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An ecosystem services framework to evaluate indigenous and local peoples' connections with nature

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ABSTRACT

Indigenous and local peoples' connections with nature are not only limited to the benefits or services people derive from ecosystems, as considered by international frameworks, but also entail peoples' capabilities (knowledges and skills) that enable people to derive those benefits. Applying Sen's (1993) Capability Approach, this paper proposes an ecosystem services framework that underscores peoples' capabilities along with well-being benefits, to inform policy decision-making about the value of natural resources towards Indigenous and local peoples' well-being. We offer an economic perspective of considering Indigenous and local estates as a source of opportunities, and construct an integrated framework based on six case studies across the globe. We argue that supporting Indigenous and local peoples to utilize and build capabilities to manage natural systems will deliver manifold benefits to them as well as to the wider public. Moreover, learning Indigenous and local ethics to care for nature will help many of us to better manage and value our fast depleting natural resources.

1. Introduction

Worldwide, Indigenous and local peoples' connections with nature are well-known (Posey and Oxford Centre for the Environment, Ethics and Society, 1999), however, these connections are often not incorporated into public policies at the national or international scale (Millennium Ecosystem Assessment (2003); The Economics of Biodiversity and Ecosystems (TEEB), 2010; de Groot et al., 2012; Costanza et al., 2014). The need to understand and value these connections to guide the public policies is beckoned by the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), the MA, the World Resources Institute (World Resources Institute (WRI) (2017)) and TEEB (2010), amongst many other national and international agencies.

Since the popularity of ES concept, the trans-disciplinary experts from ecological economics including de Groot et al. (2010), Braat and de Groot (2012), Costanza et al. (2017) and several others have emphasized to recognize implicit mutuality of people-nature relationships and to advance ES frameworks, concepts and ideas that make ES the core of the economic theory and practice for achieving sustainable well-being of people. Braat and de Groot (2012) sets the agenda for the 'Ecosystem Services' journal describing how to identify, assess, and capture and manage the values to support science-policy-practice linkages—a key focal area for the IPBES. Over the last 17 years, ES research has progressed considerably (Costanza et al., 2017), but not so on policy front.

To incorporate the importance of peoples' connections with nature in policy decision-making, the IPBES and MA have proposed frameworks linking nature's ecosystem services (ES) and people's well-being (Millennium Ecosystem Assessment, 2003; Díaz et al., 2015, 2018; IPBES 2017a) (Fig. 1a and b). Earlier, frameworks proposed by TEEB (2010), de Groot et al. (2010) and Haines-Young and

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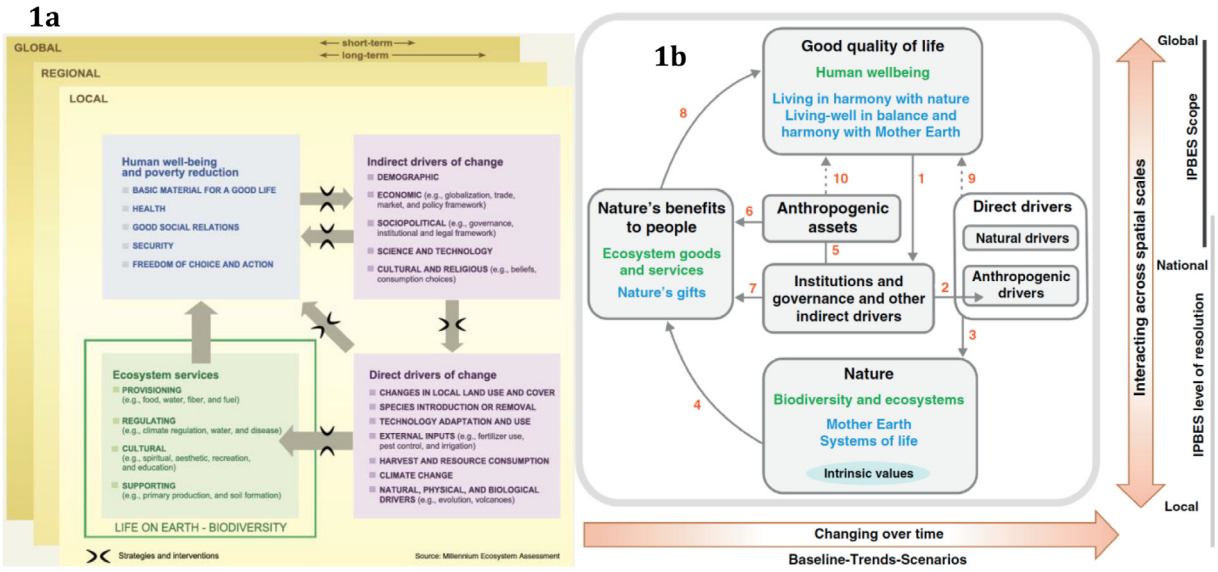

Fig. 1. The MA and IPBES frameworks: a. The MA framework links human well-being and ES (on the left-hand side), which are influenced through various direct and indirect drivers of change (on the right-hand side) (MA 2003; 2005e). b. IPBES framework includes six main elements: Nature, Nature's benefits, Good quality of life, Anthropogenic assets, Direct drivers, and Institutions and governance. The arrows denote the links between elements, along the temporal and spatial scales (side arrows). (Source: IPBES, 2017a; Díaz et al., 2015).

Potschin (2010) focused on three separate components—biophysical structure and function of ecosystems, institutional arrangements and human judgments or services, and human well-being (benefits and values)—to describe people-nature relationships. These frameworks, particularly the MA and IPBES, explicitly link nature with human well-being for clearly delineating how well-being is derived from nature. The MA framework categorizes ecosystem services as provisioning, regulating, cultural, and supporting; and human well-being into five constituents as the basic materials for life, security of resources, good health, social relations, and freedom and choice. Both ecosystem services and human well-being components are influenced through direct anthropogenic and natural drivers and indirect institutional, governance and other drivers (Fig. 1a). The IPBES framework, building on the MA framework, applies simpler terminology for including nature (biodiversity and ecosystems) and nature's benefits (ES) as two separate compartments, and links the latter with the quality of life (human well-being), without categorizing services or well-being. The direct and indirect drivers, including anthropogenic assets impact on nature and its benefits to people, and thus on the quality of people's life (Fig. 1b). Recently, IPBES has emphasized on Nature's Contributions to People (NCP) to particularly underpin nature's socio-cultural benefits (Díaz et al., 2018), which is in line with the TEEB (2010) definition of ES as the direct and indirect economic contributions of ecosystems to human well-being. Especially, the MA and IPBES frameworks explicitly underscore the influence of drivers on human well-being through nature's benefits to people, and advance our understanding of the role of nature for human well-being. However, they omit a key element of how people shape their natural systems: people's relationships with nature and their related capabilities – a set of skills and knowledges, which are of prime importance for Indigenous and local communities (Sangha et al., 2017, Chan et al., 2016; Comberti et al., 2015).

People value nature's benefits for their relationships with, knowledge and understanding of, nature. These values are expressed through peoples' customs, and rituals involving a considerable element of reciprocity, some of which are explained through the concept of socio-ecological resilience proposed by Folke et al. (2016) or as a product of human energy and ecosystem (Braat and de Groot 2012). More specifically peoples' cultural relationships with nature are highlighted by Chan et al. (2012, 2016), Comberti et al. (2015), de Groot and Ramakrishnan (2005), Posey (1999), and several others, however, among those only recreational are usually evaluated in socio-ecological studies (Table 1). For example, global TEEB (2010) ES database includes 172 values on recreation, 12 on aesthetic, 11 cultural, 6 inspirational, and 2 spiritual out of 1310 values from >200 studies. Considering the importance of Indigenous people and local communities connections to nature globally, we must better recognize and articulate the implicit interdependence between people and their ecosystems to manage and use the resources to survive and thrive, as suggested by Costanza et al. (2017). Relationships between people and nature, and between people but involving nature, following Chan et al. (2016), form the foundation of living for many Indigenous and local communities across the globe. For example, peoples' relationships with land and with the other members of a clan who are supported by that land determine who belongs to whom and in what ways, as seen in the kinship system of Indigenous Australians (Altman, 1987; Dodson and McCarthy, 2005; James, 2009). However, the importance of knowledges and skills that are inherent in people's relationship with nature are not yet underscored. Besides, Indigenous and local contributions are least recognized when managing the natural systems through preserving peoples' languages, customs, and traditions.

Building and developing relationships between traditional (Indigenous and local) lands and people inherently entails specific capabilities to manage and value nature's services. However, to advance and maintain such relationships requires peoples' capabilities to be passed-on from one generation to another through shared life-long experiences and stories (James et al., 2018). Following Sen (1993), capabilities here refer to freedoms to achieve various opportunities (abilities and functionings) that a person may value doing or being. For example, a person's knowledge and skills enables him or her to live on traditional land. Without capabilities, one may not be able to value or use the available resources or opportunities, or vice versa. Many traditional societies pass on such capabilities through living on (*cf* living off) land. Thus, many social, knowledge and educational systems are directly or indirectly supported by the natural systems, which requires thoughtful consideration when developing an ES framework.