

# Can ecological rituals reinvent sustainability science?

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## Role of tiger and leopard deities in biodiversity conservation

### Overview

There is a certain kind of environmental knowledge that is hegemonic. This knowledge understands itself to be “scientific,” and indeed it draws upon natural sciences. But it also includes elements of technocratic and managerial thinking. It sees only technical and market-based solutions for environmental problems. In this way, it fails to see the many non-technological and non-market solutions to environmental problems that are already available. Technocratic, managerialist thinking contributes to unsustainability of many of the earth systems, as is evident from rapidly changing climate and biodiversity loss. We need to respect local knowledge in order to manage earth systems sustainably. In the crosscutting age, environmental science needs to work together with anthropology towards a sustainable future for the planet earth.

This research attempts to deconstruct local knowledge entrenched in two forest and animal deities in order to help creating a framework where biological sciences and socio-cultural sciences can learn from each other. For this, opening up alternative epistemologies and validating different ontologies are necessary. Local ethical norms and cultural codes, meanings and values govern negotiations between humans and non-humans. They offer important lessons into how we can stop species extinction, address environmental conflicts, and ensure intra- and intergenerational justice. Situated in the eastern and western India, the work attempts to understand how rituals around these, tiger and leopard deities regulate access to forest produce, delineate boundaries between humans and non-humans, and inscribe a set of ethical codes linked to desirable behaviour. These ethical norms are products of centuries’ of knowledge, and they have the potential to substantially enrich modern scientific thought.

My aim is to show how scientific forest governance and local negotiations between humans and non-humans might learn from each other. This is an interdisciplinary approach between natural and social sciences where biology and ecology are informed by anthropology and vice-versa, leading to a framework in which co-production of knowledge is formalized towards biodiversity and species conservation. This project attempts to contribute to the task of shifting and creating alternative ways of knowing, legitimising different ontologies and understanding how to place them within a reconfigured development trajectory towards a sustainable future for both the humans and non-humans in the planet. Only this can make Sustainable Development Goals locally comprehensible, inclusive and tangible.

### Research Approach

The biggest challenge to humanity in the Anthropocene seems to be imminent unsustainability of the earth systems. This comprises anthropogenic climate change, rapid depletion of endangered species such as tigers, biodiversity loss, man-animal conflicts, pollution and contaminations choking vital natural cycles. An exclusionary, Western technoscience based approach has attempted thus far to resolve this crisis but the rate of species extinction and conflicts between humans and non-humans have continued escalating egregiously. Indeed, the West has fared much poorly in preserving or sustaining its biodiversity. For example, Europe is left with only less than five per cent of the global terrestrial species while South and South East Asia retain 15-20 per cent of them (Corlett 2013). Similarly, forest cover today comprises 10-15 per cent of the geographic area in

European nations such as the UK (nine per cent), Germany (15 per cent) and France (13 per cent)<sup>1</sup> against India's 24 per cent. Adoption of the Western ecosystem governance and neo-liberal 'scientific forest management' has failed equally across post-colonial geographies to arrest persistent degradation and destruction of biodiversity. Over past half-a-century, the rate of species depletion and biodiversity loss has been alarming in countries such as Brazil, India and Indonesia. This threatens local communities, non-humans as much as remotely located populations and earth systems with catastrophic impacts, jeopardising the human civilisation across the planet as a whole (Field et al 2014).

Global environmental knowledge systems are dominated by scholars from the West and by natural science scholarship. Social and natural science collaborations are rare, oriental and occidental knowledge hybrids are even more so. In action however, the sustainable development regime that United Nation announced in 2016, seems heavily incumbent upon its eclectic constituents of social cognition, culture, economy, politics, language and natural sciences. This underscores the need of exploring and opening up alternative, diverse and imaginative epistemologies of conservation and sustainability; to create a hybrid knowledge regime based on local insights and understandings about the ecosystem along with the Western, Eurocentric science and technology. An overarching theoretical framework seems important under which local, ritualised and cultural knowledge can inform as well as learn from the Western, scientific and technological knowledge. The first step towards this is to identify the knowledge gaps that emanate from multifarious ways in which ecology is defined, constructed and practiced across societies and cultures. These local insights and understandings about ecologies are often designated as '*unscientific*' and marginalised in institutionalised policies and governance. Western management regimes such as 'fortress conservation' (Brockington 2002) alienate humans and undermine the constant process in which nature and humans co-create each other. The yet unattained transition that the Global South has to experiment with (through new forms of energy for example) makes development futures of the poor uncertain. It is further complicated by the absence of a theoretical framework as well as policies that can effectively inform sustainability governance.

### *Bonbibi* (forest goddess) & *Waghoba* (big cat deity) in India

A proxy of unsustainability where local knowledge, cultures and customs intersect with the global scientific management and governance is man-animal conflict. High levels of conflict threaten both the humans and the non-humans, which can be regarded as an indicator of unsustainability. However, the local, community-level negotiations with the non-humans had traditionally been governed by cultural codes and locally nuanced knowledge. This is manifest in the example of the tiger and forest deity *Bonbibi* – the goddess that transcends religious boundaries between Hinduism and Islam to yield a set of culture and custom that not only govern daily negotiations with the forest for the community but also assist in creating boundaries and delineate territories between humans and non-humans (Royal Bengal Tigers in this case). It also lays out certain codes of conduct in accessing the forest commons, governing desirable behaviours through ethical and moral arguments, which is increasingly becoming relevant in environmental sustainability debate as well (Gardiner 2011). Ritualistic codes in worshipping *bonbibi* seem to have the potential of reducing man-animal conflicts and help sustainable, equitable access to the forest commons by governing local behaviour. The state-led scientific management, on the contrary, attempts to coercively control and regulate the commons through 'fortress conservation' (Ghosh 2014).

Another big cat deity in western India, *Waghoba*, attempts the same at the margins of the forest that constitute overlapping spaces for the leopards and the local community. *Waghoba* highlights alternative philosophies, ideas and negotiations over spaces between humans and non-humans around the margins of forests. It creates invisible yet unavoidable boundaries between the humans and non-humans where respect for space for the non-human

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<sup>1</sup> Eurostat. Biodiversity statistics: accessed at <http://goo.gl/mK0dYv>

is entrenched. Interestingly, both the deities are eco-localised, created independently and in parallel of the mainstream religions. None of the deities have any formal religion to follow them, *mantras* for these deities inscribe a set of ideal behaviours while accessing, drawing from and distributing the forest commons. Uncovering these languages and cultural processes that govern these community-level, ecosystem specific management practices – remote from the ‘scientific forest management’ (Sivaramakrishnan 2000) – seems important not only to mitigate man-animal conflicts but to conserve the biodiversity, endangered species such as tigers and leopards. Such understanding also needs to be integrated in the global sustainable development framework to provide alternatives in operating within the planetary boundaries (Leach et al 2010).

Conflicts between knowledge claims of scientific ecosystem management and local community level negotiations with the ecosystem have had outcomes detrimental to both humans and non-humans. For example, the ‘success’ of fortress conservation in the Indian Sundarbans has been historically bolstered by citation of a high tiger population – close to 296 – till 2012. Following a controversy and the federal government’s revitalised efforts towards a more scientific tiger estimation in accordance with the recommendation of the Tiger Task Force set-up in 2005, pugmark estimation was replaced by camera-trapping method (Roy et al. 2016). The new process estimated the number of tigers in the Sundarbans as 76, substantially less than the earlier estimates; the prey base estimation also revealed that the region could only support 4.68 tiger /100km<sup>2</sup> (Roy et al. 2015). Despite the discursive legitimisation for fortress conservation sought to justify the purpose, the failure of scientific forest management reveals the need to rethink the existing approaches. It challenges both the theory of how the global commons may be sustained and the policies based on exclusionary techno-science and market based processes. This project seeks to understand how community level knowledge and practices can help evolving innovative epistemologies towards sustainable management and governance of various endangered species and vital ecological resources of the earth. Only such epistemologies and ontologies towards deliberative, consultative processes seem capable of conserving the biodiversity while developing sustainably.

## Keywords:

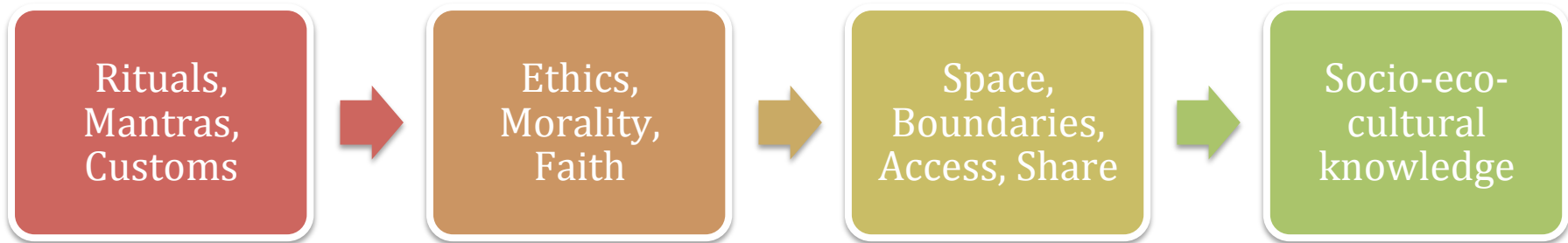
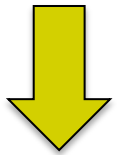
Sustainability, Knowledge, Man-animal Conflict, Ecological Rituals, Epistemology, Biodiversity Conservation, Tigers, Leopards, Sundarbans, *Bonbibi*, *Waghoba*



*Bonbibi*, a forest deity in The Sundarbans, West Bengal, Eastern India. *Bon* = Forest, *Bibi* = A women. A hybrid between Hinduism and Islam. An equalising forest religion?



*Waghoba*, a big cat deity in Junnar, Maharashtra, Western India. *Waghoba* = (male) cat god. Delineates invisible boundaries between humans and tigers, leopards. Safe operating spaces?



# UNSUSTAINABILITY IN THE ANTHROPOCENE

HEGEMONIC SCIENTIFIC KNOWLEDGE AND ENVIRONMENTAL POLICIES,  
GOVERNANCE PROCESSES

