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BUSINESS & BIODIVERSITY**

Secretariat of the Convention on Biological Diversity

SPECIAL FOCUS ON INDIA

**Business and
biodiversity in India**

**Biodiversity and
ecosystems services**

A BUSINESS CASE FOR INVESTMENT

**Establishing
Leaders for Nature**

**LAUNCHING A NATIONAL BUSINESS
AND BIODIVERSITY NETWORK**



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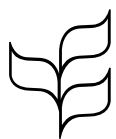
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Table of Contents



6 Business and biodiversity in India

by Hem Pande



8 Biodiversity and ecosystems services: A business case for investment

by Pavan Sukhdev



12



22



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- | | |
|---|--|
| <p>5 Preface: Synergies between business development and eco-friendly practices
by Braulio Ferreira de Souza Dias</p> <p>6 Business and biodiversity in India
by Hem Pande</p> <p>8 Biodiversity and ecosystem services: A business case for investment
by Pavan Sukhdev</p> <p>10 Leadership to achieve net positive gain for biodiversity
by Ravi Sharma</p> <p>12 Journeying towards green development
by Rashmi Gangwar</p> <p>14 A Gandhian bioeconomic strategy for India
by Dr. Paul Shrivastava</p> | <p>16 Establishing Leaders for Nature: Launching a leading national business and biodiversity network
by Daan Wensing</p> <p>19 Preserving biodiversity: An initiative by India Inc.
by CII-ITC Centre of Excellence for Sustainable Development</p> <p>21 IUCN addresses environmental concerns in port development
by Vipul Sharma & Meenakshi Datta Ghosh</p> <p>22 Reviving biodiversity through a government-business-community alliance
by ITC limited</p> <p>25 Conservation of Medicinal Plants to Enhance Biodiversity around Bunder
by Hishmi Jamil Husain</p> |
|---|--|



PREFACE

Synergies between business development and eco-friendly practices

by **Braulio Ferreira de Souza Dias** ●
Executive Secretary, Convention on Biological Diversity

Welcome to the Fall 2012 edition of *Business.2020* India. The very name evokes a whole series of impressions and ideas. India is the second largest country in the world, it has one of the largest economies in the world, and it is rapidly growing. It is also a country with a vast range of cultures and religions, and is one of the most bio-diverse regions on the planet. This is a country with incredible wealth, but also faces huge challenges to eradicate poverty. As such, development and growth is a major political issue for all stakeholders. But, as is so often the case, developmental and environmental concerns have been seen as being in conflict, with the environment often being on the losing side. However, there is another way.



As the articles in this edition will show, business development and eco-friendly practices can go hand in hand. In fact, with these type of good practices, companies can often be much more sustainable and profitable. This profitability stems from understanding the economic and social logic for undertaking these initiatives, as is outlined by several of the articles such as that by Pavan Sukhdev entitled "Biodiversity and ecosystem services - A business case for investment". These articles also speak to the journey of positive change that is afoot across the world, and how important these changes are for current and future generations. This change is being brought about by a coalescing body of knowledge, fueled by regional, national, and international initiatives, that is increasingly changing the course of industrial practices. There is an enormous body of evidence showcasing how these changes can result in increased profitability, reduced economic risk, and improvements in brand image. Several of the articles, such as that by The Confederation of Indian Industry (CII) entitled "Preserving biodiversity - An initiative by India Inc.", detail the accomplishments of Indian companies in this regard, and demonstrate that profitability and environmentally-conscious behaviour need not be mutually exclusive. Finally, there is very rarely one path to a desired outcome. As such, several articles such as that by Paul Shrivastava entitled "A Gandhian bioeconomic strategy for India" speak to the differing approaches to addressing the intersection between business and the conservation of biodiversity.

With the global population continuing to increase rapidly, and with many large countries (such as India) witnessing ongoing rapid economic development, there is a pressing need to address the resultant environmental collateral damage. This need is increasingly pressing in geographic areas of mega-biodiversity, again such as India. Currently, India is hosting COP 11 in the city of Hyderabad, and unsurprisingly their hosting of this meeting was the inspiration for the India focus of this edition. We hope you will make good use of this informative and that some of the ideas presented here will inspire your thinking both in India and around the world. ♡

Business and biodiversity in India

by **Hem Pande** • Joint Secretary to the Government of India, Ministry of Environment & Forests

All business depends on biodiversity and ecosystem services, directly or indirectly; most businesses also have impacts on nature, positive or negative. Some business like forestry, fishing, agriculture, ecotourism, and pharmaceuticals are direct dependants whereas there are sectors which have a direct impact on ecosystems and biodiversity through their operations, such as mining, construction, and energy. In countries like India, the lives and livelihoods of a large number of rural poor people is dependent on the sustainable use of biological resources. The business case for biodiversity management is strong and so are the challenges. This paper presents the Indian perspective on the subject.

The Parties to the Convention on Biological Diversity (CBD) have been exploring ways to enhance private-sector collaboration for achieving CBD goals. The eighth meeting of the Conference of the Parties (COP 8) in Brazil (2006) addressed this need and COP 9 in Germany (2008) invited Parties to promote public-private partnerships. In 2009, the Jakarta Charter on Business and Biodiversity was issued focusing on the sustainable use of biodiversity. At COP 10 in Japan (2010) a decision for the direct engagement with business sector was adopted to meet the Strategic Plan for Biodiversity 2011-2020. The COP 11 in Hyderabad (2012) will explore the ways of strengthening this engagement further.

Over the years, there has been a visible interest from the private sector in undertaking eco-friendly activities. However, awareness

regarding the economic benefits of engaging in conservation activities, or conversely how biodiversity degradation will affect them, has been rather limited. This scenario becomes more challenging in the context of both the global economic crisis and the difficulties in measuring the value of biodiversity loss.

A BIODIVERSITY-RICH COUNTRY

India is rich in biodiversity and associated traditional knowledge which has been gathered from times immemorial. With just 2.4% of the world's land area, 18% of the global human population as well as a large livestock population, India yet accounts for nearly 8% of all globally recorded species.

India has 10 bio-geographic zones and four global biodiversity hotspots. A quarter of India's forests are under Protected Area management, with a network of 668 reserves. The world's first nature reserve was set up by Emperor Ashok in 272 – 231 BC. Biodiversity conservation is ingrained in Indian ethos. India is one of the eight primary centres of origin of cultivated plants and an acknowledged centre of crop diversity, including about 375 closely related wild species of rice, several important pulses, millets, vegetables, fruits, and fibre plants. In addition, nearly 140 breeds of domesticated animals are also found here.

IMPORTANCE OF BIODIVERSITY CONSERVATION

For India, conservation of its biodiversity is crucial not only because it provides several goods and services necessary for human survival, but also because it is directly linked with providing livelihoods to and improving socio-economic conditions of over 300 million people, thereby contributing to sustainable development and poverty alleviation. The COP 11 in Hyderabad underlines the need to balance economic development, demographic pressures, and conservation needs. The conference logo—'*Parkruti Rakshati Rakshita*'—Nature Protects if She is Protected—aptly highlights this aspect.

BUSINESS AND BIODIVERSITY: INDIAN SCENARIO

The National Environment Policy (2006) emphasizes the importance of public-private partnership in environmental management. Recently, the Ministry of Environment and Forests (MoEF) has also drafted the guidelines for 'Institutionalizing Corporate Environmental Responsibility' with an aim to further streamline and strengthen environmental actions, going beyond legal compliance, by business organisations.

The Indian private sector has been advocating several environmental issues. The Confederation of Indian Industry (CII) has been actively engaged in promoting the 3Ps approach of "People, Profit and Planet". Recently, CII joined hands with the World Bank, the Global Tiger Initiative and the MoEF to protect natural habitats for wild tigers and conserve biodiversity. This initiative helps in flagging the concerns relating to tigers for "factoring" them in in-



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dustrial practices where tiger conservation is not the goal. One other example, also presented by the World Business Council for Sustainable Development in their recently published report (2012), is of the Reliance Industries Jamnagar oil refinery in Gujarat where they are working with local communities to enhance the biodiversity potential of the land. There are many similar examples. On the other hand, many businesses in sectors like hospitality and tourism, steel re-rolling, tea, railways, road transport etc. are adopting energy efficient practices which indirectly contribute to conservation.

The Ministry is working closely with other stakeholders to mainstream biodiversity concerns into major production sectors, thus helping to reduce the negative impacts of these sectors on the biodiversity-rich habitats. The Ministry is collaborating with the Global Environment Facility (GEF), the United Nations Development Programme, and the State Forest Department of Andhra Pradesh, in the East Godavari River Estuarine ecosystem. This initiative is engaging about 15 major production sectors including fisheries, aquaculture, salt pans, ports and shipping, and manufacturing units. Similar initiatives are also being undertaken in other parts of the country as well. This approach enables the Ministry to balance the intricate linkages between economic development, demographic pressures, and conservation needs.

The Ministry has been successful in promoting an eco-development approach in most of the Protected Areas and Nature Reserves in the

For India, the conservation of its biodiversity is crucial because it provides several goods and services necessary for human survival and is directly linked with providing livelihoods and improving socio-economic conditions of over 300 million people.

country. For example, through eco-development and local people's participation, the Periyar Foundation, a Government owned public trust, aims to facilitate and support the Periyar Tiger Reserve management in biodiversity conservation initiatives.

As part of GEF Small Grants Program India, small non-governmental organizations (NGO) and community-based organizations (CBO) receive up to USD 50,000 to implement environmental friendly projects, providing sustainable livelihoods. One such grant has allowed women's CBO (Jagriti) based in the Kullu district, Himachal Pradesh, in Northern India to evolve into a full-fledged enterprise with an annual income of Rs 27 lakhs (about USD 50,000). This 95 women self-help group is helping to conserve local medicinal and aromatic plants, collecting and producing mint, oregano, and wild rose-hip. Additionally, they are making a wide range of soaps (apricot, peach, seabuckthorn, parsley, oregano, turmeric, etc.) and organically producing cereals and pulses. Like Jagriti, many communities are adding value and using their biological resources intelligently. ❧



Biodiversity and ecosystem services: A business case for investment

by **Pavan Sukhdev** ● Founder-CEO, GIST Advisory

Businesses are intimately linked with Biodiversity and Ecosystem Services (BES) in two fundamental ways. Firstly, they impact ecosystems and services that the environment provides. And secondly, the survival of all businesses, irrespective of sector, depends on ecosystem services and biodiversity as inputs to production.¹ For example, the agribusiness and food sectors depend on services such as pollination and nutrient cycling, but in turn impact land and water resources. The cosmetics and pharmaceutical sector benefits from access to wild genetic resources, but in turn impacts these resources through over-exploitation.² The effect of businesses on such essential ecosystem services has, however, been largely neglected until now on account of ambiguous property rights, lack of

market prices, insufficient information, and high transaction costs, leading to negative externalities on society in general and local communities in particular. This situation is changing though.

As society becomes increasingly aware of the importance of BES and consequences of its associated decline, businesses are increasingly mindful of the fact that the likelihood of various risks such as operational (input scarcity, disruptions), regulatory (fines, permit denials, lawsuits), reputational (damage to brand), market (changing customer preferences) and financing (rigorous lending requirements) would increase significantly, with adverse effects on their businesses.² In such a scenario, companies that have reviewed their risks and dependence on BES would not only be able to mitigate those risks, but would be able to offer new products and services to their customers, thereby increasing shareholder value.

ARE BUSINESSES PREPARED?

Leading up to the CBD COP 11, a timely question to ponder is whether businesses are prepared for BES risks and opportunities? Following the interest generated by the international study on The Economics of Ecosystems and Biodiversity (TEEB),² various countries expressed their willingness to conduct national studies on BES. The initiatives would, however, need a greater involvement from the private sector to be effective. India, the venue for COP this year, has also committed to carry out a national-level study (along with Brazil in 2011) on understanding the value of biodiversity and ecosystem services. This is a step in the right direction considering that while awareness about environmental management in general among Indian businesses has increased in the last decade, the same cannot be necessarily said about BES.

In 2004, the government of Kerala suspended the permit of a Coca-Cola bottling plant due to its impact on local freshwater levels and quality.³ In 2010, a hydropower dam in Himachal Pradesh was shut down for 22 days due to heavy siltation caused as a consequence of deforestation and river alterations upstream. The shutdown cost to the company was estimated to be more than US\$ 40 million.⁴ While Coca-Cola neglected the regulatory risk, the hydropower company ignored its dependence on services such as water-flow regulation and erosion control provided by forests for ensuring continued electricity generation. While these cases highlight the need for businesses to review their risks and dependence on BES and take necessary measures for ensuring continued operations, one company, Syngenta, has demonstrated how early evaluation can transform risks into competitive advantage and opportunity for the private sector.

Syngenta, a leading company in the agricultural sector supplying seeds and crop protection products, conducted a review of BES risks and identified concerns among Indian farmers (Syngenta's customers) in relation to decline of essential ecosystem services for agriculture. As this indirectly affected Syngenta's business, the review helped the company develop responses against these concerns. In fact, Syngenta benefitted from opportunities that developed in the process in terms of selling additional products and services to the farmers.⁵

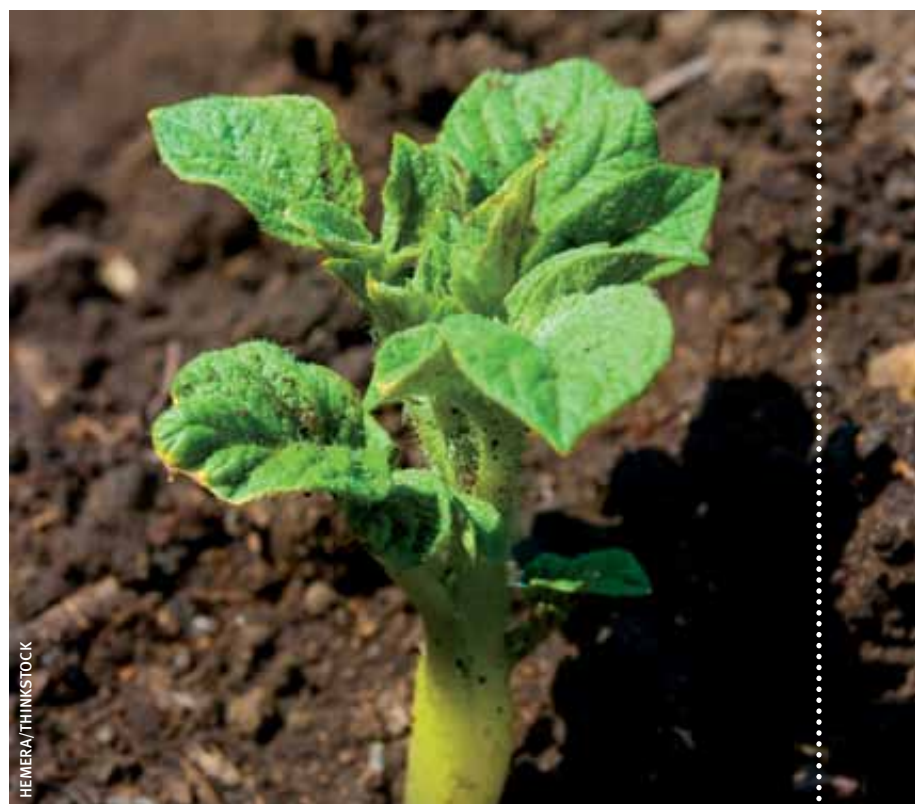
In spite of potential risks and opportunities for businesses, records and reporting on BES in India is unreliable and sketchy. While about 80 companies in India report on sustainability, information about their impacts on BES is generally lacking.⁶ Even those that

do report on BES generally ignore the indirect impacts across the value-chain. The environmental project appraisal process also pays little attention to impacts on BES.

While tools, methodologies, and frameworks have now matured enough to conduct a systematic review of BE,^{1 2 7 8} what is imminently needed is for businesses to take a proactive role by which BES risks are identified and mitigated, and opportunities are recognized and realized. Additionally, the government can influence consumer choice and producer behavior by regulations and incentives designed to assist in conserving BES. The COP 11 presents an opportunity for businesses and governments to come together and form partnerships in conserving BES.

Identification of BES risks and opportunities for businesses in India has an important role to play in ensuring that economic growth is achieved sustainably and not at the cost of environmental degradation. Endowed with lower natural capital as compared to its population (India has about 18% of the world's population but only about 2%, 4%, and 2% of global landmass, freshwater, and forest respectively), the review can help in the emergence of innovative and sustainable business models that can achieve economic development which is both socially equitable and ecologically sustainable. ❧

Identification of BES risks and opportunities for businesses in India has an important role to play in ensuring that economic growth is achieved sustainably and not at the cost of environmental degradation.



¹ Hanson, C., et al., *The corporate ecosystem services review*. Version 2.0. 2012, WBCSD, Meridian Institute and WRI.

² TEEB, *TEEB for Business*. 2010, The Economics of Ecosystems and Biodiversity (TEEB).

³ BBC, *Cola companies told to quit India*. 2005 [cited 2012 September 22]; Available from: http://news.bbc.co.uk/2/hi/south_asia/4192569.stm.

⁴ The Economic Times, *Nathpa Jhakri plant shut, disrupts power supply in North*. 2010 [cited 2012 22 September]; Available from: http://articles.economictimes.indiatimes.com/2010-07-27/news/27618084_1_power-supply-nathpa-jhakri-silt-content.

⁵ Ozment, S., *The corporate ecosystem services review case study: Syngenta*. 2012, WBCSD, Meridian Institute and WRI.

⁶ GlZ, Sustainability reporting. *Practices and trends in India 2012*. 2012, GlZ, GRI and Thought Arbitage.

⁷ Grigg, A., et al., *The Ecosystem Services Benchmark. A guidance document*. 2009, Fauna & Flora International, UNEP Finance Initiative and Fundacao Getulio Vargas.

⁸ WBCSD, *Guide to corporate ecosystem valuation. A framework for improving corporate decision-making*. 2011, WBCSD, ERM, IUCN and PwC.

Leadership to achieve net positive gain for biodiversity

by **Ravi Sharma** ● Principal Officer, Implementation, Technical Support and Outreach, Secretariat of the UN Convention on Biological Diversity, Montreal, Canada

India was a leading discussant at the Nagoya Biodiversity Summit held in 2010 which adopted 20 targets to be achieved by the year 2020. Among the targets the UN agreed to:

- at least halve and, where feasible, bring close to zero the rate of loss of natural habitats including forests;
- protect 17 per cent of terrestrial and inland water areas and 10 per cent of marine and coastal areas;
- restore at least 15% of degraded areas; and
- make special efforts to reduce the pressures faced by coral reefs.

India is currently viewing these global targets from a national perspective to include them in its national biodiversity strategy and action plan. Considering that India is hosting the current UN

biodiversity summit in Hyderabad in October 2012, there has been heightened public and official debate on this subject.

A major stakeholder in this debate will be the business community in India. Business activity is having a growing impact on land and water use, and as the economy continues to grow regulation is likely to expand. However, in the short term the regulations may be unable to catch up with this growth so as to minimize the adverse impacts of industry. As is the case in combatting climate change, the industries that are concerned about the issue (in this case biodiversity loss) must come forward and make their voices heard. Such a group can highlight and catalyze efforts to avoid, mitigate, and offset biodiversity losses, in that order.

This is based on the assumption that while preserving biodiversity is essential for the economy and continuing growth, it also has the potential to create further attractive business opportunities. For example, organic vegetables and fruits, certified timber, natural cosmetics, and eco-tourism are all growth markets.

Fortunately, business interest in biodiversity ranges from neutral to positive (in the case of climate change, the views tend to be more negative). A global survey conducted by McKinsey in 2010 showed that a majority of executives, 59%, view biodiversity as an opportunity for their companies. These executives identified a variety of potential benefits, such as bolstering corporate reputations with environmentally conscious stakeholders by acting to preserve biodiversity, and developing new products or ideas from renewable natural resources.

Reflecting this thinking, a few leading multinational companies, in various sectors, are taking steps to incorporate the value of biological diversity in their business operations and setting standards for the environmental performance of their products to minimize negative impacts. Unfortunately, these leading companies represent only a small minority.

The leadership represented by these firms is still quite rare in many of the countries that have the richest stores of biodiversity, including India. For example, very few Indian companies are known to have taken active steps to minimize their environmental footprints, particularly with respect to biodiversity. At the Hyderabad conference a significant number of foreign companies will participate as part of civil society. It will be incumbent upon the Indian business community to highlight their strategy for reversing their growing footprint on biodiversity.

In 2010, the Japanese association of business, Keidanren, played an important role at the Nagoya conference by announcing a dec-



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laration on biodiversity that was signed by their member companies. Previously, German companies, in association with their Government, launched an international initiative on business and biodiversity appropriately titled “Biodiversity In Good Company.” In 2006, when Brazil hosted the biodiversity conference a number of companies announced initiatives which have recently led to the formation of the National Brazilian Business and Biodiversity Initiative. At Hyderabad, Indian industry is preparing to launch a similar initiative in conjunction with the International Union for Conservation of Nature’s (IUCN) Leaders for Nature programme. It is hoped that this initiative will help to raise awareness about the importance of biodiversity throughout the business community in India and assist those companies that wish to mainstream the goals and objectives of the Convention.

Private companies, landowners, fishermen, and farmers have the biggest impact on biodiversity in the country. This is particularly important in such sectors as forestry, agriculture, fisheries, energy, transportation and urban planning. The industries related to the above-mentioned stakeholders can play an important role by formally recognizing the extent to which they actually rely on natural resources and how their work affects various ecosystems.

They can identify a mitigation hierarchy that promotes avoidance of negative impact, or, where this is not possible, examines mitigation alternatives in a logical sequence. Developers can commit to minimize and reduce impacts and then repair or restore adverse effects. Under some mitigation hierarchies, any significant residual effects after these steps have been taken can be addressed via ‘biodiversity offset’ and ‘additional conservation actions’ in order to

achieve a ‘no net loss’ or ‘net gain’ on biodiversity. If an offset is not possible, some other form of compensation may be implemented. This approach is at the cutting edge of efforts to mainstream biodiversity conservation into key economic sectors, and is an example of a best practice approach to manage impacts on biodiversity.

There are several international organizations which are able to guide and advise business on designing industry or company specific mitigation hierarchies as well as ways to monitor the impact. Most of these organizations are listed on the CBD website focusing on engagement with business (www.cbd.int./business)

In addition, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization was adopted in 2010 in Japan. This historic agreement creates a framework that balances access to genetic resources on the basis of prior informed consent and mutually agreed terms, with the fair and equitable sharing of benefits while taking into account the important role of traditional knowledge. The Protocol also proposes the creation of a global multilateral mechanism that will operate in trans-boundary areas or situations where prior informed consent cannot be obtained.

All these decisions together create an international level playing field for industry to incorporate biodiversity conservation into their business strategies without losing their competitive edge. However, to benefit from these decisions, the business community first needs to be aware of how their operations impact biodiversity. The next step would be to formulate strategies that lead to net positive gain for biodiversity, as part of their corporate social responsibility. ❖



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Journeying towards green development

by **Rashmi Gangwar** •

Programme Coordinator, Centre for Environment Education

India is one of the 17 mega-diversity countries in the world, and harbours 11% of world's plant diversity. Over 70% of the population depends directly or indirectly on biodiversity, particularly those living in rural areas. Traditionally, India's biodiversity has been exploited primarily for food, timber, medicine, NTFPs, livestock, and fish by the communities. Additionally, indigenous people have long been using biodiversity (particularly plants) for therapeutic purposes. In spite of this, the economic linkages of the biological wealth have yet to be well articulated in the public domain. As such, commercial exploitation generally occurs through government channels.

India was the first country to have the Biodiversity Act (2002) and to recognize the three goals of the Convention on Biological Diversity (CBD) — the conservation of biodiversity, encouraging its sustainable use, and making sure that the benefits arising from its use are equitably shared with the people who helped conserve the biological wealth in the first place. A three-tier structure is in place to manage the biological diversity in India - the National

Biodiversity Authority (established in 2003), State Biodiversity Boards (26 at present), and biodiversity management committees in many local bodies.

India is facing the huge challenge of balancing development and growth with the conservation of natural resources. The Indian Forest Act (1927, amended a number of times) allows businesses to use the biodiversity by paying compensation. Conversely, the Forests Rights Act (2006) advocates land rights and use rights of local communities as well as the right to protect and conserve their forests. Furthermore, the Green India Mission also recognizes increased forest based livelihoods for forest communities as one of the four objectives. Finally, the National Biodiversity Action Plan discusses the augmentation of natural resource bases and their sustainable use where the local needs should be given priority over commercial demands.

The business sector is one of the key stakeholders of biodiversity, as they rely heavily on plant and animal species as well as ecosystem services for their productivity. By being a major stakeholder, the business sector is equally obliged to contribute towards compensating for biodiversity loss. This cannot be simply the Business and Biodiversity Offset, but also a moral obligation to assure 'no

net losses'. However, the legal framework in India does not follow the 'no net loss' principle of Biodiversity Offsetting. This results in many instances of loss of old-growth, biodiversity-rich forests in lieu of afforestation programmes which often promote the mono-culture plantations of desired species.

Businesses can play a positive role in the conservation of biodiversity, and around the world companies are taking up the charge. Tata group companies are leading in the Indian corporate sector; for example, the partnership of Tata Steel and the IUCN at Dhamra port in Orissa for turtle conservation. Additional examples include: Tata Power's protecting the biodiversity of Northern Western Ghats at Mulshi, and the beautiful lakes and bird sanctuary at Tata Motors Pune. Indian companies need to recognize the value of these actions and align their global strategies to become 'green'.

India has put a lot of focus on sustainable utilization of biodiversity by promoting forest-based livelihoods that directly benefit the communities. The Green India Mission advocates for decentralized forest governance and supremacy of Gram Sabha (local governing body) and its committees. It also advocates involving stakeholders like NGOs, Youth, Colleges and schools, and the private sector, thus allowing community institutions a participative role in forest management.

We need programs/institutions that help businesses prepare Biodiversity Action Plans as part of their Corporate Conservation Programmes.

There is a need to spread awareness regarding the better use and management of biological resources among different stakeholders, including businesses. There have to be programs / institutions that help businesses prepare Biodiversity Action Plans as part of their Corporate Conservation Programmes (CCP). The community also identifies business as facilitators of conservation and acquires the capacity to monitor the business CCPs.

The Centre for Environment Education (CEE), India, is spearheading a number of efforts in this direction. In partnership with Uttarakhand State Medicinal Plant Board, the CEE is developing communication tools and strategies for different stakeholders to promote Sustainable Harvesting and Cultivation of Medicinal and Aromatic Plants as part of the UNDP-GOI project titled "Mainstreaming Conservation and Sustainable Use of Medicinal Plant Diversity in three Indian States". The tools are meant for communities, managers, and local business who wish to communicate the sustainable use of highly valued medicinal plants, some of which are flagship species and are under threat due to over exploitation. CEE has also facilitated the implementation of pilot projects that promote biodiversity use for enhancing livelihoods and business efforts through the UNDP GEF-Small Grant Programme (SGP) in the capacity of National Host Institution. 🐾



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A Gandhian bioeconomic strategy for India

by **Dr. Paul Shrivastava** • David O'Brien
Distinguished Professor of Sustainable Enterprise,
and Director, DO Centre for Sustainable Enterprise,
Concordia University

*“...the earth provides enough to satisfy every man's needs,
but not every man's greed.”* —Mahatma Gandhi

India's Biological Diversity Act of 2002 seeks to protect the biodiversity of the country from being exploited by foreign individuals and companies. It seeks to control commercial access to genetic resources and associated knowledge by foreigners. It seeks to ensure equitable sharing of these resources and knowledge among the people of India. Its main agency, the National Biodiversity Authority, has supported creation of State level Biodiversity Boards in 26 States, and around 32,887 Biodiversity Management Committees have been established.

This act and the National Biodiversity Authority are both important and laudable, but at the same time inadequate in preventing decline of biodiversity in India. Laudable because they make visible the huge challenges that India, a “mega biodiversity country”, faces. Laudable also for its foresight in protecting Indian interests and providing a governance infrastructure for biological resources.

But the law also risks being ineffective in protecting biodiversity because the main source of declining biodiversity in India is not foreign commercial exploitation. Instead it is the urban-centered industrial economic policies and the “industrialization” of agriculture. Both of which contribute to the heavy eco and bio footprint of the modern Indian economy. In the remainder of this essay, I briefly outline the biodiversity decline problem in India, its causes, and propose an economic approach that goes beyond the current biodiversity act.

India is home to over 45,000 plant species and over 89,000 species of animals, constituting 6.5% of all known wildlife. India is also home to two of the world's most threatened ‘hot spots’, the Eastern Himalayas and the Western Ghats. The list of threatened species now includes 10% of India's known wild flora and more of its wild fauna. Of the wild fauna, 80 species of mammals, 47 of birds, 15 of reptiles, three of amphibians and a large number of moths, butterflies and beetles are endangered. Out of 19 species of primates, 12 are endangered.

The causes of India's declining biodiversity are many. The first is population, at 1.21 billion people rising to 1.5 billion by 2030. Humans use 40% of the planet's annual net photosynthesis production. They impose a heavy toll on all other species, resulting in deprivation and loss of biodiversity.

The second cause is the urban centric economic industrialization of the past 50 years. It fosters the large-scale industrial use of land, extraction of natural resources, and industrial pollution of air, land, and rivers. It also fosters the movement of people and habitats, facilitating the invasion of non-native species.

The third cause is industrial agriculture replacing traditional distributed agriculture. This approach promotes the use of pesticides, fertilizers, monocropping, and related diversity-harming elements.

As such, in order to truly protect biodiversity, India needs to go beyond protecting it from foreigners (as the Biodiversity Act does) to adopting economic development strategies compatible with national biodiversity goals. It needs a bioeconomic strategy that can satisfy the needs of its people while not promoting industrial growth catering to the greed of the few. Biodiversity is particularly sensitive to the needs of poor people living close to the land and depending heavily on its seasonal bioproduction. In essence, poverty eradication and socially just and equitable distribution of



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economic wealth is itself a good biodiversity strategy. And this strategy offers particularly good opportunities for small businesses.

Fortunately, India has both indigenous concepts and cultural resources to architect an alternative economic approach to development. Mahatma Gandhi's concept of sustainable development was *Sarvodaya* through *Antyodaya*, i.e. the welfare of all by serving the last (weakest in society). Gandhian economics focused on the rural masses, the poorest of the poor. He advocated cooperation and collective endeavor as central to development. He favored the use of human scaled appropriate technologies as opposed to labor saving automation. He was adamant on providing equal rights and privileges for women and men. Such a distributed system of production would allow rural development, poverty eradication, increased employment, just and equitable development with a much smaller ecological footprint.

The Gandhian model was rejected at the time of India's independence. It was considered too utopian, against modernization,

even backward. Instead the country pursued aggressive urban centered industrialization.

Today India is in a different position. It has achieved formidable industrial strength and has created enormous wealth through industrialization. And it also has the benefit of new research provided by the Convention on Biological Diversity reports, and the fields of bioeconomics, ecological economics, and steady state economics. It is now time for considering a graceful withdrawal from rapacious industrialization strategies, in favor of inclusive and socially-just development consistent with the nation's biocapacities. Small and medium-sized businesses can play a vital role in such biocentric economic development. ❧

To truly protect biodiversity, India needs to go beyond protecting it from foreigners to adopting economic development strategies compatible with national biodiversity goals.



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Establishing Leaders for Nature

Launching a leading national business and biodiversity network

by **Daan Wensing** ● Managing Director, Leaders for Nature and **Meenakshi Datta Ghosh** ● Country Representative, IUCN in India

Over the past 50 years, humans have changed ecosystems more rapidly and intensively than in any other period in our history. Risking future economic development, much of our natural capital has been degraded or destroyed. To meet the challenges of conservation and sustainable development, the International Union for Conservation of Nature (IUCN) must motivate and facilitate enterprises' transition towards green economic growth.

In seeking solutions to future challenges, we must engage with business leaders both currently and predicted to be positioned at the helm of their respective industries. Their understanding of the impact of business on ecosystems, and on how this relates to

being a sustainable business, is the key to bringing about positive, large-scale change in the short, medium, and long term. As these leaders are or will be in positions of influence, they will be expected to lead by example and inspire their peers and followers.

HISTORY

Recognizing the need and potential of green growth, 'Leaders for Nature' was established by the IUCN National Committee of the Netherlands with the aim of moving ecosystem-thinking to the centre of business decision-making through present and future leaders.

Since its inception in 2005, IUCN's Leaders for Nature in the Netherlands has significantly contributed to awareness-raising and knowledge-building among participants. Over 1,000 people from over 50 companies have participated in Leaders for Nature activities, and new sustainability themes have been put on the

agenda like the promotion of cradle-to-cradle. Action plans have been developed and implemented, and biodiversity strategies were set up. A pertinent example is the Inspirational Programme on Ecosystems, a long-term programme where companies work together on concrete business and biodiversity projects in the Netherlands and abroad.

In June 2012, IUCN adopted a new Global Business and Biodiversity strategy endeavoring to encourage transformational and demonstrable change at the company and sectoral level. The Strategy focusses on how biodiversity is valued and managed by businesses for the purposes of ensuring conservation, restoration, and the equitable sharing of biodiversity-related benefits. The Strategy's main objective is that business practices at landscape and seascape levels are transformed to generate benefits for biodiversity and natural resource dependent livelihoods. In support of this strategy, IUCN's Leaders for Nature is expanding to other countries. The need for platforms supporting joint action on biodiversity by companies and NGOs is increasing, as is the willingness to collaborate from both sides.

BUSINESS AND BIODIVERSITY IN INDIA

The business community in India can play a leading role in addressing sustainability issues by championing change in pursuing new business opportunities and markets, develop new technologies and products, define new standards and practices, and establish effective partnerships.

LAUNCHING LEADERS FOR NATURE IN INDIA

IUCN, the Confederation of Indian Industries, the Wildlife Trust of India, and Hivos have signed a Memorandum of Understanding (MoU) to work together in establishing Leaders for Nature in India. The partners will work, under the guidance of IUCN, closely with Indian business leaders in developing the Indian Leaders for Nature programme. The programme will stimulate and facilitate sustainable environmental innovations and business practices, driving long-term change within major corporates with respect to sustainability leadership, biodiversity policy, and implementation of concrete biodiversity actions on the ground in India.

INTERNATIONAL CONTEXT

Leaders for Nature in India and in the Netherlands are part of the Convention on Biological Diversity's (CBD) Global Partnership on Business and Biodiversity. This puts both these initiatives in the forefront in their respective countries as leading platforms for companies and NGOs to work together in integrating biodiversity in core business processes and action on the ground. By doing so, IUCN and its partners will work to deliver on the CBD's Aichi targets and IUCN's Programme for 2013-2016. ❖

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Leaders for Nature' was established with the aim of moving ecosystem-thinking to the centre of business decision-making through present and future leaders.



Preserving biodiversity

An initiative by India Inc.

by CII-ITC Centre of Excellence
for Sustainable Development

Biodiversity and ecosystems play a key role in sustaining global civilization. Biodiversity and ecosystem services are natural assets important for future economic strategies seeking to promote growth and prosperity. Over the past half-century, human activities have caused an unprecedented decline in biological diversity. Species are going extinct a thousand times faster than their natural rate. A wide variety of environmental goods and services are under threat, causing profound and damaging consequences for ecosystems, economies, and livelihoods.

Economic development is essential to meeting human needs and eliminating global poverty. The sustainable use of natural resources is critical for the long-term success of development strategies. Traditional dependence on biodiversity resources for fodder, fuel wood, timber and minor forest produce has been an accepted way of life for the rural population that accounts for nearly 74 per cent of India's population. All businesses, irrespective of size, sector, and location, ultimately depend upon and influence biodiversity either directly or indirectly through their supply chains. Therefore, further loss of biodiversity could have substantial social and economic consequences as they result in the irrevocable damage and degradation of ecological services that people, societies, and businesses depend on. A 21st century challenge is to ensure that the conservation and the sustainable use of biodiversity becomes the basis for development policies, business decisions, and consumer choices.

The expectations a society has of its corporations and governments have increased in the wake of newer social and environmental risks of economic development. The business community is uniquely placed to contribute to the protection and enhancement of our environment. Businesses across the world should recognise the need to address the environmental and social impacts of their activities on biodiversity, and to integrate its facets into their core business strategies. Companies can make a meaningful contribution if they future proof against risks, identify opportunities, and partner to innovate & develop a resource efficient economy.

India's biggest business associations have taken the lead in engaging with the Indian industry on biodiversity issues. One of India's apex industry associations, Confederation of Indian Industry (CII), has taken leadership in developing understanding of biodiversity issues among Indian businesses and devising strategies, and approaches to combat its loss. Various activities of the Confederation including policy advocacy, advisory ser-

vices, events, reports and projects in the climate change area have helped create a momentum amongst Indian businesses to tackle the biodiversity concerns.

CII has established the CII-ITC Centre of Excellence for Sustainable Development and the CII-Sohrabji Godrej Green Business Centre in order to engage with the industry on sustainable development issues and these institutions have undertaken several such initiatives.

India's largest electricity utility company, NTPC, undertakes robust afforestation programmes covering vast tracts of land in and around its projects in a concerted bid to counter the growing ecological threat.

Tata Steel has extensive reclamation and afforestation programmes in place, which forms part of their endeavour to maintain bio-diversity, and initiatives are underway to improve and develop several areas through various protection measures. Similarly, Tata Power has developed stretches of forests and wetlands that attracted wildlife and over 100 species of migratory birds. The company also recreated the biodiversity of the Western Ghats on a 60-acre tract of land near the Walwhan Lake. Tata Chemicals is involved in efforts to preserve the biodiversity of land along the coastline and the nesting sites of migratory birds, as well as research endeavors concerning endangered species.

Companies at the vanguard no longer question how much it will cost to reduce biodiversity losses, but rather how much wealth they can make from it.

ITC, one of India's foremost private sector companies, ensures that none of their units/operations are located in a biodiversity sensitive zone. In the paperboards and paper domain, ITC minimizes the impact of its operations on the environment and biodiversity through sustainable growth strategies. It launched 'Social Forestry' in 2001-02, which covered 6,500 poor tribal families, converted 1730 hectares of private wastelands into productive farmlands, and planted 4.5 million saplings of different species.

ONGC, the leading central PSU, believes in and works towards expanding green cover, and maintaining biodiversity. ONGC has undertaken an ambitious programme of Mangrove conservation & educational-awareness. It has also undertaken tree plantation in operational as well as non-operational areas.

Similarly, SAIL, a public sector company and is the largest integrated iron and steel producer in India, is committed to its envi-

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ronment policy in which afforestation finds a predominant place. Extensive afforestation programmes are being followed in all plants and mines. As a result, a cumulative total of 16 million trees have been planted at SAIL plants and mines since inception. Over the years, great emphasis has been placed on the reclamation and rehabilitation of degraded mined areas, waste dumps, backfilled areas, and tailing ponds.

This clearly indicates a positive and proactive attitude among the Indian companies towards addressing the challenge. The biodiversity related disclosures in Sustainability Reports further show that businesses are willing to share information voluntarily with their stakeholders.

Companies at the vanguard no longer question how much it will cost to reduce biodiversity losses, but rather how much wealth they can make from it. These Indian businesses identify the risks associated with biodiversity loss and ecosystem degradation, and turn the perceived biodiversity risks into 'win-win' business cases for biodiversity i.e. mutually benefiting both business and natural environment in which it operates.

Having acknowledged the value of undertaking biodiversity conservation, businesses need to develop action plans to mainstream biodiversity conservation into their activities by adopting appropriate policy, management, and reporting measures. By doing this, companies can play a particularly important role in biodiversity conservation. The development and implementation of the company's biodiversity strategy may include adopting:

- Policy: companies should have a specific public statement on biodiversity; this statement should explicitly state the company's position on protected areas.
- Management: companies should integrate biodiversity within their environmental management systems, but at the same time should publish specific information about how biodiversity risks are relevant to their business and how these are being managed.
 - Conservation and management through Biodiversity offsets: Biodiversity offsets are conservation activities intended to compensate for the residual, unavoidable harm to biodiversity caused by economic development projects. The basic idea of biodiversity offsets is to extend the traditional mitigation hierarchy of avoid, reduce, rescue, and repair in an effort to achieve no net loss or a net positive impact on biodiversity. Such offsets are done voluntarily by companies. There are opportunities to develop biodiversity offsets as a commercial business, focusing on situations where there is significant unmet demand for offsets or where demand could be stimulated more easily.
- Reporting: companies should highlight their progress on biodiversity within their public reporting, and support this reporting progress through targets.
- Long-term risks: companies should work with industry-wide initiatives on biodiversity to identify and mitigate long-term risks for the sector; in particular, companies should assess and report their exposure to protected areas including IUCN categories I-IV (IUCN 1994). ❖

IUCN addresses environmental concerns in port development

by **Vipul Sharma & Meenakshi Datta Ghosh** ●

IUCN, International Union for Conservation of Nature

The Government of the Indian state of Odisha awarded a concession in 1999 to build and operate a major port on the eastern coast of India, in Dhamra, district Bhadrak, to Dhamra Port Company Limited (DPCL), a joint venture of TATA Steel and L&T. The port, located near Gahirmatha Beach, is one of the largest Olive Ridley turtle mass nesting rookeries in the world.

The Government of India granted environmental clearance for the port in the late 1990s. However, construction was delayed due to concerns that construction, and subsequent infrastructure and development activities, would adversely impact the turtles nesting in the area. To address these concerns, during 2006, Mr. Ratan Tata, Chairman TATA Sons, requested that the IUCN provide technical advice on mitigating the impacts of port development on turtles nesting in the area, and to examine the overall environmental feasibility of the proposed Dhamra Port.

A scoping mission was undertaken by the IUCN and Dr. Nicholas Pilcher, Co-Chair of the Species Survival Commission Marine Turtle Specialists Group. The IUCN organized a scoping mission to review potential impacts of the proposed Dhamra Port development. The scoping mission found that the environmental issues, such as dredging and lighting, facing the Dhamra Port were not unique and that there were a number of examples around the world where similar problems were effectively addressed. This formed the basis of the 2007 partnership between the IUCN and the DPCL.

Dredging, recognized as an early key threat to the marine turtles, was addressed first. The IUCN, with experts from the Species Survival Commission's Marine Turtle Specialist Group designed, and developed a dredging protocol to be followed during port operations. These included installing turtle deflectors on all dredger drag-heads to help ensure turtles were not pulled into the dredger. Trained observers were assigned to all dredgers to monitor this process. They would check screens on inflow and overflow pipes on a 24/7 basis. These measures (deflectors, screens, and human observers) combined to ensure that the dredging became "turtle-friendly". This was a first in the history of dredging activities in India. Lighting was the second major threat identified because excess sky glare is known to distract turtle hatchlings as they instinctively move towards brightly lit areas and away from the sea. Here again, the IUCN Commission experts provided specific guidelines for the port's lighting plan which was adopted by the port authorities. The IUCN further supported the DPCL in identifying the right design for these lights. Today the Dhamra Port is the first and only port in India to install "turtle friendly" lighting.

Apart from dredging and lighting issues, the IUCN also worked with the DPCL to substantively improve its environment policy. IUCN experts supported the DPCL in the development of a world class Environmental Management Plan. This document addresses the port's environmental impacts and provides operational strategies, mechanisms, and protocols for sustainable and environmentally sound practices.

Simultaneously, the IUCN and the DPCL worked to sensitize the local community about issues related to turtle conservation. For example, the IUCN undertook awareness-raising activities on the use of Turtle Excluder Devices (TED) for the trawlers operating in the area, alternative livelihoods, and a school programme to educate local students on turtle conservation. To promote, sustain, and support long-term species conservation, the DPCL agreed to establish a Turtle Conservation Trust to undertake tasks, activities, and programs conducive to the conservation of marine turtles.

These interventions put in place higher environmental and ecological standards in the operational management of Dhamra Port, and went on to significantly impact government policy. The Government of Odisha is considering inclusion of IUCN guidelines in the checklist for awarding environment clearance to any project on coastal development.

The Dhamra Port has become a successful example of the private sector working with a conservation organization to use good science and best practices. Through the examples cited in this piece, the IUCN has demonstrated that the detrimental effects of development on the environment can be addressed in a sustainable manner. These outcomes are modifying the perception of numerous conservationists and development practitioners across India. 🌱



DHAMRA PORT COMPANY LIMITED



GOODSHOOT/THINKSTOCK

Reviving biodiversity through a government-business-community alliance

by ITC limited

The Kalyanpura project area in drought-prone Rajasthan state was ideal for our watershed development initiative in several crucial ways: its topography is mainly undulating; the region receives an average rainfall of 700 mm but due to the absence of any water conservation measures and the undulating character of the landscape, runoff is high, resulting in very low recharge. The absence of irrigation facilities and recurring droughts had made farm-based livelihoods highly vulnerable and forced a large proportion of the area to remain fallow.

In this context, a collective initiative to regenerate the degraded commons and water conservation efforts was critical to sustain

livelihood opportunities and protect the natural biodiversity of the area. ITC Limited responded to the challenge by orchestrating a unique public-private-community partnership project (launched March 2007) and completed in March 2011 as scheduled. The project demonstrated a viable model for bringing various partners – the Government of Rajasthan, ITC Limited, and the Foundation for Ecological Security (FES) – to address key issues of natural resource management by treating 5,171 hectares in five Gram Panchayats, covering 19 villages.¹

TRANSFORMING LANDSCAPES

The project team was confronted with a daunting challenge when it began work in 2007. They faced a bleak and barren landscape with lands bereft of vegetation. Only 10% of the watershed area

¹ Gram Panchayats are local self-governance institutions that function at the village or small town levels. These government bodies were set up to reach last-mile communities.

was under tree cover and the situation so desperate that, contrary to local practice, villagers had even resorted to cutting whatever rootstock was left. The soil erosion rate was an alarming 11 tonnes per ha per year, leading to a complete loss of topsoil that had left the bedrock exposed. Only five water-bodies existed—woefully inadequate to meet the needs of even domestic use, leave alone agriculture and livestock.

In drought-prone rain-fed areas, an integrated watershed development approach is the only holistic response to strengthen livelihoods and ecological health. Accordingly, the Alliance's vision was to develop appropriate conservation and restoration strategies to nurture and sustain the integrity of the ecosystems by embracing production systems, ecological functions, and the human communities that depend upon them. This intervention called for a focus on three aspects:

- Eco-restoration by improving biomass cover through re-vegetation of common and private wastelands to maintain natural biodiversity and improve productivity of marginal lands.
- Assist village communities to conserve soil, water, and nutrients through appropriate soil and water conservation measures.
- Strengthen community-based governance of biomass and water resources through rules, regulations, and mechanisms evolved by community institutions at the grassroots level.
- Based on the analysis of land-use data, geo-hydrological studies, the slope and recharge potential using GIS, 14 different interventions were identified for the comprehensive development of the watershed area.

Within a quick span of four years, the project was able to accomplish the following to bring it to a successful closure:

- 1.55 lakh CMT of *in-situ* soil moisture conservation works like cattle prevention trenches, continuous contour trenches and drainage line treatment covering over 4,000 ha to prevent soil erosion and improve the moisture regime of the soil.
- 77 water-harvesting structures creating fresh water storage potential of 7.30 lakh CuM, to provide life-saving irrigation to 878 ha, in addition to playing a vital role in groundwater recharge, drinking water for livestock and domestic use.
- 1.85 lakh saplings planted on 1,141 ha in 17 common pastures for assisted natural regeneration.

REGENERATION OF COMMONS

While the improvement in the soil and moisture status was intrinsic to nurturing regeneration, the project's special emphasis on developing degraded commons deserves special mention. More than 1,000 ha were planted with native species and seeded with grasses. The saplings were developed in nurseries established by the project from seeds collected from the surrounding areas, thus ensuring the 'nativeness' of the species. Further, the protection of

these pastures was fundamental to the regeneration of the root stocks of native species.

The pastures too would have faced the same tragedy common to all commons but for a unique initiative of FES – social fencing through 17 'Pastureland Committees' formed for the purpose. These people's institutions formulated rules and regulations regarding the protection of the pastureland, including removal of encroachments, protection against grazing, illicit felling, lopping, pollarding of trees, fire, and diseases. To ensure that villagers adhered to these governance practices, the committees imposed fines on offenders found guilty of harming the pastures in any manner. They were also charged with the responsibility of life-saving watering during dry spells.

Such a command and control method would not have been as effective but for several enabling provisions built into the strategy:

- The buy-in of the villagers was largely ensured through benefit-sharing arrangements for the fodder produced in the plots that permitted them to cut and carry head-loads. Members of the committees without livestock were also allowed a share, but could only sell their share to the members within their own village – no market sales were permitted.
- In order to reduce pressure on forests and commons for fuelwood and fodder, boundary plantations of multi-purpose

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HEMERA/THINKSTOCK

A well-planned and holistic watershed development programme can also nurture and revive biodiversity.

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tree-species like *Prosopis*, *Acacia*, *Azadirachta indica*, etc., were promoted on agriculture lands.

- The demand for fuelwood was also offset through the promotion of bio-gas units for fuel and lighting. Well-off families with livestock were given technical support while poor families were provided with financial subsidies covering 60-70% of the total cost.

REVIVAL OF BIODIVERSITY

Soil and moisture conservation, drainage line treatment, and pastureland development, together have had a salutary impact on the efflorescence of biodiversity in the project area. In order to measure the impact of the project interventions, ecological surveys were carried out by FES 2007 to establish the baseline and in 2009–2010, covering different seasons. The land-use map of the watershed was divided into 30"x30" grids, resulting in 86 grids. The sampling methodology adopted ensured that utmost care was taken to consider variations in land-uses within a grid. This resulted in sampling 31 grids in the watershed for biodiversity.

FLORA

- The vegetation in the project area shows considerable improvement. Table 1 compares changes in floral biodiversity based on various parameters. It shows that in just three years there has been considerable change in species richness, density, diversity and regeneration. On the whole, post-intervention quantification inventories showed that among higher plants, 74 species belonging to 60 genera and 27 families were recorded, of which 24 were herbs, followed by grasses (21), shrubs (9), trees (7), and climbers (3).
- What is important to note is that plant diversity and density is higher *outside* the forest areas, clearly demonstrating the value of project interventions in the pasturelands of the Kalyanpura

watershed. Thus, pasturelands or common lands recorded the maximum richness of 54 species compared to other land use like agriculture or forests. Similarly, the regeneration and restoration of the pasturelands was higher than that of the forestlands. In the grasslands, among the 10 tree species recorded, mature trees comprised three species, while regeneration was represented by six species. In contrast, no mature trees were recorded in the forestland, while regeneration was represented by only two species of the eight tree species documented in this land use.

FAUNA

Unfortunately, the baseline data for faunal biodiversity was not collected except for birds, which showed a doubling in their species, from 40 to 86, including migratory birds. The survey recorded 13 butterfly species (being one of the main pollinators), while spiders (which are excellent biological controllers of insect pests) comprised two species. The herpetofauna (11 species), which also includes biological pest controllers, comprised three species of amphibians and eight species of reptiles. Birds, that include pollinators, seed dispersers, and biological pest controllers, were represented by 86 species. Fourteen species of mammals were found with five species of rats being the most dominant family.

An important conclusion to be drawn from this case study is that a well-planned and holistic watershed development programme can also nurture and revive biodiversity. Equally, the diversity of flora and fauna status is crucial in any natural and productive ecosystems as it provides many ecological services, thus strengthening watershed development. Though ecological restoration is a long-term process, the robust results of this intervention prove what is possible even in a short span of time if a combination of field-specific approaches are applied, and if on-the-ground action follows through in a rigorous fashion. ❧

TABLE 1: CHANGES IN THE STATUS OF KALYANPURA FLORAL BIODIVERSITY

Parameters	Unit	2007	2010
Cannopy Cover	Percent	10.00%	25.00%
Tree Density	No. of Trees / Ha.	105.00	480.00
Species Diversity (Trees)	Simpson's Index	0.28	1.91
Species Diversity (Shrub)	Simpson's Index	0.53	0.76
Species Diversity (Herb/Grass)	Simpson's Index	0.19	1.69
Species Richness (Trees)	No. of Species	17.00	27.00
Species Richness (Shrub/Climbers)	No. of Species	11.00	22.00
Species Richness (Herb/Grass)	No. of Species	45.00	45.00
Regeneration	No. of Sapling / Ha.	320.00	508.00



SYDNEY JAMES / DIGITAL VISION / THINKSTOCK

Conservation of medicinal plants to enhance biodiversity around Bunder

by **Hishmi Jamil Husain** ●

Rio Tinto Exploration India Private Limited

Rio Tinto's aim of finding and developing high value, long life, and low cost mineral resources is being increasingly challenged by changing societal expectations and a growing number of environmental issues such as climate change, water scarcity, and biodiversity. As the global population moves towards nine billion by 2050, competition for land-based resources is also growing, increasing the tension between mining and other land uses. Our approach to driving environmental performance across the Group is pro-active, risk-based, and leadership-driven, and supported by a number of policies, programs, standards, and targets. Our global environment policy, strategies, and standards spell out the performance expectations for all Rio Tinto managed sites, and are

supported by management systems, guidance notes, audits, and assurance processes.

Rio Tinto owns and manages more than 110 operations around the world, located in six geographical regions across seven different climate zones. At the end of 2011, our total operational land holding was approximately 43,500 km² – a land mass the size of the Netherlands – and included operations within or adjacent to protected areas, remote, sensitive, and wilderness areas; and, at sites containing large numbers of threatened and restricted-range species. Our businesses increasingly face issues pertaining to biodiversity that present risks and constraints – including species protection, accessing new land, securing and maintaining offsets, meeting the requirements of regulators and funders, and meeting the expectations of the conservation sector.

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In India, Rio Tinto's Bunder Diamond Project is situated within the Bakswaha protected forest area of Chattarpur District of Madhya Pradesh State, India. The project lies approximately 500 km south east of Delhi.

The economic value of the biodiversity-related components should be one of the attributes for prioritizing the conservation of biodiversity. In the context of the Bunder Project, the economic value of the surrounding forest is material for the local population. However, estimation of economic value of biodiversity is a difficult task. Further, estimation of the option value of a biodiversity component makes the estimation of economic value even more difficult.

In the area around the Bunder Project, trees that have a significant timber and fuel value have been removed at a greater rate than other species, an example being Teak (*Tectona grandis*). The most dominant tree species in some areas have disappeared while elsewhere these species survive but are predominately in the saplings or shrub stage of their life cycle. Bija (*Pterocarpus marsupium*), a tree of significant timber value, is relatively rare in the area. Bel (*Aegle marmelos*) was found, during survey, but has been heavily cut for fuel and charcoal production. The species still survives in some patches but is disappearing fast. Aonla (*Embllica officinalis*) is

another species that has almost disappeared from the area, mainly due to lopping for fruit collection.

A village area can be identified from a distance by the presence of large trees of Mahua (*Madhuca latifolia*) Photo 1. These trees are always left uncut during the forest clearance particularly around the settlement areas. The trees grow to large size. This is mainly because the tree has little use as timber or as fuel, but yields the flower used in making a local beverage and the fruit yields valuable edible oil (Photo 2).

The detailed biodiversity survey which benchmarked the condition of the forest and the socio-economic drivers of various impacting activities will form a part of the Project's biodiversity action plan. While the full plan is yet to be completed a number of possible initiatives have been identified, including;

- Establishing a repository of medicinal and other economically valuable plants
- Reforestation, including a range of medicinal plants that are clearly valued by the community
- The establishment of plantations that meet the timber and fuel needs of the local communities in order to protect and sustain the areas biodiversity while meeting the necessities of life.

There are a range of other issues impacting on the areas biodiversity which need further study and these will also be incorporated into the Bunder Biodiversity Action Plan. The early work at Bunder demonstrates the value of sound biodiversity principles that include understanding the local community's needs. This is an important component of earning and maintaining the social license to operate—and hence forms a key attribute of the business case for biodiversity conservation. ❧

Understanding local community needs is an important component of earning and maintaining the social license to operate—and hence forms a key attribute of the business case for biodiversity conservation.







Convention on
Biological Diversity



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