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FUTURE OF FORESTS WITH US

OUR VANISHING FORESTS

What is a Forest? Is it simply, as science defines it, an area of dominant vegetation and acts as habitation for flora and fauna?Somehow this definition though technical fails to capture the complexity of a forest. Much like this scientific definition we as communities, organizations and nations often discount forests as being simply, "a collection of vegetation".

Forests are complex systems made of a multitude of layers and species, so when we destroy these forests we create a rippling effect across ecosystems. How then do we revive such a complex habitat?The answer to this is much more than simply planting 1000s of saplings of the same species on world environment day because the result of such planting is a plantation, not a forest.

In the timeline of evolution of the Earth, scientists believe that the first forests began appearing approximately 350 million years ago, and humans only 11.7 thousand years ago. To put that into context, if the time since forests appeared is one year, humans have only existed for 17 minutes. Yet, we have already had an irrevocable impact on these species which existed for eons millions of years before us.

In fact, over the years forested land has been so beneficial to the arability of the soil that in our quest for higher returns we have tamed teeming forests to promote monoculture. Over the years we added numerous chemicals and pesticides to eke out greater yields, now however, we are reaping the adverse impacts of this trend. As the arability of the land reduces we have also seen a greater incidence of pests and chemical resistant weeds which are reducing the yields. Water sources have dried up or been contaminated and the soil leeched of its nutrients.

The common rebuttal to this trend is that "we can't survive on forests, we need crops and grains to sustain our food systems". However, I posit that the answer need not be one or the other. Much like most major challenges the solutions must be as nuanced as the challenge is complex. In this case the answer may lie in the harnessing of the best of both worlds. One answer may lie in Agroforestry, a system of land management which involves the simultaneous cultivation of farm crops and trees.

While we have established that the forest has multiple layers there are 4 identified layers which aid the regeneration, the forest floor, understory, emergent layer and canopy layer. Each of these layers provides a specific service in the ecosystem of the forest and plays host to a diverse sampling of animals, insects, etc. The interactions between the flora and fauna of the forests form

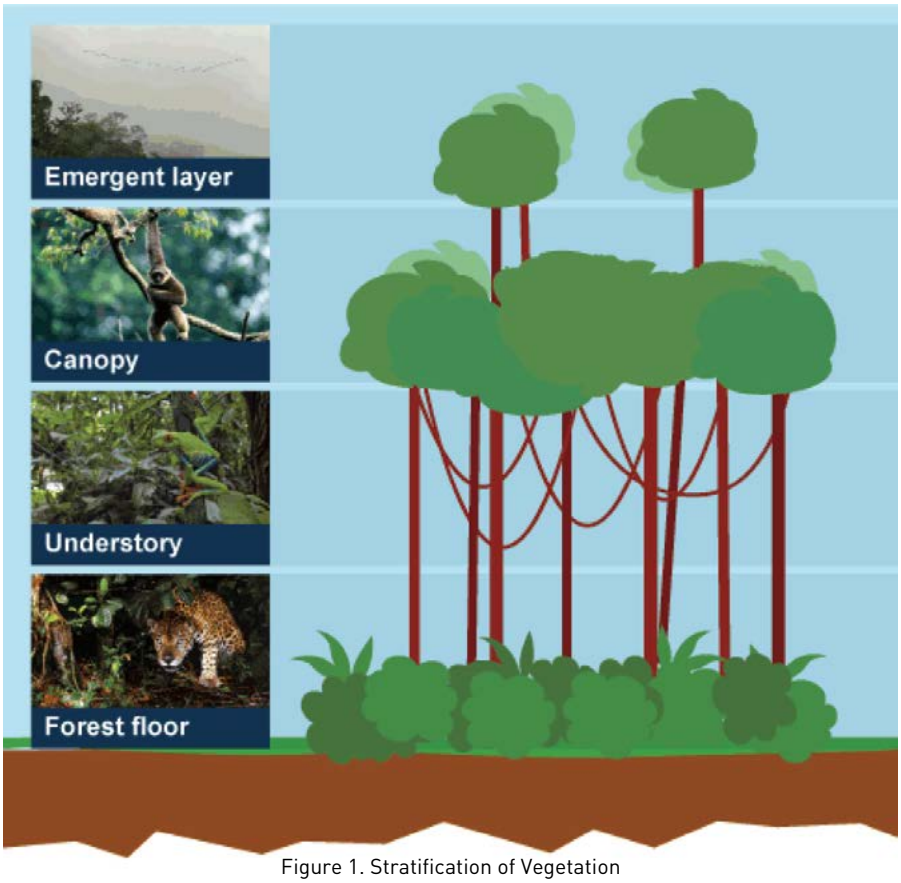


Figure 1. Stratification of Vegetation

self- contained ecosystems which contribute to the well-being of all the species within and surrounding forests. Using agroforestry we can use these layers to grow endemic species, wild foods and fruits, and timber and building material yielding plants.

This variety of plants preserves the integrity and diversity of the forest while making it a valuable asset for the communities residing besides these forests. This comes with added benefits of keeping the soil healthy, sheltering animals and preventing them from coming into conflict with humans, preventing soil erosion and also creating fresh water catchments for both the humans and animals inhabiting the ecosystems.

In adopting these models we will also promote the availability of sustainable construction materials such as bamboo and timber and hence, hopefully create sustainable infrastructure surrounding these forested areas, thereby reducing our impact on the natural ecosystem while providing better living conditions for the communities living in these areas.

The availability of such diverse forest habitats can also give rise to sustainable, nature-based economies which promote the handlooms, handicrafts, clothing and cuisines of the forest fringe communities which rely on the availability of these endemic materials, thus allowing for flourishing micro economies.

This variety of plants preserves the integrity and diversity of the forest while making it a valuable asset for the communities residing besides these forests

When you think about it, by encouraging the sustenance of these teeming forests we are creating a natural asset which has value well beyond the existence of the trees within it. Now we must ask ourselves why a tree in such a forest is less valuable than a tree as a piece of furniture? Apart from the obvious benefits like food, fruits, shade and soil integrity these forests also provide benefits such as carbon sequestration, fresh oxygen, rain water harvesting and other which we are still unable to account for quantitively. If the trees in the forest provide so many services what is their value? Can we put a price tag on it? More importantly, should we put a price on these services and how do we find metrics to better convey the intrinsic value of our forests?

Today, about 27% of the earth is covered with forests but the rate at which we are consuming is having an adverse effect on our natural resources. Humanity now needs of 1.7 Earths to accommodate the current level of consumption. India has about 21% forest cover, down from 33% at independence. One major reason for this pattern of hyper consumption is the way we measure value, economic value has become our default as a standard of value measurement. While this is adequate as a measure of short term gains, we tend to forget that economic value doesn't take into account the real costs of doing business.

Globalization has further bolstered the focus on economic value as the standard for measuring success and benefit while discounting the social and environmental costs of doing business globally. When purchasing a product, its price doesn't reflect the fossil fuels used from manufacturing to shipping, the trees felled or natural resources contaminated. This false valuation has created a narrative which puts Human aspirations and Environmental assets on opposite ends of the spectrum.

We need to change the way we value our natural assets and promote a new model of interdependent growth. This isn't impossible, in fact it is the only way to continue to innovate at the pace we have been doing so in the past decades.

Japan, the world's second most industrialized country, forests cover 67% of the land area. This clearly debunks the myth that we have built which pits human development & industrialization against the increase in Natural Capital. The adhere to the philosophy of Satochi-satoyama, where people and enjoy the blessings of nature in a sustainable manner through the cyclic use of natural resources around their villages. Through this philosophy, human intervention has in fact added to the biodiversity richness of the regions and cyclically humans have enjoyed the fruits of the nature they co-exist with. This is the very kind of interdependence we need to adopt especially in the northeast of India where we still have access to a wide sampling of biodiversity in most states save Assam.

Let's take Arunachal Pradesh for example, it has the maximum amount of forest cover in the region, with over 60% of the states land area under green cover. Communities have resided and lived with this biodiversity for generations, yet the state struggles economically. How can we justify this paradox when we understand that regions like this form the lungs of the country?

We need to change our perspective on the importance of Nature and focus on building Natural Capital by understanding and calculating the true economic value of these forests. We also need to stimulate nature-based economies and interdependent living. Assam being the most developed state in the region has lost much of its green cover in pursuit of traditional economics and needs to step away from its monoculture practices and polluting industries to enhance the climate for building more sustainable agricultural practices, promote the culture within the state and join hands with the rest of the northeastern states to focus on creating more sustainable economic drivers.

The Eastern Himalayas where many of the Amalgamated Plantations are located is home to a wealth of natural and cultural diversity. We constantly explore ways in which not only to preserve and enhance natural richness but also to showcase it to the world through our products. The Spice Park focuses on bringing the rich flavours of the region to the world in a way which optimizes land use but also seeks to reduce the impacts of manufacturing through renewable energy, rainwater harvesting and waste management.

We are also fortunate to be surrounded by inspiring eco entrepreneurs in the Eastern Himalayas, who have already recognized this important fact and are doing encouraging work in building economies by enhancing the nature assets of the region.

Some such entrepreneurs are, the communities in Bhairabkunda,who are securing their natural assets through community participation beginning with a habitat restoration of 800 ha+ of depleted forest land. This restoration has further led to growth in new economies for eco-tourism in the region. Inspired by this another set of 12 villages in the Udalguri district, adjacent to the Khalingduar Reserve Forest have begun a habitat

restoration of 500 ha of land.

Arindam Dasgupta of Assam launched Tambul Plates Marketing Pvt. Ltd. to promote eco friendly dinnerware made from Areca nut palm leaves. His initiative has helped in the training of 1000+ individuals and even introduced solar power in villages where electricity was intermittent. His efforts along with those of his network of producers and suppliers have aided in a burgeoning industry which has increased the sales and selling prices for the suppliers and manufacturers in the value chain.

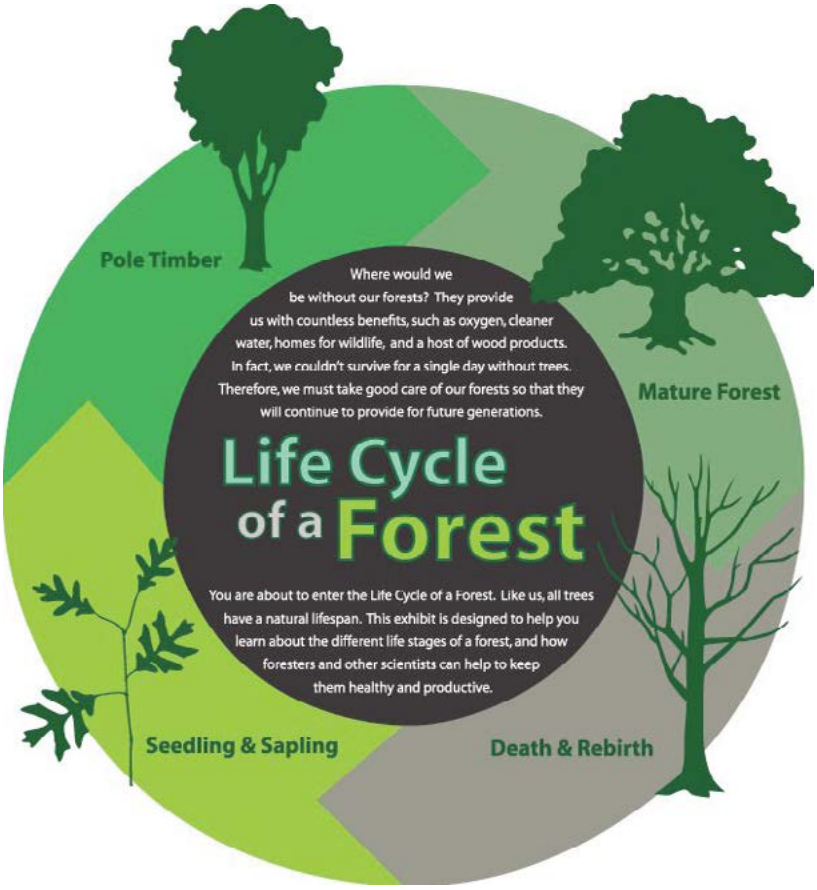
It is through efforts like these that we will be able to change the paradigm of depletion into one which not only promotes flourishing forest ecosystems but also innovation and entrepreneurship. These communities and entrepreneurs are paving the way in how we think about our relationship with the environment. Inspired by their efforts in securing our natural assets we must focus on how we can play our part not only in supporting their efforts but also in playing our parts.

At Amalgamated Plantations we are already exploring ways in which our presence in the region can increase the impact on sustainability both of the communities who work there and the way we conduct our business. For instance, in the years since our Hathikuli has focused on completely organic growing we have seen thriving populations of new birds, animal and insect species. We are focusing our efforts on the wellbeing of our worker communities and exploring holistic welfare through services such as better housing, healthcare, education, child welfare, etc. We realise that is contingent upon all levels of society, businesses and government to work towards building an interdependent future.

While the impacts of vanishing forests may be felt more acutely by those residing besides the forest, city dwellers are already seeing similar impacts extending to urban areas, businesses are seeing large fluctuations in their supply chain.

To create a paradigm shift we need to change the way we think, consume and conserve. Much like every layer of the forest, from the forest floor to the canopy, plays an important role in the functioning of the ecosystem, everyone from global business and governance leaders to the grassroots communities play an important role transforming our culture to one of economic assets to one of Natural Capital.

Ranjit Barthakur, Chairman, APPL Foundation



RENAL FAILURE

Calcutta's wetland and urban waste management

The problem of managing urban waste has existed evocatively, called 'destructors' - and the growth of an urban waste-based economy (marvellously sketched, for example, in Charles Dickens's Our Mutual Friend, especially in the figure of the "Golden Dustman", NoddyBoffin) became increasingly common.

Yet, in 1894, The Times of London predicted, "In 50 years, every street in London will be buried under nine feet of manure," something that came to be known as "The Great Horse Manure Crisis", while the first international urban planning conference, hosted in New York in 1898, broke up early in despair over the seemingly intractable problem of horse dung. Fortunately, the widespread expansion of horseless modes of urban transport - electric trams and underground railways; cars and buses powered by the internal combustion engine - saved major Western cities from drowning in horse s**t. But other kinds of waste continued to pile up.

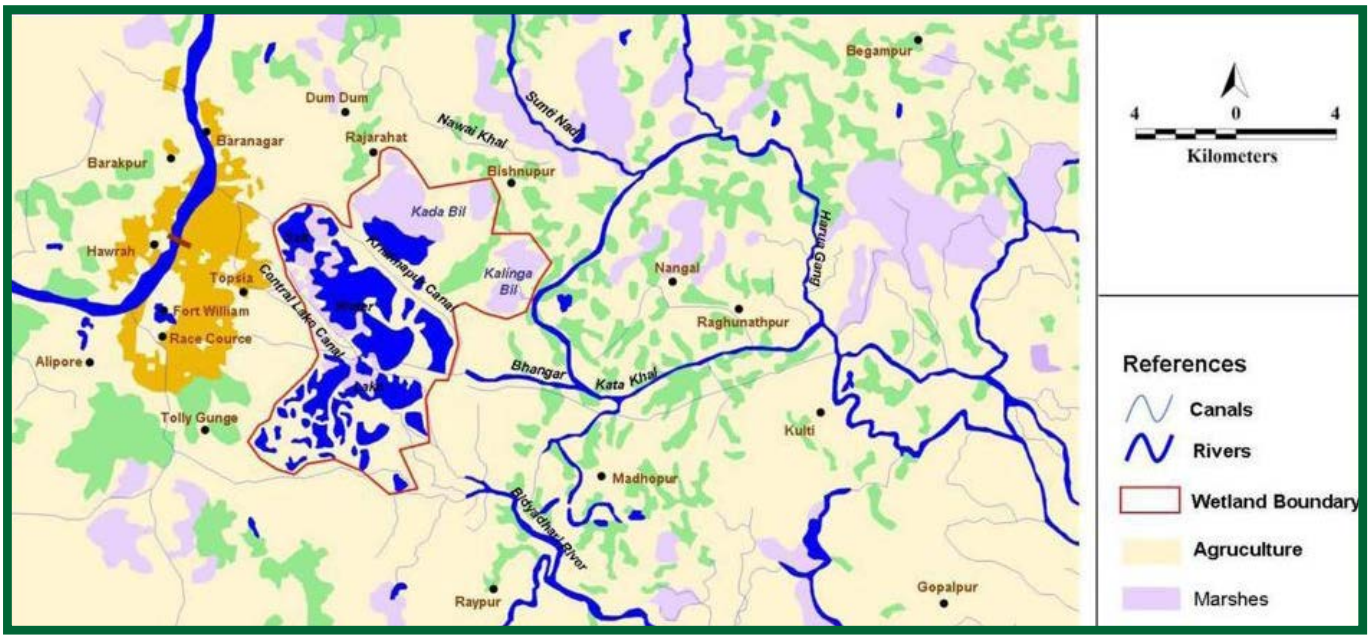
This is when we can turn our gaze eastwards, towards the "second city of Empire" and a forgotten unsung hero named Bhabanath Sen. There is no separate entry on Bhabanath Sen (1835-1914) in Wikipedia, that first port of call for all seekers after information, except for stray references to the street named after him in Baghbazar and the fact of his having leased a parcel of land in what is now Salt Lake, usually with erroneous dating. The truth of the matter is that faced with the same problem of urban waste management and disposal that confronted all growing cities, the administrators of Calcutta Corporation remembered a zamindar who was successfully growing vegetables on garbage near Patna and Bankipur, and got in touch with him for help in disposing of Calcutta's mountainous pile of refuse. Thus it was that in 1879 Bhabanath Sen was allotted a 20-year lease on the Dhapa Square Mile, which the government had acquired in 1865 and freed of taxes in perpetuity through a "Crown Grant" for the purpose of using it as a place for the disposal of Calcutta's garbage.

Sen thus had a tax-free tract of land, leased quite cheaply, where he carried out experiments in growing vegetables on garbage and cultivating fish using waste water purified through a natural process using sunshine and human labour. In the process, Bhabanath Sen succeeded in creating the world's largest natural urban waste recycling system - one that has no parallel anywhere else. He transformed, along with his army of cultivators and pisciculturists (many of whom he had brought over from Bihar), "the art, science, and engineering, of trash management in the contemporary history of cities". These last words are by Dhrubajyoti Ghosh, the engineer-turned-ecologist, who has done more to bring this unique example of urban waste management to the world's notice than anyone else over the last three decades and more.

Ramsar is a popular sea resort in Iran, where the Convention on Wetlands of International Importance was adopted in 1971, with 90 per cent of UN member states eventually becoming "contracting parties" to what is commonly called the Ramsar Convention. Granting the status of a Ramsar site on a wetland is recognition of its ecological importance and "provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources", to quote from the homepage of Ramsar [www.ramsar.org]. I wonder how many of us realize, as we hurriedly roll up our car windows to avoid the smell on our way to Salt Lake, that we are passing a Ramsar site? Wetlands whose Ramsar Information Sheet describes them as "well known over the world for their multiple uses"; where "the resource recovery systems developed by the local people... using waste water from the city is the largest in the world"? The granting of Ramsar status, although it focuses international attention on wetlands, carries with it no legal guarantees for their protection, and the wetlands to the east of Calcutta have to depend on public awareness and government action for their continued existence, and the vital function they play, not least as our city's 'kidneys'. Were they to disappear, the alternative/s - waste-recycling and sewage-treatment plants and so on - would not only be enormously expensive, but would drain a substantial proportion of the city's revenues annually for their continued maintenance. What we have now is an urban waste-treatment system which, far from costing money, actually contributes to the city's revenues by providing employment to thousands, not to speak of plentiful cheap fish and vegetables to its residents.

That the East Calcutta Wetlands were designated a Ramsar site in 2002 is largely due to the efforts of Ghosh, who has campaigned tirelessly for what the Guardian recently described as "a miracle". Way back in 1991, I was privileged to assist Dhrubo-da, as I call him, to prepare a fact-booklet on these wetlands called The Wetlands of Calcutta: Sustainable Development or Real Estate Takeover?. Sadly, a quarter-century later, the same spectre continues to haunt the future of these wetlands.

To be fair, and thanks to the efforts of people like Ghosh, organizations like People United for Better Living in Calcutta and interventions by the Calcutta High Court, the government of West Bengal has been forced to provide some guarantees to protect the wetlands and preserve them for their vital ecological functions. Recently, following the death of Kalyani



Mondal, a waste picker in February 2015, the West Bengal government has granted official recognition to the waste-pickers of Dhapa, most of them women, who perform the vital task of separating the garbage to make possible the realization of the modern mantra of waste management, 'reduce-reuse-recycle'. Such long-overdue recognition makes possible social benefits such as insurance and provision for provident funds for these unrecognized heroes of waste management: a small step in the right direction. But a great deal still remains to be done, not just for those who work in the wetlands, growing crops and fish, but also in order to prevent further encroachment by land-ravenous real-estate lobbies and their associated 'syndicates', which are only too ready, willing and able to cock their collective snook at efforts to preserve the land-use pattern of the wetlands, whether by civil society or legal fiat.

Vomiting and diarrhoea leading to dehydration, nausea, weight loss, itching, bone damage, muscle cramps, abnormal heart rhythms, paralysis, shortness of breath, pain, anaemia, feeling tired and/or weak, memory problems, difficulty concentrating, dizziness, appetite loss, a bad taste in the mouth, difficulty sleeping, seizures, coma - this is a partial list of what can happen to a person whose kidneys fail and who gradually moves from health to increasing degrees of illness to loss of bodily functions to seizures to coma to death.Now imagine what will happen if an entire city were to go through this process, passing from health to the final cessation of all metabolic activity. This is the immediate spectre that haunts the city that this newspaper is published from, and the worst of it is no one seems to care, or even be aware, that this is happening. Right here and right now.

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DEPLETION OF FLORA AND FAUNA AND CREATURES GREAT & SMALL IN NORTH – EAST INDIA

"Here is your country Cherish these natural wonders, cherish the natural resources, cherish the history and romance as a sacred heritage, for your children and your children's children. Do not let selfish men or greedy interests skin your country of its beauty, its riches or its romance."

- Theodore Roosevelt - (26th President of the USA from 1901 to 1909)

North-East India is the easternmost region of India . It comprises Eight contiguous Seven Sister States (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura), and the Himalayan state of Sikkim. The Siliguri Corridor in West Bengal, with a width of 21 to 40 kilometers connects the North Eastern Region with East India, and separates Sikkim from the Seven Sister States. The region shares more than 4,500 kilometers (2,800 miles) of international border with China (Tibet Region) in the north, Myanmar in the east, Bangladesh in the southwest, and Bhutan to the northwest. The region comprises an area of 262,230 square kilometers (8 % of India) .

The Northeast region can be categorized into the Eastern Himalaya, the Patkai and the Brahmaputra and the Barak valley plains. Northeast India (at the confluence of Indo-Malayan, Indo-Chinese) has a predominantly humid sub-tropical climate with hot, humid summers, severe monsoons, and mild winters. Along with the west coast of India, this region has some of the Indian subcontinent's last remaining rain forests, which support diverse flora and fauna and several crop species . Reserves of petroleum and natural gas in the region are estimated to constitute a fifth of India's total potential.

The region's high rainfall, averaging around 10,000 millimeters (390 inches rain) and above, creates problems of ecosystem, high seismic activity, and floods.

World Wildlife Fund has identified the entire Eastern Himalayas as a priority Global Eco region . Conservation International has categorized the Eastern Himalaya Hotspot , which initially covered the states of Arunachal Pradesh, Sikkim, Darjeeling Hills, Bhutan, and Southern China, to the Indo Burma (Hotspot) which now includes all the eight states of North-East India, along with the neighboring countries of Bhutan, southern China

and Myanmar. The population and diversity of the region's birds largely reflects the diversity of habitats associated with a wide altitudinal range. North East India supports some of the highest bird diversities in the Orient, with about 850 bird species. The Eastern Himalaya and the Assam plains have been identified as an Endemic Bird Area by the Royal Society for Protection of Birds . . The region's lowland and moist-to-wet tropical evergreen forests are considered to be the northernmost limit of true tropical rainforests in the world .

Flora of North- East India :

The region has been identified by the Indian Council of Agricultural Research as a center of rice germplasm . The National Bureau of Plant Genetic Resources (NBPGR), India, has highlighted the region as being rich in wild relatives of crop plants. It is the center of origin of citrus fruits. Two primitive variety of maize, Sikkim Primitive 1 and 2, have been reported from Sikkim . Although jhum cultivation, a traditional system of agriculture, is often cited as a reason for the loss of forest cover of the region, this primary agricultural economic activity practiced by local tribes supported the cultivation of 35 varieties of crops. The region is rich in medicinal plants and many other rare and endangered plants .

The following figures highlight the biodiversity significance of the region

- 51 forest types are found in the region, broadly classified into six major types — tropical moist deciduous forests, tropical semi evergreen forests, tropical wet evergreen forests, subtropical forests, temperate forests and alpine forests.
- Out of the nine important vegetation types of India, six are found in the North Eastern region.
- These forests harbor 8,000 out of 15,000 species of flowering plants. In floral species richness, the highest diversity is reported from the states of Arunachal Pradesh (5000 species) and Sikkim (4500 species) amongst the North Eastern States.
- According to the Botanical Survey of India, 10 percent of the flowering plants in the country are endangered. Of the 1500 endangered floral species, 800 are reported from North East India.
- Most of the North Eastern states have more than 60% of their area under forest cover, a minimum suggested coverage for the hill states in the country in order to protect from erosion.As
- Northeast India has 64% of the total geographical area under forest cover and it is often quoted that it continues to be a forest surplus region .
- North East India is a part of Indo-Burma 'hotspot'. The hotspot is the world's second largest, next only to the Mediterranean basin, with an

area 2,206,000 square kilometers (852,000 square Miles) among the 25 identified Hot Spots .

Fauna of The North –East :

The International Council for Bird Preservation, UK identified the Assam plains and the Eastern Himalaya as an Endemic Bird Area (EBA) . The EBA has an area of 220,000 km2following the Himalayan range in the countries of Bangladesh, Bhutan, China, Nepal, Myanmar and the Indian states of Sikkim, northern West Bengal, Arunachal Pradesh, southern Assam, Nagaland, Manipur, Meghalaya and Mizoram. Because of a southward occurrence of this mountain range in comparison to other Himalayan ranges, this region has a distinctly different climate, with warmer mean temperatures and fewer days with frost, and much higher rainfall. This has resulted in the occurrence of a rich array of restricted-range bird species. More than two critically endangered species, three endangered species, and 14 vulnerable species of birds are in this EBA.

Biodiversity Hotspot : The Eastern Himalayan hotspot has nearly 163 globally threatened species including the One-horned Rhinoceros , the Wild Asian Water buffalo and in all 45 mammals, 50 birds, 17 reptiles, 12 amphibians, 3 invertebrate and 36 plant species . The Relict Dragonfly is an endangered species found here with the only other species in the genus being found in Japan.

There are an estimated 10,000 species of plants in the Himalayas, of which one-third are endemic and found nowhere else in the world . Many plant species are found even in the highest reaches of the Himalayan mountains. For example, a plant species was found at an altitude of 6300 meters in northwestern Himalayas . A few threatened endemic bird species such as the Himalayan Quail, Cheer pheasant, Western tragopan are found here, along with some of Asia's largest and most endangered birds such as the Himalayan vulture and White-bellied heron .

The Himalayas are home to over 300 species of mammals, a dozen of which are endemic. Mammals like the Golden langur, The Himalayan tahr, the pygmy hog, Langurs, Asiatic wild dogs, sloth bears, Gaurs, Muntjac, Sambar, Snow leopard, Black bear, Blue sheep , Takin, the Gangetic dolphin, wild water buffalo, swamp deer call the Himalayan ranged their home. The only endemic genus in the hotspot is the Namadapha flying squirrel which is critically endangered and is described only from a single specimen from Namdapha National Park . Among the 34 hotspots of the world, two have been identified in India - The Eastern Himalayas and the Western Ghats. These are particularly rich in floral wealth and endemism, not only in flowering plants but also

reptiles, amphibians, butterflies and mammals.

Deforestation in the Himalayas

Massive, unreported deforestation in the Himalaya mountain forests may push tigers, rhinos, rare birds, and other wildlife to extinction, a new study warns.Based on an analysis of regional satellite images, Indian scientists say almost a quarter of the species unique to the Himalaya could vanish by 2100.

At least 35 animal species and 366 plants may disappear unless urgent action is taken to conserve the remaining forests .

The Himalayas are recognized as one the world's biodiversity hotspots—zones unusually abundant in species. The mountain range runs along India's northern border with China and stretches east through Nepal and Bhutan . Research published last year in the journal Science concluded that the region's watersheds are biologically richer than the Amazon's.

But authors of a new study in the journal Biodiversity and Conservation say Himalayan deforestation threatens "catastrophic losses of unique biodiversity."Lead author Maharaj Pandit of the University of Delhi says those species already facing severe habitat loss—including the endangered Hoolock gibbon, musk deer, and Himalayan monal pheasant—are most at risk.

His team based their findings on high-resolution satellite images of the Indian Himalaya, which suggest the region has lost 15 percent of its forest cover since the 1970s.

Guided by current deforestation rates, the authors calculated that two-thirds of the region's dense forest will disappear by 2100.They further predict that by century's end forests will cover just 10 percent of the Indian Himalaya.

Over the last 30 years in India , the area under forest cover has decreased steadily, as forests have been cleared for agriculture, industry, housing, and other development activities like the construction of roads, railways, and hydroelectric plants.

Since the beginning of civilization, as seen from the Indus Valley Civilization, people have been clearing land for agriculture to meet the food needs of the ever-growing population. Most forest communities follow a method of slash and burn or shifting cultivation, known as Jhum in the Indian subcontinent is more common in the hilly regions..

For example, after independence India lost forest area in the following manner 1) 4696 million hectares forest land to non-forestry purposes, 2) 0.07 million hectares to illegal encroachment, 3) 4.37 million hectares to cultivation, 0.518 million hectares to river valley projects, 4) 0.141 million hectares to industries and townships, and 5) 0.061 million hectares to transmission lines and roads.

To conserve forest areas, the government launched Joint forest management and Social forestry schemes, with some success.

People living in the rural and forestry areas should be sensitized to the damage done to their surroundings by the felling of trees. They should be encouraged to cut branches, twigs and leaves of the trees for their daily requirements. Horticulture as an alternative source of income should be encouraged.

All this, collectively, would halt the depletion of forest cover. In order to conserve the forest cover, the concerned governments have initiated number of socially relevant, environmentally friendly activities to develop a variety of forests like, Agroforestry, Social forestry, Farm

forestry, Community forestry, Extension forestry etc. Farmers in India grow agricultural crops, rear animals, plants and certain trees on their land, often on the boundary area.

Social forestry also aims at raising plantations by the common man so as to meet the growing demand for timber, fuel wood, fodder etc., thereby reducing the pressure on the traditional forest area. This concept of village forests to meet the needs of the rural people is not new. It has existed through the centuries all over the country but it is now given a new character.

Farm Forestry is of two types may be considered under Social forestry Programmes. The two types are both commercial and non-commercial farm forestry. In commercial farm forestry, individual farmers are being encouraged to plant trees on their own farmland to meet the domestic needs of the family.

The government has the responsibility of providing seedlings, fertilizer but the community has to take responsibility of protecting the trees. Some communities manage the plantations sensibly and in a sustainable manner so that the village continues to benefit.

Planting of trees on the sides of roads, canals and railways, along with planting on wastelands is known as 'Extension' Forestry, increasing the boundaries of forests. Under this project there has been creation of wood lots in the village common lands, government wastelands and panchayat lands. Schemes for afforesting degraded government forests that are close to villages are being carried out all over the country.

Half of India's wildlife in danger of extinction: Living Planet Report 2016

With wildlife disappearing at an "unprecedented" pace across the world, the Living Planet Report 2016 identifies India as an ecological black spot where around half of the wildlife lives in the danger of being wiped out.

Story of the The Black Rhino which is Critically Endagered .

Black rhinos have two horns, and occasionally a third small posterior horn. The front horn is longer than the rear which makes them lucrative targets for the illegal trade in rhino horn. Between 1970 and 1992, 96 percent of Africa's remaining black rhinos were killed. A wave of poaching for rhino horn rippled through Kenya and Tanzania, continued south through Zambia's Luangwa Valley as far as the Zambezi River, and spread into Zimbabwe. Political instability and wars have greatly hampered rhino conservation work in Africa, notably in Angola, Rwanda, Somalia and Sudan. This situation has exacerbated threats such as trade in rhino horn, and increased poaching due to poverty.

Today, black rhinos remain Critically Endangered because of rising demand for rhino horn, which has driven poaching to record levels. A recent increase in poaching in South Africa threatens to erase our conservation success. The increase is driven by a growing demand from some Asian consumers, particularly in Vietnam, for folk remedies containing rhino horn. In 2014, a total of 1,215 rhinos were poached in South Africa – a 21 percent increase from the previous year.

Factors Responsible for the Depletion of Flora and Fauna

The Asiatic Cheetah became extinct in India in 1952. The Himalayan Yew, a medicinal plant found in Himachal Pradesh and Arunachal Pradesh. The bark, needles and roots of this plant yield a substance used to treat several types of cancer. Today, over exploitation has endangered the species.

The main reason for the depletion of fauna is excessive hunting and poaching. Forests and wetlands are natural habitats of animals and the destruction of these has resulted in the depletion of our wildlife. Over-exploitation of forests has resulted in the depletion of flora. Deforestation is one of the main causes of the depletion of flora. In colonial India vast stretches of natural forests were destroyed for the expansion of railways, agriculture, commercial farming and mining.

Overgrazing by cattle herds also leads to large-scale destruction of pastures and natural forests. Enrichment plantation is the practice of replacing different species of trees in an area by a single commercially valuable species. Teak plantations have damaged the natural forests in south India, while Chir Pine plantations in Himalayas have greatly reduced the natural oak and rhododendron forests. Factors like environmental pollution and forest fires lead to a depletion of both our flora and fauna. The environmental factors that lead to a decline in biodiversity are caused by inequitable consumption of resources and inequitable responsibility borne for the well-being of the environment.

However, the responsibility for the protection and conservation of the environment is not shared by people in proportion with the resources that they consume.

Women have to walk long distances to collect food and firewood which leads to neglect of their children and household. Natural calamities like droughts and floods are also a result of environmental degradation and the hardest hit by these are the poorest. The flora and fauna of India are under severe threat, and require immediate measures of conservation.

WHY CONSERVATION OF FLORA & FAUNA IS NEEDED

Flora is basically the plant life that is present in a particular region or habitat or at a particular time and fauna is the animal life that is present in a particular region or habitat or at a particular time. Biodiversity is a very large topic and somewhat difficult to define adequately in only a sentence or two. In the very simplest terms, "biodiversity" means the diversity of life on our planet, which includes genetic diversity, species diversity, and habitat diversity. Diversity can be defined as the number of different

items and their relative frequency. For biological diversity, these items are organized at many levels, ranging from complete ecosystems to the chemical structures that are the molecular basis of heredity. Thus, the term encompasses different ecosystems, species, genes, and their relative abundance." The area of flora, fauna and biodiversity is quite interrelated. Flora and fauna forms a major part of biodiversity.

India is a land of varied flora, fauna and biodiversity. India is one of the twelve mega-diverse nations of the World. Two of India's great mountain ranges, the Eastern Himalayas and the Western Ghats have been designated among the world's eighteen 'hotspots' of biodiversity. But In the last few decades we have seen a steady increase in the extinction rate of flora, fauna etc. all over world including India and so now, conservation of biological diversity is of paramount importance to the survival of man. Conservation of biological diversity leads to conservation of essential ecological diversity to preserve the continuity of food chains. The genetic diversity of plants and animals is preserved. It ensures the sustainable utilization of life support systems on earth. It provides a vast knowledge of potential use to the scientific community. A reservoir of wild animals and plants is preserved, thus enabling them to be introduced, if need be, in the surrounding areas. Biological diversity provides immediate benefits to the society such as recreation and tourism. Biodiversity conservation serves as an insurance policy for the future.

Flora and Fauna in India

India is one of the world's richest countries in terms of its vast array of biological diversity, and has nearly 8 per cent of the total number of species in the world (estimated to be 1.6 million).

Flora & Fauna in India	
Fauna	More than 81,000 species
Flora	More than 47,000 species
Indigenous flowering plants	About 15,000 species
Endangered wild flora	About 10%
Endangered mammals	About 20%

List of Critically Endangered Species:

Cheetah, pink-headed Duck, Mountain Quail, Forest Spotted Owl, madhucha insignis (wild mahua), hubbardia heptaneuron (a grass species)

Number of Endangered Species: 79 species of mammals, 44 of birds, 15 of reptiles, and 3 of amphibians, 1,500 plant species are considered endangered.

Vanishing Forests

Forest cover	637,293 sq km (19.39% of total geographic area)
Dense forest	11.48%
Opne forest	7.76%
Mangrove	0.15%

Causes of Depletion of Flora and Fauna:

Agricultural Expansion: According to the Forest Survey of India, over 262,000 sq km of forest area was converted into agricultural land in India between 1951 and 1980. Moreover, a substantial part of the tribal belts has been deforested or degraded by shifting cultivation.

Development Projects: Large scale development projects have also contributed significantly to the loss of forests. Over 5,000 sq km of forest was cleared for river valley projects since 1951.

Mining: Mining has also caused large scale depletion of flora and fauna in many areas. For example; the ongoing dolomite mining is seriously threatening the Buxa Tiger Reserve in West Bengal.

Unequal Access to Resources: Social inequality is another major factor to depletion of flora and fauna. The rich people consume much more than the poor and thus cause a higher degree of environmental damage.

Social Effect of Forest Resource Depletion:

In many societies, it is the women who are responsible for collection of fuel, fodder, water and other basic subsistence needs. Depletion of these resources means women need to work harder to collect those resources. At some places, women may have to walk more than 10 km to collect firewood. This causes serious health problems for women.

Deforestation induced flood and draught result in economic misery for the poor.

Deforestation also leads to loss of cultural diversity. The marginalized people who had been traditionally dependent on forest for sustenance are now forced to look for other sources of livelihood. In order to do so, they are uprooted from their traditional habitat and culture.

Conservation is often looked as being against Human Development .This False Dichotomy has Resulted in Behavior that Divides Conservationists and Human Development into Two Opposite camps that forces Stakeholders to take sides instead of Collaborating Together to Design More sustainable solutions . Continuing on this Path will cause a Breakdown in Natural and Man-made ecosystems.

"The Earth provides enough to satisfy every man's needs, but not every man's greed ."
-"Mahatma Gandhi"

Arvind Awasthi

Arvind Awasthi has 34 Years' Experience in the Tea Estates of Kerala , Dooars (West Bengal) and Assam and Joined Tata Finlay in 1983 . He is at Present Senior Manager sustainability & Certifications with Amalgamated Plantations Pvt. Ltd. based at Guwahati.

He spends his free time in reading and Trying to Decipher (Though Without Much Success) the Indian Equity Markets.

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COMMUNITY PARTICIPATION IN BIODIVERSITY CONSERVATION

Balipara Foundation, Assam, India

Organisation Profile: Since 2007, Balipara Foundation has initiated experiments in ecological protection and restoration of the Eastern Himalayan Region through the concept of NaturenomicsTM. The journey to execute our vision of Conserving and Preserving the Natural Heritage of the Eastern Himalayas has evolved through a series of innovative project prototypes for conservation through interdependence.

Abstract: Biodiversity conservation projects have largely failed to integrate the interests of local communities, thereby alienating the largest group of shareholders. This paper briefly discusses the factors that have limited local participation and describes why conservation organizations need to integrate the concepts of social mobility into the conservation narrative. Further, we describe our efforts in implementing these concepts to create strong rural areas which are socially and economically mobile.

Introduction: "The developed nations are where the world's wealth is concentrated, but they are not the future battlegrounds for conservation."

A study by the University of California, published in the journal Proceedings of the Royal Society, found that many of the regions that face the greatest habitat change in relation to the amount of land currently protected are in globally threatened and endemic species-rich developing tropical nations that have the fewest resources for conservation. Conversely, many of the temperate regions of the planet with an already expansive network of reserves are in countries with the greatest financial resources for conservation efforts, but comparatively less biodiversity under threat. "There's a huge discrepancy between where the world's conservation resources are concentrated and where the greatest threats to biodiversity are projected to come from future global change," said Walter Jetz, an assistant professor of biological sciences at UC San Diego, who headed the study.

Take the Eastern Himalayas, a "Cradle of Speciation", as an example. Although it is one of the richest areas in the world for biological diversity, it is also one of poorest regions in terms of economic development. These landscapes, besides being of global conservation significance due to their unique and rich diversity, are also home to some of the most impoverished communities in the world. Such regions are particularly vulnerable due to their ecological fragility and economic marginality. The majority of people living in the

Eastern Himalayas are dependent on the goods and services provided by the biologically rich ecosystems and landscapes. The consequences of biodiversity loss are likely to be the greatest for the poor and marginalised people who depend almost exclusively on natural resources. Poverty, poor infrastructure (roads, electricity, water supply, education and health care services, communication, and irrigation), reliance on subsistence farming and forest products for livelihoods, substandard health indicators and other indicators of underdevelopment make the Eastern Himalayas more vulnerable to biodiversity threats as the local capacity to adapt is inadequate.

India (primarily the North Eastern states) contributes 52% of the total land area of the Eastern Himalayas. India is ranked 131 out of 188 countries by UNDP's Human Development Index, besides also being regions where density of population is among the highest globally and so are threats to biodiversity. "Countries like India, Nepal, Myanmar, Bhutan with medium-low HDI and rich biodiversity, are the conservation battle grounds of the future"

India's Forest Communities "Biodiversity havens/hot-spots cannot survive as stand-alone islands surrounded by unfulfilled human aspirations." 275 million (World Bank, 2006) to 350-400 million (MoEF, 2009) people in India live around its 76.5 Million Ha of forests. That is 21-30% of the total population of 1.3 Billion. These communities, besides being among the most impoverished and marginalized in the country, are also the ones that will decide the fate of its bio-diversity.

The Socio Economic and Caste Survey of Rural India 2011 highlights the following points:

- 51.14 percent of families have manual casual labour as main source of income. Agriculture is main source of income for 30.10 percent. As much as 2.5 percent of families have part-time or full-time domestic service, 0.23 percent have rag picking, 1.61 percent non-agricultural own enterprise
- Only 9.68 percent have salaried job. Only 4.6 percent of the households surveyed paid income tax or professional tax.
- A high 74.5 percent of the households said the monthly income of their highest earning member is less than Rs 5,000.
- 35.73 percent were illiterates. Percentage of people who had done graduation or higher studies stood at lowly 3.45 percent.
- 56 percent have no land. 40 percent of the total rural land is unirrigated.
- 80 percent households do not have access to piped water delivery
- 35 percent households incur Catastrophic Health Expenditure (CHE- defined as health expenditure that threatens a household's capacity to maintain a basic standard of living).

The Challenge to conserve biodiversity

is great, but the greater challenge is to empower the people that have the opportunity to do so- the Forest Fringe communities. Community Participation in Conservation

The traditional conservation practices were largely preservationist in nature, which is thought to have resulted in deteriorating relationships between officials and local communities (Kothari et al 2000). The critique of protectionism that emerged in the 1980s has spawned an array of conservation strategies that promote, to various degrees, the welfare and cooperation of the people living in and around protected areas. Such strategies provide a mix of conservation and development objectives and employ a range of tactics, such as providing appropriate development opportunities, emphasizing local community involvement, adopting shared management, ensuring local autonomy, guaranteeing rights to harvest, promoting knowledge, awarding cash compensation and encouraging tourism. A variety of terms have been used to describe these efforts to reconcile protected area management with local needs and aspirations (Mc Shane and Wells 2004). Integrated Conservation and Development Project or Programme (ICDP) was seen as a collective description for site-based conservation with social or economic development goals, including community-based conservation, eco-development and other approaches. A main component of ICDP is eco-development, which has two main thrusts: improvement of Protected Area (PA) management and the involvement of local people in that management (World Bank 1996).

Under the aegis of ICDP, the World Bank funded two eco-development projects -India Eco-Development Project (IEDP) and Conservation of Biodiversity (CoB) in India in the 1990s that covered nine PA sites in nine different states (World Bank 1996, Sharma et al. 2004, Annamalai 2004, World Bank 2007). The objective of this project was to establish committed grass root organizations such as Village Forest Committees (VFC). The VFCs were to involve local people in conservation, promote conservation awareness among local communities, reduce resource dependency on Forests and create alternative source of livelihood. Most of the objectives of the programmes were to be implemented through grass root village institutions such as Eco-Development Committee (EDC) and Village Forest Council (VFC).

However, an independent objective, process-based trend analysis, carried out by Gubbi 2006 found that the IEDP has made little impact as a rural

development project and that evidence was entirely lacking to determine its impact as a conservation project.

While Conservation organizations have imbibed the term "community conservation" into their vocabulary and project proposals, actually involving communities over the long term has proved to be difficult. Our forests are much worse off today than they were a few years ago, human-animal conflict is on the rise and many more species are under threat. The primary reason for this is that while local communities were extended an invitation to participate in the "saving" of forests & biodiversity, they were not "incentivized" to do so.

Rethinking Community Participation in Conservation Community participation in conservation programs cannot be limited to the transaction of conservation organizations motivating& organizing locals to participate in their plans of "conservation at all costs". The World Bank's interpretation of the extent of a community'sparticipation, as pointed out below, is very limiting and short-sighted.

1. A main component of ICDPs is eco-development which has two main thrusts: improvement of Protected Area (PA) management and the involvement of local people in that management (World Bank 1996).
2. The objective of ICDP was to establish committed grass root organizations such as Village Forest Committees (VFC). The VFCs were to involve local people in conservation, promote conservation awareness among local communities, reduce resource dependency on Forests and create alternative source of livelihood

Communities under socio-economic stress, as most forest fringe communities are, have neither the time nor the inclination to entertain thoughts of biodiversity threats. Theirs is a day-to-day struggle to manage basic amenities such as food & water. Education and health are considered luxuries.

Incentivizing Communities to Participate through Social Mobility. The ideal form of community participation would be voluntary in nature, rather than being achieved through motivation and predictions of the apocalypse. Ensuring socio-economic security to forest communities will empower and enable communities to not just participate, but more importantly, contribute towards conservation. Conservation Projects

today categorize local communities as "beneficiaries". It makes sense only over the short-term.The long-term objective is for these communities to become "owners" of conservation projects. Therefore, the objectives of conservation projects & programs will have to include proportionate elements of social mobility together with species protection & habitat restoration.

Social Mobility: Social Mobility is defined as the movement of people, families or other categories of people between different social strata. Inevitably, in the modern age, social mobility is intrinsically linked to economic mobility, which boils down to the basic income of an individual or a household. Various factors have been associated with upward social mobility – most important of which are access to basic amenities (education, water, health) urbanization, modernization, industrialization. All of these aspects are directly or indirectly connected with one's income. A better education, a key component for social mobility, enables the population to aspire for better jobs and better jobs mean higher incomes. Industrialisation of societies was and is largely associated with large-scale production centre – thereby creating more jobs – and therefore, a higher income.

The Prototype: The above concepts and ideas are being developed into implementable projects in the Udalguri District of Assam, India. Located on the Indo-Bhutan border, the "scenic" Udalguri landscape is one the worst effected Human-Elephant Conflict regions in India. But the more pertinent issues are accessibility to water, health and education infrastructure. Titled the "Udalguri Landscape Mission", the programs endeavor is to identify drivers for conservation & development and invest in projects that help balance ecological &social outcomes. The primary objectives of the 7-year program are as follows:

- A 500 hector afforestation project, led by the community. 12 forest fringe communities coming together, organizing themselves as the Khalingduar Eco Development Committee (EDC) and undertaking a 6 year project to reforest 500 Hectors of land by planting 1 million saplings.
- Tackling Human-Elephant Conflict through reforms to compensation policy, building resilience and tolerance towards conflict situations and co-designing prevention methods and systems
- Revitalizing the "non-performing" social assets of water, education & health to create drivers for social mobility.

- An 'exit strategy' based on strong grassroots individual leaders and community organizations.

For more information on Balipara Foundation's workon Social Mobility/ Rural Futures please visit: http://ulm.elephantcountry.org/

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Robin Eastment's interests lie in understanding the dynamics of human aspirations and the role of people's allegiances to political, economical & cultural ideologies vis-à-vis conservation. His primary aim is to apply these insights into Balipara Foundation's conservation plans.

Saurav Malhotra is working with communities in Assam to rebuild degraded Asian Elephant habitats through the creation of alternative livelihoods and building assets for local communities. Saurav is also interested in using technology to create awareness about all things science and human rights.

FROM FARM TO TABLE

What the Future of Organic Farming Should Look Like in India

Leadership needs to be taken in order to craft organic policies around the farmers, environment but also the end user – men and women putting produce on their tables.

The buzz around organic food is heating up, with an increasing number of farmers turning to growing food without chemicals or pesticides. Coupled with a grassroots social movement by young and old alike to demand organic food, and a proactive base making access to organics possible, it seems that we are only in the beginning of India's move towards a modern organic marketplace. A recent TechSci report forecasts that India's organic food market is set to grow by 25% over the next 4 years, with a Yes Bank report stating that India's organic food sector will increase from a current estimate of Euro 370 million to Euro 10 billion by 2025. Essentially, from the start, it has been fringe actors and social movements that have been driving for food to be grown naturally, while government policy was still pushing for industrialised farming post-independence. The progress that has been made since that time has been taken forward primarily by civil society organisations, entrepreneurs, and individuals. Through independent businesses, farmers' markets, informal education, and infrastructure building, Indian citizens have been supplying and meeting the demands of the domestic organic market without any strong, substantial and holistic national certification or policies towards the sector. While the Indian government has taken steps recently in bringing organic farming closer to policy with the National Programme for Organic Production (NPOP), there are still significant holes when addressing the entire supply chain – the primary one being that the entire supply chain has to be foolproof in ensuring that the food is genuinely organic from the dedicated farmers to the hungry consumers.

Organic- There's More To It

The government's approach towards organic food production and consumption historically has been through a lens of environmental conservation and harmony. From this ecological viewpoint, the foundation for organic food policies has been shaped with a zeroed-in focus on the growth of plants. Even the FSSAI's draft regulation that was presented at the end of June 2017 speaks of the literal growing of organic produce – the process of the seed to become a fruit or vegetable or grain and maintaining that those inputs are organic. This part of the process is absolutely critical in making an organic product, there is no doubt about that. Yet a fully organic product doesn't just end when the plant has done its job and say, the mango, is picked from the branch. That organic mango has to then be put in a basket, stored, wrapped, shipped and stored again before it gets even to the kitchens of our organic customer. Those that are aware of cultivation practices know that the storage and processing of the produce are just as

important as the growing stage.What often happens is that while a company calls itself organic and has a mango grown organically, which is technically true, they still may spray the mango with chemicals after it's been plucked to ripen it faster and protect it from rotting before it reaches the store. If it is grown organically, but then sprayed with chemicals while in transport – can it still be organic? This is a critical area that needs strengthening in policies and monitoring by the government- whether national or state – has to take into accountwhen drafting regulation.

It Isn't Always Easy

Sikkim has become the torchbearer for state governments in India by mandating farming within its lines to be 100% organic. It can be held as an example of what can happen when (state) government policy actually prioritises organic, but it has also revealed significant obstacles that are faced when the entire organic supply chain system is not viewed holistically. Sufficient farmer education on methods to grow organically and management of disease and pests seem to be challenging to many of the farmers. On top of that, G V Ramanjaneyulu, executive director of the Centre for Sustainable Agriculture in Telangana, highlights especially how the Sikkim government needs to support the second stage of organic food management.

Specifically, Ramanjaneyulu speaks about how the collection, transportation, and storage of fresh produce needs to be addressed in this government's initiative in order to be successful.

As highlighted by Down to Earth magazine in April of this year, without addressing these issues, the farmers are finding it harder and harder to market and sell their produce in Sikkim. If policies can be crafted that bring in these extended aspects of the organic supply chain, there are benefits across the board for the farmers, the communities and the consumer.

Filling the Gap For Now One way of mitigating uncertainty in the storing and processing of organics, in lieu of government policy, is to be certified by a third party company saying that your post-growing processes are

still in line with the organic method. Bureau Veritas, headquartered in France and accredited for European, US and Japanese certification, is one company that provides this type of verification in India to companies like I Say Organic, based in New Delhi. Bureau Veritas ensures that companies truly organic, what they market as organic meets all the norms for organic production, verifies that the warehouses are not fumigated with chemicals, that storage sticks to organic standards, hygiene standards are maintained, and the workforce is making certain that the produce is chemical-free all the way to the consumer's plate. Easy Taaza, based out of Bangalore, is trying a different approach where a limited type of organic fruits and vegetables are delivered to your house from the farm within 12 hours, so the need for storage maintenance, i.e. chemicals, is reduced. These are all still actions that individual companies are taking in an effort to be prudent for the health of organic consumers. Yet for the organic industry to grow and keep up with demands, it needs to broaden, categorize and classify the different nuances within organic produce and have regulation to fill the gaps that exist.

Let's Make It Better: As an overarching body, the government will have to verify with certainty that which is coming into people's hands is what they have actually asked for – 100% organic. For the next chapter in organic food production, attention needs to be paid towards producing food that is in line with the health of the buyer. Policy needs to cast a wider net to take into account the multi stage process of food production beyond the farm. Equipping farmers with not only knowledge for growing, but also the knowledge of how to maintain produce organically is essential to creating a fully organic supply chain. Leadership needs to be taken in order to craft organic policies around the farmers, environment but also the end user – men and women putting produce on their tables. To explore a wide range of fresh organic produce and learn more about how and where it's grown, log on to www.isayorganic.com.

JADHAV "MOLAI" PAYENG

THE FOREST MAN OF INDIA

Padma Shri Jadav "Molai" Payeng is a Mishing tribe environmental activist and forestry worker from Jorhat, India. Over the course of several decades, he planted and tended trees on a sandbar of the river Brahmaputra turning it into a forest reserve. The forest, called Molai forest after him, is located near Kokilamukh of Jorhat, Assam, India and encompasses an area of about 1,360 acres / 550 hectares. In 2015, he was honoured with Padma Shri.

Career:

In 1979, Payeng, then 16, encountered a large number of snakes that had died due to excessive heat after floods washed them onto the tree-less sandbar. That is when he planted around 20 bamboo seedlings on the sandbar. He started working on the forest in 1979 when the social forestry division of Golaghat district launched a scheme of tree plantation on 200 hectares at Aruna Chapori situated at a distance of 5 km from Kokilamukh in Jorhat district. Molai was one of the labourers who worked in that project which was completed after five years. He chose to stay back after the completion of the project even after other workers left. He not only looked after the plants, but continued to plant more trees on his own, in an effort to transform the area into a forest.

The forest, which came to be known as Molai forest, now houses Bengal tigers, Indian rhinoceros, and over 100 deer and rabbits. Molai forest is also home to apes and several varieties of birds, including a large number of vultures. There are several thousand trees, including valcol, arjun, ejar, goldmohur, koroi, moj and himolu. Bamboo covers an area of over 300 hectares.

A herd of around 100 elephants

regularly visits the forest every year and generally stay for around six months. They have given birth to 10 calves in the forest in recent years.

His efforts became known to the authorities in 2008, when forest department officials went to the area in search of a herd of 115 elephants that had retreated into the forest after damaging property in the village of Aruna Chapori, which is about 1.5 km from the forest. The officials were surprised to see such a large and dense forest and since then the department has regularly visited the site.

In 2013, poachers tried to kill the rhinos staying in the forest but failed in their attempt due to Molai who alerted department officials. Officials promptly seized various articles used by the poachers to trap

the animals.

Molai is ready to manage the forest in a better way and to go to other places of the state to start a similar venture. Now his aim is to spread his forest to another sand bar inside of Brahmaputra .

Personal life:

Jadav Payeng belongs to a tribe called "Mishing" in Assam, India. He lives in a small hut in the forest. Binita, his wife, and his 3 children (two sons and a daughter) accompany him. He has cattle and buffalo on his farm and sells the milk for his livelihood, which is his only source of income. In an interview from 2012, he revealed that he has lost around 100 of his cows and buffaloes to the tigers in the forest, but blames the people who carry out large scale encroachment and destruction of forests as the root cause of the plight of wild animals.

Honours:

Jadav Payeng was honoured at a public function arranged by the School of Environmental Sciences, Jawaharlal Nehru University on 22 April 2012 for his remarkable achievement. He shared his experience of creating a forest in an interactive session, where Magsaysay Award winner Rajendra Singh and JNU vice-chancellor Sudhir Kumar Sopory were present. Sopory named Jadav Payeng as "Forest Man of India". In the month of October 2013, he was honoured at Indian Institute of Forest Management during their annual event Coalescence. In 2015, he was honoured with Padma Shri, the fourth highest civilian award in India.

A COUPLE WHO DARED TO BE DIFFERENT

Anil and Pamela Malhotra are responsible for a beautiful wildlife sanctuary.

Anil and Pamela Malhotra met and married in the United States over 4 decades ago and moved to India in 1986. They were appalled at the flagrant abuse of Nature while on a visit to India when Anil's father passed away.

The duo have since spent over 20 years buying up wasteland farmers no longer wanted; now elephants, tigers and leopards roam free there. Anil and Pamela Malhotra are responsible for a beautiful wildlife sanctuary.

"The problem is, we expect the government to do everything. Like-minded people, NGOs and other agencies should purchase land and do their own bit to conserve the wildlife," says Pamela.

They bought around 55 acres of unused and unarable land from the farmers who were for various reasons not using in Kodagu district of Karnataka. In fact, they chose Kodagu because it is the micro hotspot of bio diversity in the entire planet," says Pamela.

Jadav Payeng, the "forest man" of Assam has created 1360 acres of dense forests around the river island of Majuli. Like him Anil and Pamela Malhotra who together are creating what is likely India's first private wildlife sanctuary of almost 300acres arresting deforesting and reclaiming forests.

After looking for land to purchase, in 1991 they settled on a 55-acre plot down south in Brahmagiri, a mountain range in the Western Ghats. The land was a mess, Anil, 75, and Pamela 64, say that the owner wanted to sell it because he could no longer grow on it.

This was for them a sign from above... the beginning of the transformation of brown to green, orchestrated by Mother Nature into what is now the Save Animals Initiative (SAI) Sanctuary.

This is a dynamic endeavor and the couple keep purchasing land

The sanctuary also has a river flowing in the heart which meets the water needs of the animals.

The sanctuary also hosts animals like Hyena, Sambhar and Bengal Tigers

A family of elephants are frequent visitors of this sanctuary.

as it becomes available, most of it agricultural acreage that has been stripped of its ability to support the farmer owners.

As of now, the SAI Sanctuary boasts some 300 acres of beautiful bio-diverse rainforest where elephants, tigers, leopards, deer, snakes, birds and hundreds of other animals abide. Naturalists, scientists and visitors come to do research on animals as well as the hundreds of indigenous trees and plants or to relax in the two eco- tourist cottages

A veritable garden of Eden with a river flowing through to truly balance the flora, fauna and bring an aquatic balance to the sanctuary.

We hail the efforts of this amazing couple, their efforts and their altruistic enterprise.

The dense forest cover

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- HP to bring 2,00 hectares under organic farming, develop 200 bio-villages

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NORTH-EAST SCENARIO

- Assam strengthen ties with Japan for making Northeast India as 'Organic hub' of the country

https://thenortheasttoday.com/assam-strengthen-ties-with-japan-for-making-northeast-india-as-organic-hub-of-the-country/

- NE set to be global organic agriculture hub

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- Meghalaya to become organic state by 2020

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- In Assam, PM says Northeast can be hub of organic farming

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- Sikkim's organic revolution at risk as local consumers fail to buy into project

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- Organic farming starts paying dividends in Sikkim

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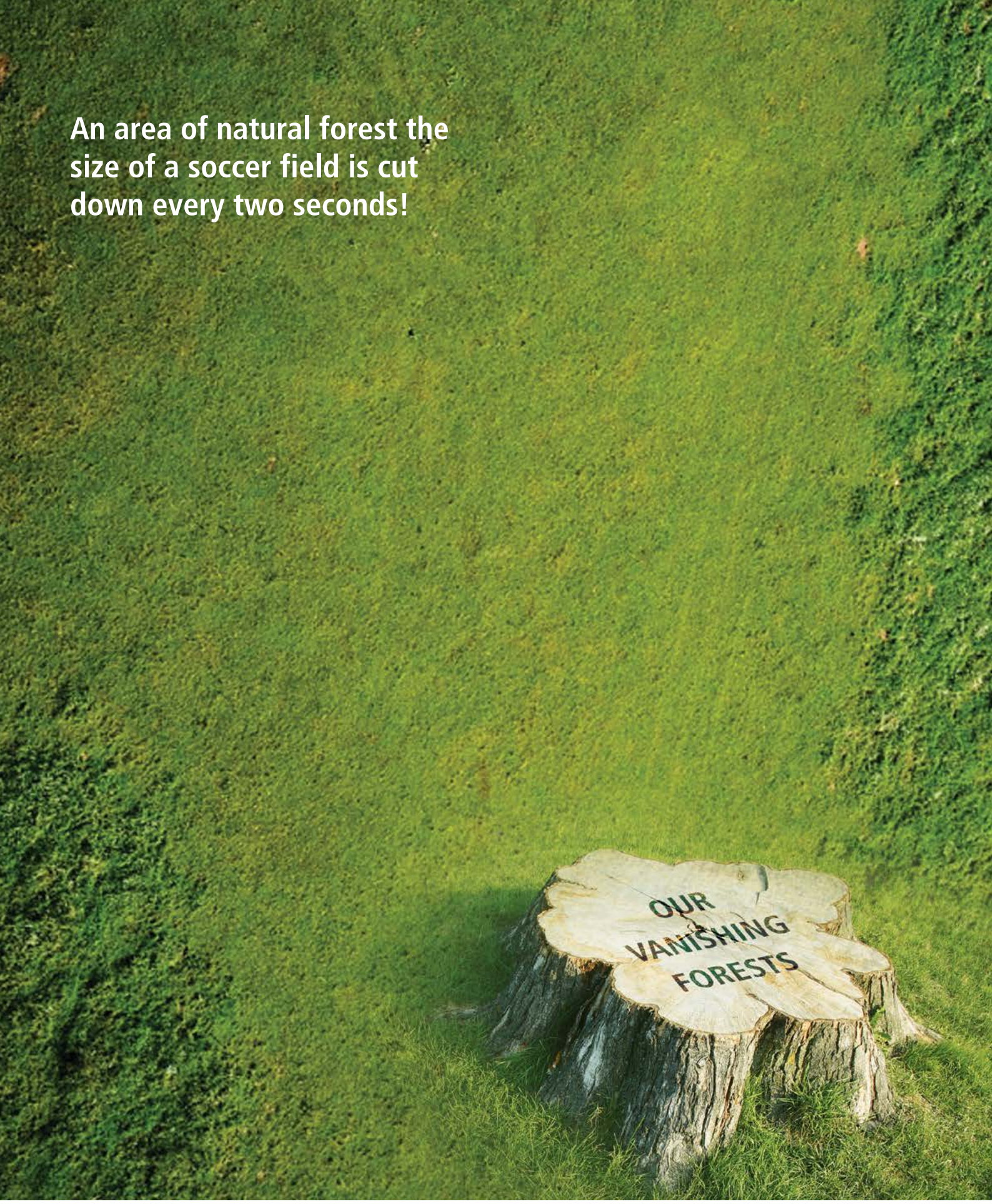
- Sikkim: Organic chilly farming proves a boon for local farmers

https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=6&cad=rja&uact=8&ved=0ahUKEwj-sOzCt7jVAhUOSY8KHbdSDX8QtwIISDAF&url=http%3A%2F%2Ftimesofindia.indiatimes.com%2Fvideos%2Fnews%2Fsikkim-organic-chilly-farming-proves-a-boon-for-local-farmers%2Fvideoshow%2F57978103.cms&usg=AFQjCNH908uDKpvXaR2NFPs4g57_CL3TaQ

ALL CREATURES GREAT AND SMALL- KAZIRANGA

Photo-feature by Rajeeb Dey



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