

Exploring the 4-Cs Framework

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India is a mega diverse country with four biodiversity hotspots and 10 biogeographic zones hosting tens of thousands of faunal and floral species distributed over varied forest, wetland, shrubland, grassland, desert, coastal, and marine ecosystems. India also has a growing human population of 1.3 billion people that is as dense as 382 persons per sq km (CBD nd). Nearly 200 million people are directly dependent on forests as a primary livelihood source while around 100 million people live on land classified as forest (FAO nd). Forest dependence includes livelihoods based in part or completely on the extraction of timber, fuelwood, fodder, and non-timber forest products (NTFPs; medicinal plants and wild foods) and livestock grazing (FAO nd). The Millennium Ecosystem Assessment (2005) categorises such services provided by forests as provisioning ecosystem services that sustain local communities.

The Millennium Ecosystem Assessment (2005) also describes regulating (for example, climate, flood, and disease regulation), supporting (for example, photosynthesis and soil formation), and cultural services (for example, aesthetic and spiritual) provided by ecosystems, and further establishes clear linkages between ecosystem services and human well-being. This is especially relevant to India, because the assessment characterises: (i) the intensity of these linkages, signifying the degree to which an ecosystem service can have an impact on an element of human well-being, and (ii) the possibility of socio-economic factors to substitute or replace some services that have been degraded. For example, provisioning ecosystem services such as NTFPs are strongly linked to livelihoods and sustenance of forest-dependent communities, and can be replaced by alternative livelihoods based on social and economic mobility of communities. But regulating ecosystem services such as climate regulation that are strongly linked to overall health of communities cannot be easily replaced by another service irrespective of socio-economic circumstances. Further research (Naeem et al 2016) goes beyond the replaceability of ecosystem services and shows that proportionate and long-term access to all ecosystem services can be facilitated by policies that correlate sustainable management of landscapes, stabilisation of ecosystem processes, and biodiversity richness with enhancement of human well-being.

Building on the approach of ecosystem-based management, we introduce the 4-Cs framework of Breslow et al (2016), which is relevant to India and has the potential to integrate key constituents of human well-being with biodiversity conservation. The following sections describe how the framework can be used in strengthening the implementation of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, known as the FRA.

Exclusionary Conservation, Elusive Well-being

Multiple conservation models unanimously recognise the intrinsic value of biodiversity and the premise of managing biodiversity for human well-being. However, they differ quite a bit based on the degree of human inclusion or exclusion from protected areas, and the means and methods of excluding local communities as part of the approach to biodiversity conservation. The framing of conservation has also changed from the paradigm of wilderness-based “nature for itself” to resilience- and adaptivity-based “people and nature” (Mace 2014). The exploitation of biodiversity is not homogeneous and ranges based on scale; it has the underpinnings of a “class” dialectic. Large-scale habitat destruction, land use change, and extinctions have been attributed to capitalist appropriation of biodiversity (Dawson 2016) with effects like the climate crisis on a planetary scale symbolising the Anthropocene (Bonneuil and Fressoz 2017). The exploitation of biodiversity by local communities, within as well as outside protected areas, has also been a contentious issue due to pressures, such as unregulated livestock grazing, local hunting practices, shifting cultivation and

increased NTFP collection, which destabilise ecosystems (Madhusudan and Raman 2006). Conservation models built on the premise of a top-down governance structure address the latter by establishing inviolate areas and argue for a “hands-off nature” approach to restore ecosystem processes and the strict management of natural resources. This approach is seemingly convenient for conservationists in a country like India where human population pressures on nature are widespread, and separating people from nature could potentially allow the restoration of biodiversity.

Notwithstanding that such pristine natures are socially constructed and are a reflection of the environmentalism of the conservation elite (Vasan 2005), studies have also recognised the inequalities perpetuated by such a “fortress” approach (Brockington 2002, 2004) of separating local people and their nature(s). The relocation of forest-dwelling communities for conservation in India is seen as a “win-win” (Bindra 2020) situation to promote conservation and generate alternative livelihoods for human welfare (Karanth 2007). Relocations have also been characterised by abject impoverishment, marginalisation and political instability (Costanza Torri 2011; Kabra 2009). Such actions capitalise on communities’ vulnerabilities and not their capabilities. In fact, relocations (Kukreti 2020a, 2020b) have ironically coincided with increased environmental clearances for “development projects” (Menon and Kohli 2020). These projects have irreversible anthropogenic impacts on biodiversity with further degradation of ecosystem services to the point of no return, which will ultimately have an impact on well-being, especially of local communities.

Such contradictions in policies and practices call into question what we are conserving in India and, more importantly, for whom. Conventional models of conservation and economic development have enabled significant improvement in human well-being, albeit in a manner that is not sustainable, and with trade-offs and accumulation of disbenefits for multiple actors. In order to make sustainability and equitable access to natural resources work, there is a need to enquire into:

(i) The spatial and temporal scales for biodiversity conservation, which the Millennium Ecosystem Assessment (2005: 1) echoes by stating that

[t]he changes that have been made to ecosystems have contributed to substantial net gains in human well-being and economic development, but these gains have been achieved at growing costs in the form of the degradation of many ecosystem services, increased risks of nonlinear changes, and the exacerbation of poverty for some groups of people.

(ii) The need for robust institutions that enable biodiversity conservation at multiple scales, that is,

Inclusive Conservation, Community Well-being

Conservation models built on bottom-up governance mechanisms have the potential to address these concerns by critiquing the nature–culture binary, and recognising the dynamism of ecosystem processes and management of social-ecological systems by local communities. This approach lays emphasis on local initiatives and resilience of community institutions through which resource users achieve sustainability for their well-being (Ostrom 2009). It is imperative that wildlife conservation, and by extension biodiversity conservation, based on different framings and the multiplicity of values, is essentially a social project. Support and participation of local people is essential not only for the long-term success and sustainability of conservation, but also for inclusiveness, equity, and justice. Participatory strategies in community conservation are preferred as alternatives to exclusionary conservation due to the latter’s impacts on local people’s well-being (Brockington 2004; Lele 2010). The inclusion of human well-being in the conservation discourse (Kareiva and Marvier 2007; Biedenweg and Gross-Camp 2018) is a reflection of this tendency towards a more socially just conservation model.

There is also widening literature on human well-being in social-ecological systems (Milner-Gulland 2012), its relationship with the environment (Agarwala et al 2014), its use in sustainability studies (Hicks et al 2016), and in natural resource management (Charnley et al 2017). As a result, ecosystem assessments and management increasingly consider human well-being as an essential element and outcome of biodiversity conservation. After all, especially in the global South, human well-being is a particularly complex issue as it can differ based on power relations like class, caste, gender, race, and geography.

We introduce and advocate the use of the comprehensive 4-Cs framework of Breslow et al (2016) in India as it has the scope for both contextualisation and operationalisation of human well-being as an integral part of conservation. Human well-being is defined as “a state of being with others and the environment, which arises when human needs are met, when individuals and communities can act meaningfully to pursue their goals, and when individuals and communities enjoy a satisfactory quality of life” (Breslow et al 2016: 250). In the following sections we discuss this framework in the context of India’s FRA, 2006, a legislation of the Ministry of Tribal Affairs (MoTA 2006).

The FRA provides the legal framework and processes for recognising and conferring both individual and community forest rights (among other rights), to forest-dwelling Scheduled Tribes (STs) and other traditional forest dwellers who have been residing in such forests for generations. It historicises power inequalities in forest governance which resulted in local communities’ rights not being recorded for several decades even after independence, which has had ramifications on the well-being of these communities (Bawa et al 2011). Though the FRA is a rights-based legislation, it also has a number of provisions for conservation and has had positive conservation outcomes (Broome et al 2017). These include the granting of community forest rights (CFR) for sustainable use and conservation of biodiversity, and the establishment of Critical Wildlife Habitats (CWH) within protected areas for nurturing the ecological balance which in turn improves and strengthens the conservation regime of the forests.

However, the ceaseless opposition to the FRA by the forest bureaucracy has affected its implementation especially while recording and granting of various rights (Sahu 2017). They have gone to great lengths to thwart its implementation by amending the Wildlife (Protection) Act in an attempt to undermine various provisions of the FRA (Desor 2015) and filing petitions in court (Campaign for Survival and Dignity nd). Foresters see the FRA as a threat to the dominant top-down model of conservation and try their best to exclude local populations from protected areas. This has resulted in an extremely low number of CFR titles being granted (MoTA 2020) thereby affecting tenurial and access rights of local communities and undermining their agency in biodiversity conservation.

Another indication of this attitude and approach has been the confusion and complete lack of progress with respect to the establishment of CWHs. The CWH provision of the FRA is currently the strongest conservation provision in the Indian Constitution despite which not a single CWH has been established so far (Chellam 2019). In the FRA, the responsibility for establishing CWHs has been given to the Ministry of Environment, Forest and Climate Change (MoEFCC). It is probable that institutional inertia and bureaucratic resistance to the FRA has resulted in this state of affairs.

The 4-Cs in the Context of Ecosystems

Human well-being is a multidimensional concept that goes beyond the conventional economic framing of material well-being and physiological framing of physical well-being. It includes mental well-being, good social relations, a sense of community, and the relationship(s) that individuals and communities share with the environment. In the context of ecosystems, Breslow et al (2016) developed a framework that considers four broad constituents of human well-being, namely connections, conditions, capabilities, and a cross-cutting constituent with domains spanning the other three constituents and factoring various dimensions that “operate at multiple social scales

within a social-ecological context” (Breslow et al 2016: 251). Each constituent of the 4-Cs framework is composed of four domains; each domain has specific attributes that are evaluated by indicators. This comprehensive framework is interdisciplinary in its conception, representative of social-ecological systems, and is robust, right from the wider layers of constituents to the finer layers of attributes and indicators. These are defined and developed based on the context, that is, the specific ecosystem and its human communities that are being assessed.

The four constituents are derived from the broader definition of human well-being by Breslow et al (2016):

(i) Connections refer to the aspect of “being with others and the environment,” and include the domains of tangible connections with nature, intangible connections with nature, social relationships, culture, and identity.

(ii) Conditions refer to the setting in which “human needs are met,” and include the domains of health, safety, economy, and environment.

(iii) Capabilities refer to the collective means with which humans “act meaningfully to pursue their goals,” and include domains of livelihood and activities, knowledge and technology, freedom and voice, and governance and management.

(iv) The cross-cutting constituent is central to and spans across the other three constituents and refers to domains of equity and justice, security, resilience, and sustainability required to “enjoy a satisfactory quality of life.”

Attributes of various domains mentioned in the framework function as subsets of the domains. The framework is designed to enable the definition of attributes and development of indicators to be tailored according to the ecosystem and the prevailing socio-economic context that are being assessed, and not function as a one-size-fits-all framework. This is better understood by taking the example of a domain like “tangible connections to nature,” which has attributes of “resource access and tenure,” “access to nature,” and “stewardship.”

While resource access and tenure can be defined according to accessibility of natural resources to communities, the indicators of this access can differ based on context, for example, quantity of NTFPs harvested, physical distance to markets, percentage of dependence on forests for livestock grazing, and quantity of freshwater fishery harvest based on season (Figure 1, p 32). Similarly, access to nature can be defined according to public access to natural resources and the outcomes of such access, but the indicators may differ based on demo-graphy (for example, barriers for marginalised caste groups to access freshwater in rivers or lakes), which also determines uses that are based on both need (for example, extent of forest use for subsistence) and desire (for example, potential for forest use in recreation and tourism). Stewardship can also be defined according to community initiatives in protecting natural habitats and sustainable management of common-pool resources. Indicators can vary based on the social-ecological contexts; land area demarcated for protection in community-conserved forests can be used as an indicator in forest ecosystems, quantification of restoration in degraded landscapes, or management and utilisation of invasive species (for example, *Lantana camara*) can be used to indicate stewardship in others.

Well-being and Empowerment through FRA

By construction, the 4-Cs framework, and its indicator-based approach, extensively considers and represents a whole suite of social-ecological systems for integrated ecosystem assessments and ecosystem-based management. Breslow et al (2016) identify 2,300 such indicators for a single ecosystem, that is, the California Current marine ecosystem. In a subsequent paper, Breslow et al (2017) outline a process of evaluating the indicators for human well-being to make them socially

robust. Although the authors agree that this prototype “needs further testing and developing and will need considerable modification to suit diverse contexts” (Breslow et al 2017: 17), it has the potential to be used universally because of the inherently adaptable scope of attribute definition and indicator selection. There is a strong case for using the 4-Cs in the Indian context for assessing the well-being of forest-dwelling STs and other traditional forest dwellers.

A well-being domain like “culture and identity” is attributed to an overall sense of being and connection with place, cultural practices, traditional ecological knowledge, linguistic identities, and other ethnographic signifiers moulded by the entanglement of human and environmental histories that render the idea of community. Connections represent the dynamism and complexities of nature–culture relationships that are locally specific. Along with the aforementioned tangible connections of tenurial access, cultural identities conceptualised in the framework are recognised under Section 3(1) for “individual or community tenure or both” of the FRA, under which Section 3(1)(k) allows the “right of access to biodiversity and community right to intellectual property and traditional knowledge related to biodiversity and cultural diversity.”

Apart from a holistic connection with nature, human well-being is also characterised by socio-economic and environmental conditions that influence community and individual health, a domain attributed to food availability, and physical and mental health. Forest-dependent communities are particularly vulnerable groups living in remote locations and in close contact with wildlife, increasing the risks of direct human–wildlife conflict and emerging and re-emerging infectious diseases, for example, the Kyasanur Forest Disease in the Western Ghats. Food security and healthcare infrastructure conceptualised in the framework are also recognised under Section 3(2) of the FRA for government-managed facilities such as “(b) dispensary or hospital, (c) anganwadis, (d) fair price shops ... [and] (g) drinking water supply and water pipelines.”

An important dimension of human well-being is the constituent of capabilities, which builds on communities’ means to achieve a good life, not through performative processes of capitalist subsumption, but by enabling social justice, indigenous rights and sovereignty, political participation, decision-making, and information and knowledge capacities in order to facilitate free, prior, and informed consent. The Capabilities Approach (Sen 2000; Nussbaum 2011) critically takes the discourse in human well-being and development beyond growth and consumption, and has even been recently articulated as “sustainable development as freedom” (emphasis added) for forest-dwelling communities (Krishnan and Mohanty 2020). The domain of freedom of voice which is nested within capabilities in the framework is legally recognised by Section 6(1) of the FRA, which devolves authority to the local-level gram sabhas “to initiate the process for determining the nature and extent of individual or community forest rights or both.”

The cross-cutting domains of “equity and justice,” “security,” “resilience,” and “sustainability” are central to and democratise the concept of human well-being. These are transdisciplinary domains that represent social welfare and biodiversity conservation as intersectional concepts across social-ecological variables and environmentalities (Agarwal 2005). Attributes of cross-cutting domains are indicative of long-term preparedness of communities such as adaptation to climate change, capacity to challenge violations of human rights in the guise of “fortress conservation,” robustness of local institutions like gram sabhas to resist “accumulation by dispossession” in capitalist development models, rates of habitat loss and biodiversity extinction, and evidence of restoring ecological functions. These cross-cutting domains are also recognised by the FRA, which has the mandate to undo historical injustice meted out to forest-dwelling communities, and empowers them with “responsibilities and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance and thereby strengthening the conservation regime of the forests.”

Source: <https://www.epw.in/journal/2020/49/review-environment-and-development/exploring-4-cs-framework.html>