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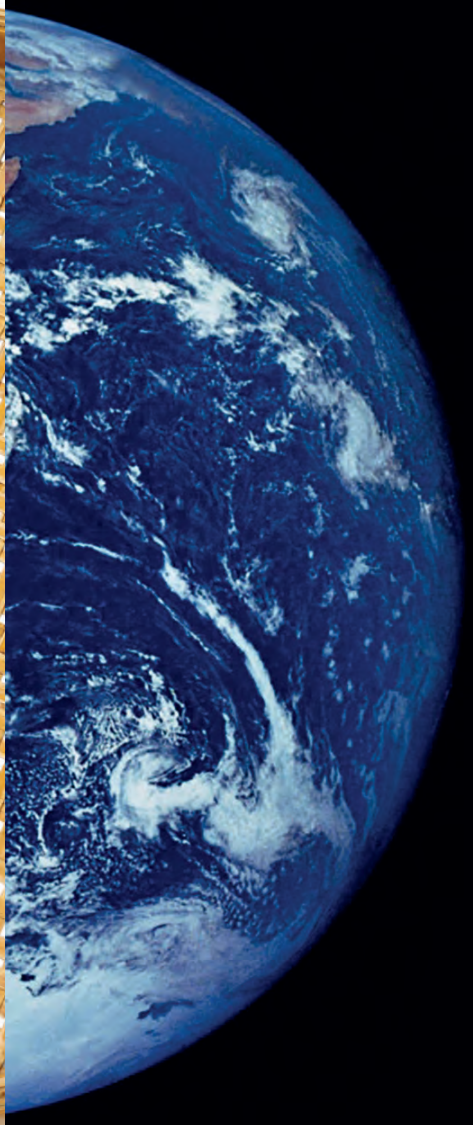


BIOLOGICAL RESOURCES

WHO OWNS?

India's efforts to share earnings from its biodiversity with local communities have been reduced to a bureaucratic exercise

BENEFIT WITHHELD

One needs a purpose bigger than the egotistical self to choose a vocation that can get the person killed in minutes, and Kali Chokalingam knows what it is for him. At the Irula Snake Catchers Industrial Co-operative Society, housed within the Madras Crocodile Bank in Kancheepuram district of Tamil Nadu, visitors appear entranced by Kali as he, standing in a pit, calmly picks up a Russell's viper. Hissing around him are other venomous snakes—cobra, common krait and saw-scaled viper—lying in terracotta pots that are sealed with cotton cloth to ensure that the reptiles receive enough air but do not escape. Holding the viper from its jawbone, while controlling its writhing body, Kali squeezes the skull until its fangs clamp over a collection vial and drops of venom flow into it.

The venom of these snakes, referred to as the "big four" as these species cause the maximum number of snake bites in the country, is used for several pharmaceutical products, including antidotes. In India, snake bites cause 58,000 deaths. Venom extraction is a highly dangerous job. But Kali, who belongs to the Irula tribal community, makes the process appear effortless.

Generations of catching reptiles have equipped the Irulas, who live in and around the forests of Tamil Nadu's northern and western districts, with an expert understanding of snakes. While some like Kali are engaged in venom extraction, others in the 350-member Irula cooperative catch and supply the "big four" from wastelands, agricultural fields and industrial and residential areas. They can instinctively read the faint signs and marks on the ground and follow those to capture the reptile. The snakes are kept at Irula cooperative only for a month, during which venom is extracted four times. After that they are released into the wild in the presence of a forest officer. Since hunting and possession of snakes is prohibited under the Wild Life (Protection) Act, 1972, the Irulas obtain special licences for the purpose from the Principal Chief Conservator of Forests. While releasing the snake into the wild, they place a mark on its back to ensure that the same one is not caught repeatedly. The Irulas know that their livelihood depends on the well-being of the "big four".

Two decades ago India adopted a law that mandates sharing of benefits from commercial utilisation of biodiversity with local communities. What has kept the law from protecting the interest of people and the biodiversity? **VIBHA VARSHNEY** travels to bio-rich parts of India to find out

Snake venom is a valuable biological resource. Saw-scaled viper venom can sell for ₹1.75 lakh a gram. In 2020-21, the Irula cooperative earned ₹2.49 lakh from selling venom. Its members, who have a share in the profit, earn on average upwards of ₹15,000 a month depending on the number of snakes they catch—they are also paid by the industry and farmers for this work.

Such a concept has been at the heart of the UN Convention on Biological Diversity (CBD), which the world adopted in 1992 at the Rio Earth Summit in Brazil. The Convention is the only international instrument that addresses biological diversity comprehensively. CBD's objective is to conserve biological resources (flora, fauna and the germplasm) along with the traditional knowledge associated with them, to ensure that the resources are sustainably used and there is fair and equitable sharing of the benefits arising out of the utilisation of biodiversity.

India, home to 7 to 8 per cent of the world's recorded species, has since been at the forefront in complying with CBD protocols. India ratified CBD in February 1994 and in 2002, enacted the Biological Diversity Act. Soon, a decentralised system was set up to implement the law (see 'Three-tier security' on *p*21). The National Biodiversity Authority (NBA) was established in 2003 to be at the helm and provide advice to the Union and state governments on conservation, sustainable use, and access and benefit sharing. The authority also regulates access of biological resources by international agencies. The biodiversity boards at the state ensure conservation of biological resources along with the regulation of access by national entities. In addition, under the Biological Diversity Act 2002, biodiversity management committees (BMC) have been set up at the panchayat level. These village committees have to ensure that the biodiversity in their area is mapped in the People's Biodiversity Register. The national and state biodiversity boards are required to consult and get approval from these village-level committees for the use of biological resources and knowledge that is recorded in their registers. BMCs can also impose charges and fines for extraction of these resources, found in their villages.

SHARING OF BENEFITS: PAPER TRAILS

In 2010, the Nagoya Protocol was adopted as a supplementary agreement to CBD and it came into force on October 12, 2014 (see 'Global nod to sharing'). India was quick to ratify this too, and issued "Access to Biological Resources and Associated Knowledge and Benefits Sharing Regulations" (ABS regulations) that year. As per the regulations, users of biological resources and associated

GLOBAL NOD TO SHARING

Nagoya protocol is the only global pact to exclusively deal with benefit sharing

The 2002 World Summit on Sustainable Development at Johannesburg agreed on need of an instrument to ensure fair and equitable sharing of benefits arising from the utilisation of genetic resources—one of the objectives of the Convention on Biological Diversity, an agreement signed by 150 governments since the 1992 Rio Earth Summit. To fulfil this need, the Convention's Conference of the Parties put in place, in 2004, an Ad Hoc Open-ended Working Group on Access and Benefit-sharing, which negotiated the protocol for six years to finally adopt it on October 29, 2010, at Nagoya, Japan.

The objective of the Nagoya Protocol is to set a legally binding international framework to promote a transparent and effective implementation of "access and benefit-sharing (ABS)" at the regional, national and local levels. The protocol is based on potential users of genetic resources obtaining the prior informed consent (PIC) of the community with whom the genetic resource is located before accessing the resource, and negotiating and agreeing on the terms and conditions of access and use of this resource through the establishment of mutually agreed terms (MAT). Each Party to the Nagoya Protocol provides information on domestic ABS requirements, national focal points and competent national authorities, as well as makes available permits or their equivalent issued at the time of access.

knowledge must share a percentage of their profits with communities who have been holders of the knowledge of the resource.

Traders and manufacturers of herbs and herbal products have the option to provide the communities and the collectors between 1 and 5 per cent of the purchase price or between 0.1 and 0.5 per cent of the sale price, depending on the scale of their commercial operations. The national and state biodiversity boards can retain 5 per cent of the payment, while 95 per cent has to go to the BMCs or to the benefit claimers. The ABS regulations further mention that in case the "benefit claimers" cannot be identified the funds will be used to "support conservation and to promote livelihoods for local people from where the biological resources are accessed".

This is all good in writing and intent but in most cases, it is difficult to identify the source as manufacturers purchase these biological resources from wholesale traders and the knowledge providers are not known.

There is no publicly available data on the agreements signed with companies or the funds paid and how these have been utilised or paid out to communities. However, inputs from the National Biodiversity Authority, show that biodiversity boards of 12 states have collected ₹23.69 crore from the inception till date. In addition, the National Biodiversity Authority, which signs benefit-sharing agreements with foreign companies, has signed 3,369 contracts and collected ₹148.03 crore. Out of this, ₹56 crore has been transferred to the state boards (see 'Elaborate sham', *p*23).

The Uttarakhand biodiversity board tells *Down To Earth* (DTE) that the state has 7,991 BMCs and that it has signed 152 benefit-sharing agreements. It has collected ₹8.07 crore from traders and manufacturers of biological resources. Not much is known about the contracts. But what is known is that all the funds received are unused and sitting with the state biodiversity board as the beneficiaries are not known.

When DTE contacted the Kerala biodiversity board, it was told that the state has 1,200 BMCs and has signed four benefit-

THREE-TIER SECURITY

India has Union, state and village-level institutions to conserve biodiversity and to share its earnings with communities

NATIONAL BIODIVERSITY AUTHORITY (NBA)

- Advise the Government of India on matters relating to conservation of biodiversity, **sustainable use of its components, fair and equitable sharing** of benefits arising out of utilisation of biological resources.
- Regulate **activities and issue guidelines for access to biological resources** and /or associated knowledge, and for fair and equitable sharing in accordance with Sections 3, 4 and 6 of the Biological Diversity Act, 2002.
- Take measures to **oppose the grant of intellectual property rights in any country outside India** on any biological resource obtained illegally from India or knowledge associated with such biological resources derived illegally from India.
- Advise **state governments in selection of areas of importance for biodiversity** (to be notified as heritage sites) and suggest measure for their management.
- Provide **guidance and technical support to Biodiversity Management Committees** (BMCs) through State Biodiversity Boards (SBBs) for preparing People's Biodiversity Registers.
- Perform functions necessary to **carry out the provisions of Biological Diversity Act, 2002.**

STATE BIODIVERSITY BOARDS (SBBs)

- Advise the state governments, subject to guidelines issued by the Central government, **on matters relating to conservation of biodiversity, sustainable use of its components, and fair and equitable sharing** of benefits arising out of utilisation of biological resources.
- Regulate, **by granting approvals or otherwise, the request for commercial utilisation or bio-survey and bio-utilisation** of any biological resources by Indians.

BIODIVERSITY MANAGEMENT COMMITTEES (BMCs)

- Prepare, maintain and **validate People's Biodiversity Registers (PBR) in consultation with the local people.** PBR provides details of access granted to biological resources and traditional knowledge, the collection fee, the benefits derived and the way they are shared.
- **Advise on any matter referred to it by the State Biodiversity Board** or the National Biodiversity Authority for granting approval.
- Maintain **data about local *vaidya*s and medical practitioners** using biological resources.

Source: National Biodiversity Authority website

sharing agreements. Again, nothing more is known about the nature of these agreements. In this state too, the funds are lying with the biodiversity board.

Tamil Nadu has 13,604 BMCs and the state board has received ₹1.04 crore as benefit-sharing from 11 companies. "Of the ₹1.04 crore, we have so far transferred ₹53 lakh to communities and individuals. Beneficiaries for the remaining are not known, but we are trying to identify them proactively," says Shekhar Kumar Niraj, chairperson of Tamil Nadu biodiversity board.

D Narasimhan, retired taxonomist with Madras Christian College, Chennai, and member, expert committee on access and benefit sharing of the National Biodiversity Authority, says there is an urgent need for a policy to streamline transfer of funds received as sharing of benefits. S S Rasaily, former secretary, Uttarakhand biodiversity board, suggests that one way is to make companies understand that the money they deposit under "benefit sharing" is used for taking care of the land and natural resources their factory depends on.

PEOPLE'S REGISTERS: TO IDENTIFY RESOURCES, KNOWLEDGE

DTE visited some of the biodiversity-rich parts of the country in late March and early April to understand the status on ground.

In Uttarakhand's Devprayag *tehsil* of Tehri Garhwal district, the people's biodiversity register of Bagwan village is a simple register with a names of a few plants on the first two pages. Talking to the village community, it was clear that the huge treasure trove of traditional knowledge that still exists in the village was not included. For instance, retired forest official Hirender Pandey's knowledge to treat jaundice using local herbs found no mention, nor did Bilochan Prasad's understanding of forest plant *basingu* (*Adhatoda vasica*) that can be used to cure stomach ailments. When DTE checked, it was told that the register was made by a forest official, who, as per the Biological Diversity Act, 2002, is a member of the village BMC. The register was made during the lockdown period of COVID-19 pandemic, possibly following the directions of the National Green Tribunal (NGT).

NGT's direction of April 2019 was based on the 2016 petition of Pune-based activist Chandra Bhal Singh and said that "officers who are responsible for the job to ensure compliance with 100 per cent constitution of BMC and people's biodiversity registers by 31.01.2020. If this task was not completed in time, then the state would have to pay a fine of Rs 10 lakh per month to the central pollution control board". Till then only 9,700 BMCs had been set up. Following the NGT order, states rushed to constitute BMCs. By April 2022, as many as 276,836 BMCs had been established and 266,135 people's biodiversity registers were made. However, the quality of these registers is less than certain.

Biodiversity experts say it requires time and effort to capture the knowledge that exists and to match it with local resources. It

ELABORATE SHAM

Of India's 283,520 local governing bodies, 98% have biodiversity management committees, 94% have people's biodiversity registers. But a large number of these were formed during the pandemic-induced lockdown and are technically inadequate

States	Biodiversity Management Committees	People's Biodiversity Registers	ABS* money received between 2017-21 (in ₹ lakh)	Number of ABS* agreements made between 2017-21
Andhra Pradesh	14,157	14,157	1,089.77	4
Arunachal Pradesh	1,806	1,806	NA	NA
Assam	2,549	2,549	NA	NA
Bihar	9,101	9,101	NA	NA
Chhattisgarh	12,004	3,272	NA	NA
Goa	205	205	NA	3
Gujarat	14,356	14,716	NA	7
Haryana	6,435	6,437	NA	NA
Himachal Pradesh	3,371	3,371	7.61	2
Jharkhand	4,684	4,684	0.74	2
Karnataka	6,554	6,554	368.83	42
Kerala	1,200	1,034	NA	NA
Madhya Pradesh	23,557	23,557	194	1,725
Maharashtra	28,649	28,649	NA	NA
Manipur	2,260	199	NA	NA
Meghalaya	6,473	6,473	NA	NA
Mizoram	894	894	NA	NA
Nagaland	1,238	1,238	NA	NA
Odisha	7,256	7,256	NA	NA
Punjab	13,599	13,599	NA	NA
Rajasthan	11,839	11,839	NA	NA
Sikkim	196	196	NA	NA
Tamil Nadu	13,604	13,604	1.56	13
Telangana	13,461	13,461	4.15	19
Tripura	1,264	1,264	63.6	92
Uttarakhand	7,991	7,991	527.91	145
Uttar Pradesh	59,407	59,407	80.79	
West Bengal	3,830	3,830	21.86	6
Union Territories				
Andaman and Nicobar Islands	71	71	NA	NA
Chandigarh	1	0	NA	NA
Daman & Diu	44	44	NA	NA
Delhi	4	0	NA	NA
Jammu & Kashmir	4,666	4,666	NA	NA
Ladakh	100	0	NA	NA
Lakshadweep	10	10	NA	NA
Puducherry	0	0	NA	NA
Total	276,836	266,135		

*Money shared under the Access to Biological Resources and Associated Knowledge and Benefits Sharing Regulations, 2014

Source: National Biodiversity Authority website; data updated on April 20, 2022

It requires time and effort to capture the knowledge that exists and match it with local resources. The exercise also requires funds

also needs funds, which are not available with BMCs. "Peoples Biodiversity Registers are potentially a great knowledge resource, but at present creating them is simply a localised documentation exercise of variable quality and reliability," says Darshan Shankar, vice chancellor of the University of Trans-Disciplinary Health Sciences and Technology in Bengaluru. Madhav Gadgil, ecologist and founder of Centre for Ecological Sciences at the Indian Institute of Science, Bengaluru, who had originally conceptualised the registers as key ways to document knowledge and nature, tells DTE of the enormously important role of this effort. "People's biodiversity registers can be used to counter false and misleading statements given in forest diversion proposals and in the environmental impact assessment (EIA) reports submitted by developers and other project proponents. They could help a community present the facts before the decision maker to highlight the 'real value' of the ecological entity proposed to be 'sacrificed'. Moreover, communities can use it to claim a share of the benefit that companies accrue by utilising the biological resource".

FAIR SHARE DENIED: INDUSTRY NOT TOO KEEN

Under the Biodiversity Act 2002, the benefits from commercial utilisation of biological resources have to be shared with communities. The Irula cooperative is the only organisation in the country with licence to collect snake venom. It sells the venom to eight pharmaceutical companies. But only one, Pune-based iSERA Biological that is a recent entrant to the business, agreed in January 2020 to offer 5 per cent of the purchase price to Tamil Nadu biodiversity board for three years under the ABS regulations. In 2020, the board received ₹17,700 from iSERA as first tranche of the payment, which it transferred to Thiruporur BMC and Irula cooperative. The cooperative used this money to set up a water purification system. The board has not received any money from iSERA since. It does not have the financial or human resources to track the industries that access the resource or to identify beneficiaries. For instance, seaweed (*Kappaphycus alvarezii*), an additive in food and cosmetic products, attracts several companies to Tamil Nadu. But only one, PepsiCo India, has so far paid ₹37 lakh as royalty for it, that too in 2008.

Benefit-sharing has not worked because the industry is not keen on sharing its "benefits" with communities. In 2014, when the ABS regulations were introduced, states sent out notices to industries that depended on biological resources, asking them to pay the dues—Tamil Nadu sent notices to 577 companies and Uttarakhand to 805. But many companies moved court. Among them is Ayurvedic manufacturer Divya Pharmacy.

In 2016, the Uttarakhand biodiversity board served a notice to Divya Pharmacy for using biological resources from the state for its ayurvedic formulations, without informing the board and evading benefit sharing fees. The board had asked Divya Pharmacy to share ₹20 million of its ₹4.21 billion revenue earned in 2014-15, or a levy of 3-5 per cent on the cost of biological resources extracted, or 0.01 to 0.05 per cent of annual gross ex-factory sales of finished goods after deducting taxes. Divya Pharmacy challenged the notice at Uttarakhand High Court, saying that the state biodiversity board did not have the authority to impose ABS regulations on Indian entities. In 2018, citing the Biological Diversity Act, the Uttarakhand High Court held that all Indian companies extracting biological resources are liable to seek prior approval of the National Biodiversity Authority and share part of their revenue with communities.

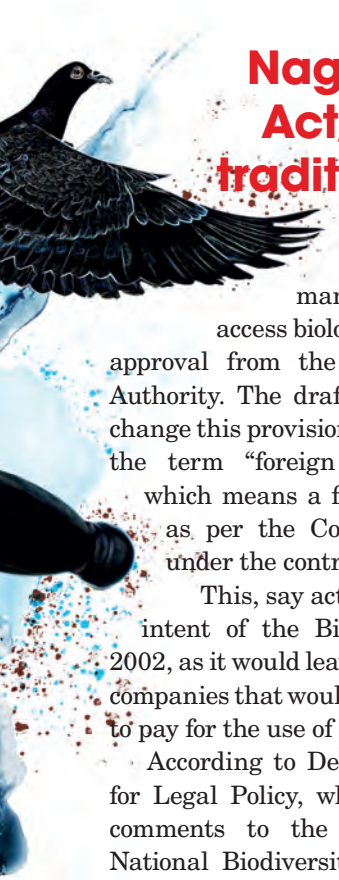
HITS AND MISSES

2021 Amendment: What it will fix or not

In December 2021, Union Environment Minister Bhupender Yadav tabled the Biological Diversity Amendment Bill in Parliament. The amendments hope to reduce burden on wild medicinal plants by encouraging their cultivation; facilitate environment for collaborative research and investments; improve research patent application process; reduce need of practitioners and companies making medicinal products for taking permission from the National Biodiversity Authority (NBA); and to increase the composition of the authority and revising positions and responsibilities. Additionally, it proposes to de-criminalise violation of provisions of the legislation; suggests creation of separate authorities at the Centre and the state levels, withdraws the power given to the authority to file an FIR against a defaulting party for violation; and provides for the creation of an inquiry officer, who following an inquiry, can impose a penalty of up to ₹1 crore in cases of continuous violation. The bill was referred to a joint committee to include concerns of stakeholders. The committee has had nine meetings so far, the last of which was on April 19, 2022. It has already deferred the deadlines a few times but is likely to submit its report to Parliament on June 3.

The amendments do not address some of the major problems that *Down To Earth* found on ground. The fact is that the entire effort to share benefits with communities has been reduced to, at best, a meaningless bureaucratic exercise on paper and at worst a charade. The system of access and benefit sharing can work only if the knowledge holders are recognised; if the traders and manufacturing companies that use this knowledge are held liable for payments, which is then transferred to communities or a system is made for its utilisation for conservation and for the benefit of local communities. None of this is happening on the ground. This is partly because there is no information available in the public domain about the agreements and the transfers. It is also because the registers that should be the basis of the documentation of the knowledge and its utilisation are more or less empty sheets of paper.

However, the issue that has raised a red flag is the provision in the amendment on who can access biological resources. Under Section 3 of the Biological Diversity Act, 2002, "a person who is not a citizen of India; or who is non-resident or a corporate body that is not incorporated or registered in India, which has any non-Indian participation in its share capital or



Nagoya Protocol and the Indian Biodiversity Act, 2002 never accounted for the codified traditional medicine systems in their provisions

management" cannot access biological resources without approval from the National Biodiversity Authority. The draft amendment seeks to change this provision by substituting it with the term "foreign controlled company", which means a foreign company which, as per the Companies Act, 2013, is under the control of a foreigner.

This, say activists, would defeat the intent of the Biological Diversity Act, 2002, as it would leave out of its ambit many companies that would otherwise be required to pay for the use of biological resources.

According to Delhi-based Vidhi Center for Legal Policy, which has submitted its comments to the joint committee, the National Biodiversity Authority had used provisions under Section 3 of the existing law to take legal action against Maharashtra Hybrid Seed Company when it obtained indigenous varieties of brinjal for developing genetically modified Bt brinjal without prior authorisation. If the amendments are enacted, the company would not be classified as "foreign controlled", even though 26 per cent of its ownership lies with the US-based Monsanto Co. Andhra Pradesh biodiversity board also used the same provision to seek royalty from Monsanto India (whose 72 per cent share is owned by Monsanto Co) for developing genetically modified Bt cotton, resistant to bollworm. For developing the seeds, the company had used genetic information from *Bacillus thuringiensis* found in the soils of Mahanadi village in Kurnool district.

The other issue of concern is the inclusion of the term "codified traditional knowledge" which does not exist in the original law. As per the proposed amendment, Section 4, pertaining to access of biological diversity would be substituted so that results of research obtained or accessed from India, if these are from codified traditional knowledge, would be shared without prior written approval of the National Biodiversity Authority. But if the research is used for commercial utilisation or to obtain intellectual property rights (IPR) within or outside India, the approval of the National Biodiversity Authority would be needed. This has raised the hackles of many who see this provision as a way for many Ayurvedic and Unani—and other such traditional medicine systems—to be allowed to use biological resources without any regulations and need for benefit sharing.

The problem is that the Nagoya Protocol and the Indian Biodiversity Act, 2002 never accounted for the codified traditional medicine systems in their provisions. The fact is also that these companies are making important products—essential for well-being and health—and that this knowledge is from ancient wisdom, learnt and evolved from the experiences of the use of biological diversity. How will this traditional knowledge be distinguished from the knowledge that exists in the villages and homes of communities? Who should be compensated for this resource or the knowledge that is used to make the many products that we use in our lives today?

India is trying to promote the AYUSH industry (Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homeopathy), which needs around 680 plants. Manufacturers of these traditional medicinal and well-being products depend on the biodiversity, found mostly in the wild which is difficult to source from. So the key question is: should this biodiversity be utilised or not; and if so, where will it be grown? There are restrictions on collection from forests. It is also not easy to cultivate many species found in the wild.

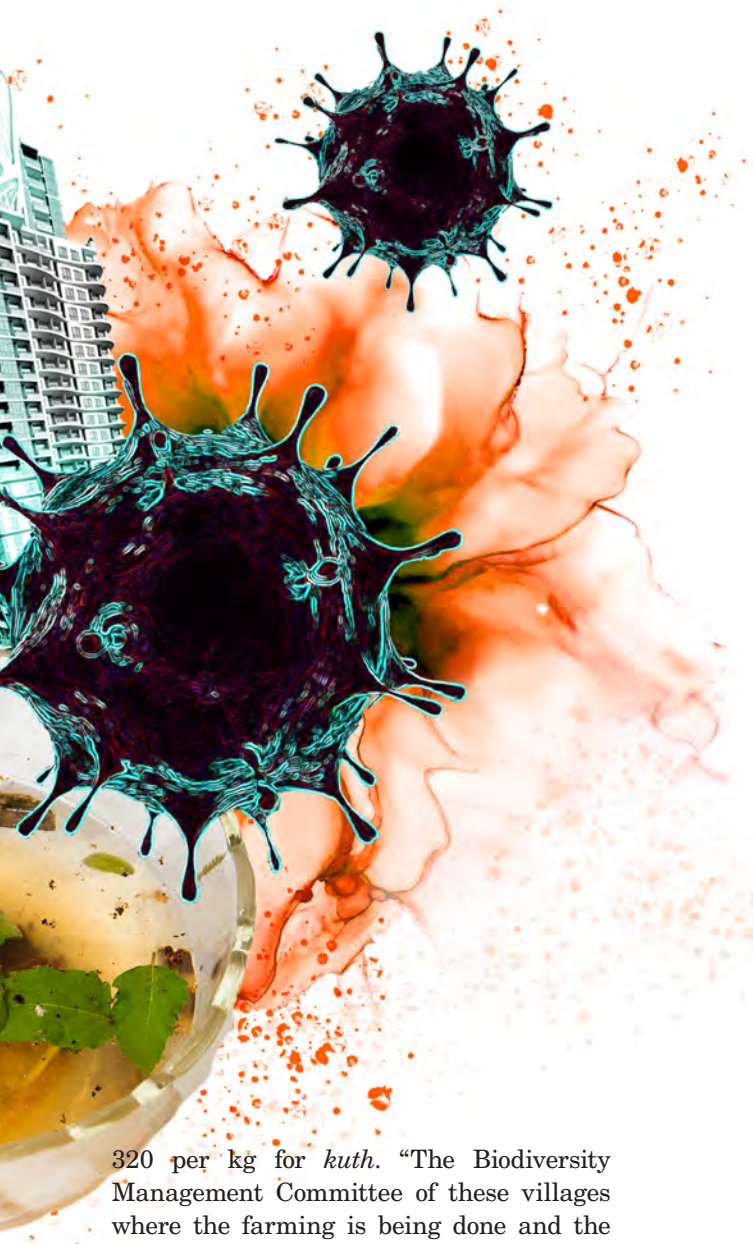
TO GROW AND NOT TO USE?

The local community has to play the central role in conservation, sustainable use and benefit sharing

UNDER the Wild Life (Protection) Act, 1972, people are not allowed to harvest or cultivate biodiversity that is found in the wild. This means, a member species found in the wild cannot be grown domestically. And even if it is grown, it cannot be traded. The celebrated case of the Kani tribe in Kerala—the basis for the idea of benefit sharing—lost out because of this provision. The plant species *arogyapacha* (*Trichopus zeylanicus travancoricus*) used for the production of the medicine based on the knowledge of this community, could not be collected in the wild or cultivated as it was not included in the minor forest produce list of the forest department (see 'The *arogyapacha* case', *p*29).

Andhra Pradesh, too, has been trying to benefit from its high-value red sanders (*Pterocarpus santalinus*). The tree is endemic to four districts in the state—Chittoor, Kadapa, Kurnool and Nellore. There are restrictions on its trade as IUCN categorises the tree as endangered. So the government is trying to earn from the sale of its huge stockpile of red sander timber confiscated from smugglers. In 2013, the state permitted the export of 8,584 tonnes of seized wood. In 2015, the National Biodiversity Authority clarified to the state that the Indian buyer would have to apply to the state biodiversity board and make a payment of 5 per cent of the purchase price as royalty under the provisions of "access and benefit sharing". It further indicated that if the wood is then sold to a foreign company, the purchasing company would also have to pay a royalty to the authority. In 2019, the Directorate General of Foreign Trade, an agency of the Union Ministry of Commerce and Industry, revised its policy to permit the export of red sander timber if obtained through cultivation. However, it has been seen that it is easier to trade in seized sandalwood than in cultivated timber.

In Uttarakhand, the forest department has allowed the cultivation of certain medicinal plants by farmers for commercial purposes. In this effort 25 farmers in Uttarkashi and 100 in Chamoli districts are growing high-value endangered medicinal plants such as *kuth* (*Saussurea costus*) and *kutki* (*Picrorhiza kurrooa*) whose trade is banned under CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). They can earn ₹1,300 to ₹1,400 per kg of *kutki* and ₹300-



320 per kg for *kuth*. "The Biodiversity Management Committee of these villages where the farming is being done and the buyers are in the process of finalising the agreement with the state biodiversity board. From the next harvesting season, they will also start receiving benefit sharing which has been fixed at 5 per cent of the sale price," explains Jitendra Butola, founder director of HUMAN (Himalayan Union for Man and Nature) that helps farmers in documentation like registration, getting transit pass and legal procurement certificate from the forest department as the herbs can be exported only after proving that it is cultivated.

The 2021 Amendment has a provision for identification of such cultivated biodiversity. It proposes to develop rules for issuing certificates of origin for cultivated medicinal

THE AROGYAPACHA CASE

A 1987 case offers lessons on what can go wrong in absence of clear laws on access and benefit sharing

AROGYAPACHA (*Trichopus zeylanicus travancoricus*) is a small, slender plant that grows in the forests of the Western Ghats. It provides one of the best examples of how access and benefit-sharing can go wrong in the absence of clearly defined mechanisms. In 1987, a team led by P Pushpangadan and S Rajasekharan from the Council of Scientific And Industrial Research's Regional Research Laboratory in Jammu, visited Agasthya Hills to document the plants in the area. Their guides, members of the Kani tribe, told them how *arogyapacha* kept them energetic even on an empty stomach. By 1995, the researchers, who had shifted to Tropical Botanical Garden and Research Institute (now Jawaharlal Nehru Tropical Botanic Garden and Research Institute) in Palode, Kerala, had studied the plant and developed a product, Jeevani, from it. The technology was transferred to Arya Vaidya Pharmacy of Coimbatore for a licence fee of ₹10 lakh and a royalty of 2 per cent on ex-factory sale to the research institute. The researchers helped the tribal community set up Kerala Kani Samudaya Kshema Trust in 1997 and transferred ₹5 lakh to the trust as fixed deposit. The trust was to receive annual royalty from the sale, too. Immediately after the arrangement, problems emerged. The manufacturer had believed that Kanis would collect and sell *arogyapacha* leaves to them. But as per laws, they could collect only minor forest produce and *arogyapacha* was not in that list. Criminal cases were filed against members of the tribe who continued to collect and sell the herb. Traders too moved in to smuggle large quantities of the plant. Some families started cultivating the plant but could not sell the harvest which was seized at the forest check-posts since it was put in the list of endangered species. Members of the tribe were also divided on the arrangement, since the research institute had made deals with only a few of them, though the knowledge belonged to the community. And the world lost access to a miracle herb.

DEBATE

SALVAGE WITHOUT DELAY

As a joint committee prepares to submit its report on the Biological Diversity (Amendment) Bill, 2021 to Parliament, *Down To Earth* asks policy and industry experts about their demands, expectations and concerns

"Biodiversity cannot be looked at in isolation"

SHALINI BHUTANI, LEGAL RESEARCHER & POLICY ANALYST, UN FOOD AND AGRICULTURE ORGANIZATION

My concerns are in terms of both process and content of the Biological Diversity (Amendment) Bill; the political context in which the bill has been placed also has a bearing on it. The problems with the process have only in part been corrected by the Joint Committee opening it up for comments from all stakeholders. During the pandemic, consultations have been going on but only with the industries; there was limited public consultation.

It was hoped that the UN Convention on the Biological Diversity (CBD) and the domestic legislation based on that, the Biological Diversity Act, 2002, would bring in bio-justice. But in last 20 years, the focus has been on facilitating access for bio-based industries and commercialisation of bio-resources. So we need to see whether the amendments address the gaps experienced in last 20 years and if they equip India to address the emerging challenges for the next 20 years.

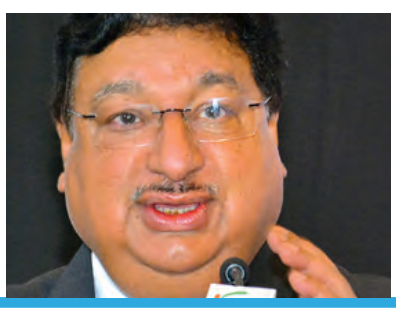
Since the inception of the Act, there have been expectations from the local biodiversity management committees (BMCs). While BMCs were envisaged as a space for decentralised decision-making on local bioresources and associated knowledge, their functions have largely been confined to preparing people's biodiversity registers (PBRs). Biodiversity cannot be looked at in isolation from the people protecting it. A bio-resource is of no use if you do not know what it is used for. This knowledge comes from the custodians of the biodiversity who interact with it on a regular basis. This also entitles them to be legally recognised as rightful "benefit claimers" to whom benefits, whether in monetary or non-monetary form, must accrue, when their bio-resource or associated knowledge is accessed and used for commercial products.

The proposed amendments are also about the position India has taken *vis-a-vis* other multilateral agreements. India is an important voice at the global level asking for WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) to be reconciled with CBD. All the wins that we had as a mega-diverse country will take a hit if the commercial use of biological resources is given pre-eminence over conservation and bio-justice for indigenous and local communities will be compromised if the concept of benefit sharing is diluted.

"Use with riders"

HEM PANDE, FORMER CHAIRPERSON, NATIONAL BIODIVERSITY AUTHORITY

There is nothing wrong with the Biological Diversity Act, 2002. It has some grey areas, but the government should try to resolve



those—not change the law without even implementing it. We have to see access and benefit sharing (ABS) in the context of conservation and sustainable use. If a person accesses a rare resource for commercial purpose, the biodiversity board should charge a hefty price for it. However, if they access a weed, which is everywhere, lower ABS can be levied. Similarly, if they access resources such as tea leaves for preparing medicine, they must pay parts of the profit to communities. Industry does not want to inform NBA that it has accessed biological resources for hitherto unknown (commercial) use.

"ABS should not be levied on plants in Ayurveda"

D RAMANATHAN,
GENERAL SECRETARY, AYURVEDIC MEDICINE MANUFACTURERS ORGANISATION OF INDIA

Ayurveda is not about commercial utilisation, it is traditional knowledge and ABS does not apply to this. The exceptions extended towards AYUSH practitioners should ideally be extended to the AYUSH industry. We are ready for ABS. We accepted it in the case of Kerala's *arogyapacha* herb as this was a drug based on tribal knowledge. However, Navara rice is traditional knowledge in Ayurvedic text and ABS should not apply to it. In Ayurvedic text, only 680 plants are mentioned. Do not put ABS on these. Benefit sharing already happens at the time of purchase of raw drugs through buy back arrangements with the farmers and vendors. The National Medicine Plant Board, under the Union government, gives funds to farmers and supports every step from cultivation to marketing. Ayurveda has a humble reach and commercial returns generated by the AYUSH industry is not impressive. It is indeed unfair to further weigh down a fledgeling industry with the proposed ABS fee. The amendments are 100 per cent not practical and are not going to help.

plants. This has, of course, raised the debate on the need for commercialisation and cultivation of these species. Many activists hold the view that if cultivation is allowed, it could lead to over-extraction of the resource as it would be difficult to trace the origins.

It has been 20 years since India enacted the Biological Diversity Act, but it does not seem to have managed to use its rich biodiversity sustainably or ensure that the benefits reach those who have conserved it. Experts working with the Irulas say the number of snakes in the area is dwindling due to land-use changes of forest area and concretisation of wetlands and agricultural lands. In 2002-03, the Irulas collected 13,637 snakes. In 2020-21, the forest department allowed the capture of only 5,000 due to their dwindling numbers. Now, for a steady supply of snakes, there is a plan to create a serpentarium. Experts fear that with this, there would not be enough work for all the 350 members of the cooperative. The snakes in fields and factories would be killed instead of being taken to the forests. Additionally, the snake catchers' traditional knowledge would be lost.

V B Mathur, chairperson of the National Biodiversity Authority at Chennai, says India faces multiple challenges such as lack of awareness, technical capacity and financial resources when it comes to protecting biodiversity. "The way to protect would be to assess the conservation status of at least those species that are economically important in terms of livelihood, medicinal plant and food," says Mathur. "Either use it or lose it. The local community has to play the central role in conservation, sustainable use and benefit sharing," ecologist Madhav Gadgil tells DTE. Kavitha Kuruganti, convener, Alliance for Sustainable and Holistic Agriculture (ASHA), says, "we also need empowered communities, not just legal literacy; investment in sustainable management; community-level democratic processes; and dialogues that rest on the traditional ethos of communities and not the modern market ethos." These, clearly, are the challenges ahead. DTE @down2earthindia