

MIDS WORKING PAPER No. 232

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of Economic Valuation of Tiger Reserves

Ajit Menon

Madras Institute of Development Studies

Nitin D. Rai

Ashoka Trust for Research in Ecology and the Environment

January 2019

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Institute of
Development
Studies

MIDS Working Paper No. 232, January 2019

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by Ajit Menon, Nitin D. Rai

Rs. 25.00

Madras Institute of Development Studies
79, Second Main Road, Gandhi Nagar
Adyar, Chennai 600 020
Tel.: 2441 1574/2589/2295/9771
pub@mids.ac.in | <http://www.mids.ac.in>

Making Nature Legible

The Social and Political Consequences of Economic Valuation of Tiger Reserves

Ajit Menon*, Nitin D. Rai

ABSTRACT

There have been a few recent attempts to estimate the economic value of ecosystem services from tiger reserves. Doing so, it is argued, will not only provide a justification for tiger reserves but also recognise the importance of ecosystem services to human well-being. We use a political ecology approach to argue that economic valuation is never a benign tool, but is very much situated in wider institutional contexts that favour certain actors over others. In India, protected areas are being valued even as people living within them are being evicted and their use of the forest restricted. We draw from fieldwork in the Biligiri Rangaswamy Temple Hills of Karnataka and conversations with Soligas. The questions we ask are how is nature made legible and who benefits from such legibility. We suggest that economic valuation can hide complex human-nature relationships and undermine different ways of knowing and 'valuing' landscapes.

1. INTRODUCTION

As we sat with Achuge Gowda outside his house in Yerakinagadde colony located in the Biligiri Rangaswamy Temple Wildlife Sanctuary (henceforth BRT) telling him about the Madhu Verma et al. (2015) report entitled *Economic Valuation of Tiger Reserves in India: A Value+Approach* (henceforth Verma Report), he interrupted us to ask why the government

* Corresponding author
Email: ajit@mids.ac.in

was valuing tiger reserves. We had come to BRT with a summary of a shorter paper (Verma et al. 2017) on tiger valuation based on the original report to ask Soligas (an Adivasi community that constitutes the majority of the population in BRT) what they felt about the valuation of services in tiger reserves. In policy circles, economic valuation of tiger reserves is increasingly being seen as a means of saving nature. By ascertaining the true value of nature, economists argue that conservation will become an economically rational option. Instead of answering Acchuge Gowda's question, we asked him for his opinion. Without hesitation he said the government wanted to highlight the forest's value so as to justify the eviction of Soligas from BRT. Acchuge Gowda's fear was based on what he had heard Prime Minister Narendra Modi say on the radio in 2017: that 750 villages were going to be relocated from tiger reserves across the country in order to conserve the tiger.

Valuation is premised on the belief that ecosystem services are at present overexploited because they are free (Matulis 2015: 12), an argument many conservationists have bought. Proponents of economic valuation argue not only that valuation will help save nature but also improve local human well-being, a claim made by the authors of the 2015 tiger valuation report as well. Political ecologists, on the other hand, argue that valuation is part of neoliberal conservation and the commodification of nature. Neoliberal conservation is primarily aimed at new avenues of capital accumulation that result in environmentally unjust outcomes.

Acchuge Gowda's concerns provide an entry point to assess economic valuation of tiger reserves and neoliberal conservation. As Huff and Tonui (2017: 2) argue, political ecologists have primarily focused on the theoretical implications of neoliberal conservation as opposed to the empirical workings of it. In the Indian context, the workings of neoliberal conservation are relatively recent; tiger valuation is in its early stages with the National Tiger Conservation Authority (NTCA) now funding similar economic valuations of several tiger reserves. The Verma Report is a collaborative effort of ecological economists at the Indian Institute of Forest Management, an autonomous institute of the Ministry of Environment, Forest and Climate Change (MoEFCC), and officials in

the NTCA. The MoEFCC, of which the NTCA is a part, commissioned the study. The NTCA governs, funds and monitors all the 50 tiger reserves across India, including the estimation of the number of tigers in tiger reserves and forests across the country once every four years to assess the success of tiger conservation efforts. Hence, we attempt here to assess the possible consequences of valuation for Soligas in BRT. This involves unpacking the epistemology and ontology of economic valuation that makes it legible to the state,¹ situating valuation within the chequered history of state-driven conservation, addressing the actions of corporate players and finally analysing its impact on Soligas. The last of this is done keeping in mind Soliga counter-narratives about forest degradation and conservation.

The paper is divided into seven sections. Following this introduction, we detail the prolific expansion and foundations of economic valuation as an instrument of neoliberal conservation. Section 3 situates Soliga fears about economic valuation in a brief history of Soliga dispossession due both to the expansion of coffee plantations and the emergence of a protected area in BRT. In Section 4, we highlight the reasons Soligas are sceptical about economic valuation of tiger reserves and their counter-narratives and explanations about forest degradation and conservation. In Section 5, we explore the social and ecological implications of neoliberal conservation. Section 6 puts forward a possible framework through which we can judge the outcomes of economic valuation so that it is cognisant of environmental justice concerns. In the conclusion, we summarise our arguments and discuss possible alternative ways forward.

2. VALUING AND MAKING NATURE LEGIBLE TO SAVE IT

Economic valuation is premised on the belief that conservation and development are potentially complementary (Gomez-Baggethun and Ruiz-Perez 2011). This is so because economic valuation, through both stated and revealed preference methods, makes it possible to capture the monetary value of non-marketed ecosystem services. Capturing

these hidden values is important not only to emphasise the ecological costs of unbridled economic growth, but equally to make the case that conservation provides ecosystem services that enhance human well-being.

In 2005, the Millennium Ecosystem Assessment (MEA 2005) mainstreamed economic valuation and the ecosystem services approach. The MEA divided ecosystem services into provisional, regulatory, supporting and cultural services and highlighted how these services improved human well-being. In 2006, the Nature Conservancy and World Wildlife Fund, in partnership with Stanford University, established the Natural Capital Project (<http://www.naturalcapitalproject.stanford.edu>). This was followed in 2010 by the United Nations Environment Programme's (UNEP) The Economics of Ecosystems and Biodiversity (TEEB) (<http://www.teebweb.org>) initiative. All these initiatives centre-staged valuation of 'natural capital'.

India was not to be left behind. In 2011, the Ministry of Environment and Forests, Government of India, launched a new initiative, in collaboration with TEEB, to value its biodiversity and natural capital. The government was explicit in stating that natural resources should be translated into wealth and that local communities would benefit.

The Verma Report (2015) has not only a global genealogy, therefore, but a national one too. Its logic is similar to the above-mentioned approaches – value tiger reserves so as to capture their total economic value, which not only would provide an economic logic to conservation, but also improve local human well-being through recognising the value of non-marketed ecosystem services and potentially through payment for ecosystem services (PES) to those who partake in the conservation of particular services. Verma and Negandhi (2018: 4) further justify the valuation of services, stating that the protection that has been given to tiger reserves 'has resulted in the increased flow of a wide array of ecosystem services, which are actually used by various stakeholders, without appreciating their use values' (2018: 5). This echoes the early writings on PES and valuation such as by Wunder (2005) who said that valuation helps secure ecosystem conservation and restoration. Implicit

in the valuation approach is the belief that the intrinsic value of nature is inadequate to preserve it – what is needed is an instrumental economic logic as well.

It is important to unpack the ontology and epistemology of valuation. Valuing tiger reserves is premised on the belief that tiger reserves comprise a number of ecosystem services. The Verma Report (2015) mentions 25 such ecosystem services, including agriculture, timber, non-timber forest products (NTFP), pollination and carbon sequestration, with different beneficiaries at different scales. Tiger reserves are made legible through valuing these ecosystem services, which, it is assumed, will help improve human well-being.

Economic valuation and tiger conservation by default become technical exercises. Experts assume centre stage: ecologists who understand the workings of the ecosystem and, more significantly, economists who use valuation techniques to ascertain the ‘true’ economic value of ecosystem services. Not surprisingly, the valuation team appears to have largely spoken to these experts and not to local people who reside in tiger reserves. This fits well with scientific forestry that has for the last two hundred years, with a few exceptions, seen forest management as the preserve of the forest department. As we illustrate later, Soligas view forest management in very different ways.

We argue that the ecosystem services approach treats nature as external to human beings (Barnaud and Antona 2014). But ecosystem services are co-produced through human interaction. Take for example agriculture or NTFP. The amount of paddy grown or honey harvested is the product of human labour. Without this human labour, these services would not exist. Landscapes also are transformed as a result of human intervention such as through fire, which enables the growth of grass and tubers, both of which are services that are valued by certain actors. However, when it comes to policymaking, more often than not, economists support initiatives aimed at ‘recreating’ pristine nature or inviolate tiger reserves free of human beings, forgetting the human role in the co-production of nature.

The institutional context assumes importance here. People help produce ecosystem services if the institutional set-up allocates them

rights to do so. Making nature legible by valuing ecosystem services, in other words, does not guarantee improvements in human well-being. In a context where tiger reserves are made inviolate, how can local communities benefit from ecosystem services? Achhughe Gowda's concern that valuation would provide an excuse for the state to displace Soligas is based on his community's experience of conservation practice. It is to this that we now turn.

3. A CONSERVATION GENEALOGY OF ECONOMIC VALUATION

BRT is one amongst several protected areas (PA) that are part of a large area of forest that ranges across the three states of Karnataka, Tamil Nadu and Kerala. This large area measuring nearly 5,000 sq. km was declared the Nilgiri Biosphere Reserve in 1986. It was identified by the Ministry of Environment and Forests as a major area of importance for the conservation of the tiger with the result that five of the protected areas in this region have been declared tiger reserves (three in Karnataka and two in Tamil Nadu).

In the past, the Mysore Maharaja and British officers hunted in these preserves while the forest departments of colonial and independent India logged timber there. The colonial government also leased forests located in the higher reaches of BRT to a Scottish planter named Randolph Morris in 1867 for the production of coffee (Rice 1897). Morris extended his control subsequently through additional grants. Post-independence, Morris' plantation was subdivided into four plantations and is now owned by Indian companies. The total area under coffee plantations held by the four companies today is about 550 ha, a large portion of which is leased from the forest department (Coffee Board 2016).

The growth of coffee plantations and timber production describes a history of extraction and accumulation. The colonial state and estate owners employed local people who lived and farmed within the forest, namely Adivasi communities such as the Soligas and agrarian communities such as the Badagas. Soligas narrate how the forest

department used them to raise timber plantations and prevent fires from spreading through plantations. The forest department allowed Soligas to cultivate between the timber saplings and in adjoining areas until the forest was grown, after which they were moved to a different area to raise more plantations after trees had been harvested. Li (2010) has described how colonial forest policy was targeted at denying Adivasi groups in India ownership of land in order to use them as labour for forestry operations. For sustenance they were made to depend on forestland for cultivation and on sale of forest produce when available. The colonial government's targeted denial of land rights and ownership to Adivasis resulted in their dispossession even as the state and private actors accumulated through timber and coffee production.

This history of disenfranchisement continued after Independence. In 1974, the Karnataka government notified the BRT forests as a wildlife sanctuary and banned all customary practices such as swidden agriculture, hunting and the use of fire. The Karnataka forest department relocated Soligas from their settlements in the various parts of the forest into villages in the periphery of the reserve and along roads. Even as the forest department razed Soliga settlements to the ground and families moved to colonies outside the forest, it also settled many families close to the coffee plantations so as to ensure a continued supply of labour for the plantations and to assist the state with forest management.

Soligas faced fresh trouble in BRT in the new millennium. In 2002 the Wildlife (Protection) Act (WLPA) was amended to ban the collection of NTFP, which greatly affected the livelihoods of Soliga households who depended on the sale of NTFP to augment their incomes (Madegowda 2009). Soligas increasingly depended on wage labour in the coffee plantations within BRT and in agricultural farms outside the forest. Barely had the dust settled on the NTFP ban issue when, in January 2011, the government declared BRT a tiger reserve. The WLPA, which lays down the legislative process for wildlife conservation in India, mandates, as mentioned above, that tiger reserves have an inviolate core area, or critical tiger habitat (CTH), from which all people have to be relocated. Although no clarity exists on how many families the government intends to relocate from the CTH, an official

estimate suggests the government will relocate 34 villages from BRT (Lok Sabha 2013). There is continuing pressure on Soligas in BRT to relocate outside the tiger reserve and restrict their use of the forest. This pressure continues even though over 40 gram sabhas in BRT have claimed and received community and individual forest rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (henceforth the FRA).² Their continued alienation from the forest is a direct result of the territorial control by the state for tiger conservation.

The NTCA's circular of March 2017, which mandated that no rights, whether individual rights to cultivable land or community rights to forest, could be granted under the FRA in tiger reserves, is the government's most recent move to deny rights and alienate people who live in tiger reserves. Although this order was revoked a year later under pressure from the Ministry of Tribal Affairs, these repeated attempts to erode the FRA are a clear statement of NTCA's intent to not allow people to live in or depend on the forests within tiger reserves.

4. RETRIEVING SOLIGA CONCERNS ABOUT ECONOMIC VALUATION

Recounting this history of dispossession helps us to contextualise how valuation of tiger reserves might pan out in the Indian context and in BRT and therefore the scepticism of Achhug Gowda and others regarding valuation. It is important to recall that the main claim of the Verma Report (2015) was that the hidden value of ecosystem services would be retrieved and that doing so would increase human well-being, including that of local people. The argument goes that by making nature legible through mapping out the ecosystem services of tiger reserves the importance of particular ecosystem services to local people could be ascertained. Hypothetically, as has happened in other countries, local communities could also potentially benefit from PES schemes.

We have suggested that whether this happens or not depends on the wider institutional context of protected area management. Economic valuation in India has assumed importance in a context where inviolate

tiger reserves are on the increase. Local use of ecosystem services such as NTFP is being discouraged, not valued, as in some cases eco-development schemes are being promoted to wean local communities off their dependence on forest resources. A careful reading of the Verma Report (2015) suggests that the primary purpose of the report is to highlight the value of tiger reserves in monetary terms as opposed to ways in which these monetary benefits can be shared with local communities. During a conversation, Soliga elders Kerekethe Gowda and Hanume Gowda expressed concern that valuing tiger reserves is the government's way of emphasising the economic value of tiger reserves and hence denying Soligas their entitled claims under the FRA. (Under the FRA, Soligas have been granted rights to cultivate and use the forest for NTFP, grazing, worship, fishing, and customary management.)

Many Soligas we spoke to told us that economic valuation was yet another misguided initiative of state-led forest conservation. They pointed out to us that it was not necessary to value nature to save it. Valuation was the state's way to economically justify the fortress conservation approach and the continued exclusion of Soligas as the forest department had always claimed that Soligas were responsible for forest degradation. Valuation, in other words, would freeze nature in its current institutional context where nature and humans are separated and where nature is measured, valued and sold. We elaborate on these local perceptions of the outcomes of economic valuation in the following sections.

Soligas were also highly sceptical about the forest department's approach to conservation. Who after all, many asked, had lived with and nurtured forests for hundreds of years? Who continues to have deep cultural ties to these forests? Soliga after Soliga we met expressed their consternation that the forest department has never included them in discussions about forest management. Equally, they were quick to ask us whether Madhu Verma and her team had engaged with local communities while valuing the six tiger reserves in the course of their work.

Another concern with making ecosystems legible through valuing individual services is that it tells you little about possible alternative

scenarios (Lele and Srinivasan 2013). Achhug Gowda pointed out to us that the state's management of BRT had, in fact, resulted in the forest being degraded over time, i.e. it was no longer as valuable and healthy. One major indicator that Soligas use to illustrate the decline of forest health is the prevalence in almost the entire tiger reserve of *Lantana camara* (henceforth Lantana), a plant that was introduced into India by the British in the early 19th century and that has now proliferated. They have over the last decade identified the suppression of their customary management practices such as early season burning of the forest floor and the collection of tubers as the main reason for the proliferation of Lantana (Rai et al. 2018).

What we are suggesting and what Soligas pointed out through stories is that economic valuation ends up disembedding nature from humans. Descola (2013) argues that in many 'indigenous' societies, the human-nature divide is a false one. Soligas reminded us of Descola's point by telling us they named the forest, live in and worship it. A detailed effort was undertaken in 2008 to map the forest according to Soliga views of the landscape (Rai and Madegowda 2017). On their map, Soligas identified nearly 500 cultural sites and 46 clan areas that they call *yelle*. Soligas belong to six different clans, each of which have several *yelle* in the forest. Within each *yelle*, there are sites known as *Devaru* (god), *Maramma* (female deity), *Kallu gudi* (shrine for interning the dead), *Veeru* (hero stone) and *Habbi* (spring). These sites dot the landscape that is currently administered as the tiger reserve. Soligas orally map the *yelle*, and sites within them, through naming each patch of forest, making for a landscape that is alive to the Soliga through naming, stories and songs. The 'counter-map' of BRT reflects a cultural as well as ecological landscape that Soligas have produced which the state appropriated for conservation. As one Soliga, referring to the forest, told us: 'this is not a factory but a farmer's field – this is nature. It is not proper to economically value nature. How do you value the rocks, the mud, the 1000 years of the hill?' (Muthugadagadde podu, 23 September 2017).

The idea of embeddedness of nature and society was brought home most powerfully by another Soliga, Dasegowda, in his recounting of the story of how their Lord Madeshwara killed Shrivana, an evil but

powerful king. In this story, Madeshwara assumed the form of a dancer and enticed the king to a polished rock and killed him as he slipped and fell. Even as everyone celebrated the death of the king, Madeshwara instructed Soligas to conduct Shravana's last rites every year for he was after all a powerful king. The Soliga have done so ever since. Dasegowda ended by saying that if Soligas were removed from this forest and could not conduct this ritual it would spell the death knell for wildlife and the forest. Such a vision of a shared history of the forest, animals and people is ignored in the metrics of economic valuation. Such stories are a strong reminder that the forest has been shaped and produced by the people who have lived, cultivated and worshipped in it for years. Their value of the forest is difficult to capture in economic terms. Economic valuation reduces these historical and cultural landscapes to possible commodities that can be invested in and traded oblivious to the multiple different types of values of other actors.

5. VALUATION, NEOLIBERALISM AND LOCAL COMMUNITIES

Despite Soliga counter-narratives about protected area management, there is little sign that institutional changes for tiger conservation are likely to take place in the near future. In fact, the opposite is more probable, namely the expansion of inviolate tiger reserves. As many scholars have argued, the protected area model has increasingly been neoliberalised with private actors (individual and corporate institutions) investing in tiger conservation. In India, NDTV joined hands with Aircel in a 'Save Our Tigers Campaign', a campaign that a number of celebrities contributed to both financially and by lending their name to the cause. While this joint campaign is no longer active, tiger conservation is increasingly becoming a public-private partnership. It is also becoming increasingly 'technical' with little debate about managerial alternatives; rather it is about investing financially to ensure forest staff are better paid and equipped and that the forest department has better technology to monitor activities in tiger reserves.

The Verma Report (2015) builds on this economic logic. As we have already illustrated, it makes a case for valuation so as to capture the total economic value of tiger reserves as well as the likely human well-being benefits of these reserves. The third justification for valuation in the report is that tiger conservation generates investment benefits. In their companion paper to the report, Verma et al. (2017: 242) state ‘in terms of attractiveness for enhanced investment in these tiger reserves, the estimates show that the investment multiplier, i.e. the ratio of flow benefits to management costs for each tiger reserve, range from 200 to 530’. Through the use of this ‘investment multiplier’, the authors make the case that investing in natural capital is financially worthwhile.

One question that arises is whether valuation will lead to new enclosures in addition to strengthening existing ones. In a chapter titled ‘Cost of inaction: Recreating a tiger reserve’, the Verma Report (2015) lays to rest any doubts we may have about this question. They assess what it would cost to establish a tiger reserve. The main costs involved are land acquisition, rehabilitation, resettlement and habitat development. They show that these costs are ‘astronomical’ at Rs. 491,800 million for a 1,069 sq. km reserve or Rs. 4.62 million per ha. They demonstrate that the state needs to protect existing tiger reserves so as to avoid having to create new ones. It should not be lost on anyone that the authors are using valuation to intensify conservation in existing enclosures even as they suggest ways to fund the creation of new tiger reserves. They offer just such a suggestion through a ‘willingness to pay’ analysis and arrive at an estimate of Rs. 141 for five years as a cess on electricity bills to create such a fund. The application of such economic approaches to conservation issues is deeply political and yet does not get adequately discussed outside the institutions that produce these estimates.

Valuation must be seen in this context. Fletcher and Buscher (2017) argue that the very nature of the valuation and ecosystem services logic makes it neoliberal. Ecosystem services are made legible so that they can be commodified and privatised. Markets already exist in India for carbon trading. Nature tourism is expanding around protected areas. Yet as Kallis et al. (2013: 100) state, imagining nature as a set of ecosystem services ‘does not necessarily pre-empt their commodification and

enclosure'. While that might be true, we need also heed Milne and Adams who state 'the significance of the PES policy model lies in the political and social effects of its design and implementation, not in its functioning as a market per se' (2012: 136). This suggests that even in the absence of eventual commodification, the valuation of ecosystem services will enable state and private actors to territorialise, enclose, propertise and control areas. Matulis similarly warns of 'the implications that engaging such mechanisms has in the progression of capitalist ideals and mentalities regardless of the immediate material outcomes' (2015: 1).

Equally important to ascertain is who might benefit from the valuation and potential commodification of services. At the moment the beneficiaries are the state, the forest department and non-local investors such as tourism operators. Local people are not included despite the claims that they will be benefiting through forest produce harvest. Even promises of sharing tourism revenue with villagers, such as a Rs. 100 cess that is levied on each jeep that the forest department operates for tourists in BRT has not fructified. This money has accumulated over ten years but has not been adequately disbursed to the village that is closest to the tourism complex as promised. Even if a portion of the revenues are shared with Soligas, valuation raises questions about the equitability of local benefits while the logic of the market is being used to conserve nature (Fletcher and Buscher 2017). In other words, is it okay for Soligas to access some revenues from these investments even as the larger accumulation process proceeds unchecked? We argue that it is necessary to see the economic valuation of tiger reserves as an exercise for gaining political and discursive control of these areas (Dempsey and Suarez 2016). While there is little evidence that economic valuation of tiger reserves has resulted in significant accumulation, valuation might eventually attract more private sector players to invest in tiger conservation in the hopes of capital accumulation that might result from the marketisation of such services as carbon and tourism.

Also, how will valuation of tiger reserves affect the original conservation goals? A look at the value of the stocks and flows shows us that the stock benefits (standing stock and carbon storage) are on the average 20 times greater in value than the flows (employment

generation, agriculture, fishing, fuelwood, fodder, timber, non-wood forest produce, gene-pool protection, carbon sequestration, water provisioning, water purification, sediment regulation/retention, nutrient cycling, biological control, moderation of extreme events, pollination, nursery function, habitat refugia, cultural heritage, recreation, spiritual tourism, research, education and nature interpretation, gas regulation, and waste assimilation). It is worth recalling here that the main objective of tiger conservation is to increase the number of tigers. And yet valuation demonstrates that the highest estimates of monetary value are from timber and carbon stocks.

Valuation, in other words, has the potential to alter ecosystem functions and structures by privileging certain services over others. For instance, the reliance on carbon might change the original forest structure from a woodland savanna to a closed canopy forest. Extensive interviews with Soligas have helped us reconstruct the forest structure as it existed decades ago. The forest was managed as an open savanna woodland through the use of fire and tuber and other produce collection. State conservation practice has changed the forest to a more wooded one. Carbon, which the valuation highlights as the most valuable service, will affect the forest even more by making the growing of trees more valuable than tiger conservation. There is therefore the possibility of the incommensurability between valuation of ecosystem services and the management of tigers and wildlife (Adams 2014).

6. WHY VALUE A TIGER RESERVE?

Kallis et al. (2013), after synthesising the political ecology and ecological economics literature on valuation, provide a guiding framework as to how to evaluate the monetary valuation of ecosystems. They list four questions that one should ask of any valuation effort: (1) Will it improve the environmental conditions at stake? (2) Will it reduce inequalities and redistribute power? (3) Is it likely to suppress other languages of valuation and value-articulating institutions? and (4) Will it serve processes of enclosure of the commons? (Kallis et al 2013:

100). We apply these questions to economic valuation of tiger reserves and BRT in particular and then ask whether tiger reserves should be valued economically.

The question of whether valuation will improve the environmental conditions at stake might be answered by looking at what tiger reserves were set up to achieve. By all accounts and specifically those that have been provided by the NTCA, tiger conservation has been a success and tiger numbers have been increasing across the country. Tiger reserves have been established by central legislation and the denotification of these areas to other land uses although possible by law, is not easy to accomplish. It is unclear therefore what additional benefits valuation will bring to conservation of these landscapes other than of course the possibility of generating additional revenue.

A more definitive answer might be provided for the question whether valuation will reduce inequalities and redistribute power. As we have described for BRT, and as a number of authors have shown elsewhere, tiger conservation has tended to increase inequalities and deprivation through the legal notification of inviolate tiger reserves that prevent any form of development activity within the reserves (Taghioff and Menon 2010; Bijoy 2011; Sen and Pattnaik 2017; Rai et al. 2018). The Verma Report (2015) report does not outline an approach to reduce these inequalities and all indications are that the flow of investments for conservation resulting from the monetisation of services might increase inequality through curtailing access to services for local people and through the physical displacement of people from tiger reserves as required by law.

The Verma Report (2015) report acknowledges that some values, including cultural values, have not been accounted for and therefore such values might take a back seat. For example, Soliga cultural attachment to forests, the stories of their location in the forest and their historical connections to landscape have been erased. Moreover, in the eyes of Soligas the transformations of the landscape over time have actually reduced the value of forests. This, they suggest, is the case because of the loss of their power to define management goals and pursue

customary practice. Valuation therefore suppresses such accounts of change and local ideas of value, privileging other accounts of value that benefit others more.

Finally, does valuation encourage and facilitate the enclosure of forests in protected areas? In the Indian context, as in other parts of the world, most forests including protected areas are already enclosed. In 2006, the Wildlife (Protection) Amendment Act provided the legal framework to further enclose protected area by expanding the core area of tiger reserves and making them inviolate. What valuation, in this context, does is strengthen the case for enclosure by highlighting the current value of tiger reserves regardless of taking into account people's historical rights. This might prove to be problematic and a constraint for Soligas in a context where they have just been given individual and community rights to forests.

Following Kallis et al.'s (2013) scheme, the answer to the question 'should we value tiger reserves in India?' would therefore be a resounding 'No'. What then does one make of the current effort to value tiger reserves? Although we do not yet have adequate empirical information on the outcomes of valuation of tiger reserves, a historical, institutional and political assessment of the outcomes based on what we currently know of tiger conservation demonstrates that valuation is going to strengthen enclosure and increase the marginalisation of forest dwellers.

7. CONCLUSION

Economists have promoted the economic valuation of ecosystem services arguing that attaching an economic value to landscapes will show that they are more valuable than alternative land uses and therefore promote conservation even as ecological arguments for conservation might fail. While conservationists have welcomed such valuation seeing in it the possibility of convincing policymakers of the need to conserve 'valuable' landscapes, political ecologists have raised many concerns, some of which we have highlighted using our experience from the BRT tiger reserve. Critics of valuation have claimed that valuation and PES make nature legible in particular ways that promote the same neoliberal

logic that has produced environmental degradation in the first place and is therefore a 'conceit' (Fletcher and Buscher 2017). Others have suggested that valuation enables the implementation of select political and social designs that benefit powerful actors (Milne and Adams 2012; Matulis 2015; Dempsey and Suarez 2016). We have added to these criticisms by talking about the many erasures that economic valuation of ecosystem services ensures. Valuation, we have argued, silences local voices, institutions and histories.

Valuation of nature only takes into account the views of people who consume nature not of forest dwellers who produce these services through a history of transformation of these landscapes through customary practice. Valuation of conservation landscapes, in this case of tiger reserves, has been conducted in the aftermath of a long history of disenfranchisement and is therefore unable to lead to the betterment and well-being of local people. We have described the history of such disenfranchisement of Soligas in BRT, adding to other such accounts from India. The continuing impact of a coercive conservation policy is now combined with valuation to possibly apply a further squeeze on local livelihoods. We have argued that the valuation of tiger reserves is being done to attract investment into tiger conservation and that valuation is therefore likely to instrumentally support the state-corporate nexus. Not only does valuation make space for corporate players in the conservation sector, it also strengthens the state's hands to continue its historical preserves and preoccupations. This could be troubling in a context where local communities have started to receive forest rights to address the historical injustices that they have faced.

NOTES

- 1 The report has been criticised because of its poor methodological rigour. The purpose of our paper, however, is to go beyond a methodological debate which is a technical exercise and point out the implications of valuation in a context where tiger reserves are part of a fortress conservation strategy. Our focus is on the ontology and epistemology of valuation and the institutional context in which it materialises. Methodological rigour, while important, is a technical issue.

- 2 The Forest Rights Act 2006 grants individual and community rights for cultivation and forest use to Adivasis and eligible forest dwellers.

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Review of Development and Change

ISSN 0972-2661

Editor: Shashanka Bhide

Editorial Committee: Ajit Menon and L. Venkatachalam

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