Can ecological rituals reinvent sustainability science?

Role of tiger and leopard deities in biodiversity conservation

1. Introduction: Defining the problem

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 techno-science based approach has attempted thus far to resolve this crisis but the rate of species extinction and conflicts between humans and non-humans have escalated egregiously over recent decades. Indeed, the Western world has fared much poorly in preserving or sustaining their biodiversity (Corlett 2013). For example, South and South East Asia have 15-20 per cent of the global terrestrial species while Europe is left with only less than five per cent (ibid). 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)[1] against India's 24 per cent. Even in the Global South, the Western ecosystem governance in the post-colonial 'scientific forest management' has had poor results in conservation and sustainability. This underscores the need of exploring and opening up alternative, diverse and imaginative epistemologies of conservation and sustainability; to create a transcultural, hybrid knowledge regime based on Southern insights and understandings about the ecosystem along with the Western, Eurocentric science and technology.

There is vital need to find lessons from the Global South, which, despite the recent losses, has much better levels of biodiversity left. While the lack of economic growth based on the capitalist markets can be one driver of sustaining the environmental resources; the socio-cultural, community level negotiations with the ecosystem also seems to have also played a significant role in conserving the natural resources in the Global South. Any further loss of this biodiversity will be catastrophic for survival of the human race itself in the planet (Field et al 2014). It is evident that the Western techno-science knowledge regime alone cannot achieve the desired mitigation of the continued loss of this commons and maintain sustainability of the available resource in the Global South. To create alternative epistemologies and knowledge, the first step is to identify the knowledge gaps that emanate from the way ecology is defined, constructed and practiced by the Western science which often marginalises the local insights and understandings about the nature, designating them as *'unscientific'*. Western management regimes that have created processes such as 'fortress conservation' (Brockington 2002) alienate humans and the constant process of co-creation of the nature. By deconstructing how various cultures, customs and knowledge engage and negotiate with the ecosystem, this transcultural, hybrid knowledge can create an alternative theoretical framework while informing policies and governance of sustainability. The yet unattained transition that the Global South has to experiment with (through new forms of energy for example), makes the development futures of the poor uncertain. Shifting and creating alternative, culturally nuanced, hybridised ways of ecosystem management as well as understanding how to place it in a reconfigured development trajectory make it a critically important transcultural knowledge project.

2. Case Studies: *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 the daily negotiations of the community with the forest but

[1] Eurostat. Biodiversity statistics: accessed at http://goo.gl/mK0dYv

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 desired behaviours through ethical and moral arguments, which is increasingly becoming relevant in the climate change debate as well (Gardiner 2011). Rituals involved in the worship of *bon-bibi*, locals feel, can not only reduce man-animal conflicts but also help sustainable and equitable access to the forest commons shared by the humans and the tigers alike. The state-led scientific management, on the contrary, attempts to coercively control and regulate the commons through 'fortress conservation' (Ghosh 2014).

While *Bonbibi* seems to regulate 'sustainability' inside the forest, a big cat deity in western India, *Waghoba*, attempts the same in the margins of the forest that constitute overlapping spaces for the leopards and the local community. *Waghoba* highlights alternative philosophies, ideas and negotiations over space 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 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 behaviour 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).

The conflicts between knowledge claims of scientific ecosystem management and local community level knowledge and practices have not only led to increasing number of conflicts between humans and non-humans but has also resulted in sharp decline in the number of species. For example, the 'success' of fortress conservation in the Indian Sundarbans has been historically bolstered with the citation of a high number of tigers – close to 296 (Chakrabarty 1992) – till 2012. Following a controversy and the federal government's revitalised efforts towards more scientific estimation with the Project Tiger following the recommendation of the Tiger Task Force set up in 2005, pugmark estimation was gradually discarded in favour of camera-trapping method (Roy et al. 2016). The new process estimated the number of tigers to be 76, substantially less than the earlier estimations, the prey base estimation revealed that the region could support 4.68 tiger /100km^2 (Roy et al. 2015). Despite the discursive legitimation for fortress conservation sought to justify the purpose, the failure of scientific forest management reveals the need of rethinking 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 such knowledge and practices at the local levels to help evolving innovative epistemologies of socio-ecological sustainability.

3. Research questions

- How non-Western cultures inscribe environmental management practices, regulate the negotiations and co-create nature between humans and non-humans?
- How does cultural knowledge codify conservation and ritualise it in the daily, lived practices of the communities? What can it inform the Western scientific ecosystem conservation?
- How can transcultural, hybrid knowledge be created between Oriental and Occidental ecological cultures to sustain the global commons?

These questions will lead towards answering the main question **How can a transcultural approach be created the global sustainable development paradigm to create a hybrid, just and efficacious knowledge regime?**