People's Biodiversity Register in India: Its genesis, significance, and way forward

India is rich in biological diversity, associated traditional and contemporary knowledge. It occupies 2.4% of the world's geographical area that accounts 7–8% of recorded species of global biodiversity (Singh 2016). So far, more than 91,200 animal and 45,500 plant species have been documented in the country (NBA 2018). As a signatory to the Convention on Biological Diversity (CBD) in 1992, the Government of India enacted the Biological Diversity Act (BDA) in 2002 and Rules in 2004 in the country. CBD mandates to conserve biological diversity, sustainable use and fair and equitable sharing of the benefits arising out of utilization of natural resources.

Notably, the Convention confirms sovereign rights of the states for their biological diversity. Under the Convention, it is mandatory for each member state to prepare a National Biodiversity Strategy and Action Plan (NBSAP) or an equivalent tool for the conservation of biodiversity. Therefore, the National Biodiversity Authority (NBA) was established under the BDA (2002) to provide guidance and technical support to the Biodiversity Management Committee (BMC) for the preparation of People's Biodiversity Register (PBR) (NBA 2013). The implementation of BDA (2002) has been carried out at three-tier levels, viz.: NBA at National level, State Biodiversity Board (SBB) at State level and BMCs at Gram Panchayat level (NBA 2004; Figure 1). In the country, some of the state governments such as Haryana, Kerala have nominated Panchayati Raj Institution (PRI) or Municipal Corporation as the nodal department for the constitution of BMCs. Additionally, SBBs and State Forest Departments are mainly engaged in the implementation of the BDA (2002) through enacting their own state specific biodiversity rules in majority of the states. It has been realized that involvement of the PRI in themplementtation does ensure a complete synergy between different line departments that is all more necessary both in the conservation of the biodiversity and documentation of the PBRs.

The main aim of constitution of BMCs vis-à-vis PBRs preparation is to create awareness and develop relationship among people with their environment (NBA 2004). Notably, as of January 2022, the country has supported the creation of 2,65,458 PBRs and 2,76,690 BMCs by the respective SBBs across 28 states and eight Union Territories (www.nbaindia.org).

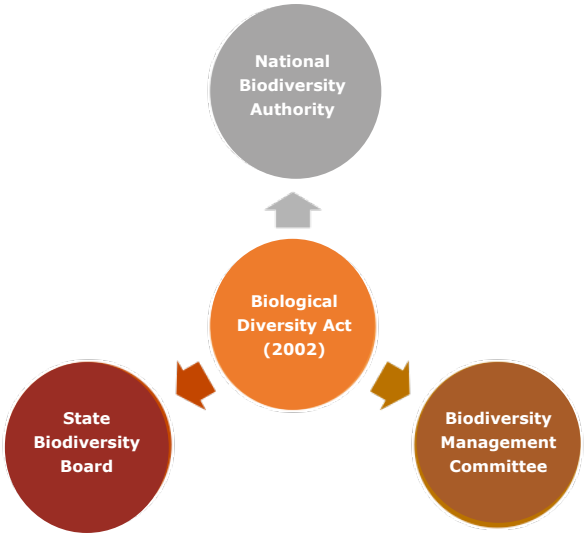
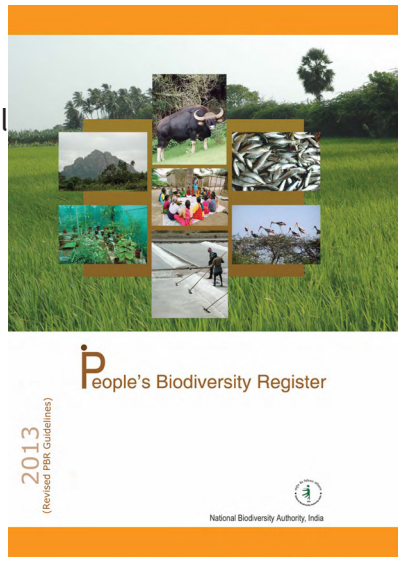


Figure 1. Three-tier implementation of Biological Diversity Act (2002) in India.

As per Biological Diversity Rules (2004), it is mandatory for the BMC of every local body to prepare a PBR. A PBR is a legal document which contains information about the complete biodiversity of an area, viz., flora, fauna and other natural resources under the jurisdiction of a BMC in a prescribed format as per the guidelines of the NBA. As per the revised PBR guidelines of NBA (2013), a PBR booklet constitutes five Annexures including general details on BMC of the panchayat; list of 'vaids', 'hakims' and local traditional health care practitioners residing and or using biological resources occurring within the jurisdiction of the village; list of individuals perceived by the villagers to possess Traditional Knowledge (TK) related to biodiversity in agriculture, fisheries, and forestry; list of schools, colleges, departments, universities, government institutions, non-governmental organization and individuals involved in the preparation of the PBR and details of access to biological resources and TK granted, details of the collection fee imposed and details of the benefits derived and the mode of their sharing. Subsequently, the detailed information on agro-biodiversity, viz., crop plants, fruit plants, fodder plants, weeds, pests of crops, markets for domesticated animals, people scape, landscape, waterscape, and soil type (format 1–10), domesticated biodiversity, viz., fruit trees, medicinal plants, ornamental plants, timber plants, domesticated animals, culture fisheries and market or fair for domesticated animals, medicinal plants and other products (format 11–17), wild biodiversity, viz., trees, shrubs, herbs, tubers, grasses, climbers etc, wild plant species of importance, aquatic biodiversity, wild aquatic plant species of importance, wild plants of medicinal importance, wild relatives of crops, ornamental plants, fumigate or chewing plants, timber plants, coastal and marine flora, coastal and marine fauna and wild animals (format 18–28), and urban biodiversity, viz., flora, fauna and any other information of local importance (format 29–31) have to be filled in PBRs (NBA 2013). Notably, the documentation of PBR involves sound understating of both technical knowledge on natural resources and more importantly an art to involve different stakeholders to create awareness and ownership on biodiversity and its conservation. Moreover, the documentation of PBR is an attempt to support traditional knowledge and wisdom by creating more formal institutions for their maintenance and more importantly by creating new context for their continued practice (Gadgil et al. 1993, 2000). The information recorded in a PBR is also collected using Participatory Rural Appraisal (PRA) (Chambers 1992) which fulfills the aim of decentralized participatory systems of resource management (Chambers 1983). The PBR process also helps to record and promote an assessment of a variety of conservation oriented traditional resources and practices (Gadgil & Berkes 1991). PBR emphasizes this documentation as a tool to empower people outside the scientific, administrative, and political mainstream (Sharma 1997). Therefore, a team of personnel having expertise



of technical and social aspects is important for the preparation of PBRs. Knowledge on conducting surveys, organizing meetings and workshops and interacting with the local people preferably in local language holds much importance in PBR preparation.

It is essential that a proficient team is engaged into this process having mix of personnel's such as sociologists, field botanists, ecologists, agriculturists, horticulturists, and zoologists having experience of conducting training workshops, sensitization programs, conducting field surveys, and collection and collation of secondary information. Most importantly, deep understanding on the basic concepts of biodiversity conservation and Biodiversity Act and Rules (NBA 2004) in general; NBA guidelines on the PBR preparation including different formats (NBA 2013); processes involved in collection of secondary information on different components such as, flora, fauna, and other natural resources including browsing official websites to extract all existing information about a region specifically would necessarily form a firm basis to prepare a quality PBR. Subsequently, series of discussions among all team members is a must to bring them all on a same page to understand different ground level issues and to prepare strategies for undertaking the tasks. Time to time correspondences via email, telephone, and other electronic means with SBB, concerned nodal officers, chairman and members of BMCs is also important while undertaking field excursions and conducting training workshops of locals to collect quality data on available natural resources.

The awareness cum PBR documentation trainings include sensitization of the BMC chairperson and its members including locals about the Biodiversity Act (2002) & Rules (2004) along with access and benefit sharing (ABS) mechanism, Protected Areas, heritage sites, and conservation and promotion of biodiversity in their respective areas of jurisdiction. Additionally, it should also appraise BMCs about maintenance of cash book, accounts, and meeting's registers. One important function of the BMCs is to periodically hold meetings for updates on the activities undertaken towards meeting objectives of the BDA and in identification and collection of data on biological resources and traditional knowledge for the purpose of documentation of the PBRs. The training should ensure participation of nodal officer, chairman & members of BMCs, gram panchayat sarpanch (pradhan) & gram panchayat secretary (sachivs), one representative from the line departments, viz., agriculture, fishery, horticulture, and animal husbandry along with representatives of local school, college, university, and non-government organizations of the concerned block or panchayat.

It is important to note that traditional model of conducting training workshop doesn't yield desired outputs. Whereas, more one-on-one interactions with the stakeholders during the technical sessions splitting them into 4–5 smaller groups having a maximum 7–8 participants from different domains of their roles, tasks, and expertise including gender representations works effectively. Here, each member in the group gets opportunity to present his or her views and also each sub-group are encouraged for more effective and participatory outputs during the training workshops. It has been experienced that audio-

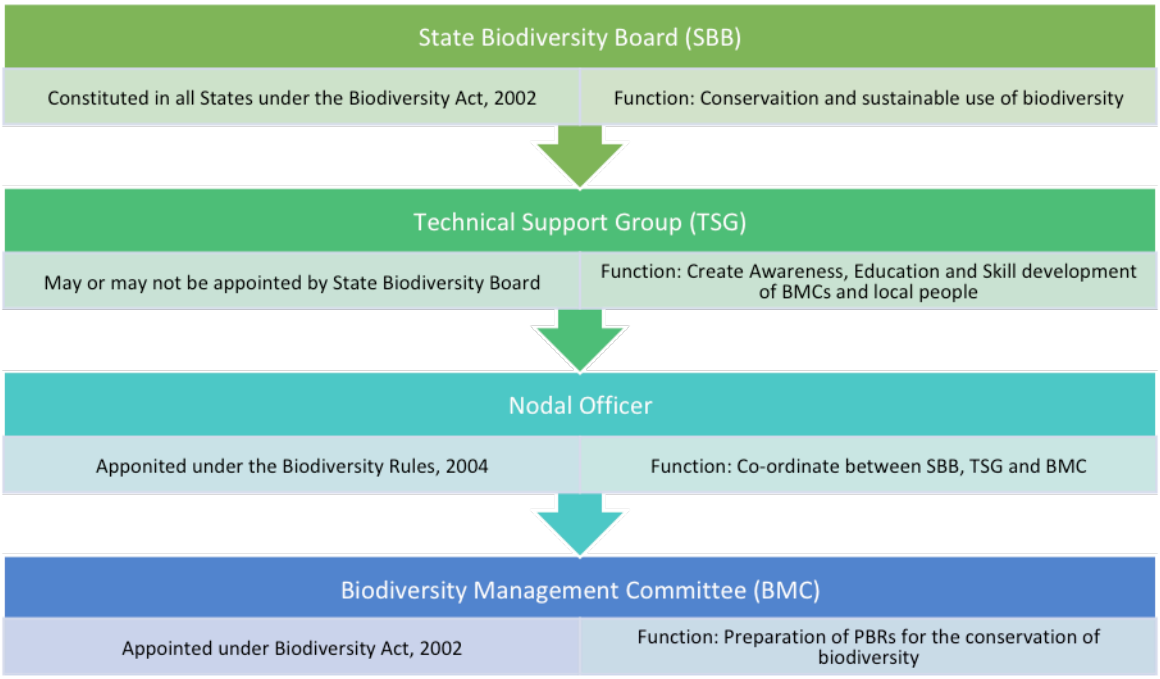


Figure 2. Hierarchical representation of organizations under BDA, 2002.

visual means such as, films, documentaries, power-point presentations preferably in local language and use of local examples of respective panchayat or block or district which can be understood and owned by locals for future use, prove more effective in making BMC members and local villagers understand the matter in question.

As the main objective of the PBR stands at recording and enlisting meticulously all available natural resources, it poses a big challenge while interacting with the locals and other stakeholders especially when the local residents are not aware of what constitutes a 'natural bio-resource'. The weeds in their agriculture fields are not a species to be bothered for them as a natural resource due to its harmful effects on their crops, though, it might have medicinal properties and thus meriting as a 'natural bio-resource' worth recording and enlisting in the PBR. Therefore, identification and enlisting of biological resources along with information on traditional knowledge with the participation of BMC members and locals constitutes a very important component in the entire process of the documentation of PBR. It is thus, attempted as a process to record and enlist every conceivable natural resource including landscapes, peoplescapes, soil, water bodies, etc. lying within the perimeter of a given panchayat. Most importantly, the locals and BMC members should understand, appreciate and get convinced as to why certain 'resources' are being recorded in the register. It is also very essential that the traditional knowledge associated with the use of various resources is also recorded without infringing their rights to withhold such information as the locals would not like to disclose, however in due course it could be made to understand the importance of such knowledge to get converted as IPR or patenting. In order to record any natural resource, it is also important to understand the uniqueness of some of the features that

could be later declared as 'heritage site' or site of ecological importance. Thus, the BMC members and locals should also get aware about the importance of declaring certain features within their panchayat jurisdiction as 'heritage sites'.

As is evident from the PBR formats, it has not only to record wild flora and fauna but also other natural resources such as wild and domesticated species. Therefore, to collect this information, it is very important that during the awareness meetings and training workshops, the participation of the officials of line departments is also ensured. It is often observed that PBR documentation is considered the sole responsibility of SBB and therefore, the officials of many line departments related with natural resource management does not take keen interest in PBR process. The first step is to make them aware about their roles into the entire process through frequent meetings, dialogues, and official communications.

The role of line departments is crucial during collection of primary data and secondary data as they are the repositories of data and information pertaining to their field of expertise and facts on such resources. Documentation of the PBR by collecting first-hand information, i.e., primary data through interactions with the villagers, BMC members and other stakeholder constitute a mandatory part of the PBR documentation process, yet, secondary information has its own importance, that, if not adhered to, shall render the documentation process incomplete. While primary data collection provides details on current position of resources with little bit of historical aspects through verbal accounts of older people in the panchayat jurisdiction, the secondary information provides much needed historical and time-series accounts on various aspects pertaining to given panchayat, which is scientifically documented and authenticated as well in the form of report, scientific research papers, books on flora and fauna and government records etc. Therefore, extensive review of literature is the most important process of PBR documentation and need be taken comprehensively to enlist all available secondary records (both directly and indirectly) pertaining to given panchayat jurisdiction. Field data collection helps in actual interactions with the villagers besides taking photographic and video-graphic documentation of the available natural resources. It is the backbone of the entire process of PBR documentation and the quality of a PBR gets determined how effectively field data collection is executed in an area. After the proper identification of natural resources, it calls to ensure that all the information has been properly documented using the formats as per the NBA guidelines. For this, it is necessary that each and every column is understood correctly to ensure that each entry reflects upon the given resources in all its properties, usage, local names, scientific names, traditional usage, quantity, types, traditional versus hybrid varieties etc. In small group (5–6 people) interactions with the BMC members and local villagers, it has to be ensured that each format and each column within the formats are explained clearly. This also mandates listening to their 'versions' based on their understanding and then filtering and refining their statements and information to select more accurate and 'directly-related-versions' for the purpose of given format and column therein. The strategy of small group

discussions, one-on-one discussions with key members such as aged residents of a given panchayat, traditional healers (vaidya), women folks and household discussions prove very successful in collecting primary information during field data collection. Further, correct identification of plant species (agriculture, horticulture, and forestry) with the help of locals holds importance in PBR exercise.

Due to inherent process of documentation of the PBR, which is by the people, of the people and for the people, there arise a need to validate the collected information both primary and secondary data to ensure that the correct references from where data or information has been collected is quoted in the PBR. The SBBs has a mandate to constitute Expert Committees (ECs) at the district and block levels consisting of experts from different domains of knowledge that are likely to be documented in the PBR.

The main task of the ECs is to ensure the quality PBRs in terms of the scrutiny of scientific testimonies, especially into the matters of scientific names, correctness in the distribution regime of certain species, their usages etc. In most cases, the entire process of PBR documentation by the BMCs is facilitated through the engagement of various Technical Support Groups (TSGs) who are institutions of repute in the field of natural resource management, PRA, social interactions, conduct of meetings and training workshops at the ground level and experience in facilitation of PBR documentation. Hence, the documented PBRs prepared by BMCs along with the technical support of TSGs are placed with the ECs for its validation in presence of both the TSGs and BMCs. The suggested amends, if any by the TSGs are incorporated in the final PBR, which are then authenticated and certified by the given BMC. This is a very important step to ensure that the PBR is a legally, technically, and scientifically correct document and thus could withstand the legal scrutiny of legal processes, if any such situation arises. Thus, EC and TSG help in analyzing and verifying the documented data in PBR.

Hence, it is concluded that individual interactions as well as group discussions with the members of BMCs and local villagers, especially the senior citizens who are repository of historical knowledge on varied natural resources and their utilization and both internal and external impacts leading to current status, play a very important role in creating awareness on the importance of conservation of local biodiversity. Subsequently, frequent field excursions and interactions with local inhabitants prove helpful for the better understanding and creating sense of ownership among the members of the BMCs and the villagers. Further, photographic documentation and audio & video clips on flora, fauna and other natural resources must be undertaken as an integral part of PBR documentation process to act as documentary proofs, not only during the validation processes of the PBR, but also as an authentic baseline information for future records. Given that the PBR is a dynamic document, involvement of regional or local institutions is a must to sustain periodic updating efforts of the PBR. Sensitization of youth and school children is also essential for the biodiversity conservation as future sentinels. Similarly, existing institutions such as Joint Forest Management Committees,

Eco-development Committees etc. involved in managing forests, wildlife, and other natural resources at the village or block or district levels must also be involved in PBR documentation, which may add to various new features to the documented PBR besides adding the varied management options (SPWD 1992; Saxena 1999). Notably, it needs to be understood that the PBR documentation process is very different from conducting scientific surveys on natural resources by individual researchers or by various research and academic institutions, both in its intent and outputs.

The data and information (past and present) captured in the PBR through people's own versions are very different than normal scientific surveys as people's versions are intertwined and blended with their cultural, ecological, social nuances and complexions, which is the real intent of PBR documentation. Further, validation of PBR through expert groups helps in blending people's version with authenticated scientific data or information to make given PBR a holistic document on an extended timescale and provisions of future updating keeps it afloat to imbibe and stand to contemporary proviso. Therefore, a detailed insight into the purposefully documented PBR for a given area might help unfold the entire spectrum and range of historical and current perspectives on natural resource management. It may not be an exaggeration to equate a PBR with overall natural resource conservation paradigm for the given area, whose purposeful usefulness lies in settling and meeting social, cultural, economic, and ecological needs & issues.

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