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# Linking biodiversity to concept of commons

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This module is part of a series of learning modules centred around commons, created and published for internal circulation among the researchers of Dakshin Foundation. Information contained in these modules is collated from publications of various scholars. While these are not exactly ‘commons for dummies’, we have tried our best to simplify the concepts :)

## What is biodiversity?

Biodiversity means variety of lifeforms. The term was coined by Walter G. Rosen in 1986 (Sarkar 2002). Many struggle to give a precise definition to the term biodiversity. One of the internationally accepted definitions is found in the Convention on Biological Diversity (CBD) which defines *biodiversity as the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; and includes diversity within species, between species and ecosystems.*<sup>1</sup> The term thus includes a range of ecosystems such as mountains, forests, fluvial systems, coastal and marine ecosystems and the numerous organisms present in them. It also includes genetic diversity within species. Along with biotic factors, abiotic factors like soil, water, climate etc. are crucial in maintaining living organisms. Hence these ecological complexes are also included within the definition of ‘biodiversity’.

## What is the relation between biodiversity and the commons?

Biodiversity is associated with commons in many ways. It is now not just confined to a resource or an area but it extends to value systems. The knowledge that the biosphere is the

sole known place in the universe where life exists led to environmental protection as a planet-wide common agenda. The terminology that links the concept of the ‘commons’ to biodiversity are common areas, common good, common goods, common interest, common concern, common future, common heritage, community of interest and common responsibility. One of the earliest narratives that recommended for a common global concern for biodiversity conservation can be traced to the Brundtland Commission Report of 1987. The report titled as ‘Our Common Future’ highlights the fact that many environmental problems have global impact as ecological interactions do not respect boundaries of individual ownership and political jurisdiction (Brundtland Commission 1987). The report regarded ecosystems and species as essential resources for development. It noted the fact that many species are vital for the present-day uses as food, medicine, and for industry, and also have potential future uses. The report discussed the huge benefits to industrial nations with their efficient technologies and methods in utilising the wild resources of developing countries. It also highlighted emerging evidence of extinction of species, degradation and destruction of ecosystems, and argued that the global community had a responsibility towards stopping this. The report introduced to the world, the conservation of “living natural resources” or biodiversity as a common concern for the decades to come. This report laid the foundation for the important

Article 2 of the Convention on Biological Diversity, 1992, <https://www.cbd.int/convention/text/> last accessed 16-02-2020

common areas, common property,  
common good, common goods,  
common interest, common concern,  
common future, common heritage,  
global commons, community of interest  
common responsibility

“Terms linking commons to biodiversity”. Image credits: Alphonsa Jojan

international agreements such as the Convention on Biological Diversity which was signed at the 1992 Earth Summit in Rio de Janeiro.

The Convention on Biological Diversity considers the conservation of biodiversity as a common concern of humanity. Almost 30 years after the submission of the Brundtland Commission Report, we have the 15th Conference of Parties (CoP) of the Convention on Biological Diversity re-affirming the enduring idea of a global society collaborating towards building a new ecological civilisation for a shared future. The 15th CoP will be held with the theme “Ecological Civilisation: Building a Sharing Future for All Life on Earth”. The Conference emphasises the term “nature” as a fundamental infrastructure that supports life on earth. Some interpret this use of the term nature as a recognition of multiple world views, where along with scientific terms like biodiversity, common terms like nature are acceptable. This allows for broader world views of relations between indigenous peoples and local communities and a more amorphous ‘nature’.

The use of the word ‘common’ in these documents above is

not a casual one. From the perspectives of indigenous peoples and local communities across the world, the emphasis on resources and relations to things that are held as ‘common’ ownership is critical. For such peoples- community, kinship relations, and relations towards nature and life is highly intertwined with the idea of commons. Most of their lands, resources and knowledge are under community ownership or for community use.

### Conservation of biodiversity as a common concern of humanity

To the question of what makes a concern ‘common’ to the entire global community, Dinah Sheldon, a scholar of international environmental law has suggested that an issue becomes a common concern when it transcends national boundaries and requires co-operation and collective action of nation states; when no single nation can resolve the problems they pose or receive the benefits they provide (Sheldon 2009). Many international laws especially the International Convention for the Regulation of Whaling

(1946) and the Tokyo Convention for the High Seas Fisheries of the North Pacific Ocean (1952) are premised on the notion that a common interest for humans exists for adopting conservation measures of common fish stocks for the welfare of not only present generation but also future generations (ibid). The Convention on Biological Diversity adopted the conservation of biodiversity as a common concern of humankind as discussed earlier.

The global concern recognises two main strategies for biodiversity which is in-situ and ex-situ. In-situ conservation is envisaged as the primary conservation strategy implemented through a network of protected areas and other effective means of conservation. These include indigenous and community conserved areas (ICCAs). The stewardship practices of indigenous peoples and local communities are recognised by the Convention.

## Who has rights over biological resources?

The recognition of the economic importance of biological resources for the production of food, drugs, medicine and industrial products have led states to affirm their sovereign rights over the biological resources found within their territory. As mentioned earlier, technological and scientifically advanced developed countries were seen to be economically interested in the genetic diversity of the biologically rich developing countries. To facilitate the use of genetic resources while ensuring equity, certain legal principles have emerged over time. First among these

principles is the re-affirmation of sovereign rights of nation states over natural resources. The CBD is significant in this perspective as it affirms that biological resources and their genetic diversity are a part of the sovereign right of nation state. This means the nation state has control over its biological resources and has rights to determine access to it and its use (Article 15). However, the international community requires that a provider state will facilitate access to its genetic resource on certain conditions. The conditions include that the country seeking access of a genetic resource will obtain the prior informed consent (PIC) of the provider state. The access shall be granted on mutually agreed terms between the user country and the provider country which will bring equitable sharing of the benefits from the use of the genetic resource.

Along with the rights of nations, the CBD also recognises the rights of indigenous people and local communities (Article 8(j) and 10 (c) of CBD) to biological resources. This right is another dimension of the idea of commons, since property rights among many indigenous peoples are collective community rights.

## VARIETIES OF BIODIVERSITY

### Agro-biodiversity

Agriculture relies on biodiversity. Agro-biodiversity is defined by the United Nations' Food and Agriculture Organisation (FAO) as "the variety and variability of animals, plants and micro-organisms that are used directly



Boatman overlooking a sacred island conserved by communities living near Aghanashini estuary, Kumta, Karnataka. Image credits: Kiran Jacob

or indirectly for food and agriculture, including crops, livestock, forestry and fisheries (FAO 2004). It includes diversity between species and within species at their genetic level such as plant varieties and animal breeds. The FAO further lays emphasis on the importance of the diversity of non-harvested species that support production such as soil micro-organisms, predators, pollinators such as bees, butterflies, earthworms (ibid). The diversity even extends to those in the wider environment that support agro-ecosystems as well as the diversity of the agro-ecosystems (agricultural, pastoral, forest and aquatic).

Diversity in agriculture is crucial as its varied characteristics and features are essential for survival in changing environments. Agro-biodiversity is the outcome of interactions among genetic resources, the environment and the management systems practised by farmers (CBD). Human intervention shapes, supports and conserves agro-biodiversity. We are endowed and entrusted with diverse agricultural resources having varying traits developed naturally or through selection by human beings over millennia.

From the early domestication of plants, farmers have saved, improved and exchanged plant reproductive materials. Similarly various breeds of animals and species of fish have evolved. In earlier times, farmers and livestock keepers used to constitute the main custodians of agro-biodiversity. Later public research institutions and private research institutions and profit-oriented companies got involved in agriculture practices, research and agro-biodiversity related businesses, enabled by technological and legal developments.

#### *Are seeds common property?*

Seeds are a crucial part of the cycle of life in farming. There are concerns about the growing trend of seeing agrobiodiversity as a natural resource best managed as private property. Two aspects of seed governance are important when we try to examine agro-biodiversity as commons – innovation and conservation, both mediated by the notion of intellectual property rights.

Seeds were considered as global commons that are publicly available. They are protected and innovated by those who have been cultivating, exchanging and improving them. With increased global trade, the sharing of seeds has become transboundary. Modern technology and new laws such as intellectual property rights have changed the ‘common’ nature of seeds into private monopolistic entities. Modern plant breeding techniques – particularly biotechnology and hybridisation, are cost and input-intensive which hampers

the participation of many farming communities in the research and development of improved genetic resources. The process of developing improved genetic resources is considered an invention which qualifies for protection by intellectual property law empowering the inventor to decide on the use of the improved variety. The emergence of the intellectual property system and its application to genes, gene sequencing, tissues and seeds have created a shift in the shared common culture of agro-biodiversity. Soon monopoly rights – patent or plant breeder rights began to be conferred on developers of new varieties, breeds and micro-organisms. Technologically advanced nations especially the U.S have been at the forefront of developing intellectual property rights regime on living resources. They also pushed the adoption of this legal and regulatory regime through institutions like the World Trade Organisation (WTO) and international conventions such as the Trade Related Intellectual Property Regime.

The issues related to conservation of agro-biodiversity also draw in intellectual property rights (IPR). For instance, the International Convention on Protection of New Varieties of Plants has set up a new governing institution to oversee such varieties – the International Union for Protection of New Varieties of Plants (French acronym – UPOV) which adopts IPR as its main vehicle to ensure conservation. Under this convention, plant genetic resources are internationally considered as the common heritage of humankind. The idea of ‘common heritage of humankind’ can be understood as comprising the following five principles (Timmermann & Zoe Robaey 2016).

- i. common management
- ii. no unilateral appropriation without sharing of benefits
- iii. swift sharing of knowledge gathered by scientific research
- iv. prohibition of harmful uses and
- v. preservation for future generations.

The Convention recognises, ensures and guarantees certain rights to farmers, namely, to save, collect, exchange and use seeds. However India has its own Plant Varieties Protection laws which provide greater protection to farmers than the international convention, and there has been controversy regarding India’s stand on which law to follow.

The other international treaty, the Convention on Biological Diversity affirmed the sovereign rights of nations over their biological resource as discussed earlier. The affirmation

of sovereign rights over genetic resources under this Convention created tensions among the world community as the biological resources once available freely to all was now being considered the property of nation states. However, the commercialisation of biological resources has also resulted in the adoption of the Convention on Biological Diversity through which equity between biodiversity-rich countries and technology-rich countries can be negotiated.

Another treaty, the International Treaty for Plant Genetic Resources for Food and Agriculture was adopted to accord a 'common heritage status' to a few biological resources that are relevant for food and agriculture. The Treaty has declared seeds that are listed under it as common heritage of humankind for research purposes.

Many farmers across the world are organised and are members of community-led movements for seed sovereignty. In India, like forest-dwelling communities and community-based civil societies, a movement for seed sovereignty and farmers rights also led to the enactment of Plant Varieties Protection and Farmers' Rights Act. This sui generis legislation affirmed various rights for Indian farmers. The most important right is their right to practice traditional farming without any obstacles. The Act guarantees the farmer the right to save, use, sow, re-sow, exchange, share and sell farm produce (Section 39(4) of the Plant Varieties Protection and Farmers Rights Act, 2001). Farmers have used the Act for securing these rights against Pepsico. Details are given in Box1.

*Box 1: Farmers fight Pepsico in Pepsico Lays Chips case*

In April 2019, the global giant in Food and Beverages, Pepsico initiated legal proceedings against four farmers in Gujarat for violating Pepsico' intellectual property rights over a potato variety (FC 5) developed by them and registered under the Plant Variety Protection and Farmers Rights Act . They claimed damages of 1 crore from each farmer for cultivating their proprietary variety. The farming community opposed the claim and relied on the farmers' rights under the PVPFRA. After massive protests and media attention, the company announced its decision to withdraw the case filed against the farmers (Down to Earth 2019).

The rampant genetic erosion after the Green Revolution promoted communities and civil society groups to promote the reclamation of agro-biodiversity commons. Through creating community seed banks, informal networks of exchanges, seed fairs communities these groups are

reclaiming their lost heritage of seeds and other agricultural practices. To learn see the work of the Deccan Development Society shown here in this Video clip: <https://www.youtube.com/watch?v=XPSsPYbDmT8>

### **Commons and Forest biodiversity**

Forests are important ecosystems that support livelihood and life. Forests provide multiple benefits including provision of food, fodder, firewood, timber and non-timber products in addition to carrying out major ecological functions. Forests are sites of origin of many rivers. There is a traditional saying among fishing communities that "the sea starts from the forest". They are also repositories of many minerals (CSE 2008). Forests are central to human health being a source of multiple medicines of plant origin. The diverse forest types such as tropical forests, temperate forests, mangroves, but also other associated landscapes like grasslands offer various services to humankind. Some of this value is recognised. For instance, there is great advocacy and support for declaring rainforests as global commons since they are rare, highly important for carbon sequestration and controlling global climate.

#### *Ownership and management of forests*

Forests are homes to many indigenous peoples and local communities. In India and like many colonised states, forests have been brought under the ownership and control of the Forest Departments. During colonial times forest were managed to extract timber products to meet the industrial needs of the colonial state. For this process, large tracts of forests were 'scientifically' managed. Indigenous peoples and local communities who were custodians of the forest were considered as encroachers. The imposition of the Indian Forest Act in 1875 ensured state control over forests even if they were protected and managed by local communities. Even though the law provided for settlement of rights, adivasis and forest dwellers did not have documentary evidence to establish their rights. After colonial rule, the Constitution of India guaranteed certain rights in governance to the adivasi dominated areas of independent India. These areas were included in the Vth and VIth Schedules of the Constitution. However, the Forest Department exercised control over the notified forests - i.e the Reserve Forest and Protected Forest.

In the 1970s, the state also created a network of protected areas in the name of national parks and sanctuaries. These protected areas were conceived as enclosed spaces protected through a strategy of fences and fines. The exclusionary conservation policies were met with stiff opposition from indigenous peoples and local communities. The historic

forest rights legislation was enacted in 2006 which recognised the rights of the scheduled tribes and other forest dwellers rights over the forest. These rights included the right to own minor forest produce, use forest resources and also the right to manage community forest resources.

There are also several forest areas that are managed by village communities as common areas. Most of these areas are sometimes revered and considered as sacred groves. For example, in the State of Rajasthan, Orans are community conserved sacred areas. Sacred groves are increasingly recognised as areas conserved by communities over which there are many rules and protocols. Studies have also shown that in several sacred groves, gender and caste-based discrimination is practised (Jojan 2017).

*Box 2: Niyamagiri's forests*

Niyamagiri, the abode of the adivasis of Odisha known as the Dongria Kondh is a large deciduous forest that supports several endemic and threatened flora and fauna. The Dongria Kondh's way of life is closely linked with the forest and mountains and the protector of this landscape, the Niyamraja. They have their own system of governance over this region which is also rich in several mineral deposits. The Niyamgiri hills have been proposed for the mining of bauxite to supply to aluminium refineries in Kalahandi district. Against the mining, the adivasis fought a prolonged battle arguing that the Niyamagiri hills were worshipped by them. Their arguments were bolstered by the Forest Rights Act, using which they argued for their right over the hills (Tatpati 2016).

## Wetlands and inland aquatic biodiversity

Water is one of the key abiotic resources that supports biodiversity. Freshwater ecosystems and coastal and marine ecosystems directly depend on water for their existence. Most of these ecosystems can be considered as commons. An old adage holds that nobody can own a river or running water, or the sea or its shores. However with time, laws of property have covered these spaces to such unwritten rights more specific. People who reside or occupy the riverside or water bodies are considered to have special rights called riparian rights. This allows for a way of seeing the entire river as a common resource. Riparian right holders are also obligated to respect the rights of other uses.

*Freshwater ecosystems:* Freshwater ecosystems consist of rivers, lakes and wetlands. Freshwaters are largely part

of other ecosystems such as forest, agro-ecosystems and so on. Species diversity of freshwater consists mainly of fish, amphibians, water-dependant mammals, water birds, reptiles, insects, aquatic plants. Among these, some are more threatened than others, such as river dolphins, gharials etc. Twenty percent of freshwater fish is considered to be extinct (Coates and Grekin 2013). Major threat to freshwater biodiversity is the conversion of these ecosystems for other purposes that cause pollution, overuse and the introduction



A signpost erected by villagers of Plachimada protesting against overuse of underground water by Coca Cola company, Image credits: Ejabatlas

of alien species. In urban cities like Bengaluru, residential groups have come together to conserve freshwater systems such as lakes.

*Underground water:* Plachimada in Kerala is a well-known example of how groundwater is treated by village communities as a commons (Koonan 2010). It is the story of how a village community collaborated with its elected representatives and fought collectively to end the indiscriminate use and exploitation of their ground water by the multinational Coco Cola company. Protests erupted against this indiscriminate use by the villagers who complained of the deterioration of water quality and quantity. Many of these villagers were from Adivasi and Dalit community who depended on groundwater for agricultural purposes (Bijoy 2006).

## New challenges: Biodiversity data

The advances in technology are so rapid that each CoP meeting of the CBD faces newer challenges. Synthetic

biology and digital sequencing of genetic data are a few of these examples. Synthetic biology eliminates the requirement of repeated access to biological resource which frustrates the sharing of benefits. Availability of genetic data in a digital form is yet another problematic development that poses challenges to its safeguards and fair benefit sharing.

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