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Livelihoods, Conservation and Forest Rights Act in a National Park: An Oxymoron?

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LIVELIHOODS, CONSERVATION AND FOREST RIGHTS ACT IN A NATIONAL PARK: AN OXYMORON?

Subhashree Banerjee* and Syed Ajmal Pasha†

Abstract

National Parks in India are highly vulnerable due to excessive pressure on their ecosystems as a result of growing population and high dependency of forest dwellers on these resources. This has led to many conflicts across stakeholders. To address these conflicts, the State has enacted laws and regulations in favour of the local communities (Forest Rights Act (FRA)). However, the purpose of National Park and the FRA seems to be oxymoronic as they both tend to contradict each other. Keeping this in perspective, we have selected Bhitharkanika National Park (BNP) in Odisha as a case study and reviewed its policy objectives, Acts and Rules in operation, livelihood systems of local communities and their dependence on Bhitharkanika ecosystem, and the role of different stakeholders and their claims by conducting a household survey of 165 household in four villages in BNP. The paper suggests certain measures to reduce the conflicts across conservation, livelihoods and forest rights.

Introduction

Human sustenance depends on services – direct and indirect from ecosystems[i]. In fact, livelihood[ii] systems of communities suitable to the ecosystem services maintain sustainability of an ecosystem. Invisible or visible management systems of livelihoods and ecosystems through appropriate institutions and institutional arrangements have ensured sustainability of livelihoods and ecosystems. A balance between the two major systems is essential, which is nothing but an ecological balance of an ecosystem. There could be a variety of livelihood systems such as farming, livestock keeping, fishery, prawn cultivation etc., which depend on many sub ecosystems like forests, tanks, streams, grazing lands, mangroves, rivers, etc., of a larger ecosystem. In between the livelihood systems and ecosystems, we have varieties of ecosystem dependent fauna. In fact, there has always been intense competition for ecosystem services between human beings and animals. But this competition got policy recognition only in late 1990s and early 2000s.

Further, the Millennium Ecosystem Assessment (MEA) framework stresses human dependence not only on ecosystem services, but also on the underlying ecosystem functioning, contributing to human wellbeing. According to MEA, ecosystem benefits and services have been broadly grouped into four categories, namely: provisioning, regulating, cultural and supporting. The MEA[iii] framework has been widely accepted, and is seen as a useful starting point (Figure 1). The MEA has been described below.

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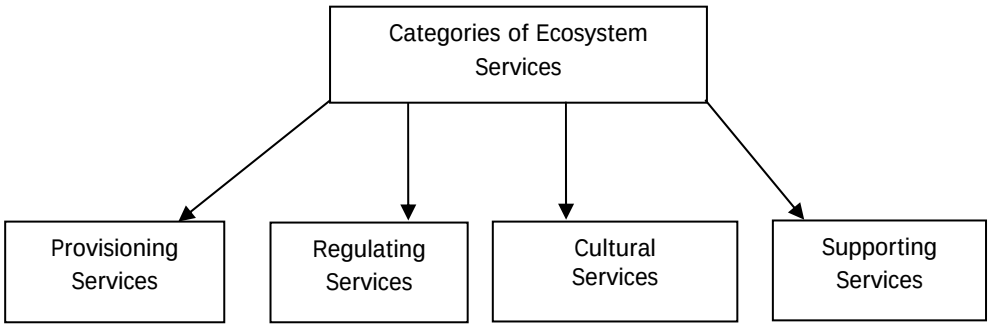
Figure 1: Categories of Ecosystem Services According to the Millennium Ecosystem Assessment



Source: Millennium Ecosystem Assessment Report, 2005

Ecosystem provides various services at different stages to sustain livelihood systems. Nevertheless, not all goods and services are jointly provided by ecosystem as there are some degree of complementarities, trade-offs and choices between the services (Nadkarni, 1996). For example, maintaining an ecosystem just to conserve biodiversity will affect its commercial potentials as well as livelihoods dependence on the ecosystem.

There is also a conflict between using an ecosystem only for livelihoods or using it for commercial exploitation or strictly for conservation purpose. Deforestation caused due to commercial exploitation will indirectly result in floods, siltation problems and micro-climatic instability, apart from adversely affecting livelihoods dependent on forests. These conflicts are particularly acute in developing countries where dependence of people on ecosystem is significant, and commercial exploitation has the potential to boost national income. At the same time, natural capital base cannot be allowed to be eroded, requiring developing countries to make a sustainable use of natural resources leading to conservation of natural resources. It has been observed that livelihood systems, forest-dwelling animals and ecosystems are under threat, resulting in an ecological imbalance. Some studies have pointed out that the complex association between poverty and ecosystem degradation, exacerbating one another (Biggs et al., 2004; Nadkarni, 2000; Shackleton et al., 2008) leading to conflicts (Ohlsson, 2000; Nair, 2013) and imbalance.

Further, choices between different users cannot be easily resolved through economic valuation of ecosystem services. There are at least two supporting reasons for this. The first is that different interest groups value their services differently and many interest groups compete with each other not only in the economic arena but also through political struggles (Nadkarni, 1996). There can therefore be no unique valuation. Each interest group has its own importance, and one cannot conclude or pass a judgment about which group is more important. Secondly, it is not very easy to value all ecosystem services because many services are not provided within or through the market mechanism. Therefore, the State (Government) has come forward to check the imbalance through policy legislations and operational measures. It may not be wrong if we say at this point that one more stakeholder (the State) joined the conflict! Now we have local communities (livelihood systems), forest-dwelling animals, and the State as main stakeholders of ecosystem.

Keeping the above perspectives in focus, we have tried to understand through empirical research and analyse the extent of livelihoods dependence on ecosystem services, importance and survival of forest-dwelling animals, fragility of ecosystems and role of different stakeholders and their claims. The paper is based on a detailed research work leading to the first author's PhD thesis. Four Villages (Dangamala, Iswarpur, Satabhaya and Vetka) have been studied in Odisha's Bhitarkanika National Park (BNP). Detailed households interviews were held in all the four villages in addition to focus group discussions (FGDs), transact walk, discussion with officials and observations. We have also reviewed the policy objectives of Bhitarkanika National Park (1998), Forest Conservation Act (1980), Wildlife Protection Act (1972; 1993) and Forest Rights Act (2006, 2012). Our purpose of reviewing and analyzing the above mentioned acts is to understand their relevance as compared to the ground reality, based on our households and village level investigations in Bhitarkanika ecosystem.

Methodology

The present paper is based on research carried out in BNP in Odisha. Bhitharkanika ecosystem occupies an important place in India for its unique and rich biodiversity. Its mangrove forests are an important habitat for crocodiles and many species of fish and prawn. The livelihood systems of local communities residing inside BNP also depend to a considerable extent on the resources and services from Bhitharkanika ecosystem.

The paper is based both on primary and secondary data. Secondary data were collected from official records, documents, published and unpublished reports and other literature. Primary data were collected from households through surveys from four villages (Dangamala, Iswarpur, Satabhaya and Vetka) situated in Gahirimatha and Bhitarkanika National Park in Kendrapara district of Odisha. Using structured schedules, data and information were collected from the selected four villages through random sampling techniques. In total, 165 households were selected and detailed data and information were collected on livelihoods, conservation and conflicts of interest. In addition to this, 40 senior citizens were also interviewed to record their historical perspectives on the relationships between livelihoods and ecosystem. Four structured schedules were also canvassed to collect the information at the village level. Fieldwork was done during April to May, 2013; April to May 2014 and during October to November, 2014.

We have also reviewed the policy documents and acts related to forest conservation, wild life protection and forest dwellers' rights. Through our empirical research, we have tried to assess the extent of livelihood dependence on Bhitharkanika ecosystem, status of forest-dwelling animals, fragility of the ecosystems, and role of different stakeholders and their claims.

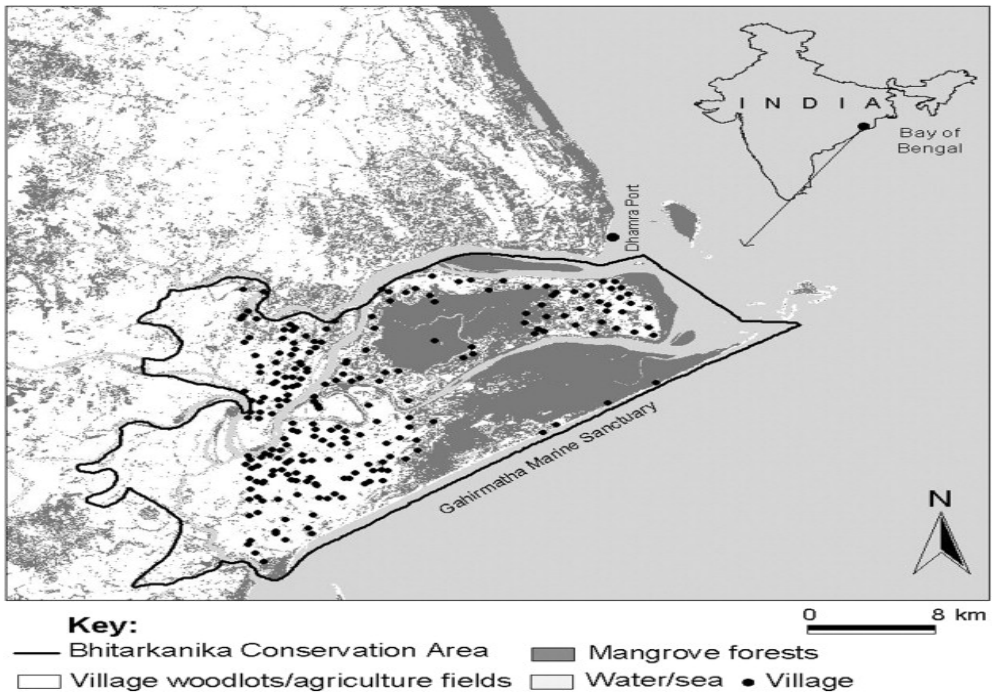
The Bhitarkanika and Gahirimatha Ecosystem

The ecosystem of Bhitarkanika is located in the north eastern region of Kendrapara district of Odisha between 86^0.30' - 87^0.06' East longitude and 20^0.30' - 20^0.50' North latitude and is rich in biodiversity. It falls under the delta of Brahmani and Baitarani rivers. There are three conservation units found in this region and they are Bhitarkanika Wildlife Sanctuary, Bhitarkanika National Park and Gahirimatha Marine Wildlife Sanctuary. It is also declared as a "Ramsar Site" for its international importance and is listed in

the IUCN Red List of threatened species, which makes it more important to study. Further, this region is a source of food security and cultural heritage for the people living within the sanctuary / national park and also for those living on the periphery of the park.

The sanctuary is mostly spread across Rajnagar and Rajkanika Blocks of Kendrapara district, which constitutes 672 sq. km, comprising 27 forest blocks and the National Park spreads across Rajnagar block, constituting 145 sq. km. Gahirimatha marine sanctuary falls in the north eastern border of the sanctuary between 80^{o} 77'- 87^{o} 05' East longitude and 20^{o} 52'- 20^{o} 72' North longitude. The area extends to nearly 35-40 km coastline from Maipura river mouth in the North to Hansua river mouth in the south (see Map- 1 for details). This region is famous for mass nesting of olive sea turtles.

Map 1: Map of Bhitarkanika Sanctuary



Source: Badola, Barthwal and Hussain (2012).

The ecosystem of this region is a mosaic of many sub ecosystems. It comprises of forest ecosystem (mainly mangroves), river ecosystem and marine ecosystem. Each of these ecosystems provide its own services at the micro level as well as together at the macro level, and maintains balance of the larger ecosystem as a whole. For example, mangroves (otherwise known as land builders) are useful in forming soil by retaining the soil, which flow through the river and creeks, avoiding bank erosion and preventing flood damages. Thus they provide both regulating as well as supporting services. Mangroves are also known for their recreational facilities, which promote tourism in the region. Further, mangroves are also good for protecting damages due to cyclones. Studies such as Das (2007), Das (2009), Badola and Hussain (2005) show that mangroves protect the local people, their livestock and buildings during cyclones. The mangrove tree leaves act as a barrier to protect the land from strong cyclonic winds leading to less damage. Further, mangroves act as nurseries and spawning grounds for

certain species of fish, shrimps and crabs, helping to sustain other ecosystems and providing indirect services to the livelihoods of the people.

The Bhitarkanika National Park is inhabited by six Gram Panchayats namely Dangamala, Satabhaya, Iswarpur, Rangini, Talachua and Gupti. These densely-populated villages directly and indirectly depend on Bhitarkanika ecosystem and also have a significant influence on it. The people who reside in these villages depend mostly on fishing and agriculture (mostly paddy, grown once in a year) for their livelihood.

Density of Bhitarkanika Ecosystem and its Resources

Bhitarkanika was known for its dense forests and was very rich in both fauna and flora. "*Bhitarkanika*" means the interior part of the Kanika Region was once inaccessible due to its dense forest ecosystem. Even today it is home to many animals like giant salt water crocodiles along with partial white (sankhua) crocodiles, porcupines, deer, crocodile, boar, etc. making it one of the spectacular ecosystems in Asia. It also consists of more than 300 plant species, and out of the 80 species of mangrove found in the world, 62 are found in Bhitarkanika region. It is also home to 215 species of migratory birds. There are innumerable river channels and creeks inside Bhitarkanika ecosystem.

In 1951, this region consisted of only 183 villages with a total population of 38,148 people (Census, 1951), and this has increased to a total population of 1,63,450 people as per 2011 census, indicating an increase of human population by more than three times than what it was in 1951. Further, a heavy influx of illegal migrants from Bangladesh, particularly between 1961 and 1971 (Chadha and Kar, 1998), and illegal leasing out of forest lands to these people by the local authorities (*Tahasildars*) had put a tremendous pressure on Bhitharkanika forest ecosystem. Between 1961 and 1971, 43 new revenue villages have been established in this area and a very high growth of population was witnessed in some of the villages (ibid). During 1970s and 1980s, attracted by high returns from prawn cultivation, many forest-dwelling families and others from the periphery encroached forest lands for shrimp cultivation. This resulted in heavy forest lands degradation and decline. Forests were destroyed on large scale in selected pockets, near the sea coast in the north eastern direction (Das, 2009). Around 27.13 sq. km of forestland was reported to be forcibly occupied by people till 1975 when the forest was declared as sanctuary. After the 1971 cyclone, construction of saltwater dikes around the entire area to stop intrusion of saltwater and facilitate agriculture has also resulted in further destruction of forests (as it halted the tidal floods).

Further, in recent years there has been an increase in net sown area and decline in cultivated waste in this region. According to the Directorate of Economics and Statistics, Odisha, the total area under forests of Rajnagar block has declined from 931 ha in 1998-99 to 190 ha in 2006-07. Simultaneously, the area which comes under pastures has also gone down from 1213 hectare in 1998-99 to 843 hectares in 2006-07. This can be attributed to that fact that this region has witnessed significant increase in human population and subsequently higher demand for land for agricultural purposes.

At the same time, as mangrove forests were the habitat for salt water crocodiles, a crocodile farm was established in 1975 on the advice of Dr. Bustard, with support from the United Nations. This

helped the government to declare the region as a sanctuary to protect the flora and fauna and also to conserve the salt water crocodiles. The entire forest area including the rivers and creeks (total of 672 sq. km) were declared as “Bhitarkanika Wild Life Sanctuary” vide notification No. 6958–4F (w)–34/78-F.A.H. dated 22 April, 1975. The sanctuary also included 175 sq. km of beach area that spread across 35 km of the coastline called “Gahrimatha Marine Sanctuary” famous for the olive ridley turtles. The sole purpose of this was to conserve the ecosystem and no importance was given to protect the livelihoods of people who depended on it. This led to continuing illegal encroachment on forest lands and illegal harvesting of forest products and hunting of animals.

Taking note of the problems and the ecological importance of Bhitharkanika, the core area (145 sq. km) was declared as Bhitarkanika National Park vide notification No. 8F (F)-53/88, 22904/FFAH dated 3rd October, 1998. Access to forests was gradually reduced and finally a complete ban on forest use was introduced by the forest department. Forest Conservation Act, 1980 was passed, which was an attempt by the Central Government to halt forest losses as it stated that no forest land may be diverted for non-forestry purposes without the permission of the Government of India, which was compounded by the problems related to non-settlement of forest dwellers’ rights. This has had the effect of freezing many forest-related rights. However, introduction of the National Forest Policy of 1988, which focused on conservation, subsistence needs and protection of rights of the forest-dwelling communities, brought some relief. But still the conflicts between conservation, livelihoods and forests rights were unresolved. Realising the continued problems, the Government has enacted Forest Rights Act of 2006 and 2012. The effectiveness of these rights for resolving the conflicts across stakeholders will be analysed and assessed in the following sections.

The Livelihood Systems

The livelihood systems of local communities inhabiting Bhitarkanika ecosystem constitute main occupations such as paddy cultivation, fishing, service and wage labour. The livelihood systems also includes prawn/shrimp cultivation, and free (provisional) support or inputs from the ecosystem such as honey, fuel wood, fodder for livestock rearing, small timbers and other minor forest products. From the four villages, we have classified all the 165 sample households into four categories depending on their main occupation. It can be seen from Table-1 below that 50 per cent of the sample households are paddy growers, 14 per cent depend on fishing, 17 per cent on service, nine per cent on wage labour, and 10 per cent of the sample households depend on other activities like petty business (pan shops, grocery shops, etc) (Table-1).

Table 1: Categories of Households based on Main Occupation* (Livelihood Systems) from the Studied Four Villages

Sl. No.	Categories of Households (Main Occupation)	No. of Households	Percentage
1	Paddy Cultivating Farmers	82	49.70
2	Fishing	23	13.94
3	Wage Labour	16	9.70
4	Service	28	16.97
5	Others	16	9.70
6	Total	165	100

Note: * We have categorized the main occupation of the households taking into account the highest number of hours the family members of a household spend in a year on a particular activity.

Source: Information Collected through Household survey

Crop Cultivation

As we have mentioned earlier, paddy growing is the main source of livelihood for the people residing in Bhitarkanika. Villagers still practice mono cultivation and grows paddy. Due to lack of irrigation facilities, farmers depend on rain water for paddy cultivation (June-December) and remain idle after paddy harvesting (idle from Jan to May). Most of the agricultural work done in this region is based on *Bhaga Chasa* (farming based on partnership). In this system the owner of the land provides land to the landless, and both (owner and share cropper) share the produce on 50:50 basis.

According to our survey, the average yield of paddy was 21.12 quintals per hectare. The returns over total costs from paddy are meager. In fact, farmers grow paddy in this region largely for self-consumption and hardly sell their crops in the market. As diet of the people of this region constitute mostly paddy, farmers keep own grown paddy for year-long consumptions. The paid out costs in paddy cultivation are also less, as the total costs of cultivation includes imputed value of own labour and free inputs from the ecosystem. Due to non-availability of irrigation facilities, risky and non-lucrative nature of paddy farming, farmers in this region are not interested in using fertilizers. Those who are using fertilizers marginally are incurring net losses. On paddy cultivation, the farmers' opinion is:

"We cultivate paddy not because we get any profit from it. We do it so that we can get paddy for self-consumption and indirect benefits like straw for thatching and fodder for our livestock, otherwise we had to purchase them from the market". (Respondent, 2013)

Further, though paddy cultivation plays a dominant role in this region, in recent years farmers are slowly moving out from paddy cultivation to unskilled labour jobs in other parts of the country as the scope for agriculture is declining due to hostile environmental conditions (man-animal conflicts, ecosystem degradation, risky and low productivity of paddy cultivation) and government policies (conservation, declaration of sanctuary and national park, ban on forest use and entry into forests etc.).

Fishing

The mangrove wetlands acts as pastures for fish, prawn and crabs; also providing shelter to the aquatic animals. Most species of estuarine/marine life spend part of their lifecycle in wetland areas and part in

the sea; depend for food on other species which are nurtured in this area. The high level of organic matter present in mangrove wetlands provide rich micro-organisms, which sustain fisheries and higher forms of vertebrate fauna including estuarine crocodiles and sea turtles. Therefore, mangrove ecosystem is an important resource for a wide range of fishes and fishing is one of the most important livelihood systems of the people residing near it. Fish is an important source of diet for the people of this region and acts as an important source of food security. There are different types of traditional fishing nets still in use, like *Phopada Jala*, *Munduli*, *Phula, Dian*, *Uthapani* and trap fishery like *Dhaudi.* Since the later part of twentieth century, culture fishery gradually substituted traditional capture fishery in the region. Culture fishery refers to prawn culturing in small artificial ponds known as *gherries*.

In recent times, there have been a decline in the production of fish in marine and fresh waters resulting in a fall in total fish production. This is mainly due to the degradation of mangroves and other sub ecosystems caused mainly due to the practices such as *gherries*. The Government of Odisha banned *gherries,* but still traces of it are found in some parts of the sanctuary that is being done illegally. Further, in spite of a ban imposed by the Government (from November to May due to olive ridley turtle's nesting on the shores of Bhitarkanika), illegal fishing activities are still practiced, particularly by the capitalist boat owners (or trawlers), which causes over exploitation of the fish. Fishermen who depend on traditional / smaller boats are hit very badly as it affects their livelihood. As a traditional fisherman owning a small boat says,

"The fish catch has gone down due to an increase in trawlers. The forest guards do not allow us to go in the sea during the time of nesting by turtles. But the trawlers are allowed and they go for deep sea fishing. Our small boats are not well equipped to go deep in the sea. We have to sit at home and try for some other wage labour to feed our family or stay hungry." (Respondent, 2014)

In addition to this, there is also a threat from crocodiles and water-monitor lizards. The crocodiles and water monitor-lizards not only feast on fish in the creeks but also in private ponds.

Livestock

Most of the households in the studied villages have maintained more than two species of animals. Due to non-availability of other sources of income, many villagers have also started keeping livestock on sharing basis commonly called "*bhaga".* Villagers who are relatively poor bring domestic animals from their neighbours or from the richer families and maintain them for a certain period, and takes care of them till they give birth to calves/kids. After certain period, mother animal along with 50 per cent share in calves/kids are returned to the owner of the animals.

Forest Ecosystem is the main source of grazing and fodder for the ruminant livestock of the region. Ruminant livestock graze in forests the whole year. In addition to this, villagers bring fodder on head loads from the forests during harvesting season. It takes more than three to four hours of hard work to get the required fodder from forests per day.

Avicennia tree, which is found in Bhitarkanika, is an important source of fodder to ruminant livestock, which is highly nutritious (Chadha and Kar, 1998). During cropping season (from June to December), the livestock depend mostly on the forest for fodder. But as a result of increased density and illegal encroachment of forest lands, there is a heavy pressure on forest to provide fodder to the

animals. According to our survey, due to mechanization of agriculture and loss of grazing lands, not many cows, bullock and buffaloes are found in these villages. However, the main reason for keeping cows is for cow-dung, which is used as fuel, fertilizer and for plastering the houses. The collection and preparing of cow-dung cakes for cooking are generally done by the female members of the households. Rearing of small ruminants like goat and sheep is not very common in these areas as the villages do not have common lands for grazing. Most of the grazing grounds have been either converted to agricultural land or are forest land. Nevertheless, the required fodder and grazing is sourced even today, though illegally, from the forests. Other domesticated animals like hens and ducks are also reared by the villagers, mostly for self-consumption and sometimes to sell them in the nearby market.

Thus, the livestock economy of this region as a livelihood system depends on forest ecosystem for its survival. The total amount of feed and fodder is absolutely free from the ecosystem. During the time of hoeing and harvesting crop (between mid-June to December), the livestock keepers feed the cows in cowshed and they go to forests to get green grass for their livestock. Due to non-availability of dairying/co-operatives, livestock economy is not profitable and it supports only subsistence livelihoods.

Other Forest Ecosystem Based Livelihood Support

The most important aspect of village life is fuel. Fuel used in villages generally consists of broken branches, twigs, dry grass and hay, barks, etc. There are ample amount of dry twigs and branches fallen in the forests and women and children go to the forests illegally to collect them. The average hours spent on gathering fuel wood is around four hours per day per household. According to our survey, they collect around 15-25 kg of fuel wood per day and use it for day to day activities. Some even sell it to the neighbours for a meagre amount of Rs 6 per kg.

The other forest products collected by the villagers in Bhitarkanika include honey, fruits and leaves for making mats. The mangrove forests of Bhitarkanika are an important source of honey. Nearly 3,000 to 5,000 kg of honey is collected from Bhitarkanika every year during February to May (Chadha and Kar, 1998). A local community, known as '*Dalei*' in this region, specializes in honey collection and has been collecting honey for generations. According to our survey, honey fetches them a merge amount of Rs. 120 per kilogram as it cannot be sold so easily in the market due to the ban in collecting honey from the forests. The villagers, while selling honey in the nearby market, have to be extra cautious else s/he might end up giving money to the forest guard as bribe. Generally, honey is kept for self-consumption. In spite of the ban, people still collect honey illegally during the months of February to June, taking a lot of effort and risk.

Table 2 shows the extent of dependence by the local population from the studied four villagers on provisioning services from Bhitharkanika ecosystem. All the households depend on Bhitharkanika ecosystem for fuel wood, fodder and grazing of animals, fishing and inputs for broom sticks and mat making the whole year. For other livelihood supporting activities like paddy cultivation and collection of honey, the locals depend on Bhitharkanika ecosystem at least for six months in a year (Table-2 for details).

Table 2: Households Dependence on Ecosystem Services (mostly provisional) from Bhitharkanika Ecosystem (Annually)

Sl. No.	Components	No. of Households	Period
1	Fuel wood collection	165	1 year
2	Paddy Cultivation	124	6 months
3	Fishing	165	1 year
4	Collecting raw material for making broom sticks	165	1 year
5	Collecting raw material for making mats	165	1 year
6	Collecting honey	39	4-5 months
7	Livestock grazing and fodder collection	165	1 year

Source: Information Collected through Household Survey

Conservation

All across the world, natural resources are either managed by the state or by the local communities. It is the institutions and institutional arrangements which determine how people interact with these resources and how important are these resources for sustaining their livelihoods. With the increase in population and commercialization of natural resources, better functioning of institutions are required to sustainably manage the natural resources. Active participation of local communities has been increasingly encouraged. But in order to have an effective community-based management of natural resources, transferring of ownership rights to the communities may be required on de jure government land. The transfer of forest rights to forest-dwelling communities with proper and effective local institutions and institutional arrangements, with proper linkages with broader organizations like the State and forest department could be more successful (Ostrom, 1990). However, in the case of Bhitarkanika and Gahirimatha, state plays a dominant role in determining the changes in livelihood systems and the changes in the surrounding ecosystems. State, through its strong regulatory powers, commands and controls ecosystems and at the same time determines the utilization patterns of the ecosystem services.

Through its regulatory powers, the State of Odisha declared Bhitarkanika as a Wildlife Sanctuary on 22nd April, 1975 (Govt. of Orissa Vide notification No. 6958/FFAH) with 672 square kilometre (sq km). It was one of the first protected areas in Odisha, declared primarily to protect its endangered saltwater crocodile population and to conserve the mangroves. Further, a separate wildlife division was started in 1980 with headquarters at Chandbali for efficient management of this region. But latter this headquarters was shifted to Rajnagar in 1991 and finally in 1998, a part of the Bhitarkanika wildlife sanctuary was declared as National Park. Moreover, the eastern coastal boundary of this region was notified as Gahirmatha Marine (Wildlife) Sanctuary in 1997 due to mass nesting of olive ridley turtles. Due to intense fishing activities, there was an increase in turtle mortality and this led to the declaration of Gahirmatha Marine (Wildlife) Sanctuary. But due to continued threats triggered by natural and man-made conditions, the ecosystem started deteriorating. Continuous sea erosion (due to sea level rise), salinization of soil affecting agricultural production, mangrove degradation (Chadha & Kar, 1998; Jagtap, Chavan & Untawale, 1993), threats to biodiversity (Chadha & Kar, 1998) and

increase in the frequency of extreme events like flood and droughts led to the declaration of National Park in 1998 (Vide Notification No 19686/F&E dated 16.9.98) with a geographical area of 145 sq km.

But no particular rehabilitation or resettlement package was undertaken to safeguard the livelihoods of the people. Initiatives such as construction of embankment for irrigation inside the sanctuary for agriculture, providing cheap fuel-wood to the villagers, construction of fishing jetties in Talchua, are a few initiatives taken by the Government to safeguard the livelihoods of the people. Further, the declaration of *Sunei- Rupei* Forest (Das, 2015) to rehabilitate and resettle the people was also initiated. But these were not a complete success. The declaration of the Sanctuary and subsequently as National Park was mostly undertaken to conserve and protect the flora and fauna in this region. Special initiative was undertaken by the forest department for large scale eviction of forest dwelling communities settled on forest lands, and new plantations were created on these areas (Chadha and Kar, 1998). In due course, various protection and conservation measures have also been taken (and some being specific for species conservation). Some such measures are summarised below:

Crocodile Conservation

The salt water crocodile in India was endangered due to over hunting for its skin, which also resulted in over exploitation of their mangrove habitats. In 1975, the total number of salt water crocodile was only 96. With the collaboration of FAO and UNDP, Government of India initiated a “crocodile breeding and management project”. Under this project, a scheme for conservation of salt water along with Mugger and Gharial crocodilians was launched in 1975. A “Salt Water Crocodile Conservation and Research Centre” was also set up at Dangamal in Bhitarkanika Sanctuary in July 1975 with the technique of “adopt, rear and rehabilitate” for restocking mangrove ecosystem with these crocodiles, which continued till 1987. Fishing was banned in the rivers and creeks of Bhitarkanika forests in order to rejuvenate the forests and to provide ample food to the crocodiles (since fish is the main food of salt water crocodiles). Due to which, a total number of 1654 crocodiles were found in this region in the year 2010-11. But this has led to increase in man-animal conflicts as there are incidents of human deaths due to crocodile attacks, and has also led to decline in fish population of the region. This conservation scheme has also led to a problem of livelihood for people of this region.

Conservation of Sea Turtle of Gahirimatha Marine Sanctuary

The Gahirimatha coast is the largest nesting area of olive ridley sea turtles, and therefore draws global attention. The state and the central government have declared an area of 1435 square km as Marine Protected Area, and a ban was imposed on fishing at a radius of 20 km at strategic locations and declared it as a “No Fishing Zone” under Fisheries Act. In fact, mass nesting of turtles was discovered in 1974, and the wildlife wing of the forest department started a Gahirmatha Marine Turtle Research and Conservation Centre at Habalikhati.

Under the Orissa Marine Fishing Regulation Act of 1982 and Orissa Marine Fishing Rules, 1983, a ban has been imposed on fishing for seven months in a year (November-May) during which period the endangered olive turtles migrate and lay their eggs. The ban has affected nearly 20,000 traditional fisher folks in Kendrapara district (The Daily Pioneer, 2015). In 2014, 221 fishermen were arrested and

32 boats and trawlers were confiscated in the region for illegal fishing (The Times of India, 2015). The conservation effect has led to constant threat to the livelihoods of the people and the Government is turning a deaf ear to the fisher folks living in and around the National Park.

Mangrove Conservation

Bhitarkanika is the second largest stretch of mangrove forest in India and has the maximum diversity of mangrove species. It has been included in the national mangrove network, and a Mangrove Genetic Research Centre is located in Kalibhanjdia Island of this region. Due to its global importance, this area also receives support from Government of India for its conservation. Various afforestation programmes have been undertaken in order to increase the mangrove coverage of this region. Further, many illegal encroachments due to prawn culture have been removed from this area to undertake afforestation programmes.

However, in spite of the programmes mentioned above, there was no significant impact on mangrove forests coverage. According to Forest Survey of India (FSI), 1999, the total coverage of mangrove forest in Kendrapara district was 184 square kilometer, which increased to 192 square kilometer in 2001, and then gradually declined to 183 square kilometer in 2013 with a slight increase to 190 square kilometer in 2015. However, the coverage of dense mangrove forest has remained almost constant in the past decade. It was 81 square kilometer in 2009, slightly increased to 82 square kilometer in 2015. This is mostly due to the ban on local community's entry into the mangrove forests.

Forest Rights Act: Complications

Forests were a subject of State List as per the Government of India Act of 1935. Through 42nd Amendment Act of 1976, forests and protection of animals and birds were transferred from State List to Concurrent List. Till 1972, there were two forest Acts in the State of Orissa. The Madras Forest Act (MFA) of 1882 was in force in the districts of Ganjam, Koraput (undivided) and Baliguda and Udayagiri Taluks of Kandhamal district. The Indian Forest Act, 1927 was applicable to the rest of Orissa. According to the previous Odisha Forest Act of 1972, Indian Wildlife (Protection) Act, 1972 and 1993, and Forest Conservation Act of 1980, there was complete ban on the entry of local communities in to the Sanctuary or National Parks. The principal objectives of the above mentioned acts are:

"No person shall, destroy, exploit, or remove any wildlife from a National Park or destroy or damage the habitat or any wild animal or deprive any wild animal or its habitat within such National Park except under and in accordance with a permit granted by the Chief Wildlife Warden and no such permit shall be granted unless the State Government, being satisfied that such destruction, exploitation, or removal of wildlife from the National Park is necessary for the improvement and better management of wildlife therein, authorises the issue of such permit. No grazing of any [livestock] shall be permitted in a National Park and no livestock shall be allowed to enter except where such [livestock] is used as a vehicle by a person authorised to enter such National Park."(Section 35 (5, 7))

Accordingly, local communities are not allowed to enter the National Parks without the permission of forest officials. The forest department stopped the people from going inside the forests

and when caught, they were severely punished in terms of imprisonment and fines or both. Being cut off from access to forest resources used for livelihoods for years, the local people are forced to enter the forests illegally for resources. What was once theirs used for subsistence livelihoods became a no entry land to them and all access were denied. Traditionally, forest products were also used for construction of houses and agricultural implements. The villager not only depended on honey, meat and fuel wood but also on many other forests-based products like fruits, grass and leaves for thatching, and for making baskets, ropes and broomsticks. They were completely shut down from all access to forests which they enjoyed in the past and an age old way of livelihood was snatched away from them[iv].

Realising the unrest and livelihood problems among forest dependent communities as a result of ban on the entry of communities into forests, the state (government) enacted the National Forest Policy in 1988. But not enough relief came via this policy to forest-dwelling communities. In fact, in many places, the livelihood problems got aggravated, resulting in increased conflicts across livelihoods and conservation. As a follow up to this, the state (government) enacted a new act called Forest Rights Act (FRA) in 2006 (which was notified for operation with effect from 31st December, 2007). The objectives and purpose of FRA is:

"*to recognize and vest the forest rights and occupation in forest land in forest-dwelling Schedule Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded; to provide for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land." (2006(1))*

The Act envisages rights-based approaches in conservation over the traditional exclusionary approach. FRA is also applicable to Bhitarkanika National Park. It is a key piece of forest legislation passed taking into consideration, the rights of forest-dwelling communities to forest lands and other resources, which was denied to them over decades as a result of the continuance of earlier forest laws in India. According to Forest Rights Act, forest dwellers and tribals are entitled to cultivate land in forests and can use common property resources for their livelihoods. According to FRA the forest dwellers or Schedule Tribes are entailed with rights on all forest land, namely:

"*Right to hold and live in the forest land under the individual or common occupation for habitation or self-cultivation for livelihood by a member or members of a forest dwelling Schedule Tribe or other traditional forest dwellers; community rights; right of ownership, access to collect, use, and dispose of minor forest produce which has been traditionally collected within or outside village boundaries; other community rights of uses or entitlements such as fish and other products of water bodies, grazing and other traditional seasonal resource access of nomadic or pastoralist communities; rights including community tenures of habitat and habitation for primitive tribal groups and pre-agricultural communities; right to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use; right of access to biodiversity and community right to intellectual property and traditional knowledge related to biodiversity and cultural diversity" (Section* 3 (1a, b, c, d ,e, i, k) *(3,4))*

The rights are given to forest-dwelling Schedule tribe (that is tribes who primarily reside inside the forest and depend on the forest and forest land for livelihood) and other traditional forest dwellers (communities or individuals who primarily resided inside the forest for at least three generations prior to 13th December, 2005, and who are depended on the forest and forest land for livelihood). This right of the individual or communities has to be recognized by the Gram Sabha which has to be approved by the Sub Divisional Level Committee (appointed by the State to examine the claims of the Gram Sabha) and subsequently to the District-level Committee for the final decision. However, the process is long and often doesn't achieve its objectives.

Interestingly, FRA, 2006 enables the forest-dwelling communities free access to forest resources but National Parks and Sanctuaries are restricted from use. According to FRA, 2006 National Parks and Sanctuaries are sensitive and critical. These areas need to be free from humans. This means that forest dwellers who are residing in these areas for many years have to be moved out of National Parks and Sanctuaries and resettled with new forms of livelihoods. The processes should be transparent and implemented in consultation with the locals. However, the interesting part of the act is that even in critical areas where people are living, they cannot be displaced or resettled without being informed or taking consent from them. According to the section 4 (2) of the Act:

"*The Forest rights recognized under this Act in critical wildlife habitats of national Parks and Sanctuaries may be subsequently be modified or resettled, provided that no forest rights holders shall be resettled or have their rights in any manner affected for the purposes of creating inviolate areas for wildlife conservation except in case all the following conditions are satisfied namely:*

(a) The process of recognition and vesting of rights as specified in the Act is completed in all the areas under the consideration;

(b) It has been established by the concerned agencies of the State Government, in exercise of their powers under the Wild Life (Protection) Act 1972 that the activities or impact of the presence of holders of rights upon wild animals is sufficient to cause irreversible damage and threaten the existence of said species and their habitats;

(c) The State Government has concluded that other reasonable options such as, co-existence are not available;

(d) A resettlement or alternative package has been prepared and communicated that provides a secure livelihood for the affected individuals and communities and fulfils the requirements of such affected individuals and communities given in the relevant laws and the policy of the Central Government

(e) The free informed consent of the Gram Sabha in the area concerned to the proposed resettlement and to the packages has been obtained in writing

(f) No resettlement shall take place until facilities and land allocation at the resettlement location are complete as per the promised packages

Provided that the critical wildlife habitats from which rights holders are thus relocated for purposes of wildlife conservation shall not be subsequently diverted by the State Government or the Central Government or any other entity for other uses" (Section 4(2) (5))

Further, no resettlement shall take place until the resettlement package is finalized in consultations with the locals, and land is allocated with all facilities created at the resettlement locations. However, the Forest Rights Act (FRA), 2012 did recognize the rights of the people living inside the National Parks. Accordingly:

"The delineation of community forest resource may include existing legal boundaries such as reserve forest, protected forest, National Parks and Sanctuaries and such delineation shall formalize and recognize the powers of the community in access, conservation and sustainable use of such community forest resources." (Section 12(9))

According to FRA, 2012 communities living inside the National Parks and Sanctuaries can claim rights on forests if their claim is verified by the forest rights committee with due consultation with forest department. However, in reality it is not practiced as is the case in Bhitarkanika National Park. The FRA, 2012 and the objectives of National Park seem to contradict each other. Though the main objective of the national park declaration is to safeguard the forest and the endangered species and to prevent any human intervention so that the flora and fauna can regenerate naturally, with the FRA, it seems to be difficult.

However, in the case of Bhitarkanika, the forest department is neither resettling the people nor providing them with any rights to protect their livelihood. In 1991, a project named as *Sunei- Rupei* Forest (Das, 2015) was planned to rehabilitate and resettle the people of *Satabhaya* (one of the studied villages) but failed to achieve its goals. After many failed attempts by the government, finally in 2011 a foundation stone was laid in *Bagapatia* as the rehabilitation colony of *Satabhaya,* which is nearly 15 km from the sea. Each family was promised 10 decimal of land to build houses, with houses to be constructed on the *Mo Kudiya* (My Hut) scheme of the government. The government also promised to build a school and a temple for the villagers in *Bagapatia* (New Indian Express, 2015; Times of India, 2014). However, nothing has been done so far. Due to this reason, the people of *Satabhaya* with the help from other villagers who had migrated to other states started a hunger strike in *Kendrapara* in 2014, but have not yet received any assistance from the government. The failure of the government to rehabilitate the villagers since the past 25 years is really a sad thing to witness. It has been observed that in spite of having a positive rights-based approach and introducing various livelihood related measures, it seems that these acts and policies are failing as the government is not able to properly implement them at the grassroots level (Bandi, 2014). In spite of the declaration of Forest Rights Act (FRA), the people are yet to derive any concrete benefits.

In the villages of Bhitarkanika, it is the forest department which dominates the ecosystem. It is the responsibility of the forest department to manage the forests. Its Eco-development Committee (EDC) members have to keep an eye on forests and create awareness among local people about forests and its resources. However, neither the forest department nor the EDC makes any sincere effort to manage forest in a true sense. According to the senior citizens of the villages surveyed, traditionally it was the responsibility of the whole village to safeguard the natural resources. There was an informal law and people were bound by it. But due to the new arrangements, particularly in the post Sanctuary and National Park time, the villagers no longer feel responsible for the forest.

Conclusion and Some Policy Suggestions

Bhitarkanika is a significant ecosystem with respect to its species diversity, biological productivity, ecological complexity and life support. The inter-linkages between livelihoods and ecosystem services are very evident. The communities in and around Bhitarkanika depend on its resources for their basic necessities — paddy cultivation within the ecosystem, fisher folk directly dependent on forests for boat making and water bodies for livelihood, forests as source of fodder and grazing grounds for livestock, fuel wood for households, honey collection and other products. However, the ecosystem of Bhitarkanika National Park is deteriorating along with an increase in conflicts between man and animal, and between villagers and forest department / state. The Forest Rights Act of 2012 enacted by the Government of India is neither followed nor implemented properly in this region, leading to unrest among the villagers. If the legal provisions had been respected and observed, perhaps most of the current problems would not have emerged. However, in many cases, it is apparent that they have not been followed properly, and this has given rise to serious forest tenures and rights deprivation of local people. Even in cases where certain rights settlement procedures are followed, it has been seen that the local people are being deprived of their rights. These factors have ensured that large areas of land have been categorized as forest lands without recognizing the rights of local communities on these lands. These factors add to the tensions that exist between the forest department and the locals. Thus resolving conflicts across components of the ecosystem has become a kind of paradox or dilemma. However, for the overall sustainability of the ecosystem, all its components — livelihoods, wildlife and the forest rights act have to be safeguarded.

In order to reduce the tension between locals and the state (government / forest department) and also to slowly put a halt to the conflicts, certain steps should be taken such as hiring of more forest dwellers as forest guards, cheaper availability of fuel wood, or introducing the *Pradhan Mantri Ujjwala Yojana* scheme to provide free liquefied petroleum gas (LPG) to the families. Further, vocational and technical training along with proper education (better functioning of primary and secondary schools) should be provided to the villagers so that they can find work outside the forest areas. This will also make the population (particularly the next generation) to migrate to areas other than the National Parks and reduce the pressure on National Parks. It will also solve the problem of man-animal conflict significantly. In fact, due to hardships like risky paddy cultivation, deaths due to wild animal attacks, restrictions from the state, degradation of ecosystems and hard livelihood systems, the local communities of Bhitharkanika are themselves thinking of moving out of the National Park. But they are scared. They are not sure of a secure livelihood system outside the National Park. If a proper resettlement package is designed and sincerely implemented, both conservation and livelihoods challenges can be resolved.

It may not be wrong to say at this stage that the present health condition of Bhitharkanika ecosystem is not bad because of the strong presence of the forest department. However, the forest officials, the government as well the conservationist should be more sensitive towards the villagers as the ecosystem is their home and they are being debarred to enter it. The villagers seem to be distanced from the ecosystem and most often mention that the forests now belong to the government and forest department. Steps should be taken by the government to reconcile the villagers with the forest laws so

that a real conservation can be done and the rights of both the animals and human beings can be safeguarded.

End Notes

[i] Defined as a dynamic complex of plant, animal, and microorganism communities and the non-living environment interacting as a functional unit" (Millennium Ecosystem Assessment, 2005)

[ii] Livelihood as defined by Ellis (1998,1999) and further modified by the authors as a system that encompasses income, both cash and kind, access to services and benefits from ecosystems (outside the market framework) and social institutions, gender relations and property rights required to support and sustain a given standard of living.

[iii] The MEA has divided the Ecosystem Services into four categories- provisional services (obtained directly from the ecosystem like fuel-wood, fish, fruit, etc.), regulating services (obtained from the regulation of ecosystem processes like air quality maintenance, climate regulation, etc.), cultural services (non-material benefits that people obtain through spiritual enrichment, recreation, etc.) and supporting services (services that are necessary for production of all other ecosystem services like soil retention, water cycling, etc.)

[iv] Interview with senior citizens

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