the Biodiversity Act applicable to this?

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ANNEXURE I

Format for giving notice to the court on the violations under The Biological Diversity Act, 2002*

FORM VII
FORM OF NOTICE
(See rule 24(1))

By Registered Post / Acknowledgement due

From,

_____
_____
_____

To

_____
_____
_____

Sub: Notice under section 61(b) of the Biological Diversity Act, 2002.

Whereas an offence under the Biological Diversity Act, 2002 has been Committed/is being committed by _____

2. I/ we hereby give notice of 30 days under Section 61(b) of the Biological Diversity Act, 2002 of my / our intention to file a complaint in the Court against _____ for violation of the provisions of the Biological Diversity Act, 2002.

3. In support of my /our notice, I am / we are enclosing herewith the following documents as evidence of proof.

Place: _____ Date: _____ Signature: _____

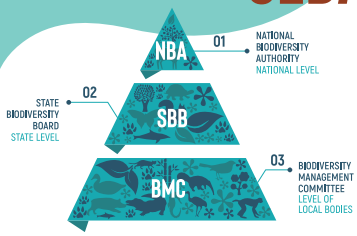
. — (1) In case the notice to be given in the name of a company, documentary evidence authorizing the person to sign the notice on behalf of the company shall been enclosed to the notice.
(2) Give the name and address of the alleged offender. In case of using biological resource/ knowledge/ research/ bio-survey and bio utilization / the intellectual property right/patent, without the approval of the Authority, the details thereof and the commercial utilisation if any, may be furnished.
(3) Documentary evidence shall include photograph, technical report etc., for enabling enquiry into the alleged violation / offence.

*This is to be used by any persons other than officers authorised to complaint under Section 61 of the Biological Diversity Act, 2002. For example, members of BMCs or the general public.

ANNEXURE II

SAMPLE POSTER

OUR BIODIVERSITY MANAGEMENT COMMITTEE
SEDAPATTI BLOCK



THE BIODIVERSITY ACT IS IMPLEMENTED THROUGH A 3-TIER STRUCTURE

The Government of India enacted the Biological Diversity Act, 2002 for the conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources and associated knowledge.

WHAT IS BMC?

BMC is a seven-member committee at every local body consisting of people enlisted in the local electoral rolls. The BMC is formed under the Biological Diversity Act, 2002 for the management, conservation, and sustainable utilisation of bio-resources.

Some of the key functions of BMCs are:

- Promoting the sustainable use of bioresources
- Preparation of People's Biodiversity Register (PBR)
- Conservation of local varieties, breeds and traditional knowledge
- Raising awareness about biodiversity and the need for its sustainable use

PBR

People's Biodiversity Register (PBR) is a record that contains information on the availability of biological resources (wild and domestic species of plants and animals) in the local area along with its traditional knowledge, medicinal value and other uses. PBR is documented in consultation with local people, farmers, fisherfolk, traditional knowledge holders, etc. PBR facilitates in sustainable harvests and knowledge-based management of biological resources.

INTERESTING FACTS ABOUT BIODIVERSITY

- The most commonly traded medicinal plants in Sedapatti are Korai ***(Cyperus rotundus)***, Saranathi ***(Boerhavia diffusa)***, Vembu ***(Azadirachta indica)*** and Nilavakai ***(Cassia angustifolia)***.
- Sedapatti is known for its local varieties of brinjal (Ramakkai Blue and Ramakkai Green), barnyard millet (Sadai Kudiraivaali and Pullu Kudiraivaali) and kodo millet (Peruvaragu and Siruvaragu).
- Animal Husbandry is an important source of income in Sedapatti, and the Malai Maadu is a renowned local cattle breed found in the region.
- The Srivilliputhur Grizzled Squirrel ***(Ratufa macroura)*** wildlife sanctuary is part of Sedapatti block. The sanctuary is also inhabited by endangered and vulnerable species like the slender loris, sambar, Nilgiri tahr, Nilgiri langur and sloth bear.

Sedapatti is located in the upper part of Gundar river basin in the Madurai District. The Sathuragiri hills that pass through Sedapatti is known for its diversity of wild plants. The block is also known for its great diversity of medicinal plants.

43,063 ha of forest area

14 varieties of cultivated crops

11 breeds of livestock

12 wild relatives of crops

80 medicinal plant species

50 Traditional knowledge holders

"For generations, our community has been collecting and consuming Adhalaikai ***(Momordica cymbalaria)*** from the wild. But currently, it is becoming more popular among traditional healers who are using it as a substitute for bitter gourd in Ayurvedic medicine. If this species gets commercially cultivated, it would not have the same anti-diabetic properties as that of the wild species. Therefore, we need to conserve our wild crops so that its medicinal properties are not lost."

- Mr. Pandurangan, Native Healer, Kudipatti, Sedapatti Block

Sedapatti Biodiversity Management Committee, Sedapatti Panchayat Union Office, Alampatti- Sedapatti Road, Tirumangalam, Tamil Nadu – 625703, Email: sedapattibmc2018@gmail.com

This poster is part of "Know Your BMC" campaign in Tamil Nadu by the Access and Benefit Sharing Partnership Project implemented by the Ministry of Environment, Forest and Climate Change, National Biodiversity Authority, Tamil Nadu Biodiversity Board and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH | Data source: People's Biodiversity Register of Sedapatti Block, field data collected by the Covenant Centre for Development (CCD), Madurai and Census of India, 2011 | Compiled by: Ashley Thomas Paul, Ezhilan Nambi, John Britto, Vishvak Kannan.

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ANNEXURE III

Indicative templates for the data collection on stakeholders and the trade of biological resources. For more information, please write to biodiv.india@giz.de

PART 1: VALUE-CHAIN AND STAKEHOLDERS

A. Primary gatherer's profile (benefit claimer)

Code for Gatherer:
Name of the gatherer:
Gender:
Age:
Annual income from BR collection (INR):
Annual income from other source (INR):
Education:
Village:
Street:
Post Office:
PIN code:
Contact no of the respondent:
No. of family members involved in collection:
Membership in Self-Help Group/Community-Based Organization:

B. Details on bio-resource collection

Gatherer code:
Local name of the medicinal plants:
Botanical Name of the medicinal plants:
Collection season (duration in months):
Collection season - peak season (month):
No of days collected during these seasons:
Medicinal plant's part collected:
Phenology of plant while collection:
Collection / harvest technique:
Average fresh weight (kg/day) collected:
Processing at village level (cleaning, grading, drying, Packing, Nil, etc.):
Sold to (mention the name):
Rate per unit (kg):
Is the quantity got reduced what extent (no of seasons, no of days, No of gatherers, Quantity etc.,):
Reasons for reduction according to gatherer (eg: weedicide, no permit etc.):
Village:

C. Cultivator's profile

Code for Cultivator (assign a unique code):
Name of the Farmer:
Gender:
Age:
Annual income from Cultivation (INR):
Annual income from other source (INR):
Education:
Village:
Street:
Post Office:
PIN code:
Contact no of the respondent:
Area allocated for cultivation (in acres):
Number of family members involved in cultivation:
Years of experience in cultivation:

D. Details on bio-resource cultivation

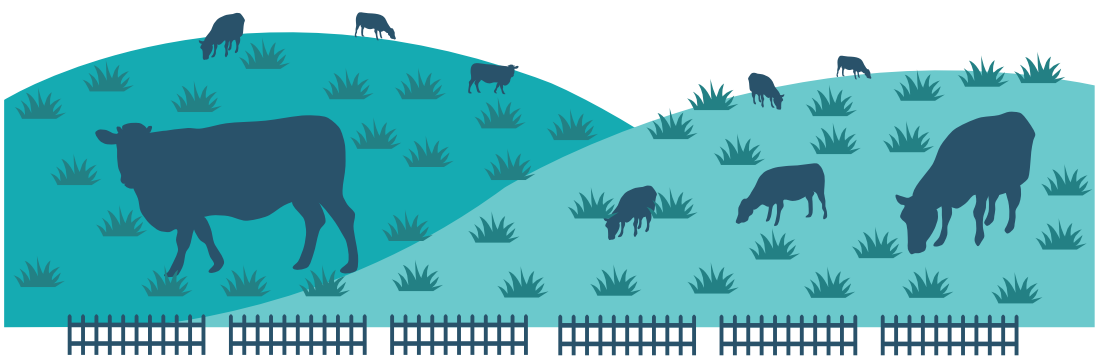
Cultivator Code:
Local name of the crop:
Source of seed materials:
Duration of the crop:
Cultivation season:
Any Specific cultivation practices to be adopted (eg: Mono-cropping):
Acres cultivated (Acres):
Yield per acre (kgs):
Processing involved at farm:
Sold to whom:
Sale price Rate per kg (INR):
No. of years under cultivation:
Village:

E. Profile of the Livestock holder (domesticated animals)

Code for livestock holder:
Owner Name:
Gender:
Age:
Total no. family members:
Annual income from all source (INR):
Village:
Street:
Post Office:
PIN code:
Contact no of the respondent:

F. Livestock details

Livestock holder Code:
Local name of the livestock:
Livestock category (Cow/Bull//Buffalo/Sheep/Goat/Birds):
Name of the breed:
No of Livestock:
Experience (Since / No of Generation):
Trends (increase/decrease/no change):
Reasons:
Type of shelter:
Used for (dairy/meat/other):
Total income per annum:
Expenditure:
Net profit:
Village:



G. Traditional knowledge holder/healer's profile

Code for Traditional healer:
Name of the healer (knowledge holder):
Gender:
Age:
Annual income from healing practice (INR):
Annual income from other source (INR):
Education:
Village:
Street:
Post Office:
PIN code:
Contact no of the respondent:
No of years of practice:
Specialised in treatment (specify conditions):
No of family members involved in healing practice:

H. Details of medicinal plants used in traditional medicine/healing

Traditional healer code:
Local name of the medicinal plant:
Parts used:
Sourced from:
Quantity used in a year (kg):
Rate per kg (INR):
Details of uses:
Method of preparation:
Trends in availability of resources:
Alternate plants used:
Village:

Part 2: Indicative templates for collecting data on traders, agents and agencies involved in bio-resource trade

A. Profile of agent/trader/agency

Code:
Sector (forest resource/ agriculture/ livestock):
Agent/ Agency/ Trader:
Name of the firm / individual:
Village:
Street:
Post Office:
PIN code:
Phone (landline):
Mobile no.:
Email:

B. Details of biological resources traded

Code
Local Name
Botanical name
Season of collection
Parts purchased
Collection procedure (from whom – Primary Producers/ multiple sources)
Mode of payment
Total quantity (yearly)
Turnover value (INR)
Quality - Moisture %
Quality - Colour
Quality - Appearance
Quality - Taste
Quality - Smell
Quality - Size
Purchase rate (INR/kg)
Semi processing if any
Storage method
Storage period (no. of months)
Special storage method employed
Transport method
Average transport cost (Rs.) applicable per kg
Marketing centre
Agent/Agency/Trader

C. Details of livestock trade

Code:	
Name of the livestock:	
Breed name:	
Livestock category (Cow/ bull/ Buffalo /Sheep/ Goat/ Birds):	
Marketing Schedule (Daily Weekly / Fortnightly/ Monthly / Quarterly/ Annual):	
Purpose (dairy / breeding/ meat /others):	
No of Livestock sold in a year:	
Value in kg /unit:	Purchase cost:
	Sale cost:
	Commission:
Name of the market:	

Photo Credits: Aravind Madhyashta

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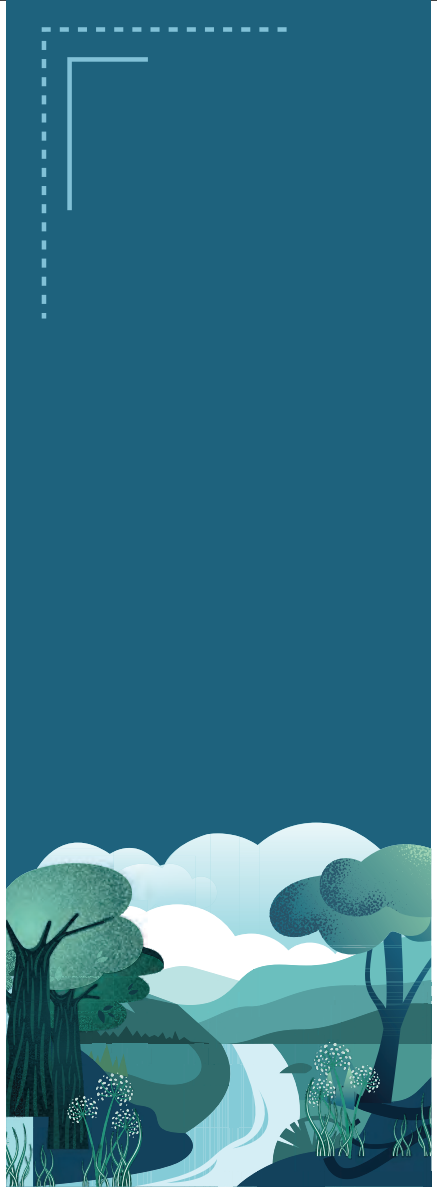
Firmenich Grasse, France

Tata Chemicals Limited,

Sun Pharmaceuticals,

Reliance Industries Ltd



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TRAINING BIODIVERSITY MANAGEMENT COMMITTEES

TRAINING METHODS

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ON BEHALF OF
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CONTENTS

INTRODUCTION

This publication presents tried and tested methods for training the trainer (ToT) programme on operationalising Biodiversity Management Committees (BMCs). Participatory Training Methods and training concepts presented in this publication are adapted from two publications, namely - 1. The Trainer's Guide Participatory Training Methods 2. Trainer's Guide: Participatory Methods of Training for Effective Content Delivery for the trainers of forest, fisheries and media sectors published by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

This publication is part of 'Training Biodiversity Management Committees - A Package of Modules and Methods for Trainers'. We highly recommend that the readers be familiar with the Curriculum for BMCs consisting of six modules to effectively conduct the training using methods described in this publication. The 'Implementation Guide' of the training package will explain how to conduct the training.

I. NEED FOR PARTICIPATORY TRAINING METHODS

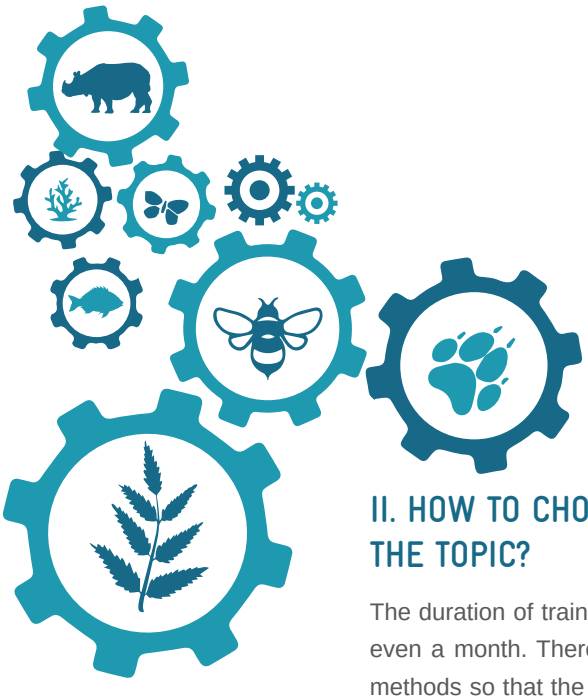
'Participate' means to join in, to take part, or to involve oneself. In the participatory training methods, the primary aspect of participation, namely "engaging" or "including" people is emphasised upon, to enhance the experience of learning.

Traditional training methods are widely used to transfer information, facts and knowledge from the trainer to the trainees but are not always able to maximise the learning outcome for the trainees. Participatory training helps the participant to be part of the training process, thereby acquiring knowledge through interactions and discussion. It teaches the participants to learn, share and take the onus of their learning.

THE PARTICIPATORY METHODS OF TRAINING HELP THE TRAINEES IN:

- Acquiring knowledge through interactions with the other trainees (participants), who might have varied experiences that augment the knowledge of both facilitators and trainees.
- The trainees share case studies and examples from their work that will maximise the impact and learning in the training process.
- Varied modes of transferring information such as presentations, discussions, hands-on project work, questionnaire surveys will help the trainees gain a wide range of knowledge that is more holistic than conventional methods.
- The trainees could draft a real working plan with input from others, that can generate new ideas and techniques to help them in their respective fields.

The participatory training methods make the training highly engaging, mainly cater to learning styles of adult learners and provide an opportunity for them to share their ideas and views without hesitation. It is recommended that capacity development interventions should focus on shifting three dimensions: Knowledge (K), Attitude (A) (or values) and Practice (P) (or skill), or in short, KAP of participants.



II. HOW TO CHOOSE THE RIGHT METHOD BASED ON THE TOPIC?

The duration of training can range from a whole day to an entire week or even a month. Therefore, it is necessary to incorporate multiple training methods so that the participants do not find the training monotonous and are actively engaged in the process as the sessions evolve. Moreover, different participants learn differently; some concentrate more on visuals and graphics, some learn better through practical exercises; some learn better through one-on-one discussions and so on.

For the ToT programme on the operationalisation of BMCs was conducted in 2 phases (3+2 days) using multiple training methods. Different training methods have their pros and cons. It is essential to choose the training method based on parameters such as the complexity of the topic, the number of topics that need to be covered in a session, the time available for the training, etc. For example, marketplace method can be used when multiple topics need to be taught in a short period, knowledge café or brainstorming methods can be used when you want participants to come up with solutions to the questions by themselves through discussions, bus stop method can be used when there are not enough facilitators to teach multiple topics in a single session and so on.

In general, the training methods are chosen based on the trainee's familiarity of the topic, for example, when the trainees have no or little understanding of a new topic, it is recommended to use interactive lectures using PowerPoint Presentations. However, when trainees have prior knowledge or experience on a particular subject or have a basic understanding, we recommend using participatory training methods. In this publication, we have chosen appropriate methods for delivering the training on the operationalisation of BMCs.

III. PARTICIPATORY TRAINING METHODS

This section describes various participatory training methods used in the Training of Trainers (ToT) programme for operationalisation of Biodiversity Management Committees. The training methods are defined, and the steps conduct sessions using the methods, have been described in detail. Typically, each section consists of a detailed description, followed by instructions, guiding points and a flow chart. Important points to consider while conducting the training are also presented.

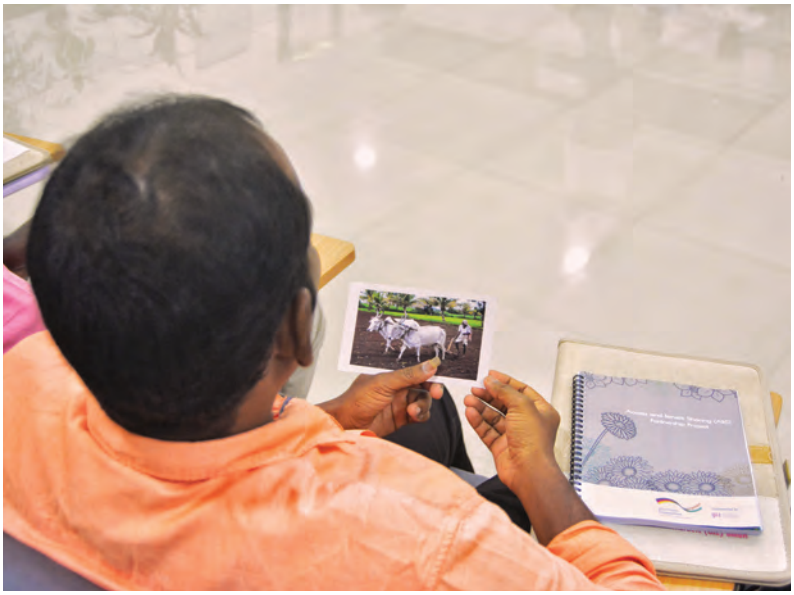
1: ICE BREAKER

An icebreaker session is a useful tool for conducting group introductions. This session helps in creating a friendly atmosphere and supports participants by breaking the initial barrier of hesitation while meeting new people. It also helps the participants to get comfortable with the ambience of the training hall. A well-moderated ice breaker session helps build in familiarity among participants and will set a tone for the training.

FOR TRAINING ON BIODIVERSITY, THE FOLLOWING ICEBREAKERS MAY BE USED:

a. PHOTO-CARD METHOD

This is an efficient method for the introduction of participants as well as for evoking interest in the topic. A set of photos must be selected prior to the training. Photos should show the relationship between biodiversity, environment and humans or at least include elements of biodiversity, e.g. the local harvest festival, local plant or animal breeds, the impact of human activities on environment etc. For printing and preparing photo cards, the photo cards should be big enough so that all the elements are visible, preferably 5X7 inches and with a fair resolution.



While moderating the session, first, brief the participants about the session and what they are required to do, for example, you may simply say that “I am going to put out some photos on the table/floor, I invite you to see them and pick the one which you resonate most with”. Next, spread the bunch of photos on the floor or a table and ask them to gather around those. Ask them to observe the pictures for 2-3 minutes. The trainer/facilitator should also join the participants. Once the participant finds the photo that they can connect to the most, they pick up the photo and go back to their seat. After everyone finishes choosing their picture, a 5-minute time is given to perusing the picture.

After 5 minutes, the introduction process starts. Facilitators may begin the session by introducing themselves first. As the facilitators present themselves, talking about their interest, background, experience and their expectations from this training etc. to the participants and, set an example as to how others need to introduce themselves. This exercise made the ambience more relaxed when we conducted the ToT, and seemingly participants felt comfortable speaking and expressing themselves.

Each person gets a maximum of 1-2 minutes to introduce themselves and share their thoughts on the photo-card. Depending on the total number of participants, the time limit for each person can be fixed. During the whole session, the facilitators need to interact and engage with the participants continuously. It is essential to complete the session within the stipulated time limit.

Once the session is over, it is likely that the participants know many of their peers by their names and can communicate with them without hesitation.

b. BIODIVERSITY BASKET

This is another effective method of introduction in training on biodiversity. First, collect some biological resources that are locally available, e.g. millet seed, banana, lentils etc. or some products made from bio-resources, e.g., turmeric powder, neem oil, cream, shampoo, foods, tablets etc. All the collected resources/items should be labelled. While conducting the session, arrange the resources on a table or the floor. Same as the process of photo card method, ask the participants to pick one material each and give 5 minutes to think about the resource s/he has picked up. The facilitators also need to choose a material each.

The introduction process should start 5 minutes after everyone picks up their product or biological resource. Each participant gets 1-2 minutes to introduce themselves and talk about how they related to bio-resource s/he has chosen.

The method of conducting is the same as the ‘Photo-card’ method but with bio-resources. Depending on the group of participants, any one of the two methods can be followed.

STEPS TO FOLLOW:

1. Choose a large number of photos/ products (the number should be more than the number of participants).
2. Spread the photos/products on a table or floor.
3. Give the following instructions to the participants:
   a. Pick up one photo/ product each and examine for 5 minutes
   b. Introduce yourself by name, where you are from, and what is your connection to the photo or biological resource/ product that you have picked.
4. The facilitators begin the session by introducing themselves.
5. After everyone picks up one card each, give them 5 minutes to ponder.
6. Ask the participants to introduce themselves one by one. Each person gets 1-2 minutes.

IMPORTANT POINTS TO CONSIDER:

Conducting icebreaker session using the two above-mentioned methods is sometimes tricky because of the varied background of the participants - while some participants are familiar with the topic of biodiversity/ environment others who have little or no familiarity may hesitate to share their impressions. Therefore, the facilitators should be familiar with the background of the participants beforehand. Therefore, we highly recommend studying the outcome of training needs assessment thoroughly.

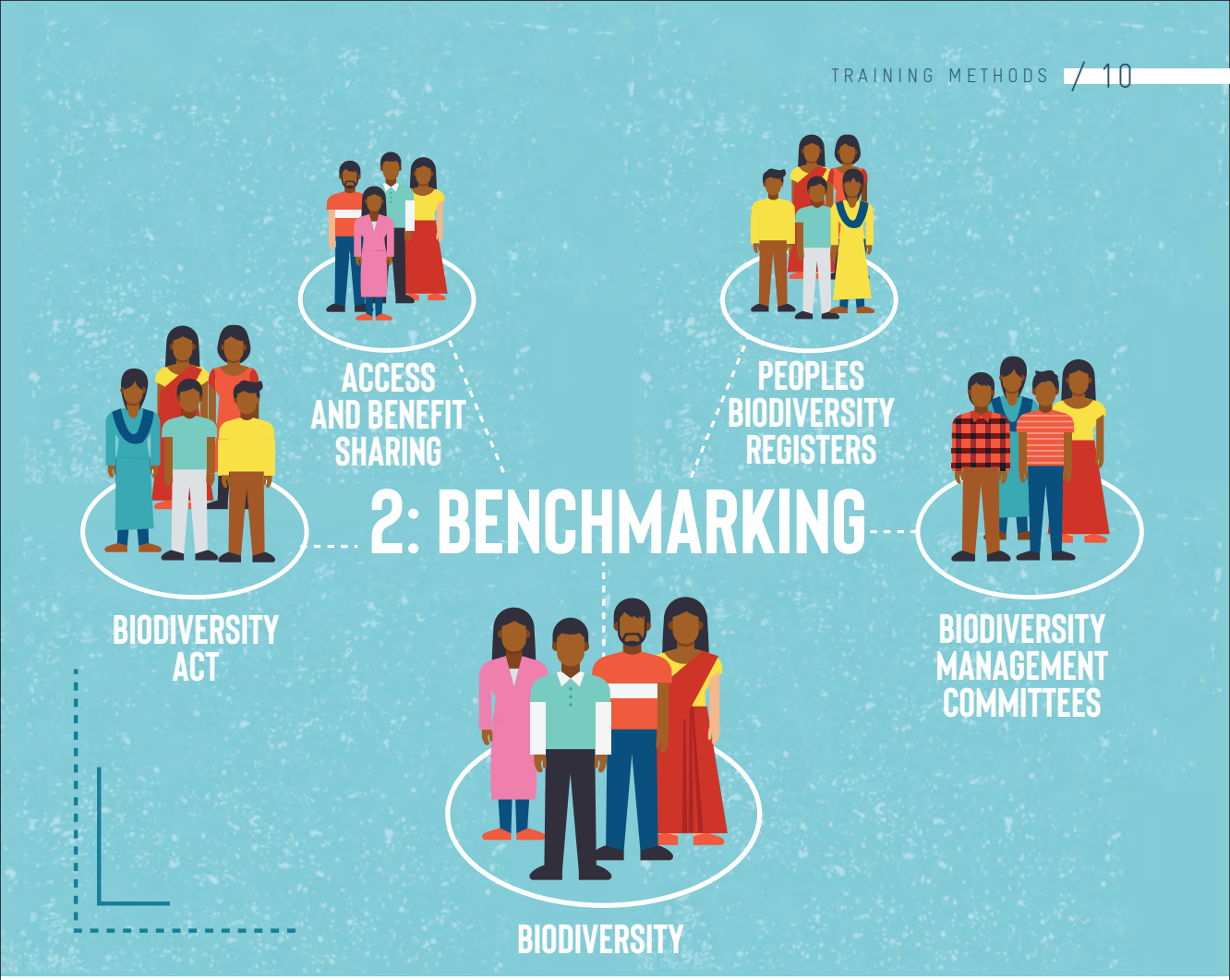
As far as possible, the materials/photo-cards used for this session need to be common/ relatable to the participants. The materials can be collected from local shops, markets and may include commonly used flowers, medicinal plants, wild berries etc. Whereas for photo card method, images depicting biodiversity in cuisine, festivals (like Pongal in Tamil Nadu), local culture, rituals and customs may be chosen. The main element in all should be biodiversity and traditional knowledge and practices associated with it.

The participants very often take longer than the allotted time, mainly while reminiscing about certain photos or materials that evoke memories or sentiments. The facilitator must provide for extra time of 3-5 minutes. This may help make the participants enthusiastic and give them a sense of anticipation about the rest of the training. In this session, the facilitator is also creating her/his first impression. Hence, the facilitator must strive fully remain engaged in the session.

Avoid using any material made of plastic to keep the bio-resources or photos.

ESTABLISHING THE CREDIBILITY OF THE TRAINING FACILITATORS

This session is critical to 'earn' listening of the participants and should be short and succinct. Establishing credibility is not limited to stating the name and job titles but highlighting the relevant professional experience, skills, and achievements of the training facilitators (trainers). They should also talk about, albeit briefly about the training conducted on the topic of biodiversity, Biodiversity Act, BMCs, etc., and other relevant areas of works done by the facilitators.



Benchmarking is one of the efficient ways of assessing the effectiveness of training or learning. Benchmarking has to be done at the beginning and again, at the end of the training. This method will help assess the knowledge of the participants at the start and the end of the training. Scores given by the participants at the beginning of the training will also help the facilitators understand the topics that need more emphasis on. For example, if more than 50% of participants have given a score of 3 for their understanding on a certain topic, and 7 or 8 for other topics, the sessions in training may place a lot more emphasis on the topics which received lower scores. This session is described in detail below.

To conduct this session, first, a set of topics related to the training objectives needs to be prepared. The topics chosen for benchmarking should represent the central theme of the training programme.

The selected topics are written on different charts (one topic per chart), and a graph is drawn with 1 to 10 on its Y-axis. Ten cards are prepared with scores (ranging from 1 to 10) written on them and are arranged on the

floor in ascending order. For each question/ topic, the participants are asked to rate themselves on a score from 1-10 and stand in a queue in front of the cards corresponding to the scores. The number of persons standing in front of each score is counted. One of the facilitators marks on the graph, e.g., If five people stand in front of 7, the facilitator puts five dots over the mark seven on the graph. Remember to use a different chart for each topic/question.

This exercise is done at the start and the end of the training programme. The scores tell us the change in knowledge on a particular topic.

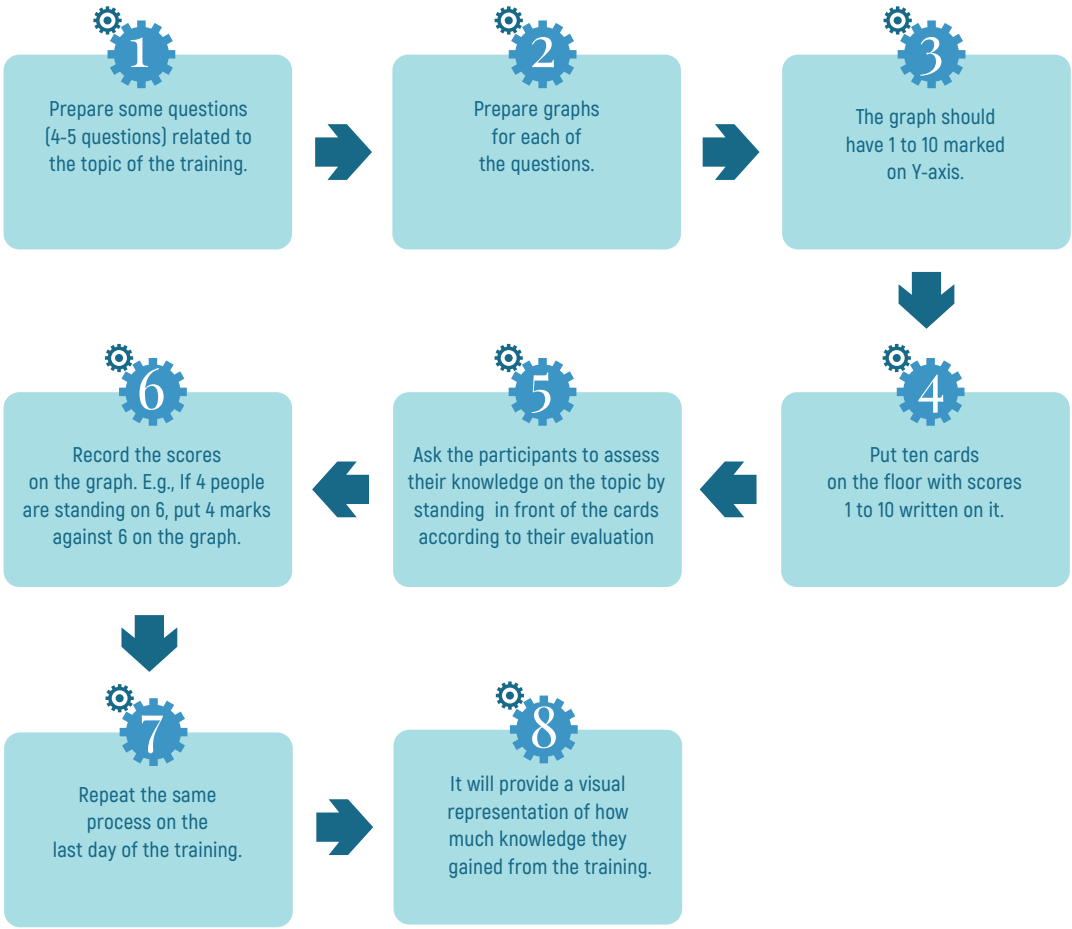
It is necessary to mark two sets of scores in different colours, e.g., if benchmarking scores at the beginning is marked in red, the results documented at the end session (i.e., after the training programme) should be in any colour but red.

At the end of the training programme, the graphs provide a visual representation of the knowledge gained by the participants. It helps the facilitators to design subsequent trainings and to understand which topics need emphasis or remodelling.

BENCHMARKING TOPICS

Biodiversity
Biological Diversity Act, 2002
Biodiversity Management Committee (BMC)
People's Biodiversity Register (PBR)
Access and Benefit Sharing (ABS)

STEPS TO FOLLOW:



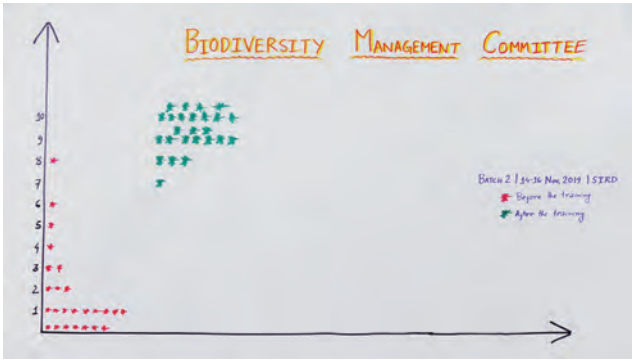
IMPORTANT POINTS TO CONSIDER:

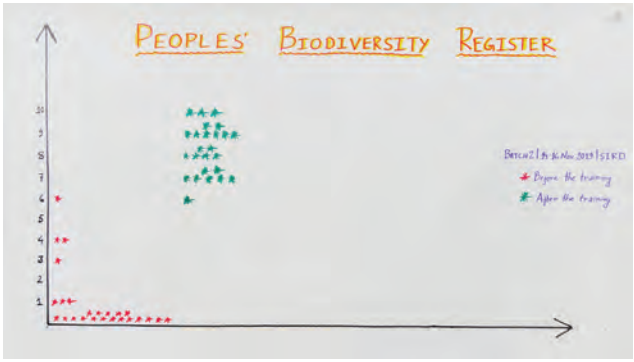
Benchmarking needs a fairly large space to conduct. The facilitators need to ensure that this session is conducted in a large classroom or training hall. In case the large room is not available, the seating arrangement may be reorganised. Hence, extra time should be allotted accordingly.

It is crucial to provide clear instructions and explain the purpose of this session. It is also important to let them know up front that a similar assessment will be carried out at the end of the training. If needed, the facilitator may do a trial with a volunteer.

This session involves moderation by two facilitators: one of them is required to count the number of participants against each score. At the same time, the other one marks the scores on the graph. (See picture below).

It is important to mention to the participants that they give scores to roughly indicate their knowledge and that they will not be judged or assessed in any form because of their score.





3: BRAINSTORMING

Brainstorming method is useful when there is limited time, and an interactive session is required to generate ideas and views from a heterogeneous group of participants. First, choose any topic to discuss and initiate the conversation by asking an open-ended question. The question should be related to the training. To guide the participants in the initial stage, the facilitator can write down one or two points to show an example of what is expected. As the participants continue to provide inputs, note them down those on a chart paper. Continue discussing the ideas with the participants while noting them down. It is essential to note down all ideas at this stage.

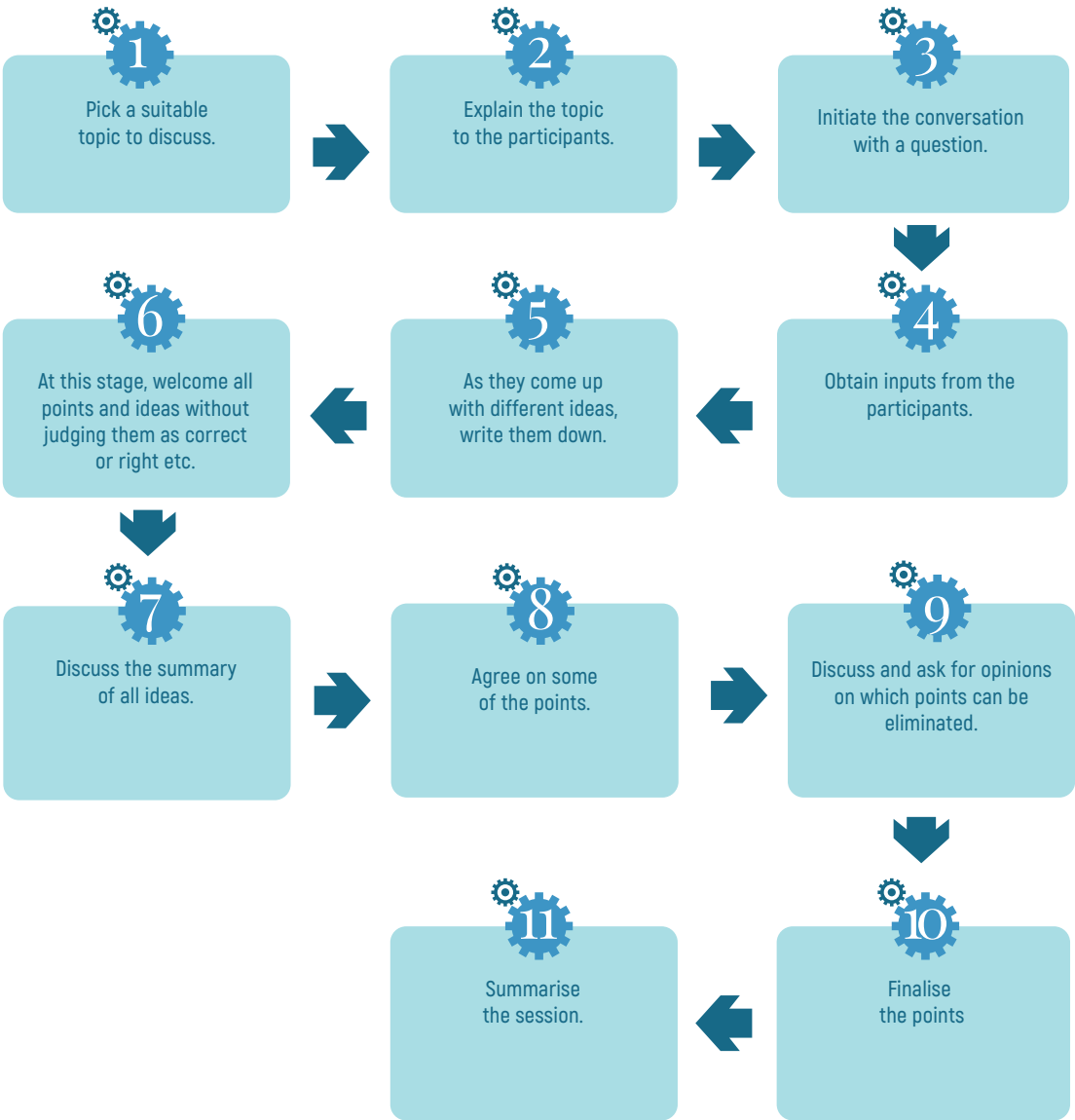
In the next step, once the ideas are all written down, start discussing the noted points one by one. Each point is explained by the person who came up with it; this will take the discussion forward. Here, the facilitator needs to ensure that the participants discuss with the facilitators but also among themselves. If the group disagrees on a particular point, it is removed from the list.

Upon the completion of the discussions on points noted, the facilitators provide a summary of the discussion. At this stage, the facilitators need to connect the points discussed with the objective of the training. Throughout this session, the facilitator needs to carefully steer the conversation so that it does not go off track. Spending too much time on one point needs to be avoided.

GUIDING QUESTIONS:

- What are the ground rules we should fix for the next two days of training?
- What are the other committees that BMCs can collaborate with and why?
- What are the steps a BMC can take to protect biodiversity in their area?

STEPS TO FOLLOW:



4: THEMATIC CHAMPION

The thematic champion method is very useful in evaluating the participant's knowledge of the topics covered in the training and presentation skills. To what extent the participant has gained an understanding of the topics covered in training is assessed in this session. Since this session involves participants making a presentation on a topic, they randomly pick from a pool of topics. This session is conducted on the last day of the training.

The first step of the thematic champion is to prepare a set of questions. On the first day of the training, present all the questions to the participants. DO NOT let them choose the questions. Inform the participants that each of them will be required to deliver on one topic on the last day of the training. Prepare chits for each question with one question on each chit. Plan the thematic champion in the post-lunch session on the last day. Well before the lunch break, ask the participants to choose one chit from the pool. Note down the names along with the question s/he picked up.

During the session, each participant gets 5 minutes to present whatever question they have picked up. They are evaluated based on their presentation skills and their knowledge of the topic. All the questions should

be reflective in nature and should focus on the outcomes of the training. The number of questions should be at least half the number of participants which means the same question CANNOT be repeated with more than two persons.

It is recommended to have more than one evaluator. The marks can be averaged out later from the evaluators' scores for each participant.

SOME OF THE SAMPLE QUESTIONS ARE:

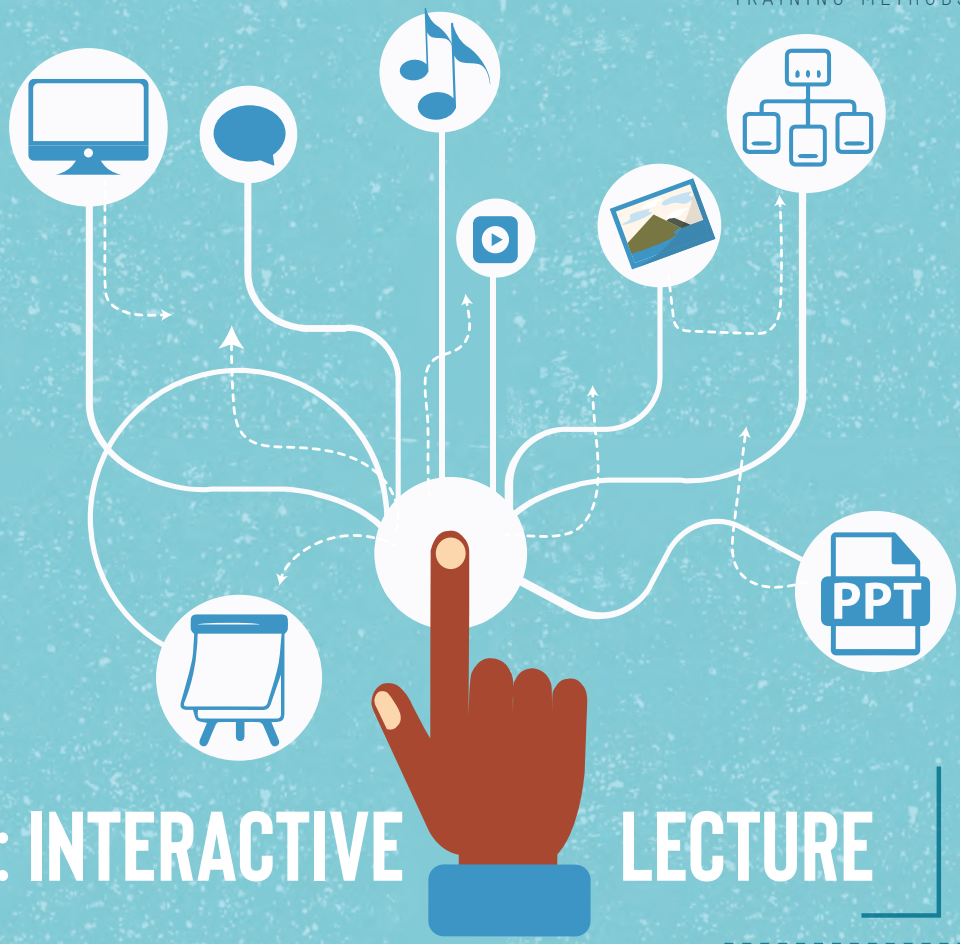
- From your personal experience, what is the impact that you and your village members have observed because of the loss of biodiversity?
- Do you think BMCs are needed? Substantiate your answer.
- How can BMCs collaborate with a village panchayat for conservation and sustainable use of biodiversity?
- Present your ideas on financing mechanism for documentation of PBR and functioning of BMCs.
- Documentation of PBR requires collaboration from many people, institutions etc. List the people and institutions from your locality to be included.
- List out the activities that can be undertaken by the BMCs at the local level.
- A company wants to access 1 ton of a medicinal plant from your village. As a knowledgeable person, you have been invited to a BMC meeting. What kind of inputs will you give?
- How can other committees help BMCs?
- Why do you think it is essential to document PBR?
- How is biodiversity interlinked with our daily lives?
- What are the key steps in the ABS process? Who has to apply? What activities are covered under ABS?
- As a trainer, how will you contribute to biodiversity conservation?
- What are the institutional structures established under the BD Act for implementing the Act?

STEPS TO FOLLOW:

1. On the first day of the training, show all the topics/ questions to the participants.
2. Do not allow them to choose any topic.
3. Write down the questions on a separate piece of papers.
4. On the last day of the training, well before the thematic champion session, ask the participants to choose chit each randomly.
5. Ask them to read the topic aloud.
6. During the session, give 5 minutes for each participant to talk about the topic he/she has picked up.
7. Evaluate them based on their knowledge of the topic and their presentation skills.

IMPORTANT POINTS TO CONSIDER:

- Presentations by the participants should only be scheduled on the last day of the training.
- Participants should be given time to prepare for the thematic champion. Hence, they have to choose the chits well ahead of the session.
- It is crucial to write down the names of the participants along with the topic on the chit they have picked.
- Since this session is scored, the facilitator needs to look for relevant points presented by the participants mainly, and time needs to be strictly maintained. The basis of evaluation should be whether the participant has grasped the topic, illustrated with suitable examples and has finished within the allotted time.



5: INTERACTIVE LECTURE

An interactive lecture is a powerful tool to introduce a new topic which are unfamiliar to the participants.

An interactive lecture comprises of PowerPoint Presentations (PPT), board work, audio-visual sessions etc. along with discussions among/with participants. The idea is to incorporate all three basic modes of communication, i.e., physical, auditory and visual, in the lecture to reach different kinds of learners equally.

The first step in designing an interactive lecture is to prepare the PPTs. The text in the PPTs should be very minimal. One of the most important things to focus on is that the facilitator needs to maintain eye-contact with the participants while talking rather than looking at the PPT and reading out from it. Photos and illustrations are essential elements in a PPT. Images need to be of fair resolution and appealing to the audience. An aesthetically pleasing presentation automatically grabs the attention and hence, makes the topic much easier to understand.

Board work is another essential exercise in designing an interactive lecture. Well before the session starts, put up cards on the pinboards and keep

them flipped so that one cannot see the contents of the cards. Explain the idea that you are going to demonstrate using the pinboard and ask the participants to guess what is written on each card. This is a good way of engaging the participants in the discussion. The facilitator can ask for a volunteer from the participants to help the facilitators to flip the cards and put it on the pinboard. Using the pinboard serves the purpose of engaging the participants as well as initiating discussions.

A long lecture session can become tedious, and the participants may sometimes lose interest midway. The facilitator needs to mix other exciting methods. A folk song or a video related to the topic is an excellent way to connect with the subject as well as to summarise the discussion quickly. Also, it helps keep the participants awake and attentive! The facilitator can ask for a volunteer from the participants to sing a folk song. It is always better if someone sings the song live rather than playing a record.

Summarising a session is always very important, especially after a long session conducted with various methods. One PPT slide needs to be prepared where all the significant points need to be written (preferably along with the photo and board-work). One of the facilitators may be asked to give a summary of the whole session based on those points written on the board.

HOW TO MAKE POWERPOINT PRESENTATIONS?[1]

- The trainer arranges the topics in a visually appealing manner. S/he would often be standing at the beside the projector screen and explaining topics to the participants using prepared slides.
- Use large fonts. Use at least 18 pt. So that people at the back of the room can read the text elements on the screen easily.
- Avoid excessive use of slide transitions and animations. Also, keep animations consistent. A PowerPoint presentation is meant to be a visual aid, not the focus of the presentation. Do not use fancy animation effects unless necessary.
- Avoid having too many slides with only text. Use photos, charts and graphs also. Meaningful photos are better than mainstream clip art.
- Use suggestive graphical illustrations as much as possible.
- People remember pictures and graphic metaphors far better than they remember text content. A few real photos related to your subject are best.
- Do not put in details you will not be addressing explicitly (e.g., long tables with a lot of irrelevant data).
- Use thick lines in drawings (1½ points or more).
- Use strong colours for important information and pastel colours for unimportant details.

1 Source: Khera, Neeraj, Sivakumar, K., Mehta, Pradeep. Participatory Methods of Training for Effective Content Delivery, GIZ, New Delhi, 2016

- Limit the number of slides.
- Spell-check — a spelling mistake is a horrible attention-magnet. At best, your audience is merely distracted; in the worst case, they think that if the presenter cannot even spell correctly, how likely is that the content is credible – you will also lose the audience!
- Make sure your presentation can run on any computer.
- When you make a presentation in a new environment (at a conference venue or new training centre), check the hardware before your presentation (and have an audio cable at hand when using embedded sound and/or multimedia files). For e.g. make sure that the projector, speakers, pointer etc. are working.
- Remember that how you present add the value for your presentation.

STEPS TO FOLLOW:

1. Prepare PowerPoint presentation. The text in the presentations should be minimal and interesting, along with photos.
2. Use the flip chart and pin boards more frequently to explain different topics.
3. Prepare flow charts on the pinboards.
4. Keep the cards flipped so that no one can see the contents of the card. Turn each card as you explain its content.
5. Before turning the cards, you may ask the participants what they think the flipped card may contain.
6. n an interactive lecture session, always give room for discussion. The participants should be able to voice their concerns.
7. Prepare the session with different modes of communication such as videos or songs which can easily explain the topic as well as keep the participants engaged.

IMPORTANT POINTS TO CONSIDER:

- Come up with examples of local biodiversity that the participants can easily relate to. For example, Tulsi vs Kalmegh. It is likely that all participants would better connect to Tulsi than Kalmegh.
- Too much of technical details may divert the participants' attention away from the session. The trick is to provide exactly as much information as the participants need. For example, neither the participants nor the BMC members (whom the participants are supposed to train) need to know the details of the sections/ legal provisions on ABS. The participants only need to know the principle of ABS and their role in facilitating it. To explain this topic, prepare a flow chart of ABS on a pinboard and explain that to the participants (See picture).
- It must be kept in mind that facilitator introduces only ONE new topic in an interactive lecture, and allow time for participants to ask questions, clarify their doubts directly with the facilitator. This is a matter of utmost importance that the participants get answers from the experts/ facilitators directly, especially considering the complexity of the topic dealt with in the session. For example, topics like "the objectives of BD Act", "what is in it for the local people?", "Why is it important to know about the Act?", etc., are all technical.

6: ROLE PLAY

Role-play (or a role-playing game) is a real-life simulation in which the participants perform the roles of fictional characters. After the characters have been outlined, participants are asked to volunteer to play the characters. Sometimes the choice of character is left entirely to the participants; or the trainer 'encourages' a participant to play a particular role. They determine the actions of their characters based on their characterisation (often provided in a role description). While following a set of rules, the players still have the freedom to improvise and their spontaneous or strategic choices shape the direction and outcome of the game. Role-play should be realistic. The role descriptions should enable easy identification.

A mock BMC meeting can be arranged where seven volunteers are given the role of seven BMC members and one volunteer, the position of the BMC Secretary. This session will facilitate learning on some of the functions of BMCs. The seven BMC members are asked to consult with the other participants separately before the mock BMC meeting and discuss the biodiversity-related issues in their local areas (7 people discuss with 7 different groups of people). The members note down the important points

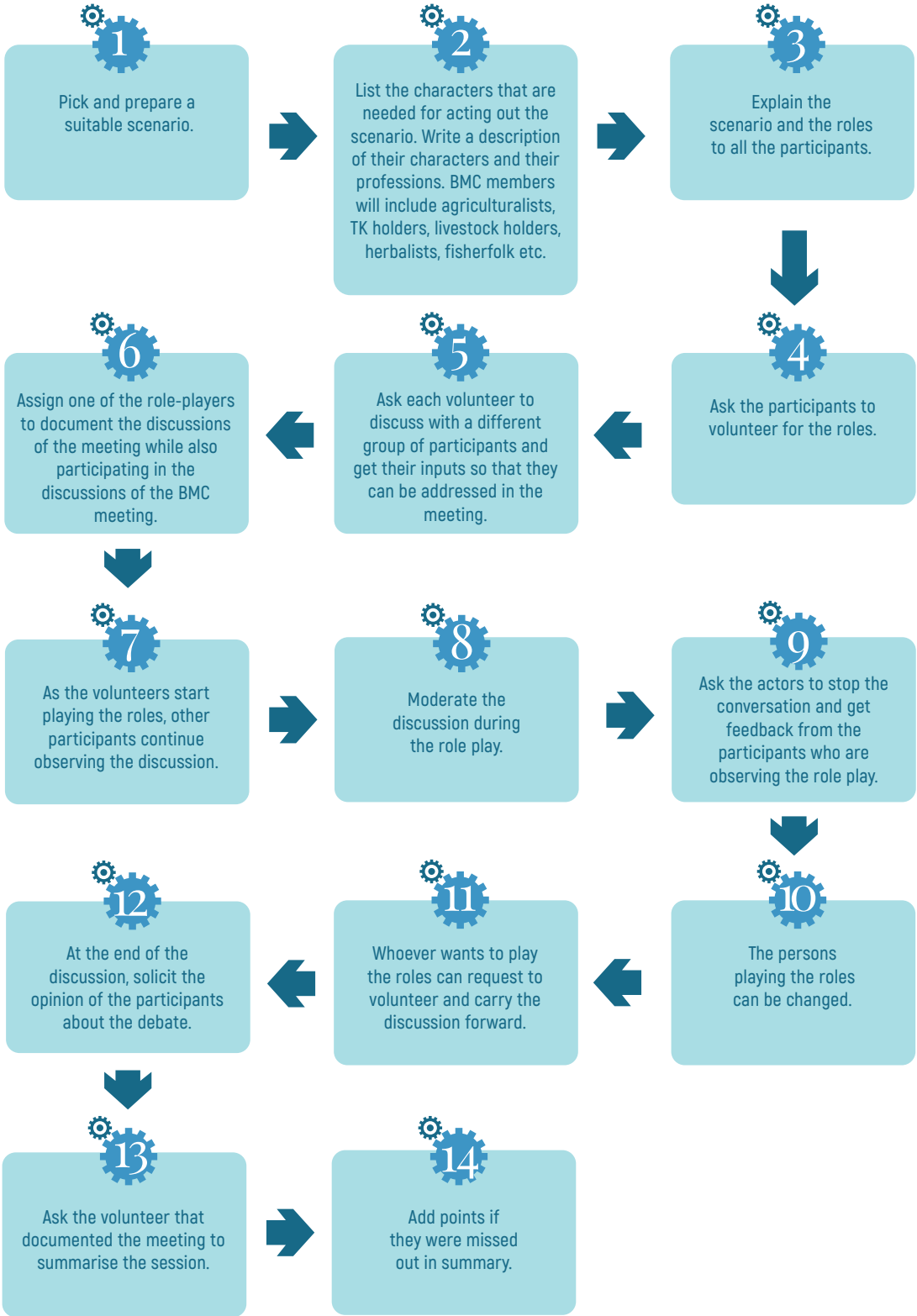
from the discussion and raise these points in the mock BMC meeting. One person among those eight assigned to document the minutes of the meeting. The facilitators need to periodically ask the members to pause the meeting and ask the observers (i.e., other participants) if their concerns are being voiced properly or if they want to add something to the discussion. Also, the facilitator has the liberty to replace any role-player with someone else from the audience. Sometimes, the debate may go off-topic; therefore, the facilitators must moderate the session and bring it back to the main discussion point. At the end of the discussion, the person who documented the details of the meeting will provide a summary of the proceedings.

Other scenarios can be drawn from different case studies of ABS. Same as the previous scenario, the facilitator can replace any role-player if needed. The idea is to detail out the argument to help participants to understand issues better and maybe finally come up with possible solutions. A person documenting the discussions gives a summary at the end of the meeting.

THE ROLE PLAY SCENARIOS:

- Seven BMC members, along with the BMC Secretary, arrange for a BMC meeting where they discuss biodiversity-related issues in their jurisdiction.
- A meeting arranged between a BMC member, a TK holder and a representative of a company which wants to access some bio-resource from a location within the jurisdiction of the BMC. The TK holder and the BMC member discuss with the company representative on the collection of the bio-resources from their jurisdiction.
- The BMC members can discuss a hypothetical ABS application and provide feedback on the application for NBA/SBB. The hypothetical application should involve biological resources that familiar to the participants.

STEPS TO FOLLOW:



IMPORTANT POINTS TO CONSIDER:

- While facilitating a session on role-playing, keep on asking for suggestions and arguments from the observers/participants. If someone comes up with a strong argument, or has the potential to come up with better points than the person already assigned in that role, replace them by politely explaining the reasons for replacement.
- The roles need to be assigned carefully based on a person's experience For example, suppose a participant has experience in cultivating medicinal plants. In that case, s/he should be assigned the role of a BMC member who is also a TK holder.
- The core idea of a role play is to gather ideas from different perspectives. Therefore, the facilitators should ensure that the conversation is never one-sided.

Marketplace method is used when multiple topics need to be addressed within a short period to a large and heterogeneous group. In this method, the participants are divided into groups depending on the number of topics. For this particular training, 3- 4 groups need to be formed where each group learns a different topic simultaneously.

The facilitators need to install separate ‘shops’ like a market, where they are supposed to present different topics.

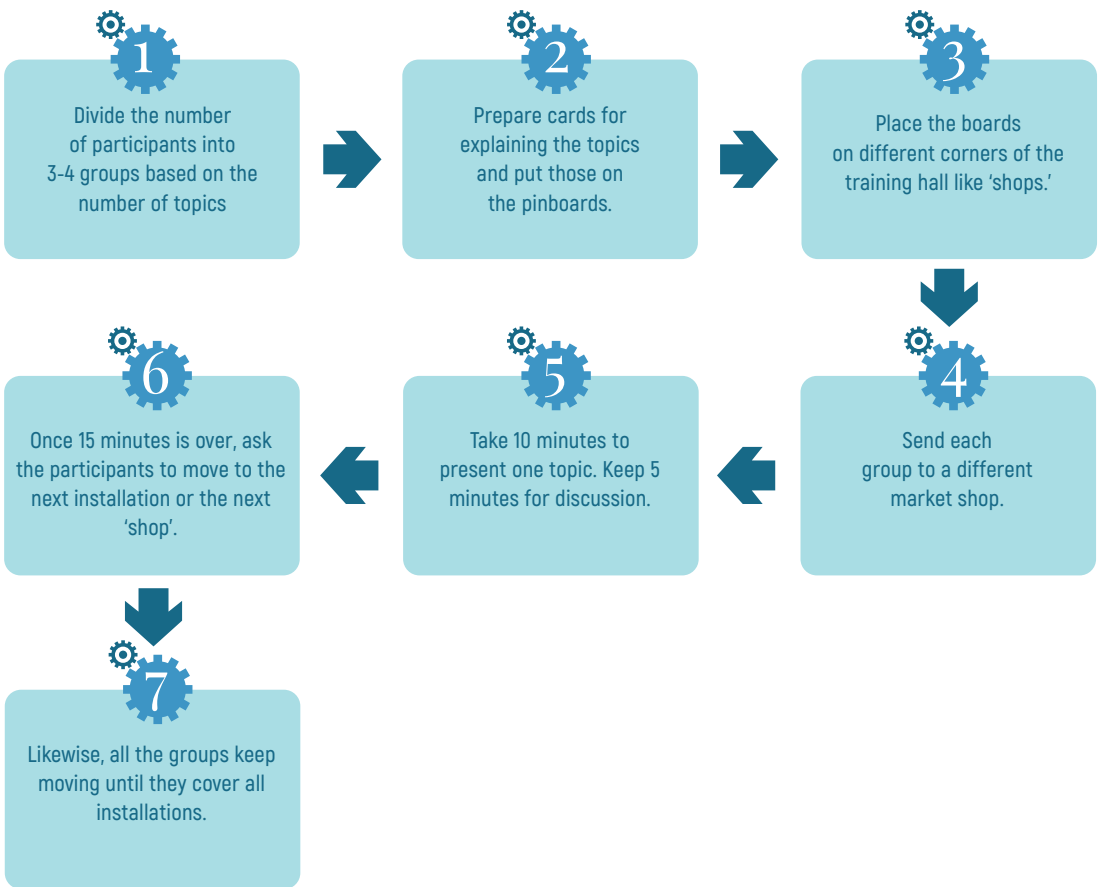
Each facilitator needs to moderate one group and present their respective topics. Three groups of participants start learning from three different facilitators simultaneously. Each group is ideally given 15 minutes (10 minutes of facilitation + 5 minutes of discussion). However, the maximum allotted time can differ depending on the complexity of the topic. After 15 minutes, when all the groups are done learning their respective topics, they need to move to the next facilitator for the next set of topics. After every 15 minutes, they move to the next topic until all the groups complete visiting all three ‘shops.’

It is always advisable to keep this session after the lunch break. Getting up and moving to the next 'shop' after every 15 minutes keeps the post-lunch drowsiness away. Facilitators may mention this to the participants that "this session will keep soup-coma away!" The presentations need to be interactive. The facilitators must keep their respective presentations well ahead of the session and seating arrangement should such that the participants can hear and see the facilitator and their presentations.

TOPICS FOR THE MARKETPLACE:

- Group 1 – Introduction to BD Act; Objectives of BD Act; Three-tier structure for implementation of BD Act; Significant sections of the Biodiversity Act
- Group 2 – Important definitions; NTAC (Normally Traded as Commodities); Threatened species
- Group 3 – BMC definition; Constitution; Operational aspects; Functional aspects

STEPS TO FOLLOW:



IMPORTANT POINTS TO CONSIDER:

- As the session is conducted in three or four separate 'shops' simultaneously, it is quite possible that in a training hall may become too noisy, the facilitators must this as much as possible. For e.g., one or two "shops" can be moved outside the training hall.
- If one group takes too much time, the whole cycle of moving to "shops" gets disrupted. Therefore, time should be strictly maintained and is the key to conduct this session successfully.
- All the facilitators need to provide a concise introduction to the Biodiversity Act, before they start explaining their respective topics, to maintain a proper flow. Without any introduction, it can be quite difficult for Group 2 and Group 3 to grasp their topics.

8: RECAP AND QUIZ:

Every day, the recap session is crucial to conduct because it provides a summary of what was facilitated on the previous day. One of the best ways to achieve the recap session is through a short quiz. It helps the participants to analyse their knowledge gain as well.

To conduct this session, prepare a bunch of questions from topics taught the day before. The questions need to be short and should demand short and quick answers as well. The facilitator has to make sure that only one person answers at a time. The one who raises her/his hand first gets the chance to answer the question. Giving away small gifts to the participants who answer correctly will create a fun atmosphere. It helps in gaining additional attention, and the participants become keen to answer the questions.

The quiz needs to be very short, preferably under 15 mins. After an answer is known to everyone, the facilitator needs to discuss the question with the participants. This process helps in recounting the learnings from the previous day. In the end, the facilitator summarises the session as well as reviews the material covered in the previous day.

SAMPLE QUESTIONS FOR THE QUIZ:

1. How do you define biodiversity?
2. Which year, the Biodiversity Act was enacted?
3. What are the objectives of the BD Act?
4. How is the BMC constituted?
5. What are the functions of the BMC?
6. What is ABS?
7. What is the role of BMCs in the implementation of ABS?
8. How should a BMC conduct its meetings?
9. What are the qualities needed in a trainer?

STEPS TO FOLLOW:

1. Prepare questions on the topics discussed each day.
2. Ask the questions from the previous day before the training session for the day starts.
3. The questions should be reflective and short.
4. As the questions are discussed, continue revisiting the learnings from the previous day.
5. Give small gifts to the participants who answer correctly.

9: SKIT

A skit is a short informal way to educate or inform about a particular topic. Ideally, a skit deals with a social issue and carries a message. For staging a skit, firstly, a script needs to be prepared. Like in a play, a skit also should have a crisis of some kind or a problem situation and a solution or a way out. It should begin as a day to day story with which the audience can relate easily. The facilitators need to act the skit. One person from the audience also can act. But s/he needs to be informed well ahead about the script and needs to be prepared. The necessary props need to be ready beforehand. Fewer the props, the easier to manage. Use minimum props and only those that are necessary to deliver the message. The story needs to be very realistic and easily relatable. Maximum time allotted for the skit should not be more than 10 minutes.

After the skit is over, the facilitators need to discuss the set of events in the skit and the message with the participants.

IMPORTANT POINTS TO CONSIDER:

- The primary requirement of a skit is a message that is directly related to the preceding topic of the discussion. The script should be straightforward so that the message being conveyed is easily understood. Only one problem situation with a clear message should be addressed in a skit. To test if the message is easily understood, it is always helpful to present the script to a person without much understanding of the topic. Also, a flawless presentation requires rehearsing the skit.
- The skit should be easily relatable to the daily life of the local people. Including humour in the skit will help in keeping the audience attentive and engaged.
- Speaking in local dialect and style will make a long-lasting impression on the audience.

10: STRUCTURED LEARNING VISIT

A Structured Learning Visit (SLV) provides an opportunity to exchange information between participants and the local people. Conducting an SLV requires good preparation beforehand. The preparation starts well ahead of the commencement of the training programme. It begins with selecting field sites based on convenience of travel, availability of resource persons to talk to, etc. The process of conducting an SLV is elaborated in the Part-3-Implementation of the training package.

On the day of the field visit, facilitators need to provide clear instructions to the participants. They need to be made aware of health and safety precautions. An early lunch is always advisable on the day of the visit to ensure on-time return from the visit. The grouping of the participants should be done randomly before the lunch break. Each group will go to a different field site. This is because training all participants at a single location will be difficult to manage and may be counterproductive.

The focus of an SLV can be different based on the theme of the training. For example, in the pilot testing of this training we conducted in partnership with the Kerala Institute of Local Administration (KILA), the SLV focused on

documenting PBR formats. In that scenario, the participants should be informed about which formats of PBR should be filled out. Each field visit group needs to have a facilitator who can moderate the group discussion and help the participants come up with good documentation of PBR.

STEPS TO FOLLOW:

1. Select 3-4 places for field visits.
2. Keep in mind that the participants must be able to communicate with the local people (be aware of possible language barriers).
3. Selection of locations and necessary preparation (eg: vehicles) should be made well in advance.
4. Explain in detail the objectives of the field visit and what needs to be done by the participants.
5. Explain the health and safety precautions.
6. Provide them PBR formats based on the location they will be visiting. If the participants are going to discuss with a farmer's group, provide them with the PBR format on 'Crop plants.'
7. Ask the participants to fill up the PBR formats with the information collected from the field.
8. Each group should be accompanied by a facilitator.
9. At least 2 participants to document the discussions that take place between participants and the people at the field location.

IMPORTANT POINTS TO CONSIDER

- The purpose of the visit should be explained, background information about the field site and clarity on what is expected of them should be informed in advance.
- To be respectful towards the local people.
- Inform the participants to bring up issues pertinent to the topic while interacting with the local people.
- In the case of a large group of participants, it may be helpful to instruct them to allow ample time for discussion with the local people and designate one or two persons from the group to document the discussions. Questions should be brief and direct.
- PBR formats to be recorded should be discussed with the participants before the field visit, and the chosen formats should be related to the field sites as illustrated in the table below. Other practical information such as distance from the training centre, responsible person, contact details for coordination may also be included. It is also helpful to write down the names of individuals and the site they will be visiting on the PBR booklet handed over to the participants so that there is no confusion.
- Ample time should be given for the structured learning visit. One way to do that is to select the nearest field sites so that the travel time is reduced, thus increasing the time of interaction with the people.

GROUP	FIELD LOCATION	DOCUMENTATION & DISCUSSION THEME	PBR FORMAT	DISTANCE FROM THE TRAINING CENTRE	RESPONSIBLE
1		Traditional Knowledge and Interaction with traditional knowledge holders- *Vaidyas*	Annexure 3		Trainer 1
2		Medicinal plants and interaction with traditional knowledge holders- *Vaidyas*	Formats- 22		Trainer 4
3		General details of BMC and Peoplescape Interaction with BMC members	Annexure- 1 and Format 7		Trainer 2
4		Crop varieties and markets for domesticated animals and interaction with farmer groups	Format 1 and Format 6		Trainer 3

11: FISHBOWL

Fishbowl is a method wherein a topic discussed thoroughly, intensively and inputs and views many participants are solicited. This requires specific seating arrangements like a bowl to facilitate discussion. In fishbowl discussions, the participants sit in a two or three-layered circle. There are only 3-4 seats in the innermost circle. In the beginning, all participants are seated in the outer circle. The facilitator provides clear guidance to the rules to begin discussions in the fishbowl method. The facilitator then begins the conversation by sitting in the inner circle and making a few statements on the issues where the debate should take place. As soon as the statement ends, the participants from the outer circle join her/him in the inner circle and the dialogue starts between participants in the innermost circle. The discussion takes place only among the participants in the innermost circle (the fish). This innermost circle is surrounded by a larger group of observers, seated in an outer ring (the bowl). The outer circle only listens and observes. When a participant in the inner circle feels that s/he has completed their input to the topic, they can leave, and the empty chair is taken up by another participant from the outer circle. The person can

again join the inner circle if s/he has any point to make later in the discussion. This way, different people share their views on related topics. One facilitator can also jot down all the issues covered during the debate, and interrogation can be done based on those points.

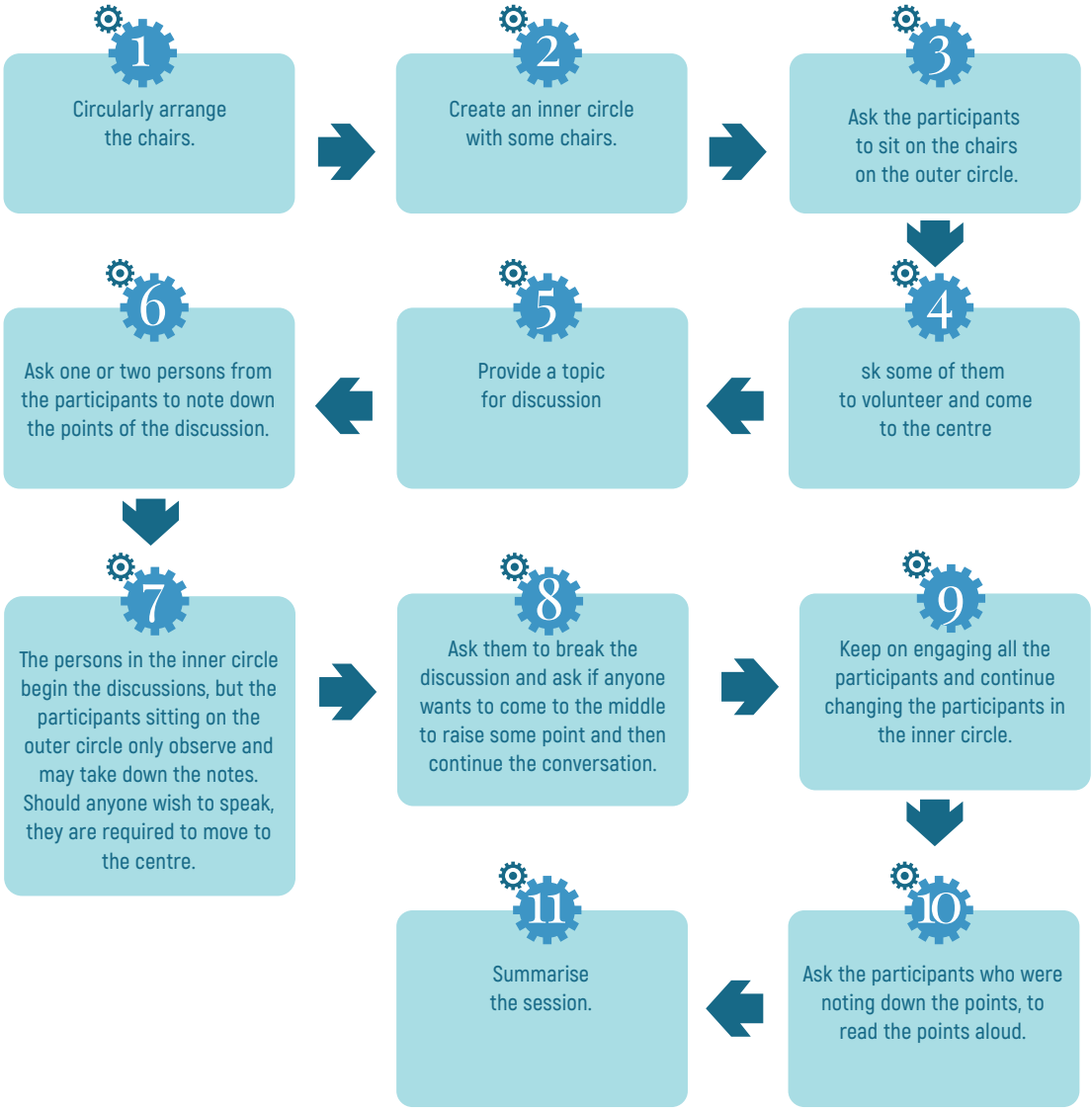
Another version of Fishbowl can be where the moderator/expert stays permanently in the inner circle while participants come and go. This method is also suitable to ask one-to-one questions with the expert. This way, all the participants understand the topic through peer-to-peer learning and from the expert's comments. This method proves to be better than a PowerPoint presentation, as it is more interactive.

The topics of a fishbowl session should always aim to bring up information and ideas that are exclusive to the participants and their personal experience. While discussing these kinds of questions, the participants scour through their knowledge and share anecdotal experiences which will help other participants to get a holistic view about the problems for a better understanding of the scenario being discussed.

INDICATIVE TOPICS FOR FISHBOWL

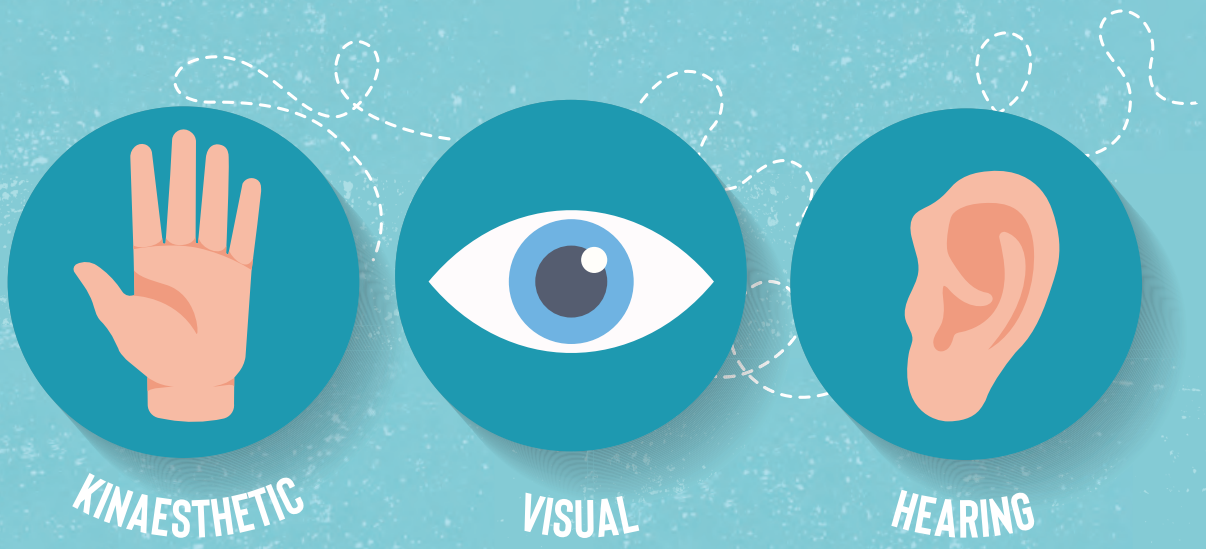
- What difficulties did the participants face while collecting PBR data during their field visit?
- What are the threats to biodiversity in their locality?
- What can the BMCs do to solve biodiversity-related issues in their area?
- How do you think the BMCs can monitor medicinal plant collection in their area?

STEPS TO FOLLOW:



IMPORTANT POINTS TO CONSIDER:

- The facilitators/ moderators should ask the participants to follow the instructions in the fishbowl discussion.
- As Fishbowl is more of informal dialogue, the chances of the discussion getting off-topic are high. The facilitator/ moderator should ensure that the debate does not digress. Sometimes the topic of the discussion can be intensive with varied perspectives and intriguing arguments which can take a longer time. Therefore, it's always advisable to either keep a 10-minute buffer after the fishbowl session or conduct the session at the end of the day after all other sessions are over.
- The facilitators/moderators should encourage all participants to put forth their views. Continuous rotation from the outer-inner circle can be an excellent way to achieve that.
- Facilitators/ moderators should also take down notes as they need to summarise the whole discussion at the end of the session.



12: PRACTICAL ACTIVITIES

In a large heterogeneous group of participants, the learning style differs from person to person. Some can learn a topic better through lectures, some visually and some through hands-on experience. To cater to all types of learners, training must incorporate all three modes of communication, i.e., hearing, visual and kinaesthetic (physical). In this session, the importance of all three methods of communication is explained through tests that are conducted in three different sections.

KINAESTHETIC/ PHYSICAL

In the kinaesthetic section, the facilitator gives 15-20 objects one by one to one of the participants. After taking a glance at an object for not more than 3-5 seconds, she or he passes that object to the one sitting next to her or him. The following person also does the same, and so on. Once everyone observes all items for 3-5 seconds each, they are collected by one of the facilitators. Now, all the participants are asked to write down the names of those objects on a piece of paper.

VISUAL

In this section, the facilitator shows photos of 15-20 objects or bio-resources to the participants using the same process as the kinaesthetic test. Once all the photos are shown and are collected by the facilitator, the participants are asked to write down the names of those objects.

AUDITORY

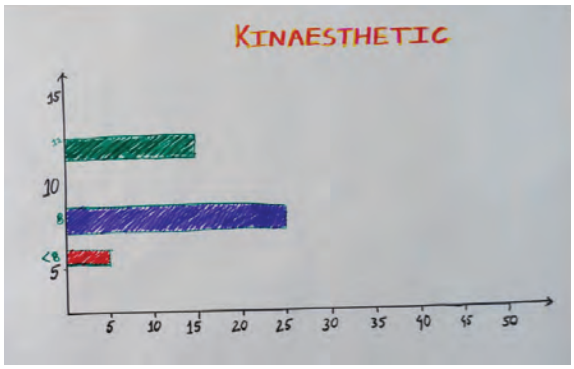
In the auditory section, the facilitator calls out loud the names of some objects. Once all the names are mentioned, the participants are asked to write down the names they heard.

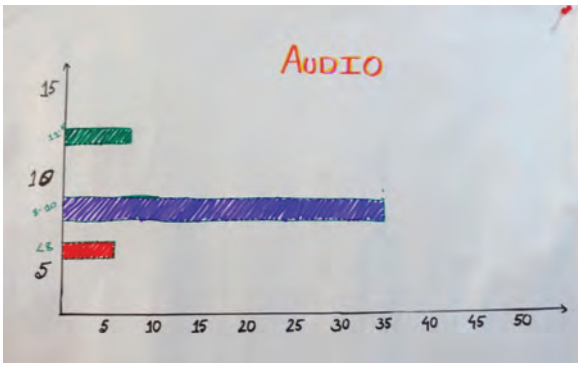
After all the three exercises finish, the participants are asked to exchange the list of names they have written with the person sitting next to her/ him. Then, the facilitator repeats the names of the objects from three different sections and asks the participants to separately count the number of objects their neighbour could remember and write down.

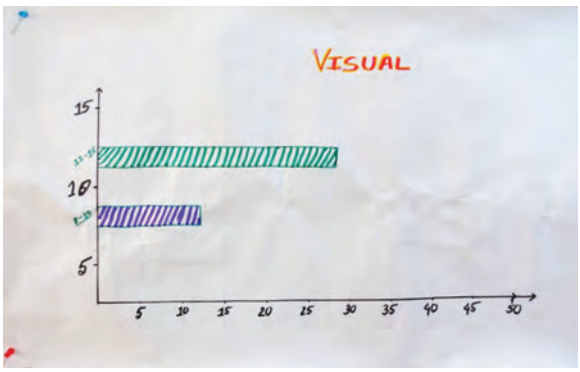
THE SCORES ARE COUNTED IN DIFFERENT CATEGORIES E.G.

- No. of people who wrote 0 to 5 names
- No. of people who wrote 5 to 10 names
- No. of people who wrote 10 to 15 names etc.

In the end, one of the facilitators plots the values on three different graphs and explains them to the participants. The graphs show the diversity of learners in the group of participants.







While conducting this session, facilitators should make sure that the participants do not start noting down the names while they are on display. The sole purpose of this exercise is for them to memorise. The facilitators should maintain time very strictly, especially during the kinaesthetic session. Any item should not be with one person for more than 3 to 5 seconds. The graphs should be prepared beforehand, and they should be filled immediately after analysing the participants' responses. While concluding the session, one of the facilitators must explain the graphs to the participants and the importance of holistic training which includes kinaesthetic, auditory and visual aspects.

13: BUS STOP

SAMPLE TOPICS FOR BUS-STOP:

1. How can BMCs track medicinal plant collection in their area?
2. What conservation activities can be implemented by BMCs?
3. What are the govt. Bodies/committees/ NGOs/SHGs that the BMC can coordinate with for conserving biodiversity?
4. What are the committees/institutions that the BMC can coordinate with for documenting PBR?

When there are too many participants, and they require dissemination of different topics, the bus stop method may be used. In this method, the topics/information that will be presented to the participants are distributed among different 'bus stops' viz., Biodiversity Act, ABS, BMC, PBR, etc. The bus stops can have a facilitator each or none (depending on availability). The information can be presented at the bus stops on charts and cards on pinboards. Then the participants are divided into groups based on the number of bus stops, and each group goes to a different bus top. If a facilitator is available at the bus stop, they explain the topic to the group. If there is no facilitator, then the group can have a discussion among themselves and note the points which they were not able to understand (the main facilitator has to make this very clear to the groups). The groups move between bus stops after a specified period as clarified by the facilitator until they have covered all stops.

In the end, the facilitator can summarise and clarify aspects of the topics presented that were unclear to the groups. This method is beneficial when there are fewer facilitators as compared to the number of topics that need to be taught in the session as a few bus stops may not require any facilitator. As this session consists of activities, participants also enjoy this learning method.

14: KNOWLEDGE CAFÉ

The World Café or Knowledge Cafe method is a simple, effective and flexible format for hosting large group events. A creative process is set in motion within a relaxed, coffeehouse-like atmosphere. Several rounds of discussion, knowledge exchange and idea generation among the participants often lead to new insights and perspectives. Each group has to identify an anchor who stays there for the entire duration while others move to other tables. Each group also have to identify a presenter who will also stay at the same table for the entire session and document the points given by the different teams. The anchor and the presenter can be the same person if necessary.

Based on the objectives of the training, the participants are divided, and each group is given a different topic to discuss and brainstorm. In the first round, more time is provided so that each group comes up with comprehensive points and has time to note them down on a chart. After the first round, the groups move to another table, i.e., group 1 to 2, 2 to 3, 3 to 4 and so on. At the same time, the anchor stays on to brief the new members about the topic and the discussion they had with the previous floating group. The new group members will now give their inputs which are

generally noted with a different colour. The time for this round can be 15 minutes subject to time availability.

This movement of groups will carry on until the original group returns to the “café table” they were at initially to see what inputs have been given by other teams. Finally, each group presents their work to all the other participants, and any new additions can be made based on feedback from the group.

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Ministry of Environment, Forest and Climate Change

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Implemented by giz

TRAINING
BIODIVERSITY MANAGEMENT COMMITTEES

IMPLEMENTATION GUIDE

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CONTENTS

ACCESS AND BENEFIT SHARING PARTNERSHIP (ABS) PROJECT

The ABS Partnership project is commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) under the Indo-German Biodiversity Programme. The project is implemented in partnership with the Ministry of Environment, Forest and Climate Change (MoEFCC), the National Biodiversity Authority, the State Biodiversity Boards of Maharashtra, Tamil Nadu and Uttarakhand and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

OBJECTIVE

The ABS Partnership Project aims at strengthening the capacity of the National Biodiversity Authority (NBA), the State Biodiversity Boards (SBBs), Biodiversity Management Committees (BMCs), as well as raising awareness amongst the commercial users of biological resources and traditional knowledge for the effective implementation of ABS mechanisms under the Biological Diversity Act 2002, in keeping with India's commitments under the Nagoya Protocol on ABS.

APPROACH

To achieve the objective, the project employs the following approaches:

- Awareness-raising, communication and stakeholder dialogues for creating better understanding of the Biological Diversity Act 2002, ABS Regulations and the Nagoya Protocol on ABS among different actors and stakeholder groups
- Development of good practices of benefit sharing of communities, based on utilisation of biological resources for commercial or research purposes
- Development of an IT-enabled ABS monitoring system for the National Biodiversity Authority for effective monitoring of the use of biological resources in ABS processes

The project is implemented at the national level in partnership with the NBA, at the state level, with the SBBs of Maharashtra, Tamil Nadu and Uttarakhand, and at the local level with BMCs in three states.

INTRODUCTION

This Implementation Guide provides comprehensive information on how to implement training of trainers for operationalising BMCs. ToT is conducted for 5 days in two phases. By explaining preparatory work required for each session, methods, objectives, learning outputs etc., this guide aims to help facilitators plan and implement the ToT. A detailed explanation of the training methods referred to in this guide is provided in part-3 of the training package.

This package of modules and methods consists of three parts – 1. Curriculum – with six modules, namely, 'Biodiversity and Human Wellbeing', 'The Biological Diversity Act, 2002', 'Biodiversity Management Committees', 'Functions of Biodiversity Management Committees', 'People's Biodiversity Registers' and 'Access and Benefit Sharing. 2. Training Methods – describes participatory training methods and steps to conduct various training sessions, and 3. Implementation Guide – guidance for implementing the ToT.

DAY 0

PREPARATORY DAY

The facilitators should reach the training location a day ahead to finalise preparations for the training.

The day before the training commences the facilitators should:

- Go over the internal and external agenda (see Annexure 1 A & B), process and training methods together to ensure that uniformity in the training approach will be maintained
- Organise each session by dividing responsibilities and roles among themselves.
- Ensure that all the materials such as soft boards, charts, markers, tape, projector, etc., required for the training are in place the previous day.

DAY 1

1. INAGURATION

OBJECTIVES:

1. Welcome the participants and officially launch the training programme.
2. To introduce the training objectives and provide an overview of the training programme
3. Highlight the importance of BMCs.

METHOD:

INAUGURAL SPEECH

Invite 1-2 eminent personalities such as president of the local body, chairman of the BMC, well-known farmers and experts who could inspire participants and highlight importance of key topics dealt in the training and how BMCs can contribute to local biodiversity

DESCRIPTION OF THE SESSION:

This session begins with a welcome address followed by the introduction of the invited dignitaries. They will then briefly address the participants.

Note: Providing brief speaking points to the guests beforehand will ensure that all key points are conveyed to the participants.

LEARNING OUTPUT:

After this session participants:

- Understand the purpose of the training
- Are aware of the importance of biodiversity and its conservation

TIME DURATION:

Initial remarks and welcome: 5 min

Speech by the guests: 10

DAY 1

2. INTRODUCTION OF THE PARTICIPANTS – BREAKING THE ICE

OBJECTIVES:

1. Overview of the training and participatory methodology adopted for the training.
2. To introduce the facilitators, their background and interests.
3. To introduce the participants who will make a brief statement about why they are there and what they hope to learn from the training programme.

METHOD:

OPTION 1. PHOTOCARD

Participants to pick out a photocard from a set of pre-chosen cards with specific biodiversity-related image and narrate the rationale/logic behind their choice.

OPTION 2. BIODIVERSITY BASKET

The participants are asked to choose one among a set of bioresources or products made from bio-resources (e.g., shampoo, tablets, soap, cream, oil, etc.), and explain how they connect to the chosen item.

DESCRIPTION OF THE SESSION:

The icebreaker session of the training.

- Firstly, all facilitators should introduce themselves to the participants with a brief overview of their achievements, skills, training they have conducted, etc.

- The facilitator of this session should state the importance of the participatory training and the methodology adopted and emphasise that the active participation of all is required to make it a success.
- The facilitator spreads out the sample bio-resources or photo cards related to bio diversity and invites the participants to choose one item.
- The participants are then given some time to think about how they connect to the chosen item.
- In the next step, the participants introduce themselves and state reason for choosing an item.

LEARNING OUTPUT:

After this session participants:

- Are aware that this is not a conventional training, and they too can contribute by sharing their knowledge and taking part in the discussions.
- Have an understanding of the background of the facilitators and the other participants.
- Relaxed about interacting and communicating with the group.

TIME DURATION:

For choosing the items: 5 mins

Thinking: 5 mins

Presentation: 2 mins (Max for each participant)

The total time taken for the entire session will depend on the number of participants.
This is an important session in training.
Therefore, it should not be cut short.

NOTES FOR THE FACILITATORS:

- Give clear instructions to the participants about their role in the sessions
- Maintain interactions with the participants to keep them engaged.
- Adhere strictly to time.
- The maximum time for the presentation of each participant may vary with the total number of participants.

DAY 1

3. NORM SETTING / GROUND RULES

OBJECTIVES:

The objective of this session is to set some basic disciplinary rules for the training period.

METHOD:

BRAIN MAPPING

The participants are themselves asked to set rules that will ensure the smooth running of the programme.

The facilitator writes all suggestions and ideas raised by the participants on a chart paper for everyone to see.

DESCRIPTION OF THE SESSION:

The role of the facilitator is to moderate the session.

- On the first day, the participants are asked to come up with a set of basic rules for everyone to follow during the training.
- These rules will serve as “rules to follow”, and participants may be asked to hold their peers accountable to follow these rules on all 5-days
- The suggested rules are documented on a chart paper by the facilitator.

LEARNING OUTPUT:

The participants set rules for themselves.

- After this session, the participants are comfortable with the rules jointly framed.
- The participants will be motivated to follow the rules framed by consensus.

TIME DURATION:

Documenting the rules: 10 mins

DAY 1

4. EXPECTATIONS OF THE PARTICIPANTS AND TRAINING OVERVIEW

OBJECTIVES:

1. To present an overview of the upcoming sessions of the training.
2. To identify the interests of the participants and possibly incorporate them in training.
3. To understand what the participants expect from the training.
4. To know how the participants plan to apply the knowledge they have gained in the future.

METHOD:

BRAIN MAPPING

Participants are asked to come up with ideas to accomplish any agenda. While the different ideas are discussed, the facilitators document all these responses on a chart paper.

DESCRIPTION OF THE SESSION:

- The participants are asked about what they expect from the training based on their interests and background.
- Summary of all points are noted on chart paper, briefly presented and discussed by the facilitators.

On each day, the facilitators should provide a training overview including topics covered for that day, including the timings of the sessions.

LEARNING OUTPUT:

- The facilitators learn about what the participants expect and what topics would interest them (these will be in addition to the planned sessions).
- The facilitators can improvise their upcoming sessions accordingly.

TIME DURATION:

Suggestions and documentation: 10 mins

Training overview: 5 mins

DAY 1

5. ANALYSING KNOWLEDGE GAPS

OBJECTIVES:

To assess/gauge familiarity of the participants on key topics that are to be dealt with in the training and to evoke interest in these topics.

METHOD:

BENCHMARKING

The facilitator lists out the key topics of the training and calls upon participants to rate their own knowledge on those topics on a scale of 0 to 10. Benchmarking is an effective method to assess the knowledge of the participants and plan the topics accordingly. The same charts must be presented at the closure of the training, where participants will again rate their understanding of the above topics.

THEMATIC CHAMPION

The facilitators prepare a set of questions and present all the questions to the participants. Each participant will make a presentation on one of the randomly picked topics on the last day of the training. The idea here is to encourage or challenge participants to be alert throughout the training.

DESCRIPTION OF THE SESSION:

BENCHMARKING

- Two facilitators moderate this session - one for conducting the session and another for recording the results.
- A scale of 0 to 10 is marked on the floor.
- Following that, the first topic is presented to the participants. They are asked to stand on the scale based on their self-assessment of their knowledge on that particular topic where 0 being 'Not familiar' to 10 being 'Expert'.
- For each topic, a graph is prepared on a soft board or chart. The X-axis represents the score 1-10, and the number of people against each score is marked on Y-axis.

The sample topics are as follows:

1. Biodiversity and its importance
2. Biological Diversity Act, 2002
3. Composition of BMCs
4. Activities of BMCs
5. Financial aspects of BMCs

6. Traditional Knowledge related to biodiversity
7. Committees related to biodiversity and natural resources
8. PBR and its significance
9. Access and Benefit-sharing

A maximum of ten topics can be assessed in this session

THEMATIC CHAMPION:

- The topics for the thematic champion are shown on the board. The number of topics can be around 15-20, depending on the number of participants.
- The participants cannot choose their topics on the first day of the training
- Only on the last day of the training, the participants will randomly pick one topic from a bowl of chits and present on whatever topic s/he gets.

LEARNING OUTPUT:

- Facilitators can assess the participants' knowledge of the training topics.
- Facilitators understand the existing knowledge gaps amongst the participants. They are prepared to cover certain topics in-depth and adjust the time allocated accordingly.

TIME DURATION:

Benchmarking preparation: 2 mins

Explanation: 3 mins

Benchmarking: 8 mins

Presenting list of topics for thematic champion: 2 mins

Explaining thematic champion: 3 mins

NOTE FOR THE FACILITATORS:

- The benchmarking method is to assess the knowledge of the participants and improvise the sessions accordingly. More emphasis will be placed on a topic that the participants are not familiar with or are less informed about.
- The time should be strictly maintained.
- The participants are not allowed to choose the thematic champion topics on this day. They are just shown the topics. On the last day of the training, the participants are invited to pick a topic from a bowl of chits.
  The facilitators should ensure that the participants DO NOT get to CHOOSE the topics based on their preferences, but it is randomly picked.

DAY 1

6. INTRODUCTION TO BIODIVERSITY AND ITS IMPORTANCE

OBJECTIVES:

1. To explain the term biodiversity and its importance
2. To let participants to explore the connection between biodiversity and people's livelihoods.
3. To give an overview of the threats and consequences of biodiversity loss.

METHOD:

FOLK SONG

Folk songs depict the local culture and its connection to nature. The concept of biodiversity can be introduced by way of popular folk songs, to which the participants can relate.

STORYTELLING

A short story can be told along with photos depicting biodiversity. The focus should be on the local biodiversity that the participants can relate to. Fore.g. Dodo's Tale - True story

INTERACTIVE LECTURE

An interactive lecture is where the facilitator engages in a dialogue with 1 or 2 participants on a concerned topic. The facilitator presents a topic following which he/she invites inputs from the participants. It is crucial to always maintain time limits.

GROUP DISCUSSION

Participants are placed in different groups for discussing, sharing their views for understanding the topic. Each group presents the summary of discussions at the end.

SCREENING A VIDEO

A documentary or a short-film related to the inter linkages between livelihood and biodiversity can be shown.

GAME / ROLE PLAY

A game (eg. web of life) can be organized to brief participants about different species and their interconnections to sensitize them about the value of the functions of biodiversity needed for human existence.

DESCRIPTION OF THE SESSION:

This session is conducted through use of audio-visuals or a presentation.

- Understanding biodiversity and its importance.
- Realising how human existence and livelihood are connected to biodiversity.
- The relevance of biodiversity in day to day affairs.
- Threats to Biodiversity.

EXAMPLE FOR FOLK SONG

This is concerning Tamil Nadu.

காக்கை குருவி எங்கள் ஜாதி - நீள்
கடலும் மலையும் எங்கள் கூட்டம்;
நோக்குந் திசையெலாம் நாமன்றி வேறில்லை;
நோக்க நோக்கக் களியாட்டம்

Crow and other birds belong to our caste,
Long sea and mountain belong to our crowd.
In all directions that we see, we do not see anything but ourselves, and as we see and see, we do only a dance of joy.

FOCUS POINTS FOR INTERACTIVE LECTURE:

- What is biodiversity and its evolution over millions of years
- Why is the Western Ghats a biodiversity hotspot? *Many species found nowhere else, product of millions of years of evolution - this can be highlighted in the lecture*
- Uses of biodiversity
- Cultural relevance
- Why conservation and sustainable use of biodiversity is crucial for our existence? Threats to biodiversity
- Challenges to biodiversity conservation

TOPICS THAT CAN BE COVERED IN GROUP DISCUSSION:

- Contribution of local biodiversity to their livelihood
- What are the cultural practices that help conserve biodiversity?
- Threats to their local biodiversity
- Contribution from stakeholders like Panchayat representative, SHG Leader, Youth Group, Agriculture and RD Officials, NGOs, etc.,
- What can you do to conserve biodiversity?
- How does loss of biodiversity impacts human life?

ROLE PLAY – WEB OF LIFE

If the group size is small, then the whole group may participate. Or else a few volunteers are called to the centre to form a circle. Each participant is allocated a 'species name'. A ball of thread is given to one participant and the ball is passed to any other participant who represents a species that has a connection with the species of the ball passer. This person should then pass the ball to another player following the same rules. For eg. a bee-eater bird will give it to bee, bee will give it to flower, and so on. The game is continued for almost 15 minutes, so each species/ participant has established connections with others and a web of life is formed.

The facilitator then asks one species to leave the thread giving the message that if one species is removed, the web becomes loose. One by one species are removed, and the web will become looser. In the end, only a human is left.

The main points to highlight are:

- How is man connected to biotic (species) and a biotic components?
- What will be the impact of a particular species on other species?
- What will be the impact of biodiversity loss on humans?

LEARNING OUTPUT:

- Participants understand the term biodiversity and the types of biodiversity.
- They appreciate biodiversity as ecosystem service.
- They understand the importance of biodiversity and the need for its conservation and sustainable use.

TIME DURATION:

Folk Song: 5 mins
Storytelling: 5 mins
Interactive lecture: 25 mins
Group discussion: 35 mins
Screening video: 10 mins
Role play: 25 mins

NOTES FOR THE FACILITATORS:

The facilitators -

- Must select culturally relevant and local examples of biodiversity and its uses
- Must moderate the group discussion with some thought-provoking questions that help the participants to come up with ideas on biodiversity on their own.
- For the role play/game, the facilitator should select regional names of species to which participants can relate.

DAY 1

7. INTRODUCTION TO BD ACT AND BMCS

OBJECTIVES:

1. To describe the history of the Biological Diversity Act, 2002: how and why the law came into effect.
2. What changed after the CBD and the BD Act came into effect?
3. What are the legal instruments put in place?
4. To illustrate the implementation mechanism
5. Introduce the term 'BMC' and its functions
6. To clarify the roles and functions of BMCs.

METHOD:

MARKETPLACE

In this marketplace method, all participants are divided into groups, and the groups move among different 'vendors' around the hall where various topics are creatively presented and taught.

DESCRIPTION OF THE SESSION:

This session is structured in four parts to cover different topics on the BD Act and BMCs. The participants have to divide themselves into four working groups. The facilitator must give clear instructions.

- A suitable method can be employed for making the four groups for grouping, some energizer-cum-grouping method can be used (e.g., fruit salad method can be used to group the participants).

Fruit salad method:[1]

1. Ask the participants to form a circle with their chairs. Ensure there are only as many chairs as the number of participants and then take two away.
2. Ask those two participants without chairs to stand in the middle of the circle (ensure you are outside the circle).
3. Go around the circle and name each person in turn as lemon, orange, apple, lemon, orange, apple and so on. (don't forget to name the two people in the middle)
4. One of the players in the middle, calls the name of a fruit.
5. Shout out a fruit name, which will be either, lemon, orange or apple. Whenever a participant hears the name of the fruit s/he is assigned to, s/he must leave their own seat and find another. If the facilitator shout 'fruit salad' then everyone must leave their seat and find another. Whoever are left in the middle must wait until their fruit is called until they can find a seat.
6. Ensure everyone understands the rules and then start the energizer.
7. Call out different fruits in sequence and occasionally add in 'fruit salad'. Continue this process until you feel that energy levels have increased.
8. Group the participants based on their assigned fruit. E.g., Lemon, Apple and Orange can be three groups.

- Each facilitator sets up a presentation in one of the four corners of the training hall.

[1] Wood, Andrew. "Fruit Salad: Free Energiser Activities, UK, Online." Trainer Bubble, 13 Nov. 2015, www.trainerbubble.com/downloads/fruit-salad/.

- The presentations which have to be prepared beforehand, can be through various modes, such as flip charts, posters, soft boards, chart papers or video screening.
- The lessons must be interactive.
- Each group will spend 20 minutes in each marketplace and move onto the following marketplace for the next topic.
- Thereby each group will be exposed to all four topics.

The topics are as follows:

GROUP 1 –

- **INTRODUCTION TO BIOLOGICAL DIVERSITY ACT** -
  CBD (Why and its importance)
  BD Act (Objective, importance)
  BD Rules, 2004
  Tamil Nadu Rules, 2017 (or the State - specific Biodiversity rules)
- **INTRODUCTION OF THE OBJECTIVES OF THE BD ACT**
- **THREE-TIER STRUCTURE -** Introduction to NBA, SBB, and BMC and their roles.
- **SIGNIFICANT SECTIONS OF THE BD ACT -** Mentioning the sections that are most important.

GROUP 2 –

- **IMPORTANT DEFINITIONS** in BD Act - Biological resources, benefit claimers, bio-survey and bio-utilization, commercial utilization, research, sustainable use, value-added products, etc.
- **NTAC** - The facilitators can show bio-resources to the participants and ask their opinion on whether it is included in the NTAC list or not and why it does not come under ABS?

- **THREATENED SPECIES** - State-specific threatened species and why we cannot access these species for commercial utilization?

GROUP 3 –

- **BMC DEFINITION** - What is BMC?
- **STRUCTURE** - Composition of BMCs
- **OPERATIONAL ASPECTS** - Meeting management, record keeping, and annual report preparation.

GROUP 4 –

- **BMC FUNCTIONAL ASPECTS** - Role and responsibilities of BMCs; PBR preparation and custodian of PBR, feedback on ABS application, identification of BHS, and safeguarding biological resources and knowledge associated with it

LEARNING OUTPUT:

On completion of the session,

- The participants can outline the importance and the context of the BD Act, 2002, as well as the three-tier institutional structure for the implementation of BD Act in India.
- Participants are aware that not all resources come under the purview of the Act and they are able to identify NTAC items that do not come under the purview of ABS or the BD Act.
- Participants reached an understanding of the roles, responsibilities and functions of the BMCs.

TIME DURATION:

Grouping and wastage: 10 mins.
Marketplace: 80 mins. (Each group 20 mins.)

NOTES FOR THE FACILITATORS:

- Presentations, meta cards, charts, etc., should be prepared beforehand. The use of soft boards, charts and cards facilitate interactions than a power point presentation.
- An energiser exercise may be added at the start of the session to ensure active participation, as this session is scheduled after the lunch break.
- This session will introduce many definitions from the BD Act. A summary or the key points covered in the session need to be given to the participants as handouts. Facilitators themselves should be fully familiar with the technical topics or the help of experts may be sought.

DAY 1

8. MEETING OF THE BMC AND DOCUMENTS

OBJECTIVES:

This session is designed to help the participants acquire the practical skills for documenting and handling the paperwork related to the BMCs.

1. To be familiar with process and paperwork involved in establishing BMCs.
2. To learn how to prepare the agenda for the BMC meeting and to record meeting minutes.
3. To learn how to prepare an action plan for the BMC.

METHOD:

MARKETPLACE

In the marketplace method, the participants are divided into four groups, and by rotation each group goes to one of the four vendors where various topics are presented and taught.

This is followed by:

GROUP WORK

The participants are divided into groups and assigned specific group work.

DESCRIPTION OF THE SESSION:

This session covers the detailed process of filling up forms related to BMC functioning.

- The participants will be divided into four groups.
- The four facilitators will each demonstrate the use of one form to each group. The presentations will be set up in four different corners of the training hall.

  Form 1: Resolution Copy

  From 2: Meeting agenda

  Form 3: Minutes of the meeting

  From 4: Action plan
- Participants spend 10 minutes at each 'vendor' to be instructed about how to fill the form, after which they move to the next vendor to learn the same about the next form.
- After completing the session, all four groups are familiar with all four forms.
- The lessons must be interactive with two-way communication.
- After the ‘marketplace’ exercise, the participants practice filling up the forms as a part of the group work.

The forms filled during the group work will be presented at the end of the session, and inputs will be solicited from the other participants. Facilitator can add points missed in the group's presentation.

LEARNING OUTPUT:

The participants

- Will understand the paperwork related to the BMCs
- Learn how to fill up these documents

TIME DURATION:

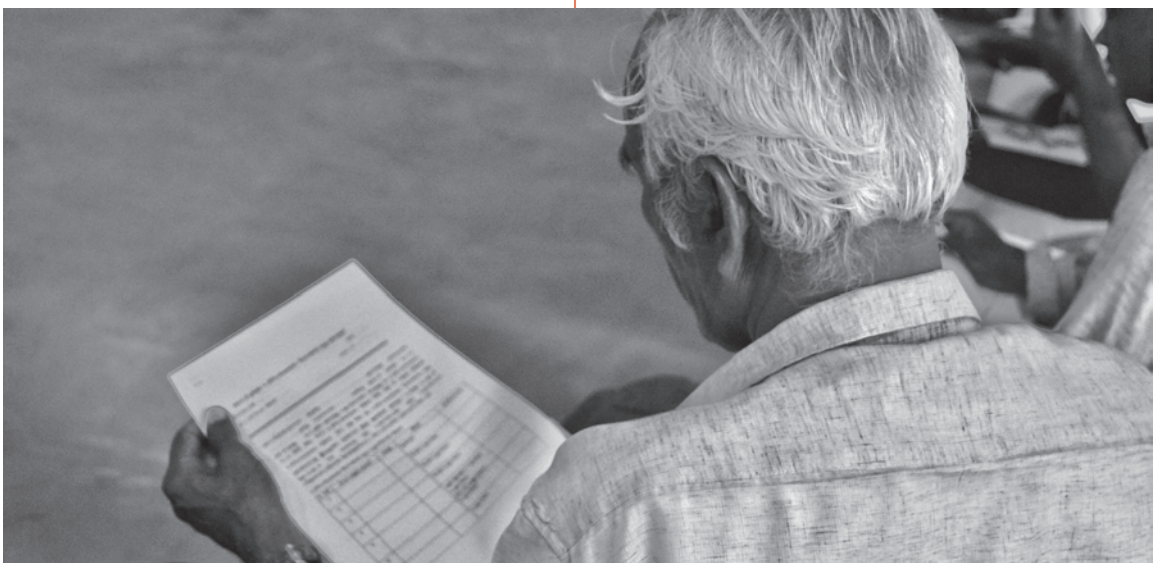
Marketplace: 40 mins (10 mins for each facilitator)

Group work: 20 mins (5 mins for explanation + 15 mins for group work)

Presentation of group work: 20 mins (5 mins each for each group)

NOTES FOR THE FACILITATORS:

- Facilitators should know how to fill up the forms correctly.



DAY 1

9. MOCK BMC MEETING

OBJECTIVES:

1. This session will build on the topics covered in the previous session. The facilitator continues to build on the topic of operationalisation of BMCs.
2. To be familiar with the process of conducting BMC meetings.
3. To gain practical experience in dealing with various stakeholders.

METHOD:

ROLE PLAY

The participants act out a real-life simulation by playing roles in the meeting. After the characters have been outlined, volunteers from among the participants are asked to enact them.

DESCRIPTION OF THE SESSION:

- Eight volunteers are solicited from among the participants.
- These eight are instructed to develop a scenario of BMC members attending a meeting.
- The volunteers initially solicit information from the other participants (audience) about the various biodiversity-related issues in their areas.
- After which, the eight members collect in the middle of the hall to discuss various issues in the mock BMC meeting.
- All the issues discussed are incorporated to make a sample action plan.
- The actions are prioritised based on the urgency of the issues discussed.
- The other participants observe the meeting proceedings and take down notes, with the help of the facilitator.
- The facilitator asks questions to the observers, based on the discussions.
- At the end the discussion and points raised is summarised by one facilitator.

LEARNING OUTPUT:

- The participants are familiar with the nuances of conducting BMC meetings.
- They learn about the various biodiversity-related issues that can be discussed at the BMC meetings.
- They learn how to record the meeting minutes.
- During the process of decision making, they understand how to prioritise issues for the action plan based on their importance or severity.
  They understand the perspectives of various stakeholders dealing with the bioresource and bio-resources based activities.

TIME DURATION:

Identification of volunteers: 5 mins
Assigning and explaining their role: 5 mins
Discussion among the volunteers: 5 mins
Discussion with the participants: 10 mins
Roleplay: 20 mins
Discussions after roleplay: 10 mins

NOTES FOR THE FACILITATORS:

- Facilitator, who is the moderator, should begin by briefing the participants about the objectives of this session and ensure that the discussions stay on the topic.
- During the course of the role play, the meeting could be interrupted to ask questions regarding the topics being discussed, so that the audience (other participants) gets involved.
- One mock BMC member should record the meeting minutes and summarise the points raised.
- The outcome and key messages should be summarised and presented to the participants at the end of the meeting.

DAY 2

10. RECAP OF DAY 1 AND SHORT QUIZ

OBJECTIVES:

1. The objective of this session is to go over topics covered on Day 1.
2. To reiterate the key takeaways from day 1, the concepts and knowledge gained.

METHOD:

Quiz

DESCRIPTION OF THE SESSION:

- At the beginning of this session, the facilitators present a summary of sessions on day 1. The objectives of sessions of day 1 are briefly touched upon.
- A short quiz is conducted to see whether the participants have understood what has transpired on the first day. It is also fun way to begin the day!
- They are given a set of questions from the topics covered in the previous sessions.

Sample questions are:

- Define biodiversity.
- What are the different types of biodiversity?
- Why should it be conserved?
- Why was CBD adopted?
- What are the objectives of the BD Act?
- What is the function of the BMC?
- What are the forms that need to be maintained by the BMC?
- What are the discussions that occur in a BMC meeting?

LEARNING OUTPUT:

After this session,

- The participants go over the topics from day 1.
- The facilitators can gain insight into how much the participants have been able to comprehend.

TIME DURATION:

Summary of Day1 sessions: 10 mins

Quiz: 20 mins

NOTES FOR THE FACILITATORS:

- The questions for the quiz should be prepared beforehand.
- The questions should be precise and easy to comprehend.
- Participants who came across as shy or hesitant to speak should be encouraged to participate.

DAY 2

11. OTHER LOCAL COMMITTEES DEALING WITH BIODIVERSITY AND NATURAL RESOURCES

OBJECTIVES:

1. To identify committees that are involved with biodiversity and natural resources at the district and local levels.
2. To explore the possibilities for collaboration with these committees.

METHOD:

BRAIN STORMING

It is an effective method for gathering ideas from heterogeneous groups. The participants respond to a question posed by the facilitator.
Their responses are noted on a chart paper and summarised by the facilitator.
(Source: The Trainers Guide Page.99)

DESCRIPTION OF THE SESSION:

- At the beginning of this session, facilitators pose the question: Which committees and departments working on biodiversity - related issues can the BMCs collaborate with?
- Open the floor for participants to respond.
- In the first round, facilitators write down all the ideas/points without any filtering, on the flip chart.
- In the second round, the facilitators discuss and evaluate the ideas/points collected from the previous round.
- Finally, the facilitators and the participants agree on some points, and they further discuss these ideas.

LEARNING OUTPUT:

- The participants can identify the importance of other committees and the work they do.
- They can understand the possibilities of collaborating with the relevant committees.

TIME DURATION:

Getting ideas: 10 mins

Evaluating ideas: 10 mins

Discussion: 10 mins

DAY 2

12. UNDERSTANDING & DOCUMENTING PBR – SKIT

OBJECTIVE:

To introduce PBR and highlight the need for documenting the availability and knowledge of local biological resources in PBR.

METHOD:

SKIT

A skit that consists of small scenes is enacted by the organizers to introduce the concept of PBR, its importance and uses. Participants can also relate to BMC activities concerning| PBR documentation.

DESCRIPTION OF THE SESSION:

A short skit is enacted by the facilitators.

CHARACTERS:

Karuthamma - Grand mother

Karupaiyya - Grand son

Saravanan - BMC Chairperson

Ajit - BMC member

SYNOPSIS:

Documentation of People's Biodiversity Registers (PBRs) in one of the main functions of the Biodiversity Management Committees. PBRs are documented in consultation with local people, traditional knowledge holders, farmers, animal breeders, fisherfolk and other knowledgeable people in the region. PBR contains comprehensive information on the availability and knowledge of local biological resources, their medicinal or any other use. Details of traditional knowledge holders is also documented in the PBRs.
This session should provide in-depth understanding of the documentation process, highlight the importance of documenting PBRs.

Karuthamma is a 70-year old woman who lives in *Karupalayam.* She is a famous TK holder treating dengue using Magali kizhangu/Kucchi kizhangu root *(Decalepishamiltonni)*.

Catchy is a company that wants to access this root from *Karupalayam* to produce dengue medicine, and this news was published in a local newspaper. *Karuthamma's* grandson reads this news and makes his grandmother aware of this. Her traditional knowledge about treating dengue has already been documented in *Karupalayam* Gram Panchayat's PBR. She suddenly remembers that a member from the BMC had contacted her earlier to document her TK. *Karuthamma* and her grandson *Karupaiyya* visit the BMC Chairperson and inform him/her about *Catchy.*

The BMC Chairperson and another BMC member *(Ajit)* check the *Karupalayam* PBR and find that *Karuthamma's* TK was already documented. They inform *Karuthamma,* that they will contact Tamil Nadu SBB on her behalf, and write a letter to SBBs regarding this.

Therefore, using PBR, BMCs can check whether *Catchy* has approval to access the BRs, and *Karutamma's* TK, and whether they have signed an ABS agreement with the Tamil Nadu Biodiversity Board to ensure that *Karuthamma's* TK is obtained through due prior informed consent (PIC) and that the ABS amount is shared with the BMC and benefit claimer, i.e. *Karuthamma*. This ABS amount is to be used to conserve Magali kizhangu/Kucchi kizhangu.

At the end of the skit, the trainer provides the key takeaway points from the skit and an overview of the PBR and its documentation process.

LEARNING OUTPUT:

- Participants appreciate the importance and need for documentation of PBRs

TIME DURATION:

Skit: 10mins

Discussion: 5 mins

NOTE FOR THE FACILITATORS:

- Script for the skit and rehearsals should be done beforehand.
- Ensure that all props are ready beforehand. For example, PBR copy for BMC members, the newspaper for grandson, stick for grandmother, etc.

Steps to follow when writing the skit:

- **Develop the story line to suit the regional culture and way of life**
- **Outline the story with a clear message:** Rehearsals should be timed and have a distinct beginning, a middle, and an end, all leading to delivery of a clear message. Therefore, it is important to write down the story with dialogues.
- **Write the first draft:**
  - The first draft can be improved later.
  - Find a suitable title that will encapsulate the message

Identify characters and give them region-specific names and also name the place which audience can easily relate to.

- **Build the action up:**

  Your skit should build up the action before hitting the climax and then ending.
  Make sure to keep your script short and crisp.

DAY 2

13. PBR OVERVIEW AND STEPS FOR DOCUMENTATION

OBJECTIVES:

- To describe the process involved in PBR documentation and provide an overview of the various formats in the PBR.
- To provide an orientation for the field visit session on Day 2, where PBRs will be documented.

METHOD:

INTERACTIVE LECTURE

Key concepts, steps, the process followed, and different actors involved in the PBR documentation is presented and participants are encouraged to ask questions. A set of formats prescribed by the State Biodiversity Board or National Biodiversity Authority is also given to the participants.

DESCRIPTION OF THE SESSION:

An interactive lecture is conducted using a PowerPoint presentation, in which the participants are encouraged to comment and ask questions. Later they summarize what they have learnt. The following points will be taught in detail:

LEARNING OUTPUT:

- To gain familiarity with the technical information in PBR
- Learn about the various PBR formats and types of data to be recorded in the prescribed formats
- Aware of steps followed for PBR documentation.

TIME TAKEN:

Video: 10 min
Interactive lecture and Q&A: 50 mins

NOTES FOR FACILITATORS:

- This session begins with 10 min video followed by a reiteration of key points through a presentation.
- Relevant examples should be used to understand the importance of documentation – for example, biopiracy cases of turmeric, neem, basmati etc. These examples are well known to most people and will help in setting the context
- This session is intensive and deals with the process, steps and actors involved in the documentation. Therefore, it is important to keep participants engaged by asking them questions, encouraging them to ask questions, humour, rhetorical questions, comments etc.

DAY 2

14. FIELD VISIT

OBJECTIVES:

1. To build on the previous session that dealt with technical details with practical field exposure.
2. To gain hands-on experience in field observation, documentation and recording of data, and interviews with local people

METHOD

STRUCTURED LEARNING VISIT (SLV)

A field visit is an opportunity for the participants to obtain an in-depth understanding of a specific topic by personally interacting with various stakeholders. The topic for each group and the formats to be filled are decided upon prior to the field visit.

DESCRIPTION OF THE SESSION:

- Each group instructor shows how to fill the PBR formats specific to their group.
- The agenda is presented and the duties/ responsibilities are divided among the group members.
- A field visit is undertaken where the team members talk to various stakeholders, fill their assigned PBR formats, take photographs and complete their team's agenda.

This session consists of various steps that should be followed one after the other:

A. PLANNING AND ORGANIZING THE FIELD VISITS

1. SELECTION OF SITES:

- The site should be preferably within 30 minutes of travel time. The facilitator should visit the field site prior to conducting this session.

Following aspects may be considered while selecting the site:

- Places where diverse biological species may be available (Include agricultural land, culturable fallow, village orchards, village ponds, forest patch, etc.)
- Biodiversity Management Committee Offices
- Traditional knowledge holder's group/association
- Women farmers
- Farmer groups that conserve conventional rice varieties
- Village/Block panchayat statistics office
- Village/Block panchayat office
- A safety guidance protocol needs to be put in place for the participants, and any risks identified to ensure that all safety standards are met.
- Identify local guides to support in the process
- Obtain necessary permission from the local authorities or persons

2. SELECTION OF PBR FORMATS FOR FIELD VISIT:

- PBR formats for this exercise should be selected based on the field sites and local institutions etc. e.g., If the group is going to visit traditional Knowledge holders/TK Association – PBR Annexure 2 & 3 can be given for the field visit group).
- Not more than 2 to 3 formats should be given.

B. FIELD VISIT

- **GROUPING:**

  Participants are divided into groups of| 5-6 members. Each group should be accompanied by a trainer and/or the organiser.

- **EXPLAINING PBR FORMATS:**

  Detailed instructions on data collection and filling up of formats should be given to the participants.

- **BRIEFING BEFORE THE FIELD VISIT AND ASSIGNING DUTIES TO THE TEAM MEMBERS:**

  The specific agenda and site to be visited should be explained in detail to each group. Group members should be assigned tasks so that their activities are coordinated, organised and completed within fixed time frame. Participants should take photographs of landscape, unique biodiversity, etc.

- **EXPLAINING THE EXPECTED OUTCOME OF THE FIELD VISIT:**

  The outcome of the field visit should be to make participants observe and take notes on the biodiversity in the site (i.e. how many types/species of medicinal plants are available), and have on site discussions with the stakeholders that will facilitate the data entry in PBR formats.

- Field notes should be extensive and include personal observation and discussion points with the local people. Participants will work together in groups to fill up the sample PBR formats provided earlier in the session.

LEARNING OUTPUT:

- The participants are familiar with the PBR formats and data requirements.
- They are well versed in the process of data collection for PBR.

TIME TAKEN:

3 hours + 1 hour of travel time

DAY 2

15. LEARNINGS FROM THE FIELD VISIT

OBJECTIVES:

1. To go over what has been learnt from the field visit.
2. To discuss the use and value of documentation of PBRs.
3. To discuss possible issues and challenges that may arise during field data collection.

METHOD:

Group discussion and Fishbowl

DESCRIPTION OF THE SESSION:

GROUP DISCUSSION:

- The groups hold separate discussions after their return from the field trip.
- Each group is given one chart paper to note their experience and observations from the field visit.
- Each group answers three questions:
  1. What are the key observations from your field visit?
  2. What are the key challenges you foresee?
  3. What can be the solutions?
- Each group notes down the points that come up through the discussion under these questions on a chart paper.

FISHBOWL:

- The group sits in a circle with few chairs (3-5) in the centre. Volunteers are requested to occupy the centre seats with one chair being kept vacant.
- The moderator gives a briefing on the process to be followed and starts the discussion.
- Participants volunteer to share their field visit experience or add to the discussion.
- One or two persons may be assigned to take down the notes and finally present a summary

LEARNING OUTPUT:

- As the discussion evolves, participants get a clear idea about the basic concepts and are able to clearly outline the process for documentation of PBR.
- Participants will gain experience in filling PBR formats as part of their assignment given on Day 3.

TIME DURATION:

Group discussion: 30 mins

NOTES FOR THE FACILITATORS:

- Instructions should be clear and precise. PBR documentation is a complex task involving the collection of data and information from domain knowledge experts, taxonomists, mapping of the region, traditional knowledge etc. For a short session such as this, the main emphasis should be on the overall process, use of PBR etc. and not on minute details of formats.
- Participants who are interested in specialising in the documentation of PBR may be encouraged to refer to resource materials on PBR (please see the Reference section in this book).
- One facilitator should assist each group during the field trip and follow-up discussions.
- Although each session has fixed time slots, the planned field visit in this training timings may be kept flexible to account for unforeseen delays.
- Participants should write down detailed notes and observations from the field which will help them prepare comprehensive reports/presentations.
- The fishbowl method is important to summarise all the information obtained during the field trip.

DAY 2

16. RECAP OF DAY 2 AND SHORT QUIZ

OBJECTIVES:

1. To re-examine the information gathered on day 2 and discuss key observations from the technical sessions and field visit.

METHOD:

Quiz

DESCRIPTION OF THE SESSION:

- Firstly, the facilitators provide a summary of the previous day's sessions and key points.
- The facilitator summarises the data collected by different groups from the field visit
- A short oral quiz is conducted where the questions mainly focus on PBR, biopiracy, the role of BMCs, the validation process, etc.
- Once a question is answered, the facilitator may cover some more details.

Sample questions:

- What information / data is documented in PBR?
- Why is it important to document PBR?
- Who can help with PBR documentation?
- What are the steps followed for documenting PBR?

LEARNING OUTPUT:

- Participants can associate the information gathered from this session with the upcoming sessions.
- The facilitators can assess how much the participants have been able to comprehend.

TIME DURATION:

Day 2 summary: 10 mins

Learnings from field visit discussion: 10 mins

Quiz: 20 mins

NOTES FOR THE FACILITATORS:

- The discussion on information collected from the field is essential. It must not be missed.
- The questions should be prepared beforehand.
- The questions should address the topics taught in Day 2 and be easy to comprehend.
- The less vocal participants should be encouraged to answer questions and discuss.

DAY 2

17. RECOUNTING FIELD VISIT EXPERIENCES

OBJECTIVES:

1. To share the information obtained during the field visit with the different groups.
2. To understand the challenges and opportunities of field work and documentation

METHOD:

Presentation

DESCRIPTION OF THE SESSION:

- One or two participants give a presentation on their observations during the previous day's field trip.
- During the presentation, the other groups can ask questions and provide inputs.
- Suggestions on how to improve the site visits and make them more effective can be discussed and noted.

LEARNING OUTPUT:

- The participants understand the diverse issues from different fields.
- They understand the complexity and heterogeneity of the implementation process of the BD Act and ABS.
- They are able to grasp the theory and practice of PBR documentation.

TIME DURATION:

40 mins (10 mins each group)

NOTES FOR THE FACILITATORS:

- The facilitators should solicit suggestions from the participants of other groups at a regular interval during the presentation.
- The facilitator should ensure that the discussions are focused and related to the topic, and not digress into, for example, the site's natural beauty.

DAY 2

18. INTRODUCTION TO AND IN-DEPTH LEARNING OF ABS

OBJECTIVES:

1. To introduce the concept of ABS and understand its importance.
2. To make the participants aware of the ABS process and the actors involved in it.

METHOD:

INTERACTIVE LECTURE

An interactive lecture is a two-way communication where the facilitator initiates a dialogue on any topic with the participants providing their inputs. The facilitator may use presentations, charts, etc.

DESCRIPTION OF THE SESSION:

- In the introduction of this session, the following topics are discussed.
  - What is Access and Benefit Sharing or ABS?
  - Importance of ABS
- After the general introduction of ABS and its importance, the facilitator focuses on the functional aspects or explains how it works through the ABS process flow-chart.
- The role of BMCs, their legal framework, and importance in ABS is explained through an interactive lecture.
- ABS process flowchart explains the roles of different governmental bodies.
- The role of BMCs in giving consent for the ABS application forms are discussed.
- After introducing the process and concepts, the participants are given time to discuss the ABS process to gain further understanding.
- The participants are provided with some ABS case studies which explain its operational and functional aspects and challenges in ABS implementation

Some of the case studies are as follows[2]:

- Snake Venom case
- Kurinji Honey from Kodaikanal, Tamil Nadu
- Sea buckthron case from Ladakh
- Sandworm case

Finally the short film on ABS Simply Explained can be presented that adequately depicts the global importance.

LEARNING OUTPUT:

- Understanding the importance of ABS.
- Understanding the roles of the different governmental bodies in ABS.
- Assessing which kind of utilization of bioresources attract ABS.
- Understand the role of BMCs in facilitating ABS.

TIME DURATION:

Introduction to ABS: 20 mins
ABS Flowchart: 10 mins
Role of BMCs: 20 mins
Case studies: 20 mins
Discussion: 10 mins

[2] Please refer to module 6 in the curriculum for BMCs.

DAY 2

19. CONSULTATION WITH BMC MEMBERS FOR OBTAINING FEEDBACK ON ABS APPLICATIONS - ROLE PLAY

OBJECTIVES:

1. To develop an understanding of the ABS process and the function of BMCs in facilitating ABS through practical experiences.
2. To develop an understanding of the rights of the stakeholders under the BD Act.
3. To find out possible solutions to the issues in ABS implementation through discussions.

METHOD:

ROLE PLAY

The participants perform the roles of fictional characters to demonstrate the process of ABS. The participants are asked to volunteer to play each of the roles.

DESCRIPTION OF THE SESSION:

- This session requires three people. One participant is assigned the role of a representative from a company interested in acquiring a certain bio-resource for their product. The second is assigned the role of a BMC president, and the third, the role of a BMC member or a TK holder.
- Some common scenarios can be given. Any real-lifecase can inspire the scenes.

For example –

1. Collection of unique Tulasi variety for medicinal purposes

   (Conditions: Availability of this unique Tulasi is very limited in the local area)
2. Collection of Kurinji Honey for research purposes.

   (Conditions: BMC sets condition while giving access to the researcher)
3. BMC stops collection of *Aloe vera* by a long-term buyer (manufacturer) as they have not followed the rules of the Biodiversity Act.

- The role players are asked to discuss among themselves whether permission to access and collect the bio-resources can be given.
- While the role-play goes on, other participants observe and follow the arguments.
- As the discussions carry on, the actor playing the role of the BMC member or TK holder is changed, and some other participant is called to play that particular role. This turnover helps participants in understanding different perspectives and building up a better dialogue.
- The session ends with a decision to either permit or restrict the company from collecting bioresources under the jurisdiction of the BMC.
- The participants then fill up the ABS consultation form with information regarding whether access can be recommended and, if so, on what conditions it must follow. The sample form can be found in Annexure 2.

LEARNING OUTPUT:

- The role of BMCs in the ABS process is clarified to the participants.
- They understand the theoretical and practical aspects.
- They recognise the importance of the BMCs in the process of giving feedback on ABS applications.
- They realize and empathize with the challenges faced by the different stakeholders in the process.

TIME DURATION:

Explanation: 5 mins

Role Play: 45 mins

(3 role-plays with 15 mins each)

Extra: 5 mins

NOTES FOR THE FACILITATORS:

- The role of a company representative should be played by one of the facilitators.
- During the role-play, one person should function as a moderator.
- During the course of the arguments, the moderator should request the actors to interrupt the session now and then to solicit suggestions from the observers.
- The arguments must be strong enough to last a long time. The facilitators should ensure that the consent is not given to the company easily or with the least amount of discussion.
- In the end, the facilitator should debrief the entire role play and give a clear message to the participants.

DAY 2

20. TRAINING ASSESSMENT

OBJECTIVES:

1. To assess the effectiveness of the training.
2. To assess the overall knowledge gained by the participants.
3. To assess the KAP of the participants.

METHOD:

THEMATIC CHAMPION

Participants are asked to present one of the topics that were covered during the training. This process helps in assessing the overall knowledge gained by the participants.

BENCHMARKING

In this method, the participants are asked to rate their own knowledge on the specific topics given by the facilitator on Day 1, on a scale of 0 to 10. This process helps in assessing the overall effectiveness of the training and the knowledge gained by the participants over the course of the training.

DESCRIPTION OF THE SESSION:

This session is for assessing the trainees and the effectiveness of the training.
It consists of:

THEMATIC CHAMPION PRESENTATIONS:

- A bunch of chits is provided to the participants. The chits contain the topics that were shown during the 'Analysing Knowledge Gaps'session on Day 1. These topics are all covered during the various training sessions.
- Each participant is asked to randomly take one chit and present the topic given in the chit in five minutes time.
- Based on the presentation, the facilitators assess the participants. The categories based on which the participants can be evaluated as follows:
    a. Presentation Skills
    b. Subject knowledge
    c. Time management

BENCHMARKING

- The benchmarking session is conducted in the same way as the first day.

- The results of this session are plotted on the same graph (which was plotted for the 'Benchmarking' session on Day 1) with a different colour so that the difference in the knowledge of the participants before and after the training can be measured.

LEARNING OUTPUT:

After this session,

- The facilitators know the overall effectiveness of the training.
- The facilitators can understand the specific thematic areas they need to emphasis.
- They can recognize the parts of the training that they need to improve upon.

TIME DURATION:

Presentation: 5 mins each

Benchmarking preparation: 2 mins

Benchmarking: 8 mins

NOTES FOR THE FACILITATORS:

- The facilitators need to give clear instructions on what exactly the participants need to do.
- The chits must be prepared beforehand.
- The participants can be asked to pick the chit before the lunch break so that they get some time to prepare for their presentations.
- The facilitators need to moderate the thematic champion session properly by maintaining strict time limits for each presentation.
- There should be at least two facilitators assessing the participants. The total marks for each of the participants from four facilitators need to be averaged out.
- The facilitators need to be unbiased in their assessments of the participants.
- Benchmarking at the end of the training must be done on the same graph as before with a different colour.

PHASE 2

DAY 1

1. INTRODUCTION AND TRAINING OVERVIEW

OBJECTIVES:

1. To actively involve the participants in the sessions.
2. To identify the participants by their names and their background, and to make them familiar with their peers.
3. To inform the participants about the upcoming sessions.
4. To brief them about the objective and the outcome of the whole training.

METHOD:

SELF-INTRODUCTION

In this method, the participants introduce themselves one by one.

BRAIN MAPPING

The participants are asked to come up with ideas to accomplish a certain agenda which are simultaneously discussed and recorded by the facilitators.

DESCRIPTION OF THE SESSION:

- This session marks the opening of Phase 2 of the training. This session is divided into two sections.
- In the first section, The participants introduce themselves, and as they do so, they associate their names with any bio-resource and relate with any characteristic of that bio-resource.
- In the second section, the facilitators present the agenda of the upcoming sessions and inform the participants about the objectives and outcome of the training through flip charts. Following the presentation, the participants are asked to provide their inputs and expectations. One of the facilitators notes down the points raised on a flip chart.

LEARNING OUTPUT:

This session works as an icebreaker.
After this session –

- The participants are able to identify their peers by their names.
- They feel comfortable about the ambience of the training hall which helps them to freely participate in the training and better interact with their peers and facilitators.
- They are well aware of what to expect from the training.

TIME DURATION:

Introduction - 30 secs each

Briefing - 10 mins

Brainstorming - 5 mins

PHASE 2

DAY 1

2. ROLE OF THE TRAINERS

OBJECTIVES:

1. To assess the perceptions of the participants about the role of a trainer.

METHOD:

BRAINSTORMING

It is an effective method for developing ideas from heterogenous groups.
A question is placed openly to the participants, who are asked to come up with their own opinions. All the suggestions and ideas are listed on a chart paper presented by the facilitator. *(Source: The Trainers Guide Page.99)*

DESCRIPTION OF THE SESSION:

- In this session, the facilitator asks the participants to state the roles of a trainer.
- One of the facilitators notes down the points stated by the participants.
- The facilitator discusses these points with the participants, and those mutually agreed upon are written on a flip chart for future reference.
- Finally, the facilitator gives the participants a briefing about the points.

LEARNING OUTPUT:

- The participants understand the role played by the trainer.
- They can focus on the upcoming training sessions keeping those points in mind.

TIME DURATION:

Brainstorming – 15 mins
Briefing – 5 mins

PHASE 2

DAY 1

3. FUNDAMENTAL TRAINING CONCEPTS

OBJECTIVES:

1. To make participants understand the objectives and importance of the training.
2. To expose them to practical examples of visual, oral and kinaesthetic methods that together enhance the training experience.

METHOD:

ACTIVITIES

This session involve different activities and fun games to convey the message that training should be more than traditional classroom lectures or teachings.

DESCRIPTION OF THE SESSION:

In this session, three different activities are used.

1. Kinaesthetic : The kinaesthetic method means the use of the senses to promote learning. The facilitator gives 15-20 objects one by one to the participants.
Each participant examines the object for not more than 3-5 seconds and then passes it on to the next person and so forth until it reaches the last participant.
After which, the objects are collected by a facilitator, and the participants are asked to memorize and write down the names of those objects on a piece of paper.

2. Visual : In the visual section, the facilitator shows photos of 15-20 objects or bioresources to the participants. Once all the photos are shown, they are asked to write down the names of those objects.

3. Auditory : In the hearing session, the facilitator calls out the names of some objects, and the participants are asked to write them down.

After all the three exercises are completed, the participants are asked to exchange the list of names they have written with the person sitting next to her/ him.

Then, the facilitator repeats the names of the objects from the three different exercises and asks the participants to count the number of objects each of them could remember from each exercise, and note them separately.

The scores are counted for each of the 3 sections in different categories e.g.

- No. of people who wrote 0 to 5 names
- No. of people who wrote 5 to 10 names
- No. of people who wrote 10 to 15 names
- No. of people who wrote 15 to 20 names

At the end, one of the facilitators plots the values on three different graphs and explains it to the participants. The graphs show the diversity of learners in the group of participants.

LEARNING OUTPUT:

- The participants understand the importance of the three modes of communication.
- They comprehend the necessity of a balanced approach in using three different methods to cater to diverse participants.

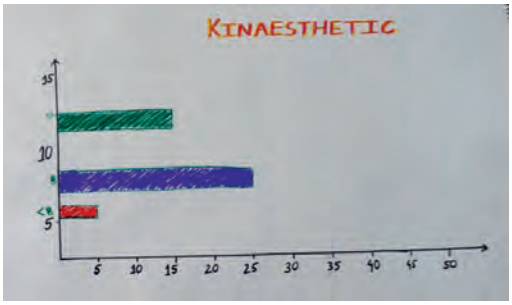
TIME DURATION:

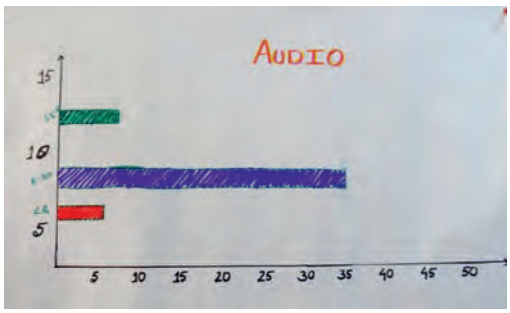
Three activities: 20 mins

Marking and briefing: 10 mins

NOTES FOR THE FACILITATORS:

- Facilitators should give clear instructions so that there is no confusion.
- Facilitators should make sure that the participants do not start noting down the names while they are on display.
  The sole purpose of this exercise is for them to first memorise and then write.
- The facilitators should be strict about time, especially during the kinaesthetic session. Any item should not be in anyone's hand for more than 3 to 5 seconds.
- The graphs should be prepared beforehand, and it should be completed immediately after the responses are received.
- While concluding the session, one of the facilitators must explain the graphs to the participants.





PHASE 2

DAY 1

4. PARTICIPATORY TRAINING METHODS

OBJECTIVES:

1. To introduce the various participatory training methods that will be instrumental for training the BMC members.
2. To provide a hands-on experience in demonstrating these methods.

METHOD:

Interactive lecture

DESCRIPTION OF THE SESSION:

Firstly, the facilitator explains the importance and benefits of the participatory training methods. The various methods used in phase 1 are reviewed and there as ons for choosing each method is discussed.

The facilitator's role is to explain the rules of the various methods and then moderate the discussion by the participants.

The different participatory methods that need to be facilitated are as follows:

- Ice breaker
- Brainwriting
- Brainstorming
- Structured Learning Visit
- Energiser
- Bus stop/marketplace
- Photocard
- Knowledge café
- Role Play
- Case studies
- Interactive lecture
- Fishbowl
- Mind mapping
- Skit
- Thematic Champion
- Games (role play)

(See "Access and Benefit Sharing Training Manual: Participatory Training Methodologies" for details)

LEARNING OUTPUT:

- The participants are not only able to understand the importance of participatory training methods but also, through hands - on experience, are able to comprehend how to conduct sessions using these methods.

TIME DURATION:

Ice breaker – 10 mins
Brain writing – 10 mins
Brainstorming – 5 mins
Structured Learning Visit – 10 mins
Energiser – 5 mins
Bus stop/marketplace – 20 mins
Photocard – 5 mins
Knowledge café – 50 mins
Role Play – 20 mins
Case studies – 10 mins
Interactive lecture – 5 mins
Fishbowl – 20 mins
Mind mapping – 10 mins
Skit – 10 mins
Thematic Champion – 5 mins
Games (role play) – 10 mins

NOTES FOR THE FACILITATORS:

While explaining a particular method, the facilitators may refer to the same materials and content that were used for that particular method in Phase 1 of the training programme. This will help participants recollect the training methods used in Phase 1. They can also refer to the actual photographs taken during Phase 1 of the training. This will enhance the interest of the participants, and therefore will promote the understanding of the concepts

PHASE 2

DAY 1

5. FACILITATION SKILLS

OBJECTIVES:

To make the participants aware of the skill sets required to implement the participatory training methods successfully.

METHOD:

INTERACTIVE LECTURE

An interactive lecture is a two-way communication and dialogue wherein the facilitator deliberates on any topic with inputs from the participants.

BRAIN STORMING

To gather ideas from heterogeneous groups, a question is placed before the participants, and they are asked to come up with their ideas. All the suggestions and ideas are listed on a chart paper and commented upon by the facilitator.

(Source: The Trainers Guide Page.99)

DESCRIPTION OF THE SESSION:

Different methods of facilitation are as follows:

DYNAMIC VISUALIZATION:

Dynamic visualization encourages the participants to express their ideas verbally about the subject matter. Two actors, the facilitator or the 'knower' and a participant or the 'listener', interchange their position alternatively. The process of learning becomes two way where the facilitator, as well as the participant, learn from each other's experience.

WORKING WITH FLIPCHARTS AND PINBOARDS: Transportable flipcharts and pinboards have huge advantages.
The facilitator hands over blank cards to each participant and then asks a question related to a particular topic. The participants write their responses on the card. The facilitator puts up all answers on the pinboard. Everyone scrutinises the answers and participates in the discussion.
These activities are extremely helpful in engaging the participants' interest in the brainstorming session.

The facilitator can also chart out ideas beforehand and pin them to the other side of the flipchart. After all the participants' ideas are discussed briefly, the facilitator can flip the chart and show her/his ideas to the participants, which they can discuss further and agree or disagree upon the different points.

USING VISUAL AIDS EFFECTIVELY:
An effective visual aid needs to have certain qualities such as:

- It should attract attention by stimulating the eye
- It needs to be harmoniously composed i.e., it should be colour coordinated and spacing needs to be appropriate
- It should illustrate the complex issues in a simple fashion
- It should have the key phrases in larger fonts which should be highlighted by text boxes or colours.

In this session, the facilitator prepares examples of both good and poor-quality visual aids and asks the participants to tell the differences and explain why they think one is of good and another of poor quality.

WRITING RULES: To make sure the participants utilise the cards, charts, etc. appropriately; some basic writing rules need to be set up. These rules are for the participants as well as the facilitators:

- The font should be big enough to be visible from a distance.
- It is advisable to use good quality markers to draw lines of different thickness.
- The words should be clear enough and easily readable with enough space between them.
- Both small and capital letters should be used. Using only small or only capital letters makes the content difficult to read.
- One card should contain no more than ONE idea.
- A full sentence should be written on a card as a single word is not easily understood.

TOOLS: In this chapter the facilitator explains the need and the use of different tools that he/she uses such as:

- Flipcharts
- Soft boards or Pin boards
- Markers (Of different sizes)
- Cards of different shapes
- Glue sticks

- Sticky tape
- Cutters, scissors and board pins
- Other important tools based on the need.
  e.g., items for "Fundamental training concepts" session.

GATHERING AND GENERATING IDEAS:

- **BRAINSTORMING** (see methods of "Facilitation Skills" session)
- **BRAINWRITING** – The basic rule of brainwriting is that ALL ideas are welcome, and nothing is filtered out.

  For this session. The facilitator reads a relevant guiding question aloud and asks for ideas from the participants.

SAMPLE QUESTION(S):

a. What qualities do you look for in a trainer?
b. What are some rules that a trainer must follow while conducting a session?
c. What rules do you think should be followed while making a PPT?

The participants are asked to write their ideas on the cards. After collecting all the cards, the facilitator reads them out and puts them up on the pinboard. The facilitator requests the participants to cluster the cards based on the type of answers. Further cards are added if necessary. Finally, the answers are discussed, and the session is concluded.

BODY LANGUAGE:

A facilitator should look confident and convey positive body language while engaging with participants during training sessions. Examples are:

- **EYE CONTACT** - The facilitator should maintain eye contact with the participants. Lack of eye contact suggests lack of confidence.
- **HAND MOVEMENT** - Hands should not be locked while a facilitator speaks. Moving hands is one of the vital communication agents.
- **ADDRESSING THE AUDIENCE** - The facilitators should focus and look towards the audience and not at the projected presentation slides or the pinboard. Those objects should only be used to convey the message.

The facilitator demonstrates these gestures along with the gestures that are not welcomed and ask the participants to spot the difference.

LEARNING OUTPUT:

After this session,

- The participants become aware of the importance of a good presentation, positive body language, eye contact and other behavioural aspects that promote contact with the audience, to thereby ensure a successful training session.
- The participants are well-versed with the different approaches they can take while following the participatory training methods.

TIME DURATION:

Dynamic visualization: 15 mins

Generating and gathering ideas: 15 mins

Body language: 5 mins

Briefing: 5 mins

NOTES FOR THE FACILITATORS:

- The facilitator needs to explain and demonstrate the methods used.
- The participants need to be involved in the demonstration. The facilitator may explain a certain skill and ask some of the participants to demonstrate it. This facilitates the engagement of the participants and understanding of the effectiveness of the session.

PHASE 2

DAY 1

6. EVALUATION OF THE TRAINING

OBJECTIVES:

1. To evaluate the knowledge gained by the participants
2. To inform the participants about the different methods for evaluating training.
3. To provide hands-on experience in carrying out these training exercises.

METHOD:

Interactive lecture, bench marking, mood barometer, evaluation express, open feedback

DESCRIPTION OF THE SESSION:

This session is conducted like the "Participatory Training Methods" session where participants evaluate the training programme using the different methods which are as follows:

- Benchmarking
- Mood barometer
- Evaluation express
- Open feedback

BENCHMARKING:

To assess the overall effectiveness of the training, the participants are asked to rate their knowledge on some specific topics on a scale of 0 to 10 at the beginning and the end of the training. The topics are the same for both benchmarking sessions and this method| can measure the general knowledge gained by the participants and helps in assessing the overall effectiveness of the training.

EVALUATION EXPRESS:

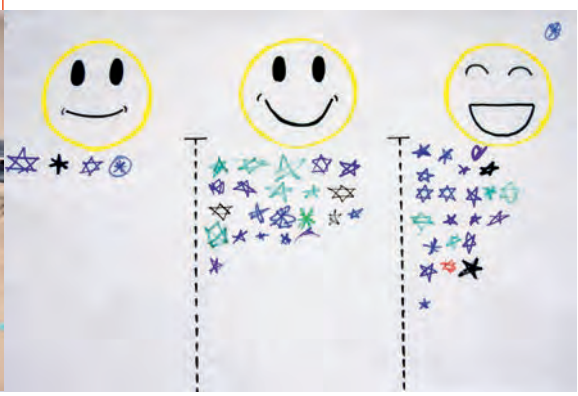
Similar to benchmarking, but using category rating such as ‘good’, ‘fair’, ‘poor’ etc.
The facilitator evaluates the knowledge of the participants at the start and at the end of the program to measure the change in the knowledge of the participants.

Questions related to different topics addressed in training are written on different charts (one question per chart) and a scale of 1 to 10 or categories (good, fair, and poor, etc.). For each question, the participants are asked to rate themselves and mark on the scale with a sticker or marker on the scale. This exercise is done at the start and at the end. Then change in the rating will help assess the gain in the knowledge of the participants.

MOOD BAROMETER:

In this method, the facilitators draw three emoticons of three different moods in terms of how the participants feel about the training so far.

1. Very Happy
2. Happy
3. Not at all happy



Participants are asked to cast their vote on the emoticons depending on how they feel about the training. After the voting is over, the total number of votes is counted. The votes should be anonymous so that the result will be unbiased.

OPEN FEEDBACK:

Here, the facilitators place a soft board/ whiteboard specifically for obtaining feedback on various aspects of the training. They keep some cards and pens near the board, and the participants are asked to write down their suggestions, feedback and impressions. The wall/board may be provided with the following big headings to steer the feedback process:

- What I liked about the training?
- What surprised me?
- What was outstanding?
- What I did not like about the training?
- What do I suggest for the next session?

The facilitator should brief the participants at the beginning of training.

At the end of the session, the facilitator summarizes the whole session along with the evaluation methods. Survey forms, including pre-training, end of training and post-training (after 6 months) are in Annexure 3. End of training survey form may be used to obtain feedback in this session.

LEARNING OUTPUT:

- The facilitators are able to comprehend the success of the training programme and its effectiveness.
- The participants can see the visual representation of where they stand as a group in terms of meeting their expectations out of the training.
- The participants are able to use the different methods to evaluate the training, and see how it can be used while they conduct training.

TIME DURATION:

Briefing: 5 mins

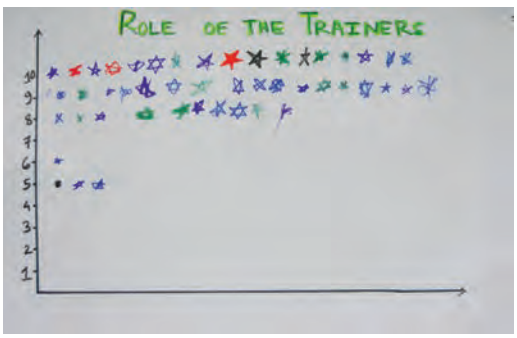
Benchmarking: 10 mins or Evaluation express: 10 mins

Mood barometer: 5 mins

Open Feedback: 10 mins

NOTES FOR THE FACILITATORS:

- The facilitators need to prepare the necessary tools for the different methods such as graphs for benchmarking, mood drawing for mood barometer, graphs for evolution express, etc.
- One or two facilitators should write the marks/scores on the chart papers or the graphs.



PHASE 2

DAY 2

7. RECAP OF DAY 1 AND SHORT QUIZ

OBJECTIVES:

The objective of this session is to revisit topics covered on the Day 1.

METHOD:

Quiz

DESCRIPTION OF THE SESSION:

At the beginning of this session, the facilitators provide a summary of the previous day's sessions. They briefly touch upon the overall learning outputs of the training. Next, a short answer or quiz is conducted.

Sample questions:

- What is the role of a trainer? And what are the qualities that you look for in a trainer?
- What are the different training methods?
- What are the methods that can be utilised to teach substantial material in a short amount of time?
- What are the methods used to assess the knowledge gained by the participants?

LEARNING OUTPUT:

- The participants can recollect what they learnt from the previous day's sessions.
- The facilitators can gauge the extent of understanding gained by the participants.

TIME DURATION:

Summary of Day 1: 10 mins

Quiz: 20 mins

General Briefing: 10 mins

NOTES FOR THE FACILITATORS:

- The questions should be prepared beforehand.
- The questions should be precise and easy to comprehend.
- It should be ensured that all participants are given opportunity to speak up and discuss.

PHASE 2

DAY 2

8. ASSIGNMENT ON PBR AND ITS PRESENTATION

OBJECTIVES:

To provide practical training on the documentation of PBRs (The Structured Learning Visit on day 2 of Phase 1 of the training was aimed at providing knowledge of documentation of PBR. The participants were given a booklet consisting of data formats. They were asked to do the primary data collection in their respective villages.)

METHOD:

Presentation

DESCRIPTION OF THE SESSION:

In this session, three to four participants are selected from the group based on the quality of the PBR documentation they have carried out. These participants are invited to present their PBR formats and share their experiences. The audience then ask questions after each presentation.

The facilitator summarises the opportunities and challenges at the end of the session. A brainstorming session may also be conducted to gather ideas for improvement of the process related to PBR documentation.

LEARNING OUTPUT:

- To learn the documentation process of PBRs
- To understand the data requirements of PBRs

TIME DURATION:

Presentation: 10 mins each

Discussion: 5 mins each

NOTES FOR THE FACILITATORS:

- These assignments from Phase 1 of the training should be collected from the participants on or before the first day of Phase 2 of the training.

PHASE 2

DAY 2

9. EXAMINATION

OBJECTIVES:

1. To assess the achievement of the learning objectives
2. To evaluate the overall effectiveness of the training.

METHOD:

Written examination

DESCRIPTION OF THE SESSION:

In this session, a written examination of **50 marks** is conducted. Out of 50 marks, **30 marks** are allotted for Multiple-Choice Questions (MCQs) and **20 marks** of explanatory questions relating to various input presentations, handouts and topics written down on the flipcharts.

The MCQs are prepared from various sessions of Phase 1 and Phase 2 of the training. These questions carry **one mark each.**

The explanatory questions are reflective. These are based on the learning outcomes of the sessions from Phase 1 and 2. These questions carry **4 marks each.** (a sample question paper is presented in the Annexure 4)

LEARNING OUTPUT:

Participants are certified as district trainers.

TIME DURATION:

Question paper and answer sheet distribution: 5 mins

Examination: 120 mins

ANNEXURE I: A. INTERNAL AGENDA – TRAINING OF TRAINERS (PHASE 1)

Day	Duration	Session No.	Session title	Training Method	Materials required	Handouts	Learning output	Responsible	Remarks
1	15 min	1	Inauguration			Training agenda	• Participants understand the purpose of the training They are aware of the utility of biodiversity and its conservation	Inauguration - Facilitator 1	Remarks
1	1 hour	2	Introduction of the participants Breaking the ice	• Photocard / Biodiversity Basket	• Photo cards Bioresources / bio-products		• Participants are aware that this is not a conventional training and they too can contribute by sharing their knowledge and taking part in the discussions • They understand the background of the facilitators and other participants • They are more relaxed about interacting and communicating with the group	Bioresources / photo card - Facilitator 2	Instructions for ice breakers should be clearly explained
1	10 min	3	Norm Setting / Ground rules	Brain Mapping	• Flip board / chart board • Flip chart • Markers		• After this session, the participants are comfortable with the rules jointly framed • They will be motivated to follow the rules framed by consensus	Norm setting - Facilitator 3	Time management should be discussed during the norm-setting
1	15 min	4	Expectations of the participants and Training Overview	Brain Mapping	• Flip board / chart board • Flip chart • Markers		• The facilitators learn about what the participants expect and what topics would interest them • They can improvise their upcoming sessions accordingly	Expectations and Training overview - Facilitator 1	Training overview should be simple.
1	30 min	5	Analysing Knowledge Gaps	Benchmarking, Thematic champion	**Benchmarking:** • 11 cards denoting scores from 0-10 • Graphs for each of the benchmarking topics • Markers • Pinboard **Thematic champion:** • Thematic champion questions	List of thematic champion questions (see page XX)	• Facilitators can assess the participants' knowledge of the training topics • They are able to understand the existing knowledge gaps among the participants	**Benchmarking:** Facilitation - Facilitator 1 Scoring - Facilitator 2 Marking on graph - Facilitator 3 Thematic Champion: Presenting topics - Facilitator 3	• Instructions should be clear • Only 5-6 questions for benchmarking • Only 10-15 topics for thematic champion
1	**15 min**		**TEA BREAK**						

Day	Duration	Session No.	Session title	Training Method	Materials required	Handouts	Learning output	Responsible	Remarks
1	1 hour 30 min	6	Introduction to Biodiversity and its Importance	Folk song, Storytelling, Interactive lecture, Group discussion, Video screening	• Input PPT and projector • Flip board/ Chart board • Flip chart • Markers • Popular folk song depicting biodiversity • Short film on biodiversity • Ball of thread (for 'Web of Life' game) • Stickers (for marking the characters for 'Web of Life')		• Participants understand the term biodiversity and its types • They appreciate biodiversity as ecosystem service • Acknowledge the threats affecting biodiversity in the local context • They know the importance of biodiversity and the need for its conservation and sustainable use.	All training methods - Facilitator 2	
1	**1 hour**		**LUNCH BREAK**						
1	1 hour 30 min	7	Introduction to BD Act and BMCs	Marketplace, Fruit salad (for grouping)	• NTAC Items • Markers • Meta cards • Pinboards • Stopwatch	• BD Act (in local language) • BMC Guidelines • BMC Toolkit (in local language) • NTAC List • State Biodiversity Rules	• The participants can outline the importance and the context of the BD Act, 2002, as well as the three-tier institutional structure in India • They are aware that not all resources come under the purview of the Act and they are able to identify NTAC items • They reach an understanding of the roles, responsibilities and functions of the BMCs	**Marketplace:** Grouping participants - Facilitator 1 Group 1 - Facilitator 1 Group 2 - Facilitator 2 Group 3 - Facilitator 3	Especially important for each facilitator to maintain time
1	1 hour 15 min	8	Meeting of the BMC and documents	Marketplace, Group work	• Markers • Meta cards • Pinboards • Stopwatch	• BMC forms (in local language)	• Participants understand the paperwork related to the BMCs • They learn how to fill up these documents	**Marketplace & Group work:** Form 1 - Facilitator 1 Form 2, 3 - Facilitator 2 Form 4 - Facilitator 3	
1	50 min	9	Mock BMC meeting	Role Play	• 8 chairs for the role players • PPT and Projector (for projecting the scenarios)		• The participants are familiar with the nuances of conducting BMC meetings • They learn about the various biodiversity-related issues that can be discussed at the BMC meetings • They learn how to record the meeting minutes • During decision making, they understand how to prioritise issues for the action plan based on their importance or severity • They understand perspectives of the various stakeholders dealing with the bioresources	Moderation - Facilitator 1	Need to ensure that discussion after role play stays relevant to learning objective
	END OF DAY 1								
2	30 min	10	Recap of Day 1 and Short Quiz	Quiz	• 10 to 15 questions for the quiz • 10 to 15 gift items (one for each question)		• The participants recall the topics from day 1 • The facilitators gain insight into how much the participants have been able to comprehend	Recap - Facilitator 1 Quiz - Facilitator 3	

Day	Duration	Session No.	Session title	Training Method	Materials required	Handouts	Learning output	Responsible	Remarks
2	30 min	11	Other local committees dealing with biodiversity and natural resources	Brain Storming	• Flip board/ Chart board • Flip chart • Markers		• The participants can identify the importance of other committees and the work they do • They can understand the possibilities of collaborating with the relevant committees	Brain Storming - Facilitator 2	
2	**15 min**		**TEA BREAK**						
2	15 min	12	Understanding & Documenting PBR	Skit	• Props for skit: • Medicinal plants (leaves and branches) • Newspaper • A book representing PBR • 4 chairs		• Participants appreciate the importance and need for documentation of PBRs	Skit - Facilitator 1, 2 & 3	Especially important for facilitators to maintain time
2	1 hour	13	PBR Overview and Steps for Documentation	Interactive lecture, Video screening	• Flip board/ Chart board • Flip chart • Markers • Pinboard • Input PPT and Projector	• All PBR Formats (in local language)	• Participants gain familiarity with the technical information in PBR • They learn about the various PBR formats and the data to be recorded in the various formats • They are aware of steps followed for PBR documentation	Interactive lecture – Facilitator 3	
2	**1 hour**		**LUNCH BREAK**						
2	30 min		Preparing for field visit and Boarding bus						Need to coordinate with drivers
2	4 hours	14	Field Visit for PBR Documentation	Structured learning Visit	• As required based on the field sites	• PBR formats to respective groups	• Participants are familiar with the PBR formats and data requirements • They are well versed with the process of data collection for PBR • They are inspired to implement conservation activities with their BMC	**Field visit:** Group 1 - Facilitator 1 Group 2 - Facilitator 2 Group 3 - Facilitator 3	Need to ensure that participants are taking notes from the field
2	**15 min**		**TEA BREAK**						
2	30 min	15	Learnings from the field visit	Group discussion, Fishbowl	• Chart paper • Markers • Pin boards		• Participants get a clear idea about the basic concepts and are able to clearly outline the process for documentation of PBR • They gain experience in filling PBR formats as part of their assignment given on Day 3	**Group discussion:** Group 1 - Facilitator 1 Group 2 - Facilitator 2 Group 3 - Facilitator 3 Fishbowl moderation – Facilitator 3	
END OF DAY 2									
3	40 min	16	Recap of Day 2 and Short Quiz	Quiz	• 10 to 15 questions for the quiz • 10 to 15 gift items (one for each question)		• Participants recall the topics from day 2 • Facilitators can assess how much the participants have been able to comprehend	Recap - Facilitator 1 Quiz - Facilitator 2 Moderating discussion on learnings from field – Facilitator 3	

Day	Duration	Session No.	Session title	Training Method	Materials required	Handouts	Learning output	Responsible	Remarks
3	30 min	17	Recounting field visit experiences	Presentation	As needed by the participants for their presentations		• Participants understand the diverse issues from different fields • They understand the complexity and heterogeneity of the implementation process of the BD Act and ABS • They can grasp the practical aspects of PBR documentation	Moderation - Facilitator 2	
3	1 hour 20 min	18	Introduction to and In-depth learning of ABS	Interactive lecture	• Flip board/ Chart board • Flip chart • Markers • Meta cards • Pin boards • ABS Process flow chart • Input PPT and Projector	Gazette notification of ABS guidelines	• Participants understand the importance of ABS • They understand the roles of the different actors and governmental bodies in ABS • They can assess which kind of utilisation of bioresources attract ABS • They understand the role of BMCs in facilitating ABS	Interactive lecture - Facilitator 3	
3	**15 min**		**TEA BREAK**						
3	1 hour	19	Consultation with BMC members for obtaining feedback on ABS Applications	Role Play	• 3 chairs for role play • PPT and Projector (for projecting the case studies or the scenarios)		• They understand the theoretical and practical aspects of ABS • They recognise the importance of the BMCs in the facilitation of ABS • They know how to provide consultation for ABS application • They realise and empathise with the challenges faced by the different stakeholders in the process	Moderation - Facilitator 1	
3	**1 hour**		**LUNCH BREAK**						
3	1 hour 30 min	20	Training Assessment	Thematic champion, Benchmarking	• Benchmarking: • 11 Cards denoting scores from 0-10 • Graphs for each of the benchmarking topics • Markers • Pin board • Thematic champion: • Thematic champion questions		• Facilitators can assess the overall effectiveness of the training • They know the specific thematic areas that need more emphasis • They can recognise the parts of the training that they need to improve upon	**Thematic champion:** Evaluation - Facilitator 1, 2 & 3 **Benchmarking:** Facilitation - Facilitator 1 Scoring - Facilitator 2 Marking on graph – Facilitator 3	
END OF DAY 3 AND PHASE 1 TRAINING									

Questions for Learning Journal:

1.What are the committees that work on the environment, natural resources, climate change, water, forest in Tamil Nadu?

2.What are the traditional conservation methods associated with biodiversity? Mention 10 such practices.

3.What kind of challenges do you think is there in terms of BMC functioning? Or Why people are not interested in BMCs?

4.What are the most traded bioresources in your area?

List of questions for Thematic champion:

1. What kind of impact can you observe for you and your village members because of the loss of biodiversity?
2. Do you think BMCs are needed? Substantiate your answer.
3. How can BMCs collaborate with a village panchayat for conservation and sustainable use of biodiversity?
4. Financing mechanism for documentation of PBR and functioning of BMCs.
5. Documentation of PBR requires collaboration from many people, institutions. List the people and institutions that think can be included in your locality.
6. List out the activities that can be undertaken by the BMCs at the local.
7. A company wants to access 1 ton of a medicinal plant from your village. As a knowledgeable person, you have been invited for a BMC meeting. What kind of inputs will you give?
8. How can other committees help BMCs?
9. Why do you think it is important to document PBR?
10. How is biodiversity interlinked with our daily lives?
11. What are the key steps in the ABS process? Who has to apply? What activities are covered under ABS?
12. As a trainer, how will you contribute to biodiversity conservation?
13. What are the institutional structures established under the BD Act for implementing the Act?

Structured Learning Visit for PBR Documentation

Group No.	Theme	PBR Format(s)	Group in-charge	Distance from training centre
Group 1	Traditional knowledge and medicinal plants	Annexure 3 and Format- 22	Facilitator 1	
Group 2	General details of BMC and Peoplescape	Annexure- 1 and Format 7	Facilitator 2	
Group 3	Crop varieties and markets for domesticated animals	Format 1 and Format 6	Facilitator 3	

ANNEXURE I : B. INTERNAL AGENDA – TRAINING OF TRAINERS (PHASE 2)

Day	Duration	Session No.	Session title	Training Method	Materials required	Learning output	Responsible	Remarks
1	15 min		Inauguration		• Copies of training agenda	• Participants understand the purpose of the training	Inauguration - Facilitator 1	Training agendas need to be given to participants
1	1 hour	1	Introduction and Training Overview	Self-introduction, Brain Mapping		• Participants are able to identify their peers by their names • They are more relaxed about interacting and communicating with the group • They are aware of what to expect from the training	Moderator - Facilitator 2	Instructions for brain mapping should be clearly explained
1	20 min	2	Role of the trainers	Brainstorming	• Flip chart • Markers	• Participants understand the role played by the trainer • They can focus on the upcoming training sessions keeping that in mind	Brainstorming - Facilitator 3	Points written on the flip chart should be clear and easily understandable
1	30 min	3	Fundamental Training Concepts	Activities (Hearing, visual, kinaesthetic)	• Objects for the kinaesthetic activity • Photos for visual activity • Meta cards • Charts • Graph	• Participants understand the importance of the 3 key modes of communication • They understand the need for a balanced approach while using the three methods to cater to a diverse mix of participants	Activities - Facilitator 1 Plotting graphs – Facilitator 2	• Clear instructions should be given before each round • Graph needs to be prepared beforehand
1	**15 min**		**TEA BREAK**					
1	2 hours	4	Participatory Training Methods	Interactive lecture	• Input PPT and projector • Pictures taken during Phase 1 of training • Props/ materials used during Phase 1	• Participants understand the importance of participatory training methods • They are able to comprehend how to conduct sessions using these methods	All training methods – Facilitator 3	
1	**1 hour**		**LUNCH BREAK**					
1	1 hour 30 min	5	Participatory Training Methods (Cont.)					
1	40 min	6	Facilitation Skills	Interactive lecture, Brainstorming	• Input PPT and projector • Chart paper		Interactive lecture and Brainstorming - Facilitator 2	
1	**15 min**		**TEA BREAK**					
1	40 min	7	Evaluation of the Training	Interactive lecture, Benchmarking, Mood barometer, Evaluation express, Open feedback	• Graphs (for benchmarking and evaluation express) • Mood drawing (for mood barometer) • Chart paper • Pinboard • Pins • Meta cards • Markers	• Facilitators can assess the success of the training programme and its effectiveness • Participants can see the visual representation of where they stand as a group in terms of meeting their expectations from the training • They learn to use different methods to evaluate the training and how to choose the appropriate one for their training	• Interactive lecture and moderator for all methods – Facilitator 1 • Plotting graphs - Facilitator 3	

Day	Duration	Session No.	Session title	Training Method	Materials required	Learning output	Responsible	Remarks
	END OF DAY 1							
2	40 min	8	Recap of Day 1 and Short Quiz	Quiz	• 10 to 15 questions for the quiz • 10 to 15 gift items (one for each question)	• Participants can recollect what they learnt from Day 1 • Facilitators can gauge the extent of participants' understanding of the topics from Day 1	Recap - Facilitator 2 Quiz - Facilitator 3	• Questions should be precise and easy to comprehend • all participants should be given the opportunity to speak up and discuss
2	1 hour	9	Assignment on PBR and its Presentation	Presentation	• Flip board/ Chart board • Flip chart • Markers	• Participants learn the documentation process of PBR • They understand the data requirements of PBR	Moderator - Facilitator 1	Assignments from Phase 1 of the training should be collected from the participants on or before the first day of Phase 2
2	**15 min**		**TEA BREAK**					
2	2 hours	10	Examination	Written examination	• Question papers • Blank sheets (for writing answers)	• Facilitators can evaluate what the participants have learnt from the training • They can assess the overall effectiveness of the training • They can assess how much and what information is being retained by participants	Invigilators - Facilitator 1, 2 & 3	Especially important for facilitators to maintain time
2	**1 hour**		**LUNCH**					
	END OF DAY 2 AND TRAINING							

ANNEXURE 1 : Agenda for Trainings Conducted in Tamil Nadu

C. EXTERNAL AGENDA - TRAINING OF TRAINERS (PHASE 1)

Date: Venue:

PROGRAMME OVERVIEW

Day 1	
09:30-09:45	Official Opening
09:45-10:30	Introduction of the participants
10:30-10:45	Norm setting
10:45-11:00	Expectation of the participants
11:00-11:30	Benchmarking and Thematic Champion
11:30-11:45	**Tea Break**
11:45-13:00	Introduction to biodiversity and its importance
13:00-14:00	**Lunch Break**
14:00-15:30	The Biological Diversity Act, 2002 and Biodiversity Management Committee
15:30-16:15	Forms for Biodiversity Management Committee
16:15-16:30	**Tea Break**
16:30-17:30	BMC Meeting management
19:30	Discussion on the completed assignments
	End of Day 1
Day 2	
09:30-10:00	Short quiz
10:00-10:30	BMC and other Biodiversity related committees
10:30-10:45	**Tea Break**
10:45-11:45	Peoples' Biodiversity Register and its documentation process
11:45-12:00	preparation for the field visit
12:00-13:00	**Lunch Break**
13:30-19:00	Field visit - *followed by sharing of insights from the field*
	End of Day 2
Day 3	
09:30-10:00	Short Quiz
10:00-10:45	Presenting field visit experience
10:45-11:30	Learning Access and Benefit Sharing
11:30-11:45	**Tea Break**
11:45-13:00	Role Play – Access and Benefit Sharing
13:00-14:00	**Lunch**
14:00-16:00	Thematic champion – Presentation
	Benchmarking
	End of phase 1 ofthe training programme

D. EXTERNAL AGENDA - TRAINING OF TRAINERS (PHASE 2)

Date: Venue:

TRAINING OVERVIEW

Day 1	
09:30-09:40	Welcome Address
09:45-10:00	Introduction of the participants
10:00-10:05	Briefing the Agenda
10:05-10:35	Role of trainer
10:35-11:05	Fundamental training concepts
11:05-11:20	**Tea Break**
11:20-13:00	Participatory training methods
13:00-14:00	**Lunch Break**
14:00-15:30	Cont. Participatory training methods
15:30-16:15	Facilitation Skills
16:15-16:30	**Tea Break**
16:30-17:15	Evaluation of the training
17:15-17:45	Workshop design & Handouts
	End of Day 1
Day 2	
09:30-10:00	Recap of Day 1
10:00-10:45	Speech& Certificate distribution
10:45-11:30	PBR Presentation
11:30-11:45	Tea Break
11:45-13:00	Community Leadership
13:00-14:00	**Lunch Break**
14:00-15:30	Written Test
15:30-15:45	**Tea Break**
15:45-17:30	Discussion and Way forward
	End of the training programme

ANNEXURE 2 : Sample Form for providing feedback on ABS Applications

Ref.No: Date:

(For the use of BMC)

Date of Receipt of Form-1: DD/MM/YYYY

Name of BMC:_____

A consultation meeting was held with members of Biodiversity Management Committees on the date DD/MM/YYYY at HH:MM in premises of _____ to discuss the access application from (applicant's name/name of the entity) _____to procure (name of the biological resource)_____

The Biodiversity Management Committee/ Local body of _____after thoroughly scrutinizing the application, hereby gives its feedback on the application for further consideration of SBB/Biodiversity Council

* Biological resource(s) may be accessed without any conditions/reservations
* Biological resource(s) may be accessed with conditions (see below)
* It is recommended to restrict or deny access to the biological resource(s) (provide reasons)

Condition for access (if any how many kgs, from which location etc.)_____

_____

Reasons for rejection (if any) (please indicate if all members recommended to impose restrictions or denied access or only certain members). Enclosed detailed meeting minutes capturing concerns of all participants.

_____

Any other remarks _____

_____

For other inputs if any, please attach a separate sheet of paper.

* Attach separate sheet of paper of minutes of the meeting.
* Strike out whichever is not applicable

Signature and Seal
(Secretary of BMC)

(For the SBB use only)

Date of receipt of BMC meeting minutes_____

Feedback from BMC received may be placed in the Sub-Committee on ABS

Observations:_____

_____

_____

_____

_____

_

_____

Secretary

State Biodiversity Board

ANNEXURE 3-A : PRE-TRAINING SURVEY FORM

1. **Which district are you currently based in?**

   It is essential to ensure that participants are chosen from different districts in the state.

2. **What did you do before becoming a trainer?**

   This question was asked to understand the professional background of the participants.

   Facilitators may draw some examples and case studies to suit the participants.

3. **For how many years have you been working as a trainer?**
4. **List the topics on which you have conducted training?**
5. **How many trainings do you conduct in a year?**
6. **Do you have any other profession in addition to training?**
7. **Please indicate your answers to the following statements:**

Statements	Agree	Partially agree	Neutral	Disagree
1. Biodiversity is vital for our survival on this planet.				
2. Biodiversity is mostly found in the forests				
3. To conserve biodiversity, companies/ traders should be stopped from using biodiversity in their business.				
4. Currently, your state (write the name of the state) has no policy/ programmes/schemes to protect biodiversity				
5. Local people should be allowed to collect and sell bio-resources present in their area				

8. **For effective implementation of a new scheme/programme, what you do think is important? Please provide your rating "5" being the most important and "1" being least important.**

For the effective implementation of a new programme/scheme, what do you think is important?	Least important				Most important
	1	2	3	4	5
1. Knowledge of the people					
2. Trust with local people					
3. Funding					
4. Convergence with other programmes					
5. Awareness material					
6. Support of Govt. departments					
7. Trainings					
8. Trainers					
9. Action Plan					

9. **What methods do you use in your training?**
10. **How do you deal with difficult participants?**
11. **What is the Hindi (or vernacular) word for 'biodiversity'?**
12. **Are you aware of the traditional healers in your region and the conditions they treat?**
13. **Can you name 5 biodiversity-based products and the companies that manufacture them?**
14. **Do you think the following departments/committees are important for conserving biodiversity?**

Govt. departments / Committees	Least important				Most important
	1	2	3	4	5
1. Biodiversity Management Committee					
2. Village Poverty Reduction Committee					
3. Village Panchayat					
4. Agriculture Department					
5. Horticulture Department					
6. Animal Husbandry Department					
7. Fisheries Department					
8. Forest Department					
9. JFM Committee					
10. Rural Development & Panchayat Raj Department					
11. Department of Tourism and Culture					
12. Eco- development Committee					
13. Village Forest Committee					

15. Translate the paragraph from English to Hindi (or vernacular language)

Participants are provided with a paragraph on any topic related to the environment in English and are asked to translate it to their language.

16. Have you heard of any incident of bio-piracy?

Yes ☐ No ☐

17. Are there any plant/animal species in your area that were abundantly found few years ago but are very rarely found now?

Yes ☐ No ☐ Don't know ☐

18. Do you know any rituals or traditional practices that contribute to conservation or sustainable use of biodiversity?

Yes ☐ No ☐

19. What makes you proud to be a trainer?

This question was asked to gauge the attitude of the participants.

20. How much remuneration do you wish to get paid per session?

21. What is your preferred communication mode?

WhatsApp ☐ Email ☐ Phone ☐ Any other ☐

Thank you very much for providing valuable feedback!

ANNEXURE 3-B : END OF TRAINING SURVEY FORM

1. **What is your current occupation?**

   Trainer ☐ NGO ☐ Social worker ☐ Student ☐ Other

2. **Did this training help you understand the concept of biodiversity?**

   Yes ☐ No ☐ Somewhat ☐ More information required ☐

3. **Did this training help you understand the Biological Diversity Act, 2002?**

   Yes ☐ No ☐ Somewhat ☐ More information required ☐

4. **How do you rate the following aspects of the training? (Please provide your rating, with '5' being the most positive assessment and '1' being most negative)**

Aspects	Least important				Most important
	1	2	3	4	5
1. Topics covered in the training					
2. Training methods					
3. Instructions for the group exercises					
made available to you					
4. Field visit					
5. Overall rating for the training					
6. Logistics and food					

5. **What are your key learnings from the training?**
6. **Would you be interested in attending future trainings on this topic?**

   Yes ☐ No ☐ May be ☐

7. **Are you interested in conducting trainings for BMC members?**

   Yes ☐ No ☐ May be ☐

8. **Would you be applying the learnings from this training in your work?**

   Yes ☐ No ☐ May be ☐

9. **What topics should be dealt in more detail in future trainings?**
10. **What topics do you think were not covered by our training?**
11. **Which topic was not relevant in the training?**

12. Do you think the field visit was useful for you to understand PBR documentation?

Yes ☐ No ☐

13. If you thought that the field visit was not useful for you to understand PBR documentation, please suggest how it could be improved for future trainings

14. Any other suggestions?

Thank you very much for providing valuable feedback!

ANNEXURE 3-C : POST-TRAINING SURVEY FORM (AFTER 6 MONTHS)

1. What is your full name?
2. Which district are you based in?
4. Is there a Biodiversity Management Committee in your Block/Village?
5. Do you know the name of the Chairperson or any member of your local BMC? If yes, please provide the name.
6. Has the People's Biodiversity Register been documented for your block?
7. Have you conducted any training using the training methods you learnt in the ToT?
8. To what extent did your skill in training improved after you participated in ToT?(0 no change, please rate on a scale of 1 to 5)
9. Did the ToT programme on BMC help you enhance your current work? Please provide one concrete example.
10. List up to three important learnings from the ToT programme that have helped you in your current work.
11. To what extent did your knowledge about BMCs and PBRs improve after your participation in ToT? (scale 0 to 5)
12. Did any organisation hire you for conducting training on other BMC or any other topics?
13. How many members are there in BMC?
14. List the training methods that you learnt in ToT.

    This question helped assess whether participants were able to recollect the training methods that were taught and used in theToT.
15. What method(s) will you use to teach BMC members about the documentation of People's Biodiversity Register? Please describe.

    The answers helped assess the participants' capacity and understanding needed for training on a difficult topic. It also helped to gather creative ideas to teach difficult topics to improve future training programmes.
16. What method(s) will you use to teach BMC members about bio-piracy and the importance of documentation of People's Biodiversity Registers? Please describe below.

    The answers helped assess the participants' capacity and understanding needed for training on a difficult topic. It also helped to gather creative ideas to teach difficult topics to improve future training programmes.
17. What percentage of the benefit-sharing amount would go to the BMC?
18. Would you recommend your colleagues to attend this programme?

    Yes ☐ No ☐ Maybe ☐
19. Please provide two concrete recommendations for improving future ToT programmes.
20. How confident are you to training BMC members on the following topics? (1 being lowest and ten being highest)

Topics	Your rating
Biodiversity and its importance	
Biological Diversity Act, 2002	
Biodiversity Management Committees (BMCs)	
Functions of BMCs	
Peoples' Biodiversity Registers (PBR)	
Access and Benefit Sharing (ABS)	

21. Many newspapers have reported reverse migration of people from cities to native villages due to COVID 19 pandemic. Do you think biodiversity can enhance local income in the villages? What are your thoughts?

22. Can you name some of the negative impacts of COVID 19 pandemic on biodiversity or environment? Please provide specific examples from your village/districts.

    This question helps gauge the general awareness of the participants regarding their local biodiversity.

23. What are your recommendations to improve ToT when we implement it in other states in India?

Thank you very much for providing valuable feedback!

ANNEXURE 4 - QUESTION PAPER FOR EXAMINATION SESSION IN ToT

Answer the questions below (5 marks each): **(5 × 4 = 20)**

1. What are the main functions of BMCs? Illustrate with an example of involving different stakeholders

   (Or)

   What actions will you take to conserve biodiversity in your village? Who will you associate with?

2. A farmer cultivating ten varieties of paddy in Thanjavur is selling his produce to a company in Hyderabad. BMC in Thanjavur block asked the company to submit ABS application to Tamil Nadu Biodiversity Board. Do you think BMC is right in doing so? Justify your answer.

   (Or)

   A company in Toothukudi is taking some biological resources from Dindigul for preparation of allopathy drugs. Do you think this comes under the Biological Diversity Act, 2002? Discuss your answer.

3. What is PBR, and what are steps involved in documentation of PBR?

   (Or)

   Explain the step by step process of Access and Benefit Sharing (ABS) and explain the role of BMC in the ABS process

4. List any five committees that can be roped in for supporting BMC activities. Illustrate with an example

Answer the following question (4 marks):

1. Match the following from the A and select the correct answer from the code given below:

A	B
a) Convention on Biological Diversity	I. 2004
b) Biological Diversity Act	II. 1992
c) Biological Diversity Rules	III. 2002
d) Tamil Nadu Biological Diversity Rules	IV. 2017

a. _____

b. _____

c. _____

d._____

Answer the following questions (1 mark each):

1. **English word for Biodiversity (in Tamil) is _____**

2. **Quorum of BMC meeting is_____**
   a) 4
   b) 3
   c) 2
   d) 7

3. **National Biodiversity Authority is located in**
   a) Mumbai
   b) Delhi
   c) Chennai
   d) Bengaluru

4. **Traditional Knowledge holders are excluded from seeking approval of State Biodiversity Board for accessing the biological resources.**
   True ☐ or False ☐

5. **What is the expansion of PBR?**
   a) Public Biodiversity Register
   b) Peoples' Biodiversity Record
   c) Peoples' Biodiversity Register
   d) Public Biodiversity Record

6. **State which of the following is not the function of Biodiversity Management Committee (BMCs)**
   a) Preparation of PBR
   b) Giving approval to companies for commercial utilisation
   c) Management of Biodiversity Heritage sites
   d) Giving feedback to SBBs

7. **Expansion of NTAC is _____**
   a) Normally Traded as Commodities
   b) Naturally Traded as Commodities
   c) Normally Transferred as Commodities
   d) Normally Transformed as Commodities

8. BMC shall conduct a minimum of _____ meetings in a year.
   a) 3
   b) 4
   c) 2
   d) 6

9. Identify the correct statement with reference to biodiversity.

a) Living organisms
b) Agriculture crops
c) Ecosystem
d) All of the above

10. The correct statement in this set is

a) Tenure of the BMC will be 5 years
b) BMC meet at least once in 4 months

Choose one of the following:

a) Only (a) is correct
b) Only (b) is correct
c) Both (a) and (b) are correct
d) Both (a) and (b) are incorrect

11. The incorrect statement in this set is

a) BMCs shall have a tenure co-terminus with the term of the local body.
b) BMCs shall function from the office premises provided by the local body
c) Chairperson of the local body shall be the ex-officio member of the BMC
d) None of the above

12. Name three items that DO NOT come under the purview of ABS.

a) _____
b) _____
c) _____

13. BMC Annual Report should be submitted to

a) District Collector
b) BDO
c) NBA
d) All of the above

14. BMC shall consist of not less than _____% of the Scheduled Castes/ Scheduled Tribes.

a) 16%
b) 18%
c) 14%
d) 20%

15. _____ is the custodian of PBR (Fill in the blank)

16. The person to be nominated as a BMC member should be the resident within the local limits of the local body, and their names should be in the voters' list.

True ☐ or False ☐

17. Write the full form of LBF_____

18. Tamil Nadu Biodiversity Board is located in which city? _____

19. BMC consists of _____ members.

a) 6
b) 7
c) 5
d) 8

20. BMC consists of _____women members.

a) 1/3rd
b) 1/4th
c) 1/5th
d) 2

21. Forest Minister of Tamil Nadu is _____

22. What is the best method for training evaluation?

a) Bus stop
b) Benchmarking
c) Photocard
d) Pairing method

23. Which one is NOT an introductory method?

a) Photocard
b) Pairing method
c) Fish-bowl
d) Self-introduction

24. What is the best method for debriefing?

a) Case study
b) Energiser
c) Ice-breaker
d. Fish-bowl

25. Which is not a method to generate ideas?

a) Brainwriting
b) Fish-bowl
c) Brainstorming
d) Benchmarking

26. Which of the following is a golden rule for participatory training?

a) 20:40:40
b) 30:20:40
c) 10:60:30
d) 30:60:10

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