



BALIPARA FOUNDATION

Assam • India



9TH EASTERN HIMALAYAN NATURENOMICS™ FORUM

7th - 9th DECEMBER 2 0 2 1

ECOLOGY IS ECONOMY

2021



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ECOLOGY IS ECONOMY – DIVING DEEPER

In 2020, the first conversation on *Ecology is Economy* was launched at the 8th Eastern Himalayan Naturenomics Forum, to explore and debate the strategies needed to integrate interdependence into the relationship between the two in the context of the Eastern Himalayan region via a robust green recovery plan for the region. The forum brought together over 100 speakers from over 25 countries in dialogue on key themes under this issue and linked to the broader global context of COVID-19: Natural Assets, Employment, Net Zero 2030, Naturenomics and Animal-Human Diseases.

At the Eastern Himalayan Naturenomics™ Forum 2020, business and government leaders endorsed the need to develop an ecological budget, and the need to measure and value our natural capital. Through these dialogues five key action outcomes emerged:

Strengthening indigenous governance of natural assets

Engagement of youth groups in natural resource management

Carefully designed collectivization & technical skill development across rural communities

Scaling employment and livelihoods

Creation of national ecological budgets

Designing ecological budgets for Nature capital valuation

Cross-border, Cross-sectoral collaboration

For innovation, borderless natural asset management and collaboratively achieving net zero

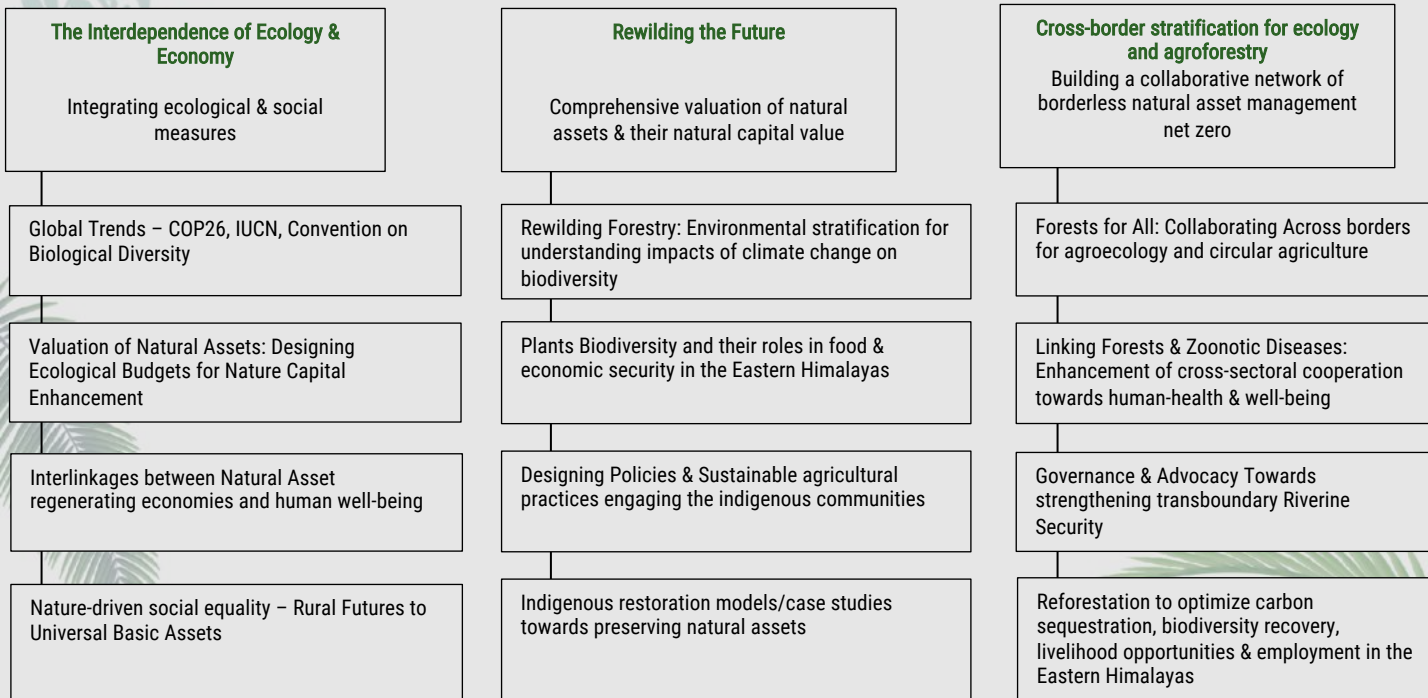
Designing Interdependence

Integrate ecological & social measures, moving beyond the GDP model of growth measurement to drive Naturenomics™

The second edition of *Ecology is Economy* sought to dive deeper into these thematic action points to explore the opportunities, challenges and recommendations for transitional changes to catalyze the shift needed for the region, across three key thematic areas: the interdependence of ecology & economy, rewilding the future & cross-border innovations for ecology & agroforestry.

Deliberation with over 60 speakers from 23 countries explored these themes across the three days for a few critical solutions and recommendations to secure our climate and biodiversity future in the Eastern Himalayas.

THE NATURE POSITIVE ACTION AGENDA 2021



The Interdependence of Ecology & Economy

The drive for growth, defined as income growth as measured by the GDP, globally has been the key driver in the destruction of ecosystems. While various Green New Deals have recognized the need to transition away from carbon, the limited focus on achieving this through infrastructure growth will further deplete fragile ecosystems. A growing body of evidence suggests that to meet the basic criteria of limiting emissions aligned to preventing a 2 degrees Celsius temperature rise, will require global GDP growth to slow from 1.93% to 0.45% (Schroeder & Storm, 2020) - or GDP growth during the COVID crisis and lockdowns.

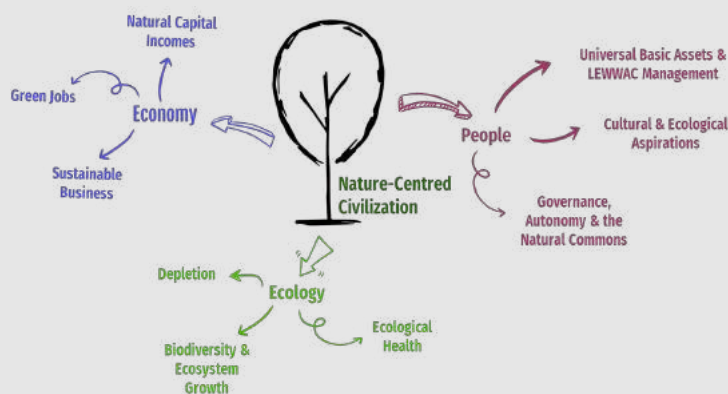
The limitations of the GDP are increasingly being recognized, including its exclusion of natural capital and its invisible value flows through the economy. For instance: if a forest patch is cleared for agricultural expansion, the GDP increases, though overall ecosystems services decline. Indices like the Sustainable Development Goals Index have been proposed as alternatives, but still lack complete integration. The ecological indicators within the Sustainable Development Goals index are often contradictory in their aims and measurement of the actual phenomena. Out of the 322 indicators, only 29 are linked to the use of natural resources, biodiversity protection and climate action.

The Interdependence of Ecology & Economy

New measures for progress and growth are needed, to effectively incentivize the prioritization of nature, and enable the conditions for building systems to combat the climate and biodiversity crisis at scale.

A transformative index would have to measure:

- Ecological destruction
- Ecological health
- Positive biodiversity changes
- Net zero - carbon
- Cultural ecological aspirations, geo consciousness & human wellbeing
- Access to Universal Basic Assets & Services - food security, water, energy, education, healthcare, waste management, transformative living spaces, democratic services
- Sustainable livelihoods and opportunities - sustainable incomes, green jobs & sustainable business opportunities



An alternate index for measuring growth

Icon attribution: Tree by Tatyana for the Noun Project

Rewilding the Future

The world faces an unprecedented crisis of rising temperatures, super cyclones, raging wildfires, virulent viruses, and vicious floods: global collapse that risks the lives and livelihoods of billions driven by the overconsumption and extraction of natural capital to surge economic growth.

This natural capital is the invisible, underpinning value of the global economy today. Healthy ecosystems and wildlife together add high value to the global economy. Protecting forests at a cost of \$2 billion is estimated to reduce pandemic risks by 40%. An estimated \$44 trillion of the global GDP of \$87.6 trillion depends on healthy ecosystems. Without their ecosystem's services and their natural capital values, we would lose half of the global economy today.

Rewilding the Future

For climate vulnerable regions like the Eastern Himalayas, even a 1.5 C rise will transform its climate, impacting everything from its water sources, to the crops that can be grown, its biodiversity and by extension, the lives of the 246 million people living there. Climate resilience is poor: people lack access to resources that could help them weather these changes. For a primarily agrarian community, swift action is not a choice, it is a necessity, beginning with its rich natural assets.

Rather than investing in an economy that destroys natural capital, we need to incentivize and drive investment in building a rewilding economy which restores natural assets, creates green job opportunities for rural communities, enhances the region's ability to meet net zero targets and improves health outcomes by lowering the risk of new emerging diseases.

The Rewilding Opportunity

There is an estimated 2 billion hectares of land available for restoration globally, largely concentrated in temperate and tropical countries. Of these, tropical countries face the highest risks for degradation as commercial agriculture for beef, soy, oil palm and rubber expands. **25% of this land, or 500 million hectares, is suitable for complete rewilding.**

Today, both the formal and informal forest sector employ over 86 million people globally, many of them in small & medium enterprises (SMEs) (FAO, 2020). **Directly investing in sustainable forest management globally will create an additional 16 million jobs by 2030. Broader investments in restoration agriculture can create 191 million jobs through enhanced productivity and restoration of degraded land(WEF,2020).**

Degradation of agricultural land today costs the global economy \$6 trillion, or 75% of the total value it adds to the global economy (World Bank, 2019). **Rewilding both forests and agriculture can generate \$3.5 trillion in direct business opportunities through technology for restoration, sustainable timber and sustainable non-timber forest produce.**

Natural capital could form the regenerative backbone of the Eastern Himalayan region, however tapping into this opportunity requires a **concerted shift towards a nature-positive policy that unites climate and environment, agricultural and business policies for a coherent strategic path forward.**

The natural capital value of this new rewilding economy can provide universal basic assets coverage (healthcare, education, renewable energy access)to over 6 million households across the Eastern Himalayas.

Cross-border Stratification for Ecology & Agroforestry

Today the world is more intertwined than it was ever before and requires joint and coordinated action at all levels to commit to enhance ecology in economy. The world must make a path from reality (the broken world) to the horizon (the vast potential of our immense natural capital and a post-scarcity natural capital economy). These decisions must happen now, as the next 10-20 years will be decisive in terms of climate action and mitigating ecological degradation, having reduced the natural capital by about 40% in the last 25 years alone.

Stabilizing temperatures through emissions reduction towards net zero by 2050 is a global, interactive system linked to industries and use of energy, transport, land: managing these systems collaboratively will play a big role in lowering greenhouse gas emissions. Restoring our natural capital must be a holistic, collaborative process bringing together perspectives across the disciplines to visualize a sustainable future. Only cross-disciplinary and cross-sectoral dialogue can help us learn and drive the large-scale action needed for landscape change.

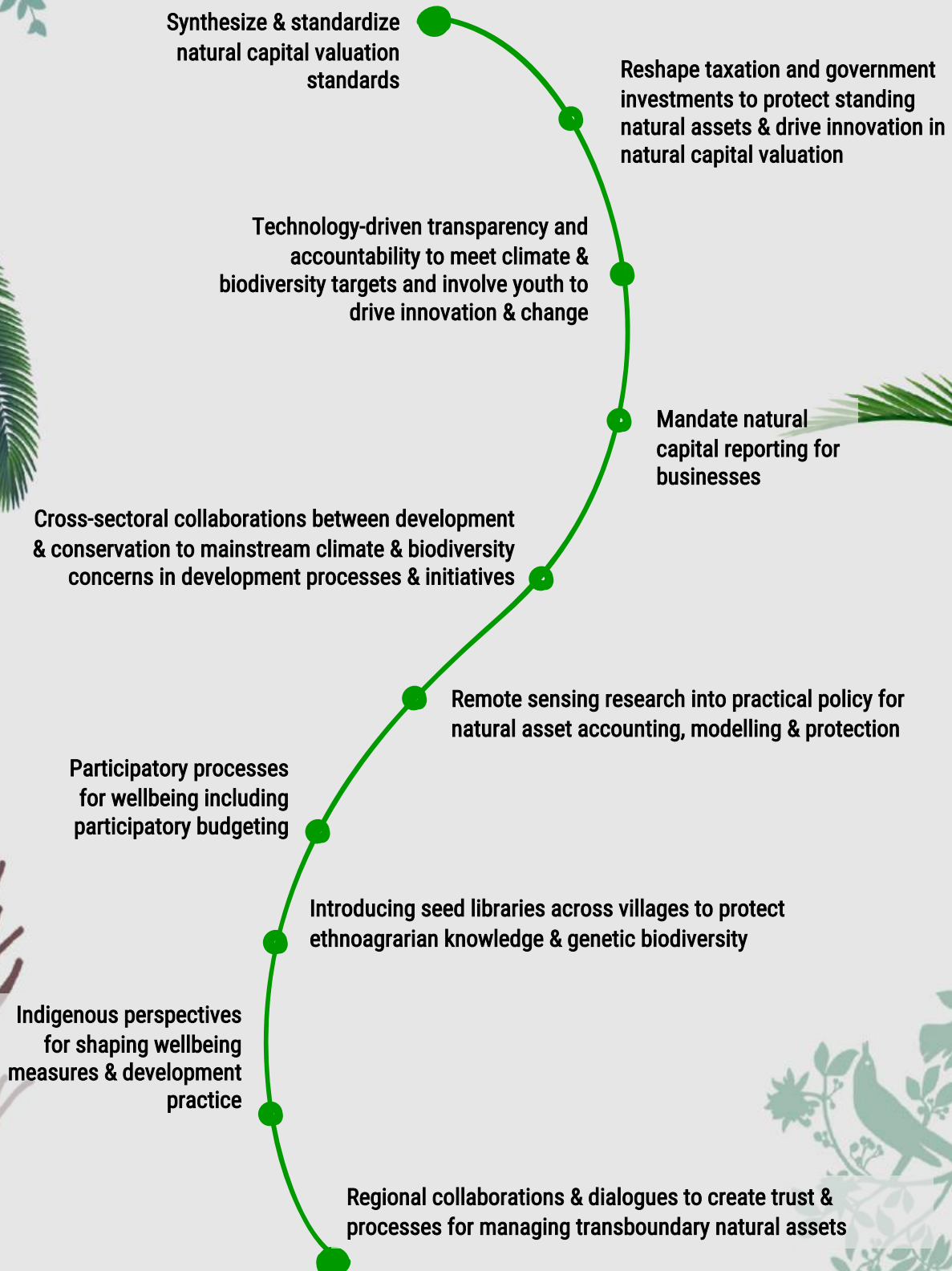
The Eastern Himalayan region consists of complex natural assets that spread across borders - rivers, mountain ecosystems, forests and more. Over the past few years, for example, flooding in Bangladesh and the increasing salinity of the mangroves of the Sundarbans has been linked to shifts and failures in river management upstream in India. The region is rapidly warming, threatening the rainfall and natural ecosystems on which its smallholder farmers depend, requiring new forest and land management practices at this ecological nerve-centre.

Industries and businesses need to collaborate with NGOs, researchers, civil society, to reshape their practices for people and planet. Natural asset diplomacy is urgently needed, for the region to collaboratively manage its natural assets, ensuring their health and minimizing harm to communities. Coordination is needed at a policy and diplomatic level, as well as knowledge sharing through indigenous collaborations for both responsive natural resource management strategies, as well as regional reconciliation.

The Opportunity

- By 2030, the Eastern Himalayan region can create 3 million jobs through rewilding and agroforestry across over 6 million hectares of land, if governments and business drive investments away from the destruction of nature towards its regeneration
- Collaborations and investing \$4.2 billion in rewilding the Eastern Himalayas will create over \$91.6 billion in natural capital over the next three decades, supporting the indigenous and forest-fringe communities

ROADMAP FOR THE FUTURE



THE EASTERN HIMALAYAN AGENDA 2022

By many measures of biodiversity, the Eastern Himalayan region stands out as being globally important. The Eastern Himalayan region consists of complex natural assets that spread across borders - rivers, mountain ecosystems, forests and more – and interlink in myriad ways, making governance a tough proposition. Over the past few years, for example, flooding in Bangladesh and the increasing salinity of the mangroves of the Sundarbans has been linked to shifts and failures in river management upstream in India.

Natural asset diplomacy is urgently needed, for the region to collaboratively manage these natural assets, ensuring their health and minimizing harm to communities impacted by changes to these natural assets. Coordination is needed at a policy and diplomatic level to achieve this collaboration, as well as knowledge sharing through indigenous collaborations - in a region as ethnically diverse, encouraging knowledge sharing and learning across ethnic lines could not only help develop stronger and responsive strategies for natural asset management, but also nurture tools for further cooperation and reconciliation.

On the frontlines of climate crisis in Bangladesh

Bangladesh is a country already on the frontlines of the climate crisis, experiencing growing salinity and water scarcity in coastal areas, more frequent and intense natural disasters, and erratic rainfall patterns. In 2020 alone, floods and cyclones displaced 4.4 million people across Bangladesh. The economic instability caused by increasing floods and cyclones is increasingly being linked to other social risks: healthcare issues & waterborne diseases, the loss of fertile land, risky & unsafe migration and human trafficking. Given that a quarter of the country's population lives in the coastal belt –a climate hotspot, reducing risk and building resilience is vital to the livelihoods of the thousands of lives.

It is key to work with indigenous communities and local government to introduce participatory methods of assessing vulnerability to climate change and disasters. Building on indigenous knowledge and local coping strategies, innovative climate-resilient solutions that are widely adaptable should be taken into consideration.

However, achieving these transformations at the pace and scale required will not be possible without the alignment and collaboration of all nations. Thus, Bangladesh calls for collaborative and coordinated actions to develop a global consortium that includes developed and developing countries. Coordinated actions would assist climate-vulnerable countries through innovative technology transfer, capacity building, and enhanced provision for accessing climate finance for adaptation and mitigation.

THE EASTERN HIMALAYAN AGENDA 2022

The challenges already facing Bangladesh will soon be the challenges facing the Eastern Himalayan region as a whole in the coming decade, as temperatures war and the monsoon grows increasingly erratic. Today, Bangladesh's leadership on the global stage as a champion of developing nations seeking climate and environmental justice offers key lessons for other Eastern Himalayan nations. Along with other vulnerable countries, Bangladesh is at the forefront of global ecological diplomacy and the push for creating interdependence between ecology & economy: leading the forty eight member nations of the V20 - Vulnerable 20 group – Bangladesh is cooperating to work through dialogue towards actively tackling global climate change, and the call is on rich nations to timely avert the global climate-COVID economic threat.

Bangladesh as the host for the 10th Forum will bring together experts and thought leaders from business, conservation, the civil service and academia to explore how Bangladesh and the Eastern Himalayas can make the most of this opportunity through dialogues on:

1. **Valuing Natural Assets** : Creating Ecological Budgets - Nature Capital Debt for Social Mobility
2. **Rewilding The Eastern Himalayas** : Building Resilient Landscapes from Snowline to Sealine
3. **Democratize Forest Management** : Enhancing Ownership of Indigenous Communities & Gender Inclusion
4. **Transparency**: Technology for Participatory Natural Asset Management
5. **Wellbeing**: Building Bridges between Development and Conservation for Human Resilience
6. **Transboundary Ecological Diplomacy** : Conservation for Action

THE INTERDEPENDENCE OF ECOLOGY & ECONOMY: TAKING ACTION

Global economic policy has always had a one-sided relationship with environment and biodiversity – and the fact that resources of nature are free has made it a soft target for rampant overuse, exploitation and mismanagement, often keeping nature capital out of the traditional models of valuation. This economic invisibility of nature as assets for short term financial gain has overwhelmingly led to a worldwide reduction in forest cover, degradation of land, hazardous levels of pollution and overexploitation of ecosystems. This is ultimately at a phenomenal economic and social cost to ourselves, where climate change is not a distant threat but a pressing reality that we must understand and act towards.

The resources of earth are finite physical reserves that underpin every economy. The traditional key drivers of economics - growth and expansion - need to come to terms with the fact that these resources are not bottomless and that the economy is essentially made up of nature capital - land, water, wind, sun, forests and agriculture, goods and services, sweat and toil. This is why the value of nature must be visible and at the core of an economy. We must understand the need for protection and conservation of biodiversity and to act in mitigation in order to power the global economy and sustain us all in the future. Businesses and governments are now realising this and are starting to act.

REFLECTIONS ON THE LIMITS TO GROWTH & VISION FOR ECOLOGY IS ECONOMY

Governments and businesses have been persuaded to finally value nature capital, more so due to rapid economic demand on energy systems. Sustainable transformations being the goal, 'Green Deals' such as the European Green Deal or the U.S Green New Deal aim to decarbonize their energy systems while investing in creating better innovation and jobs in the green economy.

Sustainable financing, or environment-friendly investment, has emerged to consider environmental, social and corporate governance (ESG) to 'generate long-term competitive financial returns and positive social impacts'. The UN COP26 aims to encourage countries affected by climate change to: protect and restore ecosystems, build defences, warning systems and resilient infrastructure and agriculture to avoid loss of homes, livelihoods and even lives'.

REFLECTIONS ON THE LIMITS TO GROWTH & VISION FOR ECOLOGY IS ECONOMY



Mukesh Ambani, Chairman and Managing Director, Reliance Industries Limited, India



"It is not enough to be carbon neutral; the world needs to achieve absolute reductions in emissions as soon as possible."

Balipara Foundation

In conversation with

- Hon. Shri Himanta Biswa Sarma – Chief Minister of Assam
- S. Ramadorai – Chairperson, Governing Board of TISS
- T.V. Narendran – Managing Director, Tata Steel
- Sanjiv Mehta – Chairman & Managing Director, Hindustan Unilever India
- Gretchen C. Daily – Co-Founder & Faculty Director, Natural Capital Project, Stanford University
- Nitin Paranjpe – COO Hindustan Unilever
- Ram Madhav – National General Secretary, Bharatiya Janata Party
- Paul Abraham – President, Hinduja Foundation
- Charles Mindenhall, Co-Founder, Blenheim Chalcot



With insights from

- N. Chandrasekaran – Chairperson, Tata Group
- Mukesh Ambani – Chairman & Managing Director, Reliance Industries Limited

<https://bit.ly/3G8Bbel>

REFLECTIONS ON THE LIMITS TO GROWTH & VISION FOR ECOLOGY IS ECONOMY

The economy of the Eastern Himalayas relies heavily on ecosystem services. According to the 2019 Forest Survey of India, 74% of net deforestation in India occurred in the North Eastern states alone. These shrinking forests have cascading effects on the regional landscape and economics. On an average, approximately 23% of the land in the region has been desertified. The full implication of our actions is apparent, that a shift in focus is now extremely crucial in this decade and the next at least.

Global economics needs to reboot green recovery. The Dasgupta report commissioned by the UK government and released this year recommends that by investing in nature-based solutions, addressing the systems of energy production, empowering sustainable green investments in economy, and with the transformation of financial institutions and with nature capital introduced into the national accounting system, can the transition be made, where the global economy pays its due to the ecosystem that sustains our very existence.

Challenges

- Existing patterns of consumption and production are completely unsustainable. Its effects on the lives of people and the planet has not been good.
- The Industrial Revolution has helped us harness energy but it has also led to population and development explosion. As a result, about 7 billion of people are in a quest to move from underdeveloped to developed and it has its consequences on the natural environment.
- Climate Change is not just an environmental issue but a bigger ethical, moral and economic issue. Climate Change is no more just about the rising temperatures but also about rapid biodiversity loss and the outbreak of COVID-19 is one example. .
- Existing global development paradigms are bound to affect us not just through economic channels but also through nature.\
- Carbon intensive development of developing world is one of the biggest challenges presently.
- Natural resources have a multifaceted impact on human well-being and local communities suffer the most on the account of biodiversity losses and consequential impacts

REFLECTIONS ON THE LIMITS TO GROWTH & VISION FOR ECOLOGY IS ECONOMY

Recommendations

- Promoting green valuation and a reward model with ecological parameters for a new age of development.
- Developing scientific, practical, localised and scalable framework will lead us to sustainable solutions.
- Leveraging Reforestation and Rewilding as a critical instrument to mitigate the issue of development and population induced changes.
- Capitalize on the momentum for mainstreaming innovation in advancing new science, universal language, approaches. And also integrate natures benefits and business operations.
- Building a circular economy where waste remains in the economy and is not discarded into the environment.
- Develop robust renewable Energy infrastructure.
- Promote the Public Private Partnership model

Critical Action for the Future



Reforming Valuation Systems

Incorporation of green valuation within the economic metrics & mandate Natural Capital Valuation for businesses to reconsider their sustainability commitments.



Asia Pacific Regional Union

To deal with environmental issues affecting Asian nations



Relink growth with positive environmental impacts

And delink from adverse environmental impacts



New Development Paradigm

Naturenomics can help us achieve the symbiosis between ecology and economy, to promote holistic rural community development and paths for carbon neutrality.



Technology, Innovation & Renewables

India's geographical advantage, makes it well-placed for alternative energy sources and making it a bulk of our energy consumption.

VALUATION OF NATURAL ASSETS: DESIGNING ECOLOGICAL BUDGETS FOR NATURAL CAPITAL ENHANCEMENT



Balipara Foundation

In conversation with

Paul Jepson, Nature Recovery Lead,
Ecosulis

Iris Visser, Nature Capital Analyst,
Nature Squared

Laveesh Bhandari, Indicus Foundation

<https://bit.ly/3ETYJlo>

Knowing the finite economic value of nature capital can make these invisible ecosystem resources visible and open to regulation of the conditions in which they are utilized. Accounting for nature capital in national budgets would determine the impact of human activity on nature. By analysis of nature as a financial asset, it could prove extremely valuable to see how the unregulated damage and destruction of natural assets is a depletion of our own resources of economy. With integration of nature into our national financial budgets, governments and businesses could be incentivized to protect and restore natural resources.

According to the Dasgupta Review, global economies have failed to manage the portfolio of natural assets and the need remains to transform our financial and educational systems to enable the standardised integration of nature capital into economic budgets and thus sustain them for future generations. The global financial system at play has been reluctant to support a sustainable relationship with natural assets and those smaller financial flows which are on the pathway to ecological stability, while other much bigger channels of financial systems continue to harm natural assets, the excesses of which are detrimental to our global economy and sustainable future. Enabling a change in this system will demand sustainable action and investment to transform our relationship with nature. The development and design of Ecological Budgets can help to achieve tangible impact, by focusing on dialogue and global economic accounts of nature capital and collaborating with economists and scientists around the world.

VALUATION OF NATURAL ASSETS: DESIGNING ECOLOGICAL BUDGETS FOR NATURAL CAPITAL ENHANCEMENT

Frameworks such as the Nature Capital Protocol have been designed to 'generate actionable information to help businesses measure and value their impacts and dependencies on natural capital', and developed jointly by the World Business Council for Sustainable Development, Conservation International, the International Union for Conservation of Nature and others, the Protocol already counts the support of 50 major international companies. Countries around the world are starting to look at sustainable financing or making environment-friendly investments, as adoption of Green Deals are being debated, developed nations pledge to reduce carbon emission by 2030. But materialisation and actionable ecological global business accounting is far from reality.

The adoption of new circular models placing ecology at the core of global economies, understanding the value of our standing natural assets focussing on future integrated regenerative models is where an integrated Ecological Budget would work in favour of the global economy.

One of the key challenges to the lack of natural capital valuation has been the lack of data and recognition of natural capital by the policy makers. The problem has often been aggravated by unsustainable development and business practices leading to resource degradation consequently affecting human well-being. Hence, it becomes critically urgent to value natural capital and create robust database with regards to the state of natural capital stocks. Technology and innovation can play an important role in facilitating this process and would lead to a more eco-sensitive approach to development.

Challenges

- We have already crossed four ecological boundaries with growing loss of biodiversity and effects of climate change.
- Data is a key barrier in dealing with natural cap valuation.
- Underperformance of all stakeholders with regards to biodiversity conservation and climate change mitigation.
- There is a lack of capacity and structural deficiency which creates roadblocks in sustainable development.
- There is a lack of recognition of value of NC in the government decision making. These decisions are not only concerned with environment but also equity

VALUATION OF NATURAL ASSETS: DESIGNING ECOLOGICAL BUDGETS FOR NATURAL CAPITAL ENHANCEMENT

Recommendations

- Increased participation by civil society at all levels with both business and government
- Mainstreaming Natural Capital Valuation at policy level
- Collaborations between people, government and businesses
- Move towards nature positive action across all sectors.
- Promote innovation funding
- Improvement and innovation in Spatial Intelligence

Critical Action



Capacity Building for Civil Society

Civil society needs to increase its capacity and be an active consultant in the govt. decision making and to have a dialogue with businesses before the capital is invested and review the cause and effects of these decisions.



Government investment in closing gaps

The government needs to play a role in changing the lack of structure, resources and capacity for natural capital valuation, particularly through promoting high level prizes & grant schemes for innovation



Reporting systems for businesses

Clean report by businesses on their action on the environment and their impact on the environment, technology in bringing about innovations to business as usual.



Storified value of natural capital

Materialise the storified value of natural capital to investors and to companies so that they are encouraged to incorporate innovation for better natural capital management

INTERLINKAGES BETWEEN NATURAL ASSET REGENERATING ECONOMIES & HUMAN WELLBEING



Balipara Foundation

In conversation with

- Richard Hawkes – CEO, British Asian Trust
- Julie Stein – Co-Founder & Executive Director, Wildlife Friendly Network
- Pianporn Deetes – Regional Campaigns & Communications Director, International Rivers
- Amanda Janoo – Knowledge & Policy Lead, Wellbeing Economy Alliance

<https://bit.ly/3JC8Mzf>

Ancient civilisations worldwide have been deeply intertwined with nature. Indigenous traditions and cultural practices are often rooted in ecological practices that are prevalent even today. In the long road to the present world economy however, these conventional ethos and ecology-friendly practices have been cast aside to make way for industrial growth, expansion and profit and with this, our understanding of human well-being has evolved as we witness the impact of human activity on the ecosystems across the world. Climate change bears testimony to the adverse effects and consequences of the rampant devaluation of our natural assets.

In 2020, there was a survey that illustrated that over half of the world believes that capitalism is doing more harm than good. In India that is actually up around 74 %. People recognize that there is a problem with our current economic system. Nearly 3/4th of people want their national economic priorities to move beyond profit and growth to really prioritize the well being of people and ecological protection. There is a shift from not just recognizing a problem to seeing the solution.

Challenges

- Human related social issues such as education, child protection, livelihoods, mental health are going to be affected by climate change and conservation issues
- Indigenous communities are facing a threat because of expanding development activities
- GDP based economic growth only incentivizes big businesses and corporations

INTERLINKAGES BETWEEN NATURAL ASSET REGENERATING ECONOMIES & HUMAN WELLBEING

Critical Action Points



Participatory wellbeing processes

Providing spaces through citizens assemblies and communities discussions performs participatory budgeting



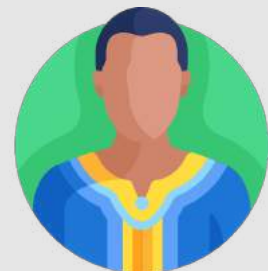
Science based targets

Science based targets for nature conservation which can also act as initial guidance for businesses to understand their dependency on biodiversity



Cross-sectoral collaborations between the development & conservation sector

Mainstreaming climate across all development policy and practice, development non-profits need to take integrated approaches to include climate and conservation practices to meet future challenges and needs



Incorporate indigenous perspectives on wellbeing

Learning from initiatives like the Salween Peace Park where indigenous Karen perspectives on wellbeing guide the framework for grassroots conservation and development

RINGSIDE REFLECTIONS ON THE GLASGOW CLIMATE PACT



Balipara Foundation

In conversation with

Rituraj Phukan – Founder,
Indigenous People's Climate
Justice Forum India

<https://bit.ly/3zp3Adp>

The Glasgow Climate Pact is amongst the first to explicitly recognize the role that forests play in sequestering carbon, and the power of indigenous communities to manage the world's biodiversity and by extension, its carbon-sequestering natural systems.

The Glasgow Leaders Pledge on Forests and Land Use explicitly recognized the role of indigenous communities in managing forests, calling for support for smallholders, Indigenous Peoples, and local communities, who depend on forests for their livelihoods and have a key role in their stewardship. The Global Forest Finance Pledge, signed by countries like the UK, USA, Canada, Germany and the EU pledged to mobilize \$12 billion between 2021-2025 for forest protection & restoration finance explicitly putting indigenous communities first to ensure the benefits of restoration and protection reach them. A further pledge by a conglomeration of countries and major philanthropic foundation's such as Jeff Bezos' Earth Fund, the Ford Foundation and the William & Flora Hewlett Foundation will mobilize \$1.6 billion specifically to support the tenure rights of indigenous & local communities and their forest guardianship.

Critical Action

- Glasgow pact recognised the important role of civil society including the youth especially from the indigenous communities in addressing and highlighting the need for urgent climate action.
- Governments also recognised the global interlinked crisis of climate change and biodiversity loss and the role of nature based solutions and ecosystem based approaches in delivering climate change adaptation and mitigation.

REWILDING THE FUTURE: TAKING ACTION

The new economics of growth talks about all sorts of capital; namely, physical and human capital, natural capital and social capital. This is one such approach to understand the economics of growth.

The understanding of what the natural capital means is clearly the fact that the natural capital produced by the forests and other natural resources is been used in a sustainable way. Most importantly there are value of services that the nature produces and there has now been an intergovernmental stance on biodiversity and ecosystem services, called the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

This year, for the first time in June, there was meeting between IPCC and IPBES to address the issues on environment and biodiversity. In all the major conferences the topic of biodiversity is in the limelight and has also been focused upon in COP15 and Biodiversity COP26 on Climate. Similarly, many major stakeholders are giving an enormous importance on biodiversity and climate change and initiating workshops on natural capital accounting. Today, all the discourse now is coming to practice thereby integrating environment to finance.

LEADERSHIP ADDRESS



Balipara Foundation

In conversation with

Lord Nicholas Stern – Chairman,
Grantham Research Institute on
Climate Change & the
Environment, LSE

<https://bit.ly/32ESRQd>

There is a burgeoning carbon market story arising from the fact that many private sector firms have committed to net zero. These firms are looking at buying offset in the voluntary carbon market. The quality of buying the offset is not only mitigating the carbon usage but also buying something associated to the environment.

LEADERSHIP ADDRESS

In this case, the Eastern Himalayas lies at the center stage when it comes to the abundance and richness as well as the influence of the resources. This can be associated to that of a movement going in a positive direction. Much of the focus nowadays, is been on the dimensions of biodiversity and climate change thereby involving major International Players. With coming up of private firms, a major carbon market has grown the world over.

Opportunities

The global market will benefit from this transition to a carbon market where there will be major international stakeholders involved. Similarly, companies are focusing on a carbon neutral environment and formulating ESG guidelines to achieve their targets.

Challenges

The challenge lies in the fact that to evaluate a natural capital valuation, proper methodologies are not available, and it is essential for companies and organisations to come up with some standardised guidelines to measure that aspect.

Critical Action



Standardization of valuations

Natural capital has to be integrated into the new economy, combining all three aspects of natural capital: the value of raw material, value addition and ecosystems services

A VISION FOR ECOLOGY IS ECONOMY



In conversation with

- Sunil D'Souza, Managing Director & CEO, Tata Consumers Products Limited, India
- Vivek Pathak, Director & Global Head – Climate Business, International Finance Corporation, Hong Kong
- N. Ganapathy Subramaniam, Chief Operating Officer & Executive Director, Tata Consultancy Services, India
- Désirée Driesenaar, External Expert at Blue Economy with European Commission, Netherlands
- Sanjiv Puri, Chairman & Managing Director, ITC, India

<https://bit.ly/3EWvOgG>

Without ecology there is no resource and without resource there is no economy. More than 92 percent of every product and service other than space offering is linked with ecology in some way or the other. Keeping this into consideration, a focus on the Global Economic Outlook on the valuation of natural assets is the need of the hour.

Many disruptions have taken place across the globe and some has created a huge impact on the humanity and some has made a positive impact on the ecology and the environment. The consumers are now becoming more conscious about the environment and the associated social consequences of the choices they make. They expect enterprises to sustainably conduct their businesses. Employees are looking at the companies working towards sustainability who has a forward-looking agenda. Investors are focusing on performance and resilience of companies that are purpose led in their pursuit of a balanced ESG strategies. Delivering the financial returns of the enterprises is only one dimension of the company's triple bottom line which encompasses consideration of people and planet in addition to achieving profits. From the industrial revolution, we have now reached a digital era now where every business is getting embedded into technology. But unfortunately, these activities are carbon and resource intensive thereby leading to pollution and hence needs to be addressed. It is essential for the technology to act as an enabler to tackle the prevailing issues. We need to be the guide and genesis for the next generation.

A VISION FOR ECOLOGY IS ECONOMY

Collective Decision Making- Integrating local Communities

Biodiversity and its impact on local communities is immense. We have all experienced the extreme weather events over time which have increased in frequency, intensity and the magnitude of damage and devastation it has caused. Floods, droughts, hurricanes, cyclones, extreme bush fires. Today, large forests that were carbon sinks, have become carbon emitters. The threat of global warming is very severe and is an existential crisis and we need to contain the temperature within 1.5 degrees. This trend of climate change is impacting the biodiversity adversely. This trend of climate change has led to the concept of sustainability and societal value creation to the center of many corporate strategies. It is the need of the hour for companies to become water positive, carbon positive and solid waste recycling positive for 14 years in a row.

Looking at Climate change as an opportunity

The WEF's recent global risk report highlighted climate change and human led environmental damage as key risks to be addressed on an urgent basis. The report warns that there is no vaccine against climate change and no one is immune to it. A further challenge is that climate change disproportionately affected developing and underdeveloped countries thereby worsening the developing and underdeveloped countries thereby worsening the existing inequalities and social fissures.

However, the good news is that around 90 percent of the countries are making net zero commitments. India announced to reach net zero emissions by 2070, China 2060 and Russia said that it would be carbon neutral by 2060. Investment communities also understands the immense opportunities in this transition. Over 130 trillion dollars under asset management has now made a commitment to be net zero.

Opportunities

- A trend towards natural capital accounting which helps address the foundational gap in accurately valuing our natural resources thereby intertwining economy and ecology that would help us make better policy decisions for natural resources and economic development
- adopting sustainable solutions by not only working towards a zero-carbon market but also adopting bio mimicry solutions to live sustainably

A VISION FOR ECOLOGY IS ECONOMY

Challenges

There is a time constraint involved with this. The destruction is done so much so that it can be seen the form of natural disasters. The major point of discussion is whether we have time to reverse the cycle of change. For this all the stakeholders involves as well as countries needs to come together which proves to be a major challenge because of the existing political reasons. We need to look at the natural capital as assets to economic development thereby improving the livelihoods of the community.

Critical Action



Better decision making processes for international forums

Reaching an agreement in decision-making forums like COP26 need a holistic analysis, stress testing assumptions and comparing the tradeoffs



Industrialism towards biomimicry

Bio mimicry solutions are nested interconnected solutions which are much easier to be implemented and would be without pollution and waste



Inclusive policy for ecology is economy

All policy makers and major players should be included so that a strong policy intertwining ecology and economy can be adopted from local to international levels

REWILDING FORESTRY: ENVIRONMENTAL INNOVATIONS FOR UNDERSTANDING CLIMATE CHANGE & BIODIVERSITY
IMPACTS



Balipara Foundation

In conversation with

Dr. Ruchika Singh, Director –
Sustainable Landscapes & Restoration,
WRI India

Ranjit Singh Gill, PCCF Meghalaya

Valter Ziantoni, Founder & Director,
PretaTerra

<https://bit.ly/34oNCoI>

As the world looks at multiple approaches to conservation that can propel green campaigns into fruition, the concept of 'rewilding' has emerged with an important role to play in the realisation of these goals. Rewilding forestry is regarded as a progressive approach to conservation. It is achieved through enabling natural processes to take over and shape land and water, to repair the extent of damage suffered by ecosystems and attempt to restore degraded landscapes. It is about letting natural systems and rhythms find their own course yet again, towards the creation of biodiverse habitats that present enormous potential to help mitigate the effects of climate change.

This is possibly the easiest way that nature can repair itself. Between 2019-20 alone, India incurred a loss of nearly 14 percent of its forest cover, amounting to 38.5 thousand hectares of tropical forest. As per the data from Global Forest Watch (GFW), India lost 17995.5 square km of tree cover with a 30 per cent decline in canopy cover in the last two decades. Northeast India, home of the Eastern Himalayas and renowned the world over as a biodiversity hotspot of the country, alone suffered the loss of 12,551.4 square km of tree cover, appearing to be severely impacted by deforestation and illegal logging activities in the last two decades. While many conservation practices and experiments have been deployed in the Eastern Himalayan region to mitigate the effects of deforestation and climate change, rewilding presents the unique opportunity for human-kind to oversee the process in which nature can be trusted to restore itself for its own survival and self-governance. While about 60% of the Indian economy is dependent on natural capital, building a naturally positive economy, especially in rural communities is something we must build on as well as consider the green employment opportunities of regenerating our ecosystems.

REWILDING FORESTRY: ENVIRONMENTAL INNOVATIONS FOR UNDERSTANDING CLIMATE CHANGE & BIODIVERSITY IMPACTS

Adopting and facilitating the process of rewilding means giving nature a helping hand - by creating the conditions for regrowth, identifying areas where verdant forests once existed, determining the factors by which these natural forests can regenerate and by reintroducing species that have declined due to the actions and exploitations of man. The restoration of degraded landscapes has a huge potential for sequestering carbon and can protect people too from the impacts of climate change, as forests absorb and store carbon as they grow and greatly reduce the risk of over-pollution, flooding and soil erosion. Researchers have found that the restoration of tropical rainforests tend to bring about the most carbon benefits. Reintroduction of key native species, controlling the means for its population enhancement and allowing for space to thrive can play an important ecological role to restore lost species, forest lands and reduce the subsequent impact on the climate landscape.

How do we get it right?

Rewilding nature is an alternative process to classical conservation approaches and an ecological restoration movement. While campaigns such as 'The Trillion Tree' aims to plant one trillion trees worldwide (as a continuation of the earlier Billion Tree campaign of the Green Belt Movement in Africa, 1977), trees should only be planted by man if natural regeneration is unlikely or may take too long, as stated by Rewilding Britain, an environmental non-profit. But the 'what, when, where and how' should be carefully assessed, and much of the onus depends on planting the right trees and key species in the right place for the growth of biodiversity. Here, rewilding differs from classical tree plantation - it is the process of letting nature heal by stopping human interference and encouraging the conditions for biodiversity to thrive, in areas which are primed and protected and by reintroducing keystone species and wildlife. Rewilding has the potential to be the global effort to replant our forests and restore the biodiversity of regions not being used by agriculture or human settlement, working to reverse the exponential loss of global biodiversity and the decline of native species.

Over the next decade, there is an urgent requirement to ensure a healthy and sustainable future by placing ecology and restoration opportunities on the global forefront. Achieving the 2030 net zero targets for the planet is possible through the principles of rewilding, reducing human control and letting nature take care of itself - but that is if everyone plays a part, from citizens and local communities to policy makers and businesses, and if we sense the opportunities for rural communities to restore forests and become forest and carbon managers.

REWILDING FORESTRY: ENVIRONMENTAL INNOVATIONS FOR UNDERSTANDING CLIMATE CHANGE & BIODIVERSITY IMPACTS

The Glasgow Climate Pact at COP26 is amongst the first to explicitly recognize the role that forests play in sequestering carbon, and the power of indigenous communities in managing its forests. The Glasgow Leaders Pledge on Forests and Land Use called for support for smallholders, Indigenous Peoples, and local communities, who depend on forests for their livelihoods and have a key role in their stewardship. The Global Forest Finance Pledge aims to mobilize \$12 billion between 2021-2025 for forest protection & restoration finance explicitly putting indigenous communities first to ensure the benefits of restoration and protection reach them. A further pledge by a conglomeration of countries and major philanthropic foundation's will mobilize \$1.6 billion specifically to support the tenure rights of indigenous & local communities and their forest guardianship.

India's silence on the global stage regarding its 2015 commitment at Paris to create an additional (cumulative) carbon sink of 2.5–3 GtCO₂e through additional forest and tree cover by 2030 bodes ill. India was one of the few countries, as well, that refused to sign the Glasgow Leaders Pledge on Forests and Land Use and while the Paris Agreement target still remains binding, the distinct silence over the country's forests raises worrying questions, particularly as India's Eastern Himalayas are a central deforestation hotspot today.

For the Eastern Himalayas these pledges and formal recognition present new opportunities for communities to access the financial and capacity support required to effectively steward their forests in a changing climate scenario. Declining forest area per 1000 in rural areas, in addition to rainfed agriculture, is one of the region's other big climate vulnerability factors. With over 65% forest cover and nearly a quarter of India's forest cover, as well as over 200 unique indigenous and ethnic communities, the financial support being mobilized under pledges made at COP26 can play a strong role in preserving these fragile and vulnerable carbon stocks.

Challenges

- Understanding structural inequalities, their intersection with land management strategies and their impact on communities
- Moving beyond binary approaches to forest conservation that put people and landscapes at odds with each other
- Formulating strategic agendas for forests involving all stakeholders impacted by habitat restoration

REWILDING FORESTRY: ENVIRONMENTAL INNOVATIONS FOR UNDERSTANDING CLIMATE CHANGE & BIODIVERSITY IMPACTS

Opportunities

- Nature-based solutions are important to consider if we have to meet the triple challenge of recovery of nature and keeping the world within 1.5 degree of warming as well as building resilience among the local communities
- The vast forests of the Eastern Himalayas combined with the cultural ethos of its people, linked to the preservation of its forests can make it a role model for the rest of the world
- Revitalizing rich natural capital resources will create equally proportionate increases in local livelihood opportunities, boosting local economies

Critical Action



Micro level planning

Involve communities in planning at the micro-level to make them full-fledged participants in the evolution of the new economic structure



Diversifying agroforestry approaches to work with nature

Agroforestry should take into consideration modularity, replicability, elasticity and several approaches thereby looking at a landscape impact which means looking at what nature has been doing since thousands of years



Landscape transformation through benefits assessment

Strategic approaches to landscape restoration that positions the economic benefits of ecosystem restoration through jobs & livelihoods

ENHANCING FARMLAND BIODIVERSITY THROUGH AGROFORESTRY IN THE EASTERN HIMALAYAS



Balipara Foundation

In conversation with

Mahan Chandra Borah – Founder,
Annapurna Seed Library

Paula Costa – Founder, CTO &
Operations Director, PretaTerra

<https://bit.ly/3qESHjG>

The Eastern Himalayas are a primarily agrarian economy, dominated by small and marginal farmers. However, the region is facing growing economic crisis for its farmers: an average farmer in India's Eastern Himalayas earns a fifth of their non-farmer counterparts. People are increasingly leaving farming in search of jobs in the non-farm sectors, but whether these sectors will be able to absorb and meet the rate of job requirements of the rural population that is switching to other professions remains uncertain.

Small and marginal farmers that are the backbone of the agro-industry operate on an average of less than two hectares of land. Recent pressing factors such as increase in cost of cultivation, inadequate irrigation, droughts, floods and crop failures exacerbated by climate change, as well as nation-wide lockdowns, are the causes of distress to the community resulting in unstable incomes and further debts. In this present agro-economic climate, more and more traditional farmers find themselves in extreme poverty and debt traps. It is essential more than ever before, to turn to practices of good farm management to alleviate the distress of the farming community at large and protect the viability of the traditional profession and its continuity. This is where conventional agricultural practices can look at 'agroforestry systems' which can be advantageous to increase productivity, socio-economic welfare, benefit the environmental and biodiversity and ensure a greater output of ecological goods and services.

Agroforestry has greater climate resilience compared to other forms of farming. Research by World Agroforestry found farmers adopting agroforestry in Odisha were able to break out of the cycle of migration, food and income security.

ENHANCING FARMLAND BIODIVERSITY THROUGH AGROFORESTRY IN THE EASTERN HIMALAYAS

Agroforestry can play important role in the restoration of biodiversity on farmlands. The interaction of plants species creates complex habitats that support a diverse variety of flora and fauna than the conventional agricultural systems and can fortify sustainable agriculture systems. Carbon sequestration is also an important impact of this system, reducing the pressure on forests and increasing carbon deposits and biomass in farmlands themselves.

But perhaps the biggest contribution of agroforestry can be to the mitigation of climate change and adaptability to meet the needs of the small and marginal farmers. In hillside systems of agriculture, such as in large tracts of the Eastern Himalayan region, agroforestry can help alleviate abandoned sites, transforming the problems of soil erosion and seasonal exposures by the plantation of nitrogen-fixating trees, thereby also increasing the nutrient value of the soil. These systems support other flora and fauna, and work to restore the forest ecosystem and tree foliage.

As some experiments of agroforestry (especially in central India) have proved successful, factors such as lack of awareness, lack of scientific research and technical management, unfamiliarity of alternative approaches have rendered agroforestry not as widespread and popular as could be. In order to alleviate the on-going crisis of farmers and citizens and the rate at which the biodiversity of the country is degrading to meet the economic pressures, support for approaches such as agroforestry can be scaled up and seen for the profit potential it presents, and the cycle of negative socio-economic consequence can be broken.

Challenges

- The global challenge of monocropping – adopted for ease of income generation, it has a negative impact on the soil health as dependency on chemical is high. Moreover, the genetic diversity of a region is lost because of monocropping. The loss of genetic diversity, traditional seeds and high inputs make farmers increasingly vulnerable and dependent on market forces. At times when the yield is not up to mark, they in turn go through tremendous losses.
- Loss of agrobiodiversity – threatening climate resilience, economic self-sufficiency of farmers and overall food security and sovereignty of regions
- Scaling investments and practices away from monocropping and towards the systems for creating biodiverse, restorative agricultural systems

ENHANCING FARMLAND BIODIVERSITY THROUGH AGROFORESTRY IN THE EASTERN HIMALAYAS

Opportunities

- Enhancing ecosystems services for greater resilience – agroforestry has greater carbon sequestration potential and coupled with trees with dense roots, will mitigate erosion and combat soil loss and soil depletion, while creating habitats for pollinator species
- Diversified & more robust income streams – through bulk production of cash crops along with food crops that provide nutritional security
- Minimization of farming costs – agroforestry requires less inputs, reducing the need of market to buy seeds, fertilizers and other inputs
- Rural employment opportunities & better livelihoods – restoring relationships people have with the land, with the crops, with the countryside, empowering them to work with biodiverse livelihoods and that farming can be a profitable occupation

Critical Action



Creating seed libraries

Across villages, to help in the collection, propagation and distribution of local varieties to the farmers to grow local crops with better ecological resilience and restore genetic diversity to food systems



Linking traditional & indigenous knowledge

Preserving ethnoagrarian knowledge of rural communities and incorporating it in agroforestry design to grow local food crops resilient to their agroclimactic conditions

GOVERNANCE & ADVOCACY TOWARDS STRENGTHENING TRANSBOUNDARY RIVERINE SECURITY IN THE EASTERN HIMALAYAS

In partnership with IUCN



Vishwaranjan Sinha – Programme Officer,
Water & Wetlands, IUCN Asia

In conversation with

- Soumya Dutta, Advisory Board member - UN Climate Technology Centre and Network
- Hasna Jasimuddin Moudud – Environmentalist & author
- Chanda Gurung – Senior Gender Specialist, ICIMOD
- James Frank Momin – Ranger, William Nagar Garo Hills

The Eastern Himalayas are a globally recognised biodiversity hotspot and also the source of many transboundary river systems, including the Ganges, Brahmaputra and Meghna (or GBM) rivers. These river system join in Bangladesh, just a few hundred kilometres upstream of the mouth of the Bay of Bengal.

The Eastern Himalayas and the rivers originating from the region sustain the life and livelihoods of over billion people, including more than 400 different indigenous groups, such as the Chakma, Garo, Khasi and Jaintia. About 80% of the basin population is employed in primary sector, particularly agriculture, forestry and fisheries.

However, a number of factors such as climate change, increasing population pressure and haphazard land use changes are contributing to the loss of natural infrastructure (forest and wetlands) and extinction of biodiversity. The region has lost nearly 10% of its forest cover, since the year 2000. Also, several socio-economic patterns are emerging, such as the shift from traditional conservation-based forestry practices to intensive forestry, and degradation of traditional knowledge systems and institutions of the local people with the changing lifestyle. These changes are compromising the ability of the Eastern Himalayas to provide ecosystem services in sustained manner, and also increasing the vulnerability of people and ecosystems to climate change.

These changes will not only impact countries sharing Eastern Himalayas, but also downstream countries like Bangladesh, which is drained by the rivers originating from the Eastern Himalayan landscape. Changes in the hydrological cycle may significantly change precipitation patterns leading to changes in river runoff and ultimately affecting hydrology and nutrient cycles along the river basins, including agricultural productivity and human wellbeing (ICIMOD).

Sustainable business investments, biodiversity protection & transboundary commitment to conservation practices can have far-reaching benefits towards mitigating the common risks and threats of the diminishing natural resource of the Eastern Himalayas.

GOVERNANCE & ADVOCACY TOWARDS STRENGTHENING

TRANSBOUNDARY RIVERINE SECURITY IN THE EASTERN HIMALAYAS

In Partnership with IUCN

Challenges

- Gendered control over water resources – men usually have access and control over natural resources thereby neglecting their female counterpart at all levels from access and control to decision making, creating more competition over access and control over this resource.
- Trust deficits between political boundaries between countries – making open communication critical to protecting transboundary assets like riverine systems difficult
- Rivers as living entities – communities along rivers have an intimate and complex relationships with them, made even more complex by multiple government systems making governance and conservation a complex phenomenon

Opportunities

- Community relationships with rivers & community-led initiatives – Natural resources are ultimately been managed by the community, their local knowledge plays a strong role in designing and implementing sustainable management of water
- The successes of the Teesta – extensive dialogue building between India and Bangladesh eliminated trust deficits between governments and communities, facilitating better conservation along this riverine system

Critical Action



Linking communities & decision-makers

Essential to link the communities dependent on the water flowing across a specific region and also linking them with the government authorities so that their problems can be addressed



Improve dialogue & discussions

For policy formulation as the problems faced by the communities can be addressed but also ease the geopolitical stance of the countries that are usually rigid



Collective conservation solutions

Community initiatives although are small, are impactful & can minimize gendered risks for water access & security

CROSS-BORDER INNOVATION FOR ECOLOGY & ECONOMY: TAKING ACTION

The different conservation and management interventions in the Eastern Himalayas date back to the 19th century with active exploration of the region and its potential by conservationists and researchers. Many of these approaches have constantly evolved to account for the changes in the landscape, the heightened economic pressure on the growing populations of the communities and their livelihood models and the various policy frameworks of the region.

As a key example towards the adoption of an alternative growth frameworks, Bhutan has lately achieved success by committing to protecting of forest and minimising the impact on natural ecosystems by opting for a low carbon growth policy, something that has also contributed to their holistic and first of its kind Gross National Happiness index that looks beyond the parameters of economic growth, towards overall ecosystem health. This is in stark contrast to trend patterns around other regions such as Myanmar and India. In Myanmar, clearing of forest land for roadways and entry of heavy logging industries has led to the demise of their forests with a systematic lack in land use planning. In India, the draft Environmental Impact Assessment notification in 2020 drew flak as among the major departures from existing regulations was the removal of several heavy industry activities from the purview of public consultation, and gave rise to apprehensions that such modernisation projects will seriously impact the environment even further.

The Indian government's 'Act East policy' to strengthen economic linkages and strategic cooperation with south-east Asia is where the Northeast region serves as a gateway, but evidence from the Compensatory Afforestation policy in the Northeast indicates that funds are being poorly utilised for restoration efforts on the ground. India, Myanmar and Nepal all have ambitious national targets within the Paris Agreement framework for both restoring forests and reducing emissions towards net zero. However the afforestation efforts by the governments simply place a lot of power in the hands of private players, especially in India, and restoration efforts have been sidelined to only be limited to monoculture plantations and recent lucrative promotion of oil palm and cash crop agriculture which do not account for the holistic development of the communities, biodiversity and wildlife within the ecosystem or adoption of sustainable, incentivised green models of businesses.

NEXT-GEN TECHNOLOGY

FOR REWILDING & MONITORING NATURAL ASSETS

In partnership with G-STIC



Balipara Foundation

In conversation with

- Steven Krekels – Unit Manager, VITO Remote Sensing, VITO
- Michael Anthony – Co-Founder, EarthAnalytics
- Bremley Lyngdoh – Founder & CEO, Worldview Impact Foundation

<https://bit.ly/3EOHJNv>

Since 2000, the Eastern Himalayan region has lost over 9.5% of its green cover – an area larger than that of Bhutan and the state of Sikkim put together. However, these figures, sourced from Global Forest Watch, do not capture the full complexity of the picture: the loss of primary, dense natural forests, the conversion of forests into plantation forests and the incursion of invasive species in natural forest areas. Together, these three factors have created a cascading series of effects: declining ecosystem health, declining soil health, rising desertification and the rapid depletion of water tables across the region.

Accurate data on the forests of the Eastern Himalayan region is limited if available. Data from official sources frequently understate the seriousness of forest loss, or the scale of degradation taking place across the region. The absence of this data occurs at two key points: forests lost to agriculture or other plantation activity, and forest loss due to other causes.

The ground reality and challenges of geo-political spaces can only be understood by integration and the right balance between local guidance, spatial and spectral observations, understanding and correct interpretation of the signals and the ground context of observational exercises. There is a need to combine and process the amount of information available through various sources into understandable and usable field representations that can be accessed by resource persons, policy and decision-makers as well.

Success models such as in Jharkhand and Telangana merged macro level socio-economic information towards investigations of illegal operations and projection of deforestation trends applied with local contexts. The Meghalaya case study also proves useful in its model of integrating mapping, ecosystem services, land, water, forest, and socio-cultural information into blockchain components towards nature-based global financial solutions.

NEXT-GEN TECHNOLOGY

FOR REWILDING & MONITORING NATURAL ASSETS

In partnership with G-STIC

There is a vast scope of integrating technological advancements with nature capital accounting, assisting communities and livelihood, monitoring and investigation of deforestation practices across the Eastern Himalayas, combining with commercial providers of satellite data, to provide practical and actionable solutions to policy-makers, instead of old-school passive monitoring days of the past.

Challenges

- Information sources can be challenging to combine and process into understandable and usable field representations, layers and resolutions.
- There is a need to further standardise the information sources so that the integration of different data sets is easier, such as setting a standard on complex biodiversity monitoring techniques.
- There is a need to find the right balance between local guidance, observations, understanding the signals and the ground context of the mapping exercises in small-sized agricultural areas such as India's Eastern Himalayas
- High quality local data and training is required, with satellite information and sufficient spectral information for a thorough analysis, for example, use of cloud penetration satellites such as Sentinel-1

Opportunities

- Predictive modelling is on the frontier of remote sensing technology innovation towards natural capital accounting, which may address the issues that policy-makers face, with clear directives on carbon credits and money flows.
- Heightened interest from the farming community, international organisations and government initiatives to understand and monitor regenerative agricultural practices, to stop degradation of soil which is extremely risky from a food security perspective, as non-regenerative practices such as stubble burning have an impact on the yield, the soil and the lives of the populations.
- High resolution advancements such as Copernicus System the of European Commission provide detailed information, analytics, learning techniques, for instance on 'Nature Map Earth', with classified prototypes.

NEXT-GEN TECHNOLOGY

FOR REWILDING & MONITORING NATURAL ASSETS

In partnership with G-STIC

Lessons from the ground

- **Myanmar** – By working with the government to transfer the land management and carbon rights to the communities, drafting of a new law for management of forests by the communities, and another new law by the ministry of environment and forest to protect the reforestation efforts, was progress achieved in the Mangrove forest areas. All of this was done by drone technology and high resolution mapping, 3D scanning to help communities map their ecosystem and train them on the ground to work on large scale restoration.
- **Jharkand** – Essential use of forensic tactics like optical index to map and apply algorithms for general mapping exercises, along with high resolution optical data available towards the investigation of illegal mining within its local context.
- **Telengana** – Macro-level merging of socio-economic information, such as infrastructure development/mineral mining/income level data, with remote-sensing sourced land cover information, saw the projected modelling trends forecast a decreasing forest area cover by 12%, in the case of 'deforestation-forecasting', applied with the appropriate contextual inputs.

Critical Action



Combining information streams

Information should be combined with bigger commercial providers of satellite data, to see combined resolutions and different spectral & spatial data representations for classifications, as well as drone missions



Translating academic research into practical policy

Through practical and structural guidelines such as strategic green deals, to factor in technologies like natural capital accounting, instead of passive monitoring by decision-makers



Accountability through technology

Empowering young people to monitor how developed countries are fulfilling their climate & biodiversity action pledges while compensating them for their accountability work

DESIGNING POLICIES & SUSTAINABILITY MODELS FOR REWILDING THE FUTURE OF THE EASTERN HIMALAYAS

Balipara Foundation

In conversation with

- Amb. Gautam Mukhopadhyay – Senior Visiting Fellow, Centre for Policy Research
- Usha Lachungpa – Retd. Principal Chief Research Officer, Sikkim State Forest Dept.
- Dr. Yogesh Gokhale, Senior Fellow and Area Convenor, Centre for Biodiversity and Ecosystem Services, TERI

<https://bit.ly/349zZce>

In order to build climate resilience in the Eastern Himalayas and to achieve net zero targets set by the constituting nations, the existing policies and frameworks of the region need to change, get updated and adhered to. What is of importance now is the need for an integrated policy approach where people, economy and the ecology that sustains and underpins all of this can be managed effectively towards a sustainable future. As the rest of the world recognises the central value of nature in the economic system, the Eastern Himalayan region too cannot afford to continue on outdated modes of development, without placing due priority on the importance of ecology-centric policies and framework.

There is a need for building climate resilience through frameworks that support environmental policies and integrate the livelihood of the communities that live within the region. Land use policy effectively needs to be integrated into the existing business structures and policies, in order to scientifically utilise the land, minimise deforestation, opt for sustainable forms such as agroforestry and restoration agriculture, where the economic pressures and needs of the people can be combined holistically over the growth paradigm. Management of existing forests of the Eastern Himalayan region must be done in partnership with indigenous communities as key stakeholders in order to drive rural employment through such restoration approaches. The opportunity that exists to do so is currently as high as 2.3 million hectares in the Eastern Himalayas. Indigenous communities as the stewards of this natural capital have the biggest stake in ensuring the region's natural capital survives and thrives. This can be ensured through intensifying policy and frameworks that measure and mitigate the environmental risks that the region currently faces, knowledge sharing and regional cooperation amongst the nations

DESIGNING POLICIES & SUSTAINABILITY MODELS FOR REWILDING THE FUTURE OF THE EASTERN HIMALAYAS

Development has become synonymous to positive impacts on human and environmental well-being. But in recent years, this assessment has been mooted as a misnomer by experts. One of the reasons behind this is the priorities during the process of policy design where economic growth is given more impetus. There has been a sectoral approach to creating impact on the lives of people which has not optimised the results in favour of the people. Environmental and socio-ecological policy making often takes a backseat during this process. This asymmetry calls for the need to design development policies and frameworks that are all encompassing, sustainable as well as inclusive. In the Indian context, the environmental policies are quite robust and the constitution also provides a dynamic framework for human and environmental welfare. But these policies hardly reach their real beneficiaries i.e. the people. The indigenous and forest dwelling communities are often left out further deepening the social divide. It is thus we should aim at creating sensitization through education, building effective policies keeping in mind all stakeholders, and promote participatory development led by government machineries/bodies.

Challenges

- The environmental laws and policies have not yet filtered down in the conscious to the state level and at the level of the people.
- States have not been able to translate the national level reforms to the local and make the stakeholders the real beneficiary of the entire process
- The main issue of Biodiversity conservation is that it doesn't trickle down to the grassroots as a policy matter.
- The GDP doesn't recognise importance of the forest dwelling population in the economy who are surviving on subsistence economy. They have great contribution to the economy and helping the state by nurturing and sustaining their livelihood without any help state of the state. They follow traditional ways of living.
- Political and economic cycles have become far too fast for the environment and need to be slowed down.

Recommendations

- Put the environment and climate change issues at the top of the development agenda as well as bilateral agendas

DESIGNING POLICIES & SUSTAINABILITY MODELS FOR REWILDING THE FUTURE OF THE EASTERN HIMALAYAS

Recommendations

- Translate our approach to natural resources and environmental management in a truly participatory mode. We have mechanisms and institutions but participation is absent
- Education regarding environmental issues of the state and not just the country.
- Active roles of Civil Society in reaching to the communities and promote environmental literacy.

Critical Action



Creating dialogues between education & policymaking systems

Put emphasis on creating dialogues between education systems and policy making systems for better flow of information – dynamism gets established for better environment management from local to national level.



Transparency to foster innovation

Transparency how works are carried out in order to encourage younger generations and help them build a better understanding of the environmental issues so that they can come up with innovative ideas



Mountain-specific policies

Policies should be tailored for the mountain specific regions especially the Eastern Himalayan region which has the highest seismic vulnerability and also considering the fact that the region is geo-politically located



Pragmatic, long-term, holistic targets

Move towards a holistic approach for better results. We can't go for a productivity approach by setting high targets and trying to achieve them in a very short time

ECOLOGICAL DIPLOMACY FOR CROSS-BORDER ADAPTATION

Rishabh Gulati – Managing Editor, NewsX

In conversation with

- Ranjit Barthakur – Founder, Balipara Foundation
- Prof. Jianchu Xu – Kunming Institute of Botany
- Amb. Shyam Saran – Former Foreign Secretary of India & Prime Minister's Special Envoy For Nuclear Affairs & Climate Change
- Amb. Tariq Ahmed Karim – Director, Centre for Bay of Bengal Studies
- Dr. Vibha Dhawan – Director General, TERI



<https://bit.ly/3eKV4vQ>

Historically, ecological diplomacy has centred around the use of shared ecological assets that extend across borders: forests, rivers and marine ecosystems. This includes the preservation and management of critical ecosystems, sustainable use agreements, negotiating the establishment of infrastructure across ecosystems which may have downstream effects (e.g. dams) and benefit-sharing of the natural capital generated by ecological assets between different countries.

Ecological diplomacy today is preoccupied with negotiations on international agreements for managing climate and biodiversity commitments. Since the 90s, these agreements have become the primary domain for driving international cooperation, with a mixed bag of successes and failures, with the most notable historic moment being the introduction of the Kyoto Protocol. As countries increasingly are pressured to ensure sustainability, both emissions and biodiversity commitments are being woven into trade agreements, linking both economic and ecological concerns.

Climate politics have historically been heavily dominated by developed markets and their economic and financial interests. Despite commitments on climate financing, nearly half of all climate financing for developing nations has been directed towards clean energy projects or decarbonizing transport. Only one-fifth of funding was directed towards adaptation measures, despite the burden of developing countries' climate spending lying in adapting to extreme weather and rising temperatures.

2020 & 2021 drove the urgency of the ecological crisis home. The next ten years will place ecological diplomacy front and center in the international landscape. However, a new global diplomatic balance is needed, to represent the needs of countries with large rural and agrarian populations and high climate and biodiversity adaptation costs.

ECOLOGICAL DIPLOMACY FOR CROSS-BORDER ADAPTATION

There is a clear need to diplomatically manage our borders across the Eastern Himalayas and drive towards the collective targets of net zero, and specifically address issues like land, water, forests, water-basin management, financial asset management of nature capital which is not bound by political boundaries, along with livelihood integration of communities and market value addition of ecosystem services. Forums such as COP 26 now set lesser and lesser ambition and diminishing expectations of compliance than to mitigate the catastrophes at hand. What is proven though is the value and voice of the younger generation that is now playing a larger role in mobilising global leadership towards saving the inherited future and be held responsible. As the ecosystems around the world will not be subservient to manmade laws and concepts, we must understand that our problems are not isolated and it is through regional cooperation and dialogue that ecological diplomacy must serve its purpose in the face of rapid climate change.

Challenges

- **Diplomatically managing boundaries to meet climate targets** – For ecological diplomacy between the nations of the Eastern Himalayas - India, Bhutan, China, Nepal, Bangladesh and Myanmar, there are three main issues - How can the collective targets of net zero across borders help towards ecological diplomacy in these countries? How would we manage our waters and the systems of monitoring and display of data? Third, the question of focus and delivery of reforestry.
- **Failures to address areas of critical interest & importance** - Water is an existential element in Bangladesh, a blessing or a curse depending on how it is managed. Types of water issues - managing river waters (agriculture, forestry, keeping or losing of land leading to populations displaced by climate change), underground water destruction and salinity and the Bay of Bengal oceanic sphere (where mangroves have shrunk in size due to human activity, non-indigenous commercial agriculture)
- The global pace and attitudinal change towards conservation of ecological systems has to be faster to make a difference in the face of the climate emergency
- **The perils of net zero thinking & limited ambitions** – Aftermath of Kyoto Protocol has resulted in years of diminishing ambition and expectations. The Rio Convention had tackled the problem on the basis of equity, but with COP26 - we have ended up with less ambition than before, not translating to mitigation but rather pacifying the problems at hand. Net Zero is a balance sheet concept, which does not end emissions but continues with fossil fuel as long as we are able to negate that with creation of carbon sinks.

ECOLOGICAL DIPLOMACY FOR CROSS-BORDER ADAPTATION

Opportunities

- **The ingenuity of Asian wisdom** – from headwater to downstream, water shed management, integration of land, ecosystems and humans: traditional land management practices and circular economy model can be scaled up, with a market value chain, sustainably produced goods and educated consumers who exercise social responsibility.
- **Young people mobilized for action** – reflected at COP26, younger generations are mobilized for saving their inherited future and it is through them that political forces today can be held accountable

Critical Action



Financial asset management of forests

Creating value out of ecosystem services through asset class management, using the language of capitalists such as raw materials, value additions, ecosystem services and preservation of biodiversity within a holistic model



Regional collaboration for rapid energy transition

Rapid transitions are needed from a pattern of growth based on fossil fuel to renewable sources of energy such as solar, and clean energy like nuclear or hydro-energy, through cooperation



Use public money to protect forests

Part of national taxes can be utilised by government policy towards maintenance of forests and ecosystem services, encouraging conservation agriculture such as agroforestry by the state



Accounting system reflecting ecological & future values

A system that values the future relatively more than the present, at a larger community or regional level, through intervention of the state, eliminating the adversarial relationship with nature, lead with ecological budgets, and economics of biodiversity and valuation

BALIPARA FOUNDATION AWARDS 2021

14 Recipients from 7 Eastern Himalayan States & 3 Countries



Rural Futures Rewilding Award

Ivan Zhimomi
Nagaland, India



Naturenomics™ Award

Kurule Tenupa Village
Nepal



Naturenomics™ Award

Sonam Tashi Gyaltzen
Sikkim, India



Food For The Future Award

Momee Pegu
Assam, India

BALIPARA FOUNDATION AWARDS 2021

14 Recipients from 7 Eastern Himalayan States & 3 Countries



Food For The Future Award
Gopal Nag
Assam, India



Young Naturalist Award
Lal Vohbika
Mizoram, India



Green Guru Award
Layland Marak
Meghalaya, India



Green Guru Award
Amir Xamja Xihad
Bangladesh

BALIPARA FOUNDATION AWARDS 2021

14 Recipients from 7 Eastern Himalayan States & 3 Countries



Forest Rangers & Guards Award
Kime Rambia
Arunachal Pradesh, India



Forest Rangers & Guards Award
Dorji Duba
Bhutan



**Special Recognition– Sustainable
Entrepreneurship Award**
Neeraj Mutha
Tripura, India



Lifetime Service Award
Dr. Prabin Saikia
Assam, India

BALIPARA FOUNDATION AWARDS 2021

14 Recipients from 7 Eastern Himalayan States & 3 Countries

This year, building on our extensive experience in rewilding forests in the North East in collaboration with indigenous and rural communities, and the catalytic platform of the Balipara Foundation Awards, the Foundation is launched its first **Rewilding the Eastern Himalayas Grant** to support indigenous people restoring forest landscapes across the Indian Eastern Himalayas. The 5 lakh grant supports people working towards implementing a conservation model that is helping to rebuild healthy ecosystems, restoring habitat for plants and wildlife and enhancing community engagement in the process – building field activities and enhancing their capacity to make their work more sustainable.

The grant recognizes that rural and indigenous people in the Eastern Himalayas are the ones best placed to protect its natural assets. Their traditional knowledge and their knowledge of the history of ecosystems are essential, for healthy and sustainable forest restoration. Their lands hold rich biodiversity, or link contiguously to biodiversity rich terrains. The immediate need for these communities is the financing and the technical support to be able to manage their landscapes, while sustainably benefiting from them – a gap that this grant seeks to plug.



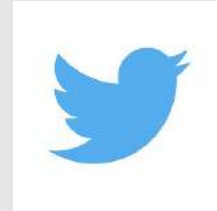
Rural Futures Rewilding Grant
Manjit Patir
Assam, India

DIGITAL PRESENCE

Social Media Handles



Total Reach – 38k
Total Impressions – 300k
Total Engagement - 2900



Total Impressions-1,77,300
Total Engagement-171



Total Reach – 104,306
Total Impressions – 129,000
Total Engagement- 1300



Total Impressions – 22k
Total Watch time – 94.9 Hours



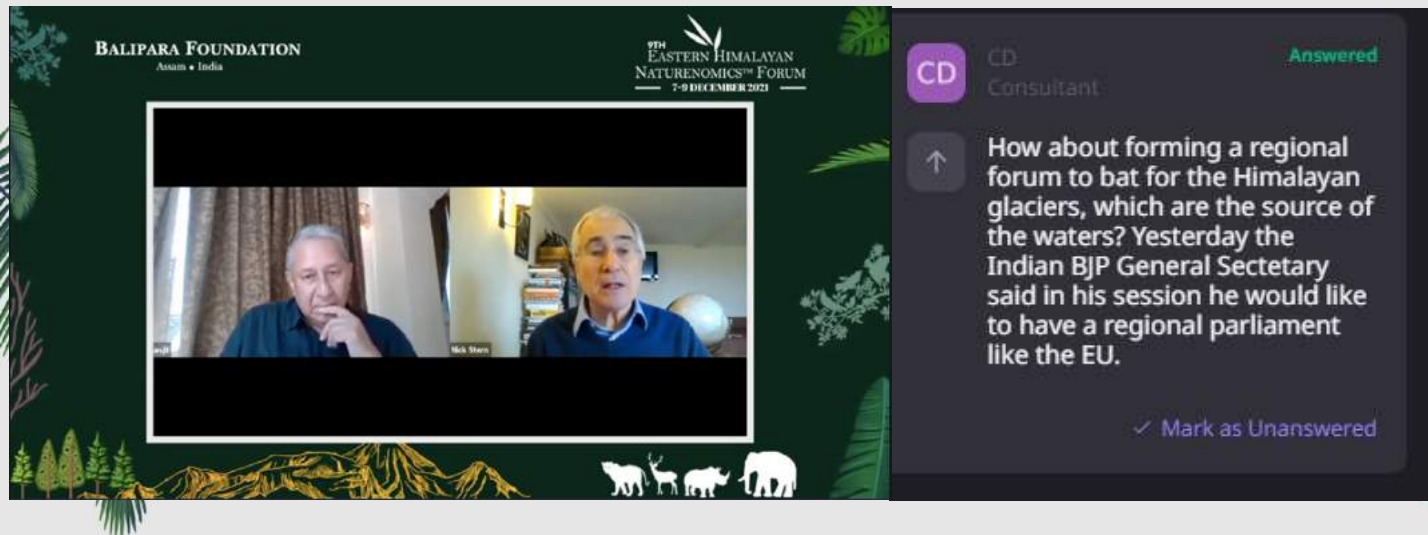
Total Subscribers – 2K



Total Impressions – 10K

DIGITAL PRESENCE

Streaming Platform – Airmeet



National Television – News X

12 Episodes | Ecology is Economy |
EHNF 2021 Curtain Raiser show



DIGITAL PRESENCE

Print Media

250 Media Features Nationally, NE region and neighbouring countries

Global experts share perspectives on restoring interdependence between ecology and economy at Eastern Himalayan Naturenomics Forum

SE Report

GANGTOK, December 8: The day-2 of the 9th edition of the Eastern Himalayan Naturenomics Forum, the flagship annual event of the Balipara Foundation, was inaugurated by Lord Nicholas Stern, renowned climate economist at the London School of Economics, with a talk on 'Rewilding the Future'. Lord Stern said, "The Eastern Himalayas are absolutely centre-stage in richness of its resources, in its influence of hundreds of millions, indeed billions, of people, around that region, in the world ecosystem and its political story, finding common ground around biodiversity."

Continuing with the theme 'A Vision for Ecology is Economy: The Global Economic Outlook', leading business figures and climate

experts shared their perspectives on pathways for restoring interdependence between ecology and economy, including Vivek Pathak, director and global head of Climate Business at the International Finance Corporation, the investment & financing wing of World Bank; N. G. Subramaniam, COO and executive director, TCS; Sunil D'Souza, MD and CEO Tata Consumer Products Limited; Desiree Dhesenar, external expert, Blue Economy, European Commission; and Sanjay Puri, chairman and MD, ITC.

"The challenge really is that we need to start valuing nature, and linking it to carbon markets," said Vivek Pathak, in conversation with Balipara Foundation founder Ranjit Barthakur. "The financial institutions have to understand the value, and the way to do

that is through reforestation or afforestation and getting carbon credits for that. For a country that has natural assets, we need to come up with a methodology on valuing these natural assets in the metrics."

Their comments were followed by an in-depth panel on 'Rewilding Forestry: Environmental Innovations for Understanding the Impacts of Climate Change & Biodiversity' moderated by the Balipara Foundation in conversation with Ruchika Singh, director, Sustainable Landscapes and Restoration, World Resources Institute-India; Valter Ziantoni, founder, CEO and chief strategist, PRETATERRA, and Ranjit Singh Gill, principal chief conservator of forests, Meghalaya State Forest department.

Building on the conversation around rewinding degraded lands, the dialogue

turned to the question of restoring farmlands in the session 'Enhancing Farmland Biodiversity through Agroforestry in the Eastern Himalayas'. The conversation explored the essential farm management practices needed to enhance biodiversity and soil fertility in farmlands for greater sustainability, with expert inputs from Paula Costa, founder, CTO and operations director, PRETATERRA, and from Mahan Chandra Borah, agro forestry expert with the Balipara Foundation and founder of the Annapurna Seed Library in Assam.

With the final session of the day 'Governance & Advocacy towards Strengthening Transboundary Riverine Security', the Balipara Foundation set the tone for broader policy and governance of natural assets in the Eastern

Himalayan region. Curated in partnership with IUCN Asia, the session was led by Vishwanarajan Sinha, programme officer, Water & Wetlands, IUCN, with expert contributions from Hasna Jasimuddin Moudud, IUCN regional councilor for South and East Asia; Soumya Dutta, advisory board member, UN Climate Technology Centre and Network; James Frank Momin, ranger with the Garo Hills forest department and Dr. Chanda Gurung, senior gender specialist, International Centre for Integrated Mountain Development, to discuss the policy, governance and advocacy needs for governing the region's riverine systems and broader landscape nature-based solutions to mitigate the common risks and threats facing rivers in the Eastern Himalayas, the release mentions.

National Television – News X

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EASTERN HIMALAYAN NATURENOMICS™ FORUM

— 12th - 14th December, 2022 —
Dhaka, Bangladesh



EASTERN HIMALAYAN NATURENOMICS™ FORUM

Understanding the need for exploring the ingredients of success in conservation and sustainable livelihoods, the Balipara Foundation launched the **Eastern Himalayan Naturenomics™ Forum** in 2013 to find solutions leading to important lessons for the communities and others, at all levels, from local to global.

Starting the dialogue with Asian Elephant conservation to exploring the crucial role of rural communities in the Eastern Himalayas and supporting rural economies and livelihoods, seven years (2013-2019) of Eastern Himalayan Naturenomics™ Forum has led to participation from over 20+ countries, 2000+ distinguished speakers and participants from multi-disciplinary fields and recognized 113 Balipara Foundation Awardees.

The Forum seeks to generate grassroots, actionable solutions to create Rural Futures across the Eastern Himalayas and empower local communities to be the stewards of their natural assets.

Over the years, it has emerged as an interdisciplinary platform bringing together communities, academicians, conservationists to foster knowledge sharing, for future collaborative efforts on community-led conservation.

With this vision and endeavor to bring together local stakeholders in communities, conservation and livelihoods to debate pressing issues and opportunities for action, **Regional Eastern Himalayan Naturenomics™ Forums** were launched in the year 2019, with successful deliberations held across India's Eastern Himalayas.

ABOUT THE FORUM

The platform is a space where voices and thoughts manifest in various forms – panel discussions, individual talks, Balipara Foundation Social Recognition Awards and cultural performances. Through Regional Eastern Himalayan Naturenomics™ Forums, the platform aims to bring together leading academics, communities, senior government officials and civil servants from every Eastern Himalayan country and the Northeastern States to create regional awareness on Habitat-mediated delivery of Universal Basic Assets and identify community stalwarts for its implementation



Amplifying Community
Voices



Community
Conservation Models



Solutions for Conservation
& Livelihoods



Partnerships for
Action

IMPACTS



100+
Community
Representatives



20+
Countries



2000+
Participants



100+
Discussion Topics



200+ projects
Through Earth Heroes



530+
Publications
Supported through
grant recipients



2000+ hectares
Forest land restored
through grant recipients



2800+
livelihoods
For grant recipients



Educational
Apps
Orchids of the
Eastern Himalayas



600+ species
Conserved through
Earth Heroes