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PROFIT FOR GOOD

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Trends, Analysis Green Products, Green Books, Entrepreneurship

Purpose
To excite entrepreneurs, executives and graduate students about immense opportunities in green business.

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New Tech Promises to Enhance Biogas Production in India

Evonik, a German industrial group, one of the world's leading specialty chemicals companies, is introducing a new technology that promises to significantly increase the output of biogas plants in India. It's Indian arm **Evonik India Pvt. Ltd.** caters to markets in India, Bangladesh, Nepal and Sri Lanka. It covers four divisions – Nutrition & Care, Specialty Additives, Smart Materials and Performance Materials.

A company note said Evonik's **SEPURAN® Green** is a biogas upgrading technology that makes best use of high-performance polymer membranes. The polymer-based membrane solution aims specifically at oil and gas Industries. It turns organic waste into a green energy source like biofuel.

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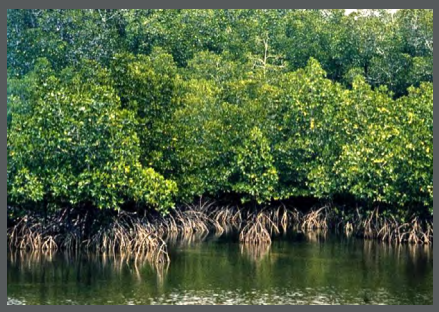

Godrej & Boyce, CII, WWF Launch India Mangroves Coalition

Aluminium Waste to Useful Briquettes

Sustainable Biogas Systems are regarded as a key step for promoting circular economy using municipal solid waste and industrial and agricultural waste management systems.

Cost of Technology

Sustainable technologies like SEPURAN® Green can play an integral role by supporting Indian investors and entrepreneurs looking to set up biogas plants with efficiency. They help produce high purity biomethane with superior methane recovery.

Total system cost for membrane based biogas purifications compromise various accessories including membranes, compressor, filters, among others. System integrators allow the CBG (Compressed Bio Gas) plant owners to build the plant. The payback period ranges between three and five years.

Market Size

The Indian government, under the SATAT (Sustainable Alternative towards Affordable Transportation) scheme, envisages setting up 5,000 CBG plants in over 10 years with a production target of 15 MMT. This is expected to create both greener fuels and new employment opportunities in rural belts.

Globally more than 600 plants have upgraded using SEPURAN Green membranes. Currently, in India, six biogas plants producing CBG will be using it as transportation fuels. The CBG production capacity of these plants is in the range of 5 to 20 TPD. The company is in talks with more than 20 companies for their CBG plant under the SATAT initiative.

CBG is considered to be a valuable component of India's future green mix. Under the SATAT scheme India envisages setting up of 5,000 CBG plants in the next 5 years with a production target of 15 million tones.

India is planning to allow opening of retail outlets for selling compressed biogas (CBG). CBG could supplement CNG for running vehicles. CBG is similar to CNG but offers better calorific value.

Both CNG and CBG are methane-based gases. While CNG, like gasoline, comes from under the ground, CBG comes from waste or other biological material on the ground is a CO2-neutral fuel. CBG can be made from rice stubbles and can help control air pollution, a big menace in both urban and rural India. CBG will also help increase incomes of farmers by lowering their fuel cost.

Godrej & Boyce, CII, WWF Launch India Mangroves Coalition

Godrej & Boyce, the flagship company of the **Godrej Group**, has announced the launch of the **India Mangroves Coalition**, in association with CII's Centre of Excellence for Sustainable Development (CII-CESD) and WWF India recently. The Mangroves Coalition is meant to strengthen the commitment of corporate India towards preserving vital coastal ecosystems.

This new initiative is expected to drive collaboration across CII member companies and help identify new solutions for mangrove management and conservation through research and innovation.

The India Mangroves Coalition is the first of its kind industry-led platform under CII's India Business & Biodiversity Initiative (IBBI), that will support and propagate greater mangrove conservation and plantation across India's vast coastline through a multi-stakeholder approach, based on its importance as a Blue Carbon system.

- The India Mangroves Coalition will act as a catalyst for actions towards greater mangrove conservation
- It will provide a platform to bring all stakeholders to nurture and protect these Blue Carbon ecosystems

Coastal forests like mangroves are emerging as a key solution to alleviate the problem of accelerating global warming and other adverse climate events like increased storm and cyclonic activity across the globe that are impacting lives and livelihoods. Dubbed "Blue Carbon" systems for their greater ability to absorb carbon, mangrove forests have been proven to not only store up to five times as much carbon as terrestrial forests, but also sequester or trap the carbon for much longer periods of time of up to thousands of years. Blue carbon systems like mangroves will have to play a bigger role in carbon absorption if the world must meet its goal to limit global warming to 1.5 degrees by 2050.

Dr. Ravi Singh, Director, WWF India, believes that the consortium will be an effective way to achieve larger objectives related to mitigating climate change.

The Coalition aims to bring the latest scientific and technological developments to the fore by engaging with experts from government, academia and other organisations focused on climate change to provide insights and help members adopt leading-edge techniques to further mangrove conservation.

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Godrej & Boyce said it has been a pioneer in balancing industrial growth alongside conservation of nature since 1940. The Soonabai Pirojsha Godrej Foundation was founded in 1985 to formalize efforts towards the conservation of a stretch of Mumbai's mangroves ecosystem from Vikhroli along the west bank of the Thane creek. The Soonabai Pirojsha Godrej Marine Ecology Centre was also founded in 1985 with eminent founder members like the late Dr. Salim Ali renowned ornithologist, A.K. Ganguly renowned botanist and Dr. Homi Bhabha renowned scientist to focus further efforts on conservation of the surrounding marine ecosystem under the mangrove cover.

The mangroves protected by G&B and the Godrej foundations are India's first ISO 14001 certified forest in 1997. This certification has ensured time bound, measurable performance indicators and targets for conservation initiatives. To ensure dedicated focus to the issues, Godrej & Boyce has established a dedicated **Wetlands Management Services (WMS)** organisation with skilled professionals and has been undertaking significant conservation and renewal initiatives with a three-pronged strategy of promoting academic research, driving conservation and building awareness about the importance of these Blue Carbon systems.

Dr. Ravi Singh, Director, WWF India

Working with multiple stakeholders the WMS team has engaged with almost 60,000 individuals living in coastal areas in the last six years through on-site and off-site **programs using a dedicated mangroves mobile app**, online webinars, story books, poster exhibitions and has released a mangrove quiz in Marathi on **www.mangroves.godrej.com** in its efforts to increase awareness through outreach in regional languages.

The Soonabai Pirojsha Godrej Foundation has also planned and implemented additional mangrove plantation of approximately 80 acres at its southern border for the Municipal Corporation of Greater Mumbai. This was the first of its kind successful public-private partnership for large-scale mangrove plantation in India.

Mangroves Sequester 4 Times More Carbon

Mangroves are the only "triple win" solution: they protect humans from natural calamities, can sequester four times more carbon than rainforests, and sustain the livelihoods of artisanal fishing communities. Mangroves also break down complex pollutants into nutrients and use these for their growth thereby reducing pollution levels. Their dense root network act as natural filters for chemical pollutants to reduce water pollution.

Mangroves are one of only three marine ecosystems—alongside saltmarsh and seagrass—currently recognized by the Intergovernmental Panel on Climate Change as methodologies that can make measurable contributions to help a country reduce its emissions. In total around 33 billion tonnes of carbon dioxide (about three-quarters of the world's emissions in 2019) are locked away in the planet's blue-carbon sinks. Mangrove ecosystems are currently being lost at estimated rates of about 0.6 percent per year, down from previous loss rates of around 1 to 2 percent per year.

Aluminium Waste to Useful Briquettes

In just over three years of inception in 2017 the **Runaya Group** has become one of the fastest growing start-ups to convert waste from aluminium plants into useful products for refining steel in India.

India's aluminium production currently is around 4 million tons, which means around 60,000 tons of aluminium dross (waste) is generated annually. Considering the global scenario, the market size for aluminium dross processing is around 1,000,000 tons, with a CAGR of 6%. This essentially means half a million tons of dross goes into landfills annually, which is what Runaya is striving to eliminate.

The Runaya Group is run by next-generation entrepreneurs from the Vedanta Group. They are out to disrupt the linear economy model currently existing in the resources industry and usher in a circular economy model.

Says **Annanya Agarwal, Co-Founder and CEO, Runaya**, "One of our foremost objectives is eliminating landfills caused due to dumping of mineral waste, which is a real threat to our natural ecosystem. Processing metal from ore generates worthless by-products, such as dross, scrap, etc., and globally around 174 billion tons of mineral waste is generated every year. It is worth noting that currently just about 40% of the waste is processed, which means that a whopping 100 billion ton of mineral waste is dumped in landfills every year!"

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Annanya Agarwal, Co-Founder and CEO, Runaya

He adds, "It is imperative to move away from this linear economy model currently existing in the industry. Runaya is aiming to disrupt this to a circular economy model, with a focus on sustainable solutions. We need to find ways and means to maximize productivity in the resources sector and increase recovery of metal through efficient waste processing, thereby reducing the burden ending up at landfills. Runaya is using green technology to convert waste into value added products, thereby converting 'waste to wealth', with zero-waste and zero-discharge."

Currently Runaya is operating in Vedanta's aluminium facility at Jharsuguda, Odisha, 100% of aluminium dross is processed into value-add products. Runaya has implemented an innovative and sustainable model to eliminate waste and recover metal through a patented cutting-edge technology – a 3-stage process (hot processing, cold processing, and slag conditioning) to process the mining waste and maximize metal recovery. "Through this technology, which ensures 100% utilization of waste, we are striving to disrupt the resources industry – currently even the best practices in the industry can only process 50% of waste," Ms Agarwal wrote in a note sent to SustainabilityNext.

Highlights

- Enhanced recovery of aluminium from the dross to the extent of 90% of the available metal
- Utilizing existing energy in freshly skimmed dross leads to significant savings in energy consumption
- Environmental and people safety due to avoidance of direct disposal of dross in landfills
- Depleted dross is used to manufacture value added products for the steel industry, which reduce carbon footprint of steel manufacturing
- Created energy savings to the tune of 800,000 GJ and reducing CO_2 emissions in excess of 260,000 tonnes, annually.

By-products The depleted dross is used to manufacture briquettes that are used in secondary refining of steel, with significant reduction in power consumption and increased refractory life, thus improving sustainability. These briquettes are alumina based steel slag conditioner formulated to improve the cost economics of steel production while at the same time providing a host of other quantifiable benefits.

39 Green Business Ideas for Sustainable Startups

Looking to start an environmentally conscious business? See this list of sustainable and green business ideas.

An eco-friendly business, or "green business" is one that demonstrates a commitment to an environmentally sustainable future. Green businesses strive to have a positive impact on the environment and their community. This can be achieved through many practices and strategies, from recycling to sourcing local products to promoting energy efficiency.

Sustainable and green business ideas combine your commitment to the environment with your goal of starting a business. Beyond that, they also deliver on revenue and profit. A study by Nielsen revealed that 66% of global consumers are willing to pay more for sustainable products. If you want to launch a green business, get started with this article containing our top sustainable and green business ideas.

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Meredith Wood, Mar 17, 2021

39 green business ideas

Here are 39 sustainable business ideas for you to consider if you want to go green.

1. Energy auditing and green consulting

Work with businesses or individuals to help them implement strategies to reduce their carbon footprint.

2. Garden planning

Landscape eco-friendly, sustainable gardens for families and businesses to feed themselves.

3. Environmental law

Provide legal services to protect the environment or hold entities accountable for violating environmental laws.

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4. Composting business

Provide a service to pick up compost or a place to drop it off.

5. Green cleaning

Use eco-friendly products to clean homes and businesses.

6. Air duct cleaning

Dust and dirt can easily accumulate in air ducts, preventing the air conditioning system from working properly and thereby increasing energy consumption. Start an eco-friendly small business that serves to regularly clean air ducts to reduce energy consumption.

7. Fundraiser or grant writer

Many environmental organizations could use help getting funding. Start a career as a freelance grant writer to help them out.

8. Eco-friendly food supplier

Deliver food from local sources to people or businesses who need them. Farm-to-table restaurants are some of the businesses that you could help supply.

9. Eco restaurants

Open a restaurant that uses only locally sourced food and sustainable products and processes.

10. Organic nutritionist

This is a powerful sustainable business idea. Help people eat clean — it's better for their health and our earth.

11. Wind power development

Build wind farms that produce sustainable energy.

12. Geothermal developer

Build power plants that use steam produced from reservoirs of hot water found a couple of miles or more below the Earth's surface.

13. Solar panel manufacturer

Produce the energy-saving panels for homes and businesses.

14. Plant delivery service

Start an eco-friendly small business that sources and delivers plants to people or businesses that will help clean the air around them.

15. Open a used bookstore

Recycle old and gently books for a fraction of the price. You could do this either online or in-person with a brick-and-mortar location.

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16. Green gift shop

As mentioned earlier, green products are a selling point. Why not open a store full of them?

17. Sell bicycles

One way to reduce carbon emissions is to reduce the number of people driving cars. One way to do that is by encouraging more people to ride bicycles.

18. Sell scooters

While scooters do emit carbon dioxide, they are much more energy-efficient than cars.

19. Energy-efficient car sales

Of course, people still want to drive cars. Why not sell more environmentally friendly car options?

20. Open a consignment or thrift store

How many clothes do you get rid of each year? Recycling old clothes is a great way to reduce the carbon footprint of each clothing item so they don't go to waste.

21. Manufacture or sell eco-friendly fashion design

Many designers are making clothing from sustainable materials. You could be one of them, or you could sell them.

22. Environmental blog

Publish information and news about climate change and subjects of interest to the environment. Reap advertising payouts from your visitors while informing the public.

23. Advertising agency specializing in green business

With all the new green businesses and initiatives forming, they're going to need someone to know how to bring all the good they're doing to a large audience, you could start a green business advertising agency.

24. Give bicycle tours

This is a great sustainable business idea for bicycle enthusiasts! Bike tours in your city are way more environmentally friendly than big ole bus tours or long joy rides.

25. Eco-travel planner

Plan eco-friendly travel destinations and activities for tourists.

26. Sustainable events planner

Offer event planning services that guarantee a reduced carbon footprint from the event.

27. Open an organic spa

Harsh chemicals are bad for your skin just as they are for the environment.

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28. Recycled furniture and home goods

Use recycled materials to build furniture and home goods people use in their everyday lives. Or open an antique shop reselling older furniture or refurbishing it and reselling it.

29. Eco-friendly kids toys

A great eco-friendly small business idea for parents. Mainstream children's toys use a ton of unsustainable materials. Why not give parents an environmentally conscious option for their kids.

30. Handmade clothing

If you've got a knack for sewing you can sell your handmade clothing online. A bonus if it's from recycled materials.

31. Green remodeling

Green remodeling is the perfect green business idea for the handy entrepreneur. Take a worn down home and make it something new using sustainable materials and updated appliances that reduce carbon footprints.

32. Green architecture

Design new homes using sustainable methods.

33. Solar panel installation

Install solar panels for sustainable energy in homes or businesses.

34. Start a cooperative

Communal living easily reduces the carbon footprints of those living in them because everything is shared and the values of the building uphold sustainability.

35. Green venture capitalist

Invest in helping other people get their green business ideas off the ground.

36. Green financial planning

Sell "green bonds" to those looking to add environmentally conscious businesses to their portfolio.

37. Software

Build software programs made specifically to help businesses or individuals with environmental activities and initiatives.

38. Apps

Develop mobile apps designed to help people with environmentally friendly functions, like finding recycling centers or learning about the environmental practices of different brands.

39. Refurbish/recycle tech

Take people's old and unused technology and recycle the parts or make something new.

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Hopefully, these green business ideas have you excited about the possibilities — not only for profit but the pleasure of running a business that helps people lead greener lives and combining what you do with what you believe in. A value-led company is attractive to consumers — why not create one?

Benefits of starting a sustainable business

Green and sustainable business ideas deliver more than profits. Beyond the feel-good impact that comes with making the world a better place, environmentally conscious and green businesses cater to a rapidly growing market.

"Despite the fact that millennials are coming of age in one of the most difficult economic climates in the past 100 years," according to a recent Nielsen global online study, "They continue to be most willing to pay extra for sustainable offerings — almost three-out-of-four respondents in the latest findings."

Generation Z does not want to be left behind either: The rise in the percentage of respondents ages 15 to 20 who are willing to pay more for products and services that come from companies who are committed to positive social and environmental impact hovered around 72%.

Businesses that establish sustainable or green values or practices have an opportunity to grow market share and build loyalty among consumers now and in the future.

Now is the time to pursue your sustainable business idea

There's never been a better time to launch a green or sustainable small business. We've undoubtedly seen a ton of change in the last year toward climate solutions and policy, especially as the implications of the Paris Agreement reverberated through businesses, industries, and investors.

"Companies continued to ratchet up their commitments and achievements on renewable energy, greenhouse gas emissions, sustainable supply chains, water and land stewardship, the circular economy, and other aspects of a sustainable enterprise," according to GreenBiz. "Technology continued its inexorable march, accelerating sustainability solutions in energy, buildings, transportation, food, and just about everywhere else."

However, global indicators continue to trend in troubling directions. Concentrations of carbon dioxide are unprecedented compared with the past 800,000 years according to the U.S. Environmental Protection Agency, even after accounting for natural fluctuations. Global temperatures continue to rise, and other metrics — on coastal flooding, heat-related deaths, wildfires, polar sea ice, biodiversity, and more — are just as harrowing.

Suffice it to say that we have a major challenge on our hands. Of course, no one is going to solve climate change on their own. But if you're looking for green business ideas you can do your part and start an environmentally conscious business.

About the author: Meredith Wood is a member of the small-business team at NerdWallet

India Could Industrialize Without Decarbonizing

India has a major challenge of decarbonizing its manufacturing industry but with green hydrogen emerging as a viable proposition, the country could skip this painful and expensive path.

A new study by **The Energy and Resources Institute (TERI)** suggests measures to decouple the growth of the iron and steel sector from rising carbon emissions by making green hydrogen an important part of steel manufacturing.

India has announced ambitious 'hydrogen mission' in its latest budget. In India, the iron and steel sector is set to be the largest consumers of green hydrogen.

In this backdrop, the study 'Green Steel through Hydrogen Direct Reduction: A study on the role of hydrogen in the Indian Iron and Steel sector' provides a techno-economic analysis of the Hydrogen Direct Reduction process, outlines the potential of green hydrogen technologies, and discusses the suitability of this technology in the Indian context. The study is a joint effort by TERI, Primetals Technologies Austria GmbH, Austria, and Siemens India.

According to the study, one of the leading technology options is using low or zero carbon hydrogen as a reducing agent in a direct reduction (DR) plant and subsequently such low or zero carbon power for the electric arc furnace (EAF), to allow the production of green steel.

Currently steel production via the DR-EAF route based on hydrogen is more expensive than the conventional steelmaking routes. The path to cost-competitiveness for "hydrogen steelmaking"

can be accelerated by broader action around the production of hydrogen, as well as supportive climate policy, the study says.

The study recommends proactive collaboration between companies and government for hydrogen steelmaking to reach its potential of drastically reducing CO2 emissions from primary steelmaking in India.

Dr Mukesh Kumar, Director, Steel Research & Technology Mission of India

For this to happen, complementary actions are required to ensure that demand for low carbon products is established, as support is given to green steel production.

The environmental burden of steel is growing, and it will take a revolution in steelmaking technology to reduce its carbon intensity. **Hydrogen may definitely be an answer provided other issues, such as its efficiency, cost are addressed.** Syn gas may be cheaper and for the time being it can be a substitute, but we have to get to the DRI route so that in future, hydrogen can be brought in to move towards zero emission, said Dr Mukesh Kumar, Director, Steel Research & Technology Mission of India, under the Aegis of Ministry of Steel.

Like its global compatriots, the steel industry in India is facing the challenges of reducing carbon emissions and improving energy as well as resource efficiency. Hydrogen steelmaking has the potential to drastically reduce carbon emissions from iron and steel sector, said Dr Vibha Dhawan, Director General, TERI.

Green Steel Still Expensive

Green steel production today still costs a lot. In developing countries like India there is a disadvantage as the carbon price is still not readily available. In India we are not there at this point. However, the technology is available, as described in the study, and that is a starting point, added Gerd Deusser, Executive Vice President, Head-Energy, Siemens Ltd.

With stakeholder cooperation, governmental push for research and development, along with policy initiatives promoting green steel production, India's efforts to decarbonise this hard-to-abate sector can become a reality.

The study also suggests actions for 'supply push' and 'demand pull' to be taken by governments and business. For providing a supply push, it recommends access to natural gas/syngas, demonstration plants, large-scale green finance, emissions penalty on production, and transition support for small-scale plants on the supply side. On the demand side, it suggests green product standards, corporate buyers' clubs, and public procurement.

Read policy brief here: **https://bit.ly/3z1TNJ6**

The Energy and Resources Institute (TERI) is an independent, multi-dimensional organisation, with capabilities in research, policy, consultancy and implementation. It has pioneered conversations and action in the energy, environment, climate change, and sustainability space for over four decades.

Clean Drinking Water from Air Made Affordable

Airowater Private Limited is India's pioneering Atmospheric Water Generator Company using green technology that harvests water from the humidity in the air. It was born out of the idea to provide an innovative, sustainable, and affordable solution to meet the increasing demand for freshwater.

The 2019 water crisis in India was most notably felt in the city of Chennai in Tamil Nadu. On 19 June 2019, Chennai city officials declared that "Day Zero", or the day when almost no water is left as all the four main reservoirs supplying water to the city had run dry. Rampant digging of Bore wells resulting in lowering of groundwater and low rainfall in the last few years have added to the water woes. Broken water carrying pipes from the sump above ground is contaminated – residents describing it as "muddy" with floating particles of dirt visible. As a result, the companies and households are completely dependent on tankers and plastic bottles for their water supplies.

Citing the challenges, Airowater started operations in Chennai in 2018 with the focus on the retail segment. The company is witnessing increasing demand from industrial, corporate and retail sectors in the region.

Siddharth Shah

Airowater has technologically advanced products, backed by 3 Indian and 6 US patents, which is also affordable, solving dual problems of water scarcity and clean drinking water. It is environmentally friendly, scalable, and easy to install product.

Airowater has been accredited and approved by leading labs like Equinox Labs, Envirocare Labs, NABL, and Geo Chem. It utilizes the moisture content in the air to create the purest form of drinking water through a patented 4-step filtration process. The ozonation technology utilized at Airowater, the company says, "has been tested, certified and patented to ensure that each unit generates water that is 100% pure and safe for consumption, rich in oxygen and free from groundwater contamination and pesticides."

It is also affordable, environmentally friendly, scalable and easy to install product solving dual problems of water scarcity and clean drinking water. It provides a wide product range – 25, 100, 500 & 1,000 litre per day (lpd) for varied customer segments. Along with providing water from air, Airowater also promotes micro-entrepreneurship through installation of water kiosks, empowering women to enhance their standard of lives and dignity. With a revenue-sharing model as part of the company's go-to market strategy, Airowater envisage tie-ups with women of rural households in water-stressed regions, as operators of local Airowater dispensers.

CII and WWF Plan to Take India from Linear to Circular Plastic Economy

A first of its kind in Asia, the Confederation of Indian Industry and WWF India inked a pact to deal with plastic pollution in a more strategic way. The new goal is to envision **'a world where plastic is valued and does not pollute the environment.'** It aims to achieve this by promoting a circular economy for plastics through a public-private collaboration that enables innovative ways to eliminate, reuse, or recycle the plastic packaging across the plastics value chain.

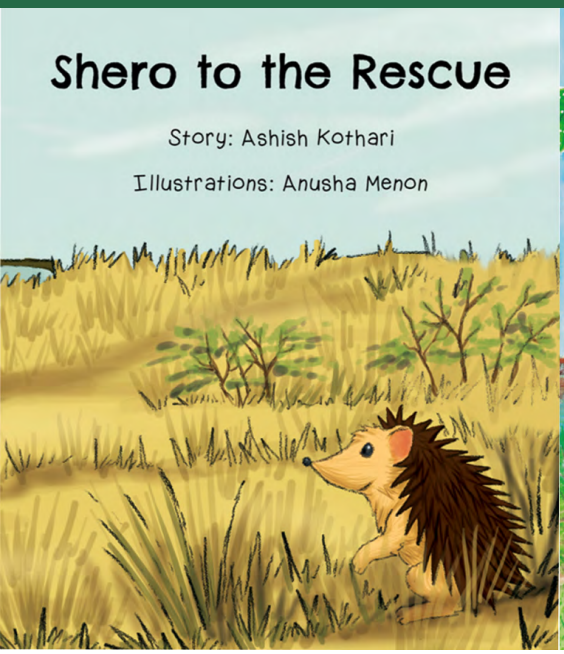
The India Plastics Pact aims to bring together businesses, governments, researchers, NGOs and other stakeholder across the whole value chain to set time bound target-based commitments to transform **the current linear plastics system into a circular plastics economy.**

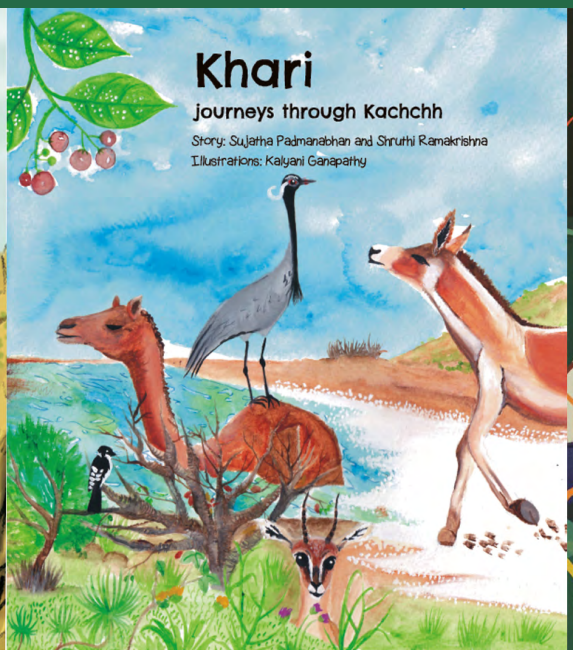
The Pact was launched at CII's 16th Sustainability Summit, organized by the CII-ITC Centre of Excellence for Sustainable Development. It is supported by UK Research & Innovation (UKRI) and WRAP, a global NGO based in the UK that provides operational and technical support to Plastics Pacts in Europe, the Americas, Australia and Africa and is fully supporting the Pact in India.

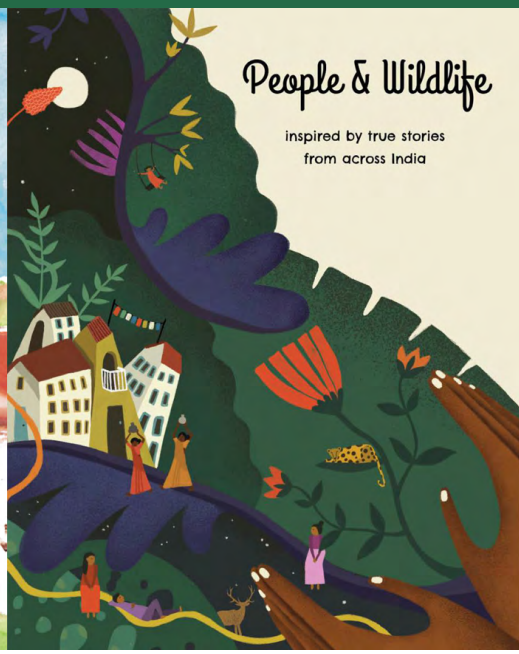
India generates 9.46 MT of plastic waste annually, of which 40% is not collected. About half of all plastics produced in the country are used in packaging and most of this is single-use in nature. The vision, targets and ambition of the India **Plastics Pact are aligned with the circular economy principles of the Ellen MacArthur Foundation's New Plastics Economy.** The four targets under the India Plastics Pact are:

- Define a list of unnecessary or problematic plastic packaging and items and take measures to address them through redesign and innovation
- 100% of plastic packaging to be reusable or recyclable
- 50% of plastic packaging to be effectively recycled
- 25% average recycled content across all plastic packaging

The Godrej Group is one of the first business groups to join the **India Plastics Pact**, as a founding member.







Environmental Writing Should Appeal to the Heart

Apart from its on-the-ground conservation projects, the Pune-based **Environmental Action Group Kalpavriksh** has been publishing thought-provoking environmental literature since the 1980s, including what may well be India's first graphic novel that came about following a 50-day trek along the river Narmada in 1983. They also have a vibrant and award-winning catalogue of children's literature on the environment. In an email interview with **Meghaa Gupta, Ashish Kothari** and **Sujatha Padmanabhan** from the organisation share their thoughts on the role of environmental literature in shaping society.

Rachel Carson's Silent Spring has often been called an important landmark in the environmental movement. Can you think of other books that have shaped the green discourse?

This is a difficult question to answer in brief – in different parts of the world, different books would have been influential. Secondly, we have to remember that in the Global South, oral traditions

Ashish Kothari

Sujatha Padmanabhan

have been as or if not more important than the written word; stories of historical movements and individuals have inspired people to take up environmental action. Also, it may not be directly environmental literature or work that has shaped the environmental discourse. For instance, the work of Marx and Gandhi, very little of which was explicitly environmental, has nevertheless been of great significance to the environmental movement.

In India, books have often spurred passion and inflamed sentiments. However, these are usually books on popular culture and politics. What do you think is needed for environmental writing to spur a mainstream discourse instead of remaining limited to niches?

Environmental writing has been too cerebral, and mostly restricted to prose. We need much more material that appeals to the heart: poetry and poetic prose, stories of grassroots transformation and collective or individual struggles, material oriented to youth and children, writing that simplifies but does not dumb down the subject, and of course all of this in multiple languages.

A combination of oral and written messaging has been crucial to spreading environmental and social justice awareness, and generating participation in such movements. The songs of Garhwali folk singer Ghanshyam Sailani, which became part of the popular culture of the Uttarakhand hills and were also published and distributed widely, were important in the success of the Chipko Movement. In the movement against the Narmada dams in central India, simply written material and a variety of slogans, songs, and audio-visual messages were vital in generating mass support. Such cultural and literary processes and products are common to most popular movements, not only to create and sustain widespread support, but also to keep up the morale of the movement's members, especially in the face of state or corporate backlash. These are, undoubtedly, more effective than academic books, though of course those also have their role in spreading the message and generating support amongst urban audiences including students.

Kalpavriksh was founded in 1979. When did you launch your publication wing and what was the thought behind it?

In 1983, Kalpavriksh undertook a 50-day trek along the Narmada river, to understand the valley's natural and cultural milieu, and assess possible impacts of the proposed large dams. This launched our publications work, as the trek was followed by the publication of three booklets on the Narmada (Narmada Project: A Critique; Muddy Waters; and Environmental Aspects of SSP), as well as a graphic novel a few years later (River of Stories). Interestingly, River of Stories by Orijit Sen was probably also India's first graphic novel!

Over the past decades, we have consistently viewed publications as one of the important aspects of our work that involves raising awareness, research, advocacy and networking for our thematic focus areas – the interface between conservation and livelihoods, impacts of large dams and other environment and development issues, locale specific environmental education and urban green spaces. We felt it important to share our work through our publications and use them as a vehicle for information dissemination, training and advocacy. All our publications have a copyleft or a creative commons license, which has also helped to disseminate our material more widely.

Over the years, you have published some spectacular books on nature and wildlife for the children. Could you shed some light on the state of environmental literature for children in India – the kind of books being published, the achievements as well as gap areas?

In the last few years there has been a sea change in children's literature in India – not just in books on the environment, but children's books in general. We see some excellent writing for children, with writers and publishers offering a diversity of books, including those on issues that were never written about like death, disability, caste, other genders etc. And where environmental literature is concerned, there is far greater choice on offer today than say two decades ago, with fiction and non-fiction on wildlife, habitats and ecosystems as well as a range of environmental issues like waste and climate change. We also have books that highlight issues on the ground, like the impact of mining on local communities, community conservation, and human-wildlife conflict.

The wonderful change that we are seeing today is that the stories are not moralistic or prescriptive. Most of them beautifully weave in information about the issue, or habitat and species. Some books also have an element of fun, and will evoke a smile or giggle. Some even tell their stories or share information through verse. And one can't go without mentioning the work of illustrators who bring these writings to life in a most vivid and brilliant manner!

Many people working in environmental field as researchers, activists or NGO personnel are penning down stories for children based on their rich and grounded experience, and publishing houses are also reaching out to them. Some environmental groups (like ours) are also getting into children's publications, realising the need for it.

Children's literature on the environment is also being recognised in India, given that we have children's literature festivals that sometimes focus on environmental topics.

Of course there are gaps. For instance, some species are written about more than others. Stories on tigers and elephants outnumber stories on other animals. Plants feature less when compared with creatures of the animal kingdom. Similarly, stories situated within some ecosystems such as forests outnumber those set in others like grasslands or wetlands. For older children, the challenge would be to try to see if the stories could deepen the child's understanding of complex environmental issues as they play out on the ground.

India was among the first countries in the world to implement Environment Education in schools. Yet, the role of suitable environmental literature within the formal education system remains muted. What is the reason behind this and how can one address this situation?

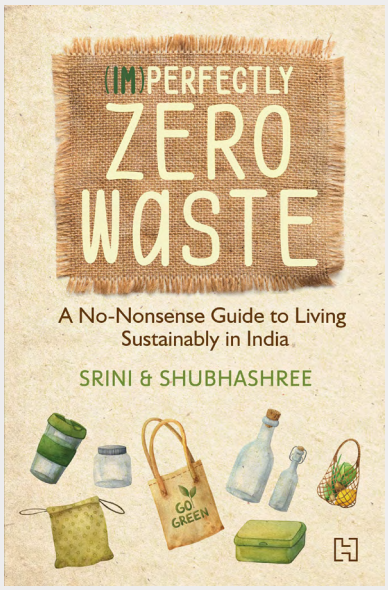
Environment Education (EE) became compulsory in India from the academic year 2004-05. The recommendation by the NCERT is that for grades 1 and 2, it is to be taught only through activities; for grades 3 to 5 it is to be a separate subject with a textbook containing information that would bring alive the local context to the child; for grades 6 to 10 it is to be taught through the infusion method. So textbooks, especially the Science and Social Science textbooks, are to be revised so that

links with environment are made in the topics covered, and for classes 11 and 12, it is to be done through a project.

If EE had been successfully implemented, we would have had millions of children growing up as environmentally-conscious citizens! Unfortunately, EE has become a huge challenge for many reasons. If it is seen as a subject and taught without passion, the focus is on marks and passing exams. If it remains at the level of information and does not spur children to change, question and act, then the end goal of EE is not achieved.

EE is most successful when guided by educators who truly care for the envionment, where experiential and outdoor learning is possible, and when a mix of tools is available to the learner. Environmental literature surely has a place in this, but we need government officials who have a vision for EE, and who will recognise how a good story could inspire children to action. How many educational departments have environmental literature as part of a recommended reading list? A few private schools have procured some books for their students and made it part of their EE learning package and some educators skillfully include them in their classroom sessions. But these instances are very few, and much more needs to be done on a national scale.

The best way this could be approached is to first focus EE on local situations that children can relate to, and experientially learn from and find appropriate literature on that issue.



In Pursuit of Zero-Waste Living, Practically

Srini & Shubhashree

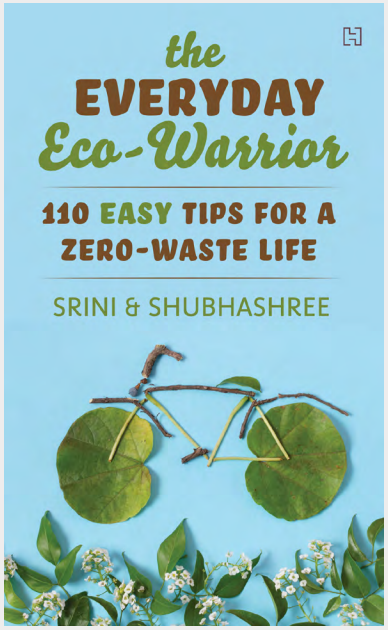
Almost everyone today is aware that their consumption habits have a negative impact on the environment and are trying to do their bit in various degrees. Many would like to do more but are simply lazy or not motivated enough.

This book is a useful guide to those who have started the journey towards leading a zero-waste life. It helps readers to start with doing a waste audit. The authors are practical and less preachy. They recognize that the path to sustainable living is a journey and they are helping to make this journey short and fun at the same time.

This is the authors' second book. The first one is 'The Everyday Eco-Warrior. 110 Easy Tips for a Zero-waste Life.'

This is a book worth gifting to anyone for faster spreading of greener ways of living. The faster more people adopt and adapt, the chances of rejuvenation of the planet is better. It wants people to believe that **"mirco makes the macro possible".**

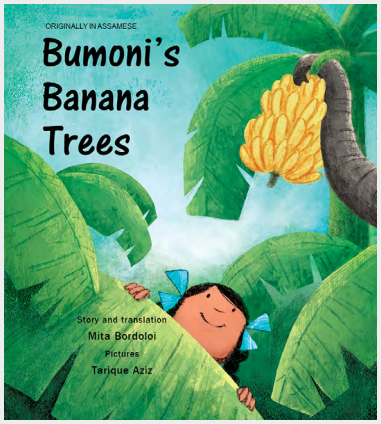
The authors have positioned this book as a guide to governments as well. They argue that bans have had the opposite effect by promoting an underground market. This happened in plastic and the governments are yet to learn from their mistakes. The point that genuine policy changes will come only when people hold authorities accountable is made well.



Unless the mechanism of holding authorities accountable is fixed, change in India will be very slow. There is no sign from the central, state and local governments that they are really serious. The courts have doing their bit but for India to transform into a responsible consumer nation, people have to push for change more vehemently and be the change themselves.

LATEST RELEASES

Bumoni's Banana Trees



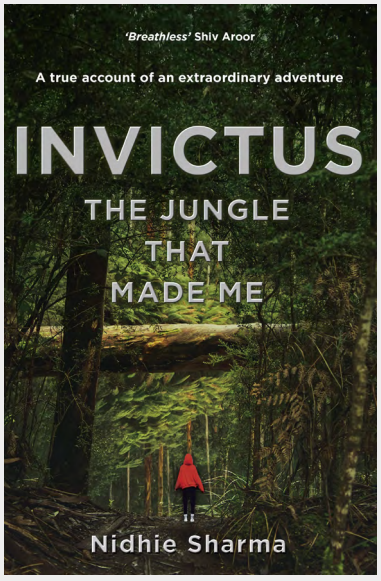
Publisher: Tulika Publishers
Author: Mita Bordoloi
Illustrator: Tarique Aziz

A stunningly illustrated book set in the vicinity of the Kaziranga National Park, where little Bumoni's backyard is bursting with banana trees, much to the delight of a herd of wild elephants…

Also available in Tamil, Malayalam, Kannada, Telugu, Marathi, Gujarati, Bengali

Click **here** to buy

Invictus: The Jungle that Made Me



Publisher: Pan Macmillan India
Author: Nidhie Sharma

A thrilling story of six children who go missing in the jungles of Arunachal Pradesh.

Click **here** to buy

Leopard in Mumbai

Publisher: Karadi Tales
Author: Lubaina Bandukwala
Illustrator: Allen Shaw

A spectacularly-illustrated ride through Mumbai with a pav-bhaji-eating, train-bus-and-taxi riding leopard on the loose!

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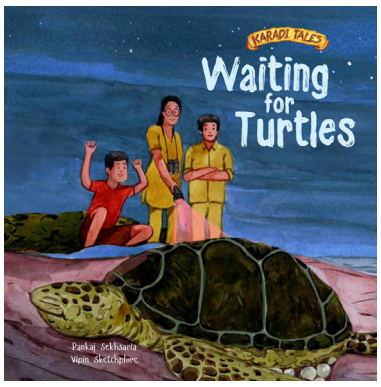
Waiting for Turtles



Publisher: Karadi Tales
Author: Pankaj Sekhsaria
Illustrator: Vipin Sketchplore

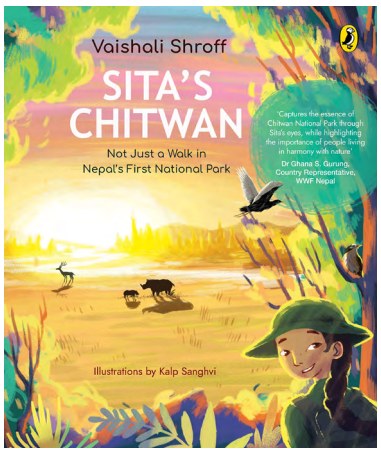
A trip to the Andaman Islands to witness nesting marine turtles – a rare and beautiful natural sight.

Also available in Hindi and Telugu

Click **here** to buy

For Telugu contact psekhsaria@gmail.com

Sita's Chitwan



Publisher: Puffin, the children's imprint of Penguin Random House India
Author: Vaishali Shroff
Illustrator: Kalp Sanghvi

An outing across Nepal's famous Chitwan National Park with nature guide Man Bahadur and his irrepressible, eight-year-old daughter, Sita, accompanied by vibrant illustrations, little details about being in a national park and a section at the end about the vegetation, animals, birds and other such information about Chitwan.

Click **here** to buy

EEEEEEKKKS!

Publisher: Puffin, the children's imprint of Penguin Random House India
Author: Arthy Muthanna Singh and Mamta Nainy
Illustrators: Priyankar Gupta (I Saw an Ant!), Charulata Mukherjee (I Saw a Bee! and I Saw a Cockroach!), Mistunee Chowdhury (I Saw a Mosquito!)

A series of four books about everyday creepy crawlies, making their world come alive for young readers through fun facts, verse, stories, activities and illustrations.

Click **here** to buy

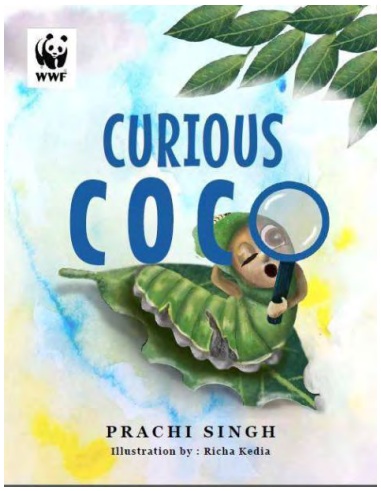
Vatsala Loves Snakes

Publisher: Karadi Tales
Author: Arthy Muthanna Singh and Mamta Nainy
Illustrator: Divya George

Rock pythons, trinket snakes, common sand Boas – Vatsala is enamored by these beautiful reptiles and their gleaming bodies. But no one seems to understand her love for them, especially her best friend, Neeraj! Could a trip to Sanjay Gandhi National Park make all the difference in convincing him that snakes are quite wonderful after all?

Click **here** to buy

Curious Coco



Publisher: Self published in association with WWF-India
Author: Prachi Singh
Illustrator: Richa Kedia

A tribute to the colourful journey of butterflies and their excellent role as pollinators. Explore their lifecycle, defence strategies, food habits, and other behavioural aspects that you never knew existed.

Click **here** to buy

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