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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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Bridging Funding Gaps Key to India Keeping Its COP26 Promises

SN Report

Prime Minister Narendra Modi made ambitious commitments at his speech at COP26 Summit, at Glasgow in November 2021, and spoke of India's successful track record of exceeding promises made at the 2015 Paris Climate Summit.

At a time when the world economy has started shrinking largely because of sustainable consumption habits, widespread unemployment, high inflation, and growing inequality, finding money to fund ambitious pledges will be a big challenge for all countries. India's economy is expected to face even harder days ahead. Hard data shows Indian economy has been shrinking since the last five years and any rebound will be slow.

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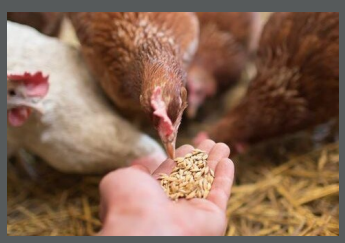
M&M Enters the World Index of DJSI



The Big Business of Turning Food Waste into Food

Attracting climate finance to fund India's pledges will require big leaps in how the country adopts and implements its ESG (Environmental, Social and Governance) commitments. Except for a few big corporates, adopting ESG in India continues to be a huge challenge.

Social and governance indicators appear to be worsening due to the pandemic, except the stock market which surprisingly, has been doing well. Investor activism and regulator push is improving corporate governance standards. The same cannot be said of the environment, clean air, water and the waste sectors. India has the worst indicators in all these.

The big potential of turning waste to wealth has started attracting entrepreneurial interest. Immense value can be unlocked from food, construction, electronic, farm and automobile waste. Ramky Infrastructure and Wastelink are leading this charge. This is good both for the economy and the environment. The central and state governments can consider encouraging this sector with attractive incentives.

India's Promise at COP26

- India will get its non-fossil energy capacity to 500 giga watt by 2030
- India will meet 50 per cent of its energy requirements till 2030 with renewable energy
- India will reduce its projected carbon emission by one billion tonnes by 2030
- India will reduce the carbon intensity of its economy by 45 per cent by 2030
- India will achieve net zero by 2070
- Indian Railways to be net zero by 2030

Given the market's volatility-driven economic realities, this could be a good time for India to work harder on the S and the G part of ESG while showing genuine intent on the E part.

In their new book **Outlast – How ESG Can Benefit Your Business**, authors Mukund Rajan and Col. Rajeev Kumar quote a Climate Policy Initiative study showing a massive mismatch between the amount of climate finance needed and what India has managed to raise in recent years. India's green finance flows in 2017 and 2018 averaged around $19 billion compared to $170 billion required per year to meet its NDCs (nationally determined contribution) under the Paris Climate Pact. Foreign direct investment could propel investment in green projects, but will it be enough?

India now has the fourth highest installed renewable energy capacity. However, it is finding it challenging to economically and efficiently utilize this power. Grid management, legacy thermal plant issues, poor financial health of state electricity bodies are dragging the immense promise of the renewal energy sector. With India investing big in hydrogen, are investors in renewable energy feel jittery?

For now, a slowing economic growth and consumption is good news for the climate but not to the economy. It's a welcome opportunity to reset a lot of how we run politics, business, economy and society.

M&M Enters the World Index of DJSI

Mahindra & Mahindra Ltd (M&M) has entered the World Index list of Dow Jones Sustainability Index (DJSI) 2021. Out of the five Indian companies featured in the World Index this year, two are Mahindra Group companies – M&M and Tech Mahindra. M&M is the first Indian 'Automobile and Components' company to enter the World Index of DJSI.

While M&M also features in the Emerging Market Index of DJSI for the 12th time in a row, Tech Mahindra has been a member of both the World Index and the Emerging Market Index for the last 7 years. This year, there are only 13 Indian companies in Emerging Market Index.

Dr. Anish Shah,
Managing Director & CEO, M&M Ltd

Inclusions in these Indices is a recognition of M&M's leadership in the ESG domain, the company has committed to be a carbon neutral company by 2040. It is also the first company in the world to commit to **doubling energy productivity and the first company in India to use an internal carbon price to drive climate investments.**

As a signatory of the Science Based Targets program, it has committed to reduce Scope 1 and Scope 2 emissions by 47% and Scope 3 emissions by 30% on a 2016 baseline and is well on its way to do so.

S&P Dow Jones Sustainability Index (DJSI), a partnership between the S&P Dow Jones Indices and RobecoSAM, seeks disclosures from more than 5300 companies globally. It is the first global index to track sustainability actions by corporates on environmental, social and governance dimensions. A company makes it to the World Index if its scores are in the top 10% of its sector worldwide.

Remarking on M&M's achievement, **Dr. Anish Shah, Managing Director & CEO, M&M Ltd,** says, "This recognition comes at a time when all of us are fresh from COP26 discussions and revitalizing our sustainability agenda. We believe that we have crossed the threshold on technology readiness in many industries including auto – this is a major shift from past years. As a result, we are working closely with ours partners and suppliers to create a viable ecosystem for the customers.

Moreover, our employees follow the **"MSP" mantra i.e. make sustainability personal,** which has brought several changes to our sustainability efforts at the grass-root levels. Being a part of the World Index is a validation of the path taken by M&M to build a sustainable business."

Founded in 1945, the Mahindra Group is one of the largest multinational federation of companies with 260,000 employees in over 100 countries.

The Big Business of Turning Food Waste into Food

The numbers are staggering. India wastes 40% of the food it produces every year. More than 200 million metric tons each year goes unconsumed. Commercial food waste or pre-consumer food waste is over 150 million metric tons each year.

Waste of any kind today is becoming a big business opportunity and many new ventures are springing up. But turning food waste to either animal feed or even human-grade food is a multi-billion dollar opportunity. Technology has been around, but entrepreneurship appetite for it is building up only now.

Set up as recently as 2018, the Gurugram-based Wastelink is already turning hundreds of tons of food waste into animal feed ingredients. Founded by two former colleagues **Saket Dave** and **Krishnan K**, **Wastelink** co-founders believe their company has the potential to become a unicorn – one that truly makes money for all its stakeholders.

Already, the firm's supplier locations are spread across seven states and 500 brand locations. It has four dedicated facilities for food upcycling, spread over an area of 20K sq. ft. with a processing capacity of 1000 MT per month.

Along with cutting waste, the ecological impact of reuse of food waste is immense. By producing 4,000 MT of animal feed since 2018, the firm says it has prevented 5,000 MT of GHG emissions. Imagine the positive impact if 150 million tonnes of commercial food surplus is converted?

Wastelink has built a tech platform they believe can become a plug-and-play offering for anyone interested in turning food waste into useful products.

In a free-wheeling chat with **Benedict Paramanand**, Editor of SustainabiltyNext, Saket and Krishnan share their vision and how they are going about building a green enterprise.

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Tell us about your early years and what inspired you to enter the waste management business

Saket – I have been in the waste industry since I was 17 and in college. I had been introduced to this area by the IYCN – Indian Youth Climate Network. Back in the day, they were doing fantastic work around solar power automobiles in India. They were a youth driven NGO, volunteer based. Their idea and messaging was amazing and connected with young people like me. I became involved with them and gradually became aware and interested with the global discussion on climate change.

When I was in college, the environmental societies used to suggest planting trees to tackle climate change. I knew this was not going to get us anywhere. I went to the Dean (at Thapar University) and asked for her help. I presented my ideas in waste management and environmental education. She asked me to submit a proposal for my idea – which was about food waste management in the campus (6 hostels, generating tons of food waste annually). She convinced the director for funding, and **we became the highest funded student initiative in Thapar.** We started getting into waste – researching ways to segregate and handle it, and so on. That is how my interest in this particular field of food waste management started.

I got selected by the British Council as the national climate champion for India, which gave me even more exposure. There, I learnt more about different kinds of wastes and ways to handle them.

For me, the whole idea behind Wastelink was to cater to the large problem of food waste. **It is probably the most unsolved opportunity in the waste industry** – a lot of work has happened in the plastic waste industry, the electronic waste industry, but perhaps the only work that had been done in the food waste industry was composting. **Upcycling food waste and salvaging the good from it was an unsolved challenge, especially for India.** Ironically, we also have one of the largest quantities of food waste in the world.

Saket Dave, Co-founder Wastelink

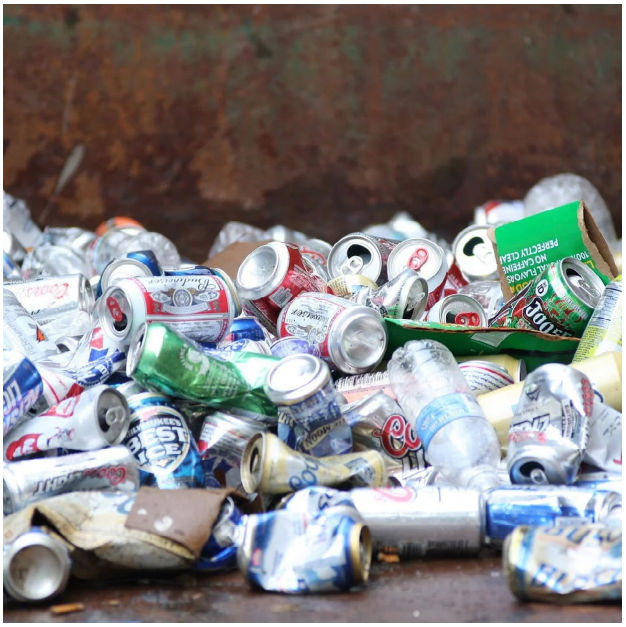
Food waste is a huge opportunity as a business in multiple segments – there's food-to-feed, which we are doing right now, and there's food-to-food, which is what we are currently heading towards.

How can more youth be inspired to solve ecological problems?

Saket – as a country, I think we really need to prioritize sectors like sustainability as they are core to our growth. I have often been asked why I chose the waste industry over working in fintech. **The whole waste ecosystem has a negative connotation associated with it. Its perception as an unattractive sector needs to change, and that change comes from encouraging young people to find**

Krishnan K, Co-founder Wastelink

solutions, encouraging governments, universities and schools to nurture minds in such a way. Finding alternative solutions to dealing with what we are wasting is imperative, as reusing and reducing is good, but it is extremely vital that we find new ways to recycle.



Greater sensitization to the waste situation in India will help in attracting more talent and passion to the industry. Having the right kind of support infrastructure in the form of funding, entrepreneurship will automatically come by.

Krishnan – I agree that the ecosystem can and must do more, but I think the most crucial point is that this area badly lacks entrepreneurship and innovation. Not enough of us have actually gone about trying to solve the food waste problem in a serious way, even though there is so much scope. The common solution is composting, which is great; it is fantastic as compared to landfills and other options, but we haven't moved past that.

Now, with Wastelink and other similar players, we are seeing some very exciting innovations, we are realizing that not all waste is equal. Waste is a colloquial terminology for something that someone doesn't need. But if someone doesn't need something, it doesn't mean that it won't be useful to somebody else. There is huge value in waste – your waste is my goal. So that nuance is necessary; innovative thinking is necessary. I think Wastelink pioneers this kind of thinking. This ecosystem for entrepreneurs and innovation in the country is starting to develop.

One of the biggest challenges that we see in the food producing world is their ability and willingness to bring about change in the way they handle food waste.

How would you like to become advocates of zero food waste?

Krishnan – For a large part, I think advocacy is built into our business model as we speak to food companies daily. We convince them to repurpose and redirect their food waste to a greater and more environmentally (as well as fiscally) better outcome.

Our tech platform solves several problems for the food producers at the point of origin and further down as we are able to purpose/pay for food waste that is generated, making us a far better alternative for waste handling. From a value point of view, the efficacy of our solution is apparent, and food companies are also faced with this need to bring about a positive change, which is facilitated with our idea.

Does food producing customer earn from his waste?

Krishnan – We believe in sharing the value that we create with the food producers. If we are upcycling food and turning it into feed and generating value out of it, we believe that it is only fair that food producers get their share. When all the incentives are aligned, it leads to better outcomes.

Animal feed industry is amazing because the majority of food material is composed of grains, which can be given to animals. We believe in sharing the value creation with all stakeholders.

The amount that is earned by the food producer depends on the nutrition value of the waste that is being sold. Important factors are its protein and fat content. To put a number on it, the range is from 10,000 – 25,000 rupees a ton of food waste. The exact value depends on the food's nutritional content, the volume at which it is generated and the location where it is generated.

How's the business doing?

Saket – Yes, we are profitable. As we continue to invest in research and development, which is a driver for the future, we know that we are still not as profitable as we might be. But as a manufacturing company, we have definitely broken even and are profitable.

Can you say more on your tech platform?

Saket – The idea behind our tech platform is to plug into food producers and help them manage waste. Both our incentives – the food producers' and waste link's – are aligned towards reducing waste. The tech that we have built for food producers is designed to help them track their waste, audit their waste, and be able to have transparency and accountability for their waste. Typically in the food ecosystem, there is a manufacturer, a brand, a distributor, a retailer, and across this whole value chain, waste is being generated. Our platform allows each of these stakeholders to use a better method to manage their waste – both fiscally and sustainably.

Food companies who use our tech platform can upload their waste. This gives us the knowledge about what we need to service and where.

It is a very interlinked system where food producers are understanding what waste they are generating and how they are reducing it, and we work on that information for deciding what we can get and how we can process it.

What technologies are you using?

Saket – We are using the latest technologies like AWS, Computer Vision, on which our platform is built. We are using the latest barcode technologies that help brands (especially from the retail part of the supply chain) best manage their packed products. This helps in analyzing and managing individual packed volumes of wastes, and building transparent, profitable solutions.

Do you think waste as a service can emerge?

Saket – Waste as a service in India is already happening. We can take the municipal solid waste as an example. Many big players are offering their services to the municipality. They own a fleet, collect waste from different locations and they transport it to waste-to-energy units or to a dumping site. This model has several challenges. It is incentivizing treating all waste equally. Because of this, a lot of food waste, plastic waste end up in landfills. A lot of material that has good upcycling potential is not getting upcycled. So waste as a service is not in our plan. We believe in realizing the maximum potential we can from waste that we purchase. But technology as a service will be. **Our platform can be plugged into a parallel industry- like the meat industry, for similar benefits.**

How do you supply animal feed?

Krishnan – We have chosen a model in which we, as input providers, supply to animal feed manufacturers. There are several ingredients that animal feed manufacturers need, which they procure from the commodity market – ingredients like grain, corn, soybean, as well as nutrient supplements that help keep an animal healthy. This is where Wastelink's innovative solution comes in. Former foodstuff, or in this case, bakery ingredients, is a great option when it comes to acquiring the goal of producing well rounded, nutritional animal feed.

There is a two part objective here – feed ingredients need to be nutritious and cheap. Former foodstuff is a highly effective option that checks both of these requirements. It also avoids the problem of cost fluctuations presented by soya bean, as has been observed in the last few years.

Another important factor is yield. As a feed manufacturer, for a given composition, you want the best possible outcome for the animal, be it in terms of milk production, weight gain, etc. Former foodstuff is highly beneficial in feed production as it is composed of high quality human grade ingredients that help in achieving the aforementioned objectives. Otherwise, the lesser quality stock of food grains has been devoted to feed production.

Also, since a great proportion of the food waste that we collect consists of foods that have already been cooked. This means that it is easily digestible for the animals. Hence, the nutrient absorption and yield is better.

The potential of bakery ingredients and former foodstuffs still has a long way to go before it is properly realized as a phenomenal animal feed ingredient. This is what Wastelink is working towards. **A quality player like Wastelink reliably services the food and feed companies by aggregating food manufacturer's waste with a tech platform and converting that into something that a feed manufacturer needs.**

Food-to-feed sounds like a very capital intensive industry…

Krishnan – Processing, as such, requires infrastructure. But the best part is that infrastructure for feed manufacturing exists in every nook and corner of the country. Livestock is everywhere. The core competence needed to process and convert food items to feed is already present. The areas that we are working on with our feed partners is in utilizing capacity where it is underutilized, and expanding their capacity for the same. So yes, capital is needed, but it is generally not deployed by Wastelink.

At what stage will you enter the food-to-food industry?

Saket – We have been working on our food-to-food project this year, but it has been in the back of our mind since we started. We were introduced to this area because a lot of our food manufacturers had by-products that were still good for human consumption. We already have suppliers who are working on routing some of that material to us. **Wastelink of the future is not going to be a processor, it is going to be a tech and nutrition know-how.** Processing will be built on the back of India's existing infrastructure, which is enough to handle 100 million MT.

What is Wastelink's export potential?

Krishnan – I think it is true that our feed can add value to the global market but in the spirit of sustainability, if our products can be consumed locally, we don't see any point in adding to our carbon impact by shipping them elsewhere to be consumed. That being said, the potential and the market for the same is massive. But that doesn't stop us from replicating what we are doing in Indonesia and Thailand, it is very much on the horizon for us.

You have already been able to save 5000 MT of carbon emissions. Are you going to use it as carbon credit?

Saket – Earlier, the scale at which we operated was small. But now that the volume that we are processing has increased and reached 1000s of tons on scale, we will look actively at carbon credits, both at national and international level – to see where we can generate maximum value. That is the strategic angle that we want to be using while approaching carbon credits.

How difficult is it for you to move from B2B to B2C?

Krishnan – We are built around B2B both on the demand (feed manufacturers) and the supply side (commercial food waste companies). Since going from a B2B to a B2C requires a very different approach and model, it is not currently part of our plan.

Is Wastelink headed to become a unicorn?

Saket – What we have is a billion dollar opportunity – the market and volume of food waste is massive. Going fast is the mantra to tap into this opportunity. We already have the grit and passion to be in the waste industry, we just have to tap further into it. What we are aiming for is going deep and working with a lot of food ingredients for the food companies, and feed manufacturers want us to go deep and provide them with more quality ingredients.

SuperBottoms' Eco-friendly Diapers a Hit

Parents are beginning to realize that the diapers their kids wear can take 500 years to decompose. That's why SuperBottoms' 100% cotton reusable diapers are attracting consumer interest. These diapers can be reused 300 times and are made of soft organic cotton.

SuperBottoms, a start-up, has clocked Rs. 22 crore turnover in 2021. Its volumes are doubling year-on-year. The firm sees massive potential with 25 million births a year in India. While the disposable diapers' market has an estimated size of about one billion USD and growing at about 14% per annum, the penetration of disposable diapers in India still is below 7%.

The firm received funding from leading investors like DSG Consumer Capital, Saama Capital, Titan Capital and Alteria Capital. SuperBottoms also makes other diaper products like Dry Feel Langot, Padded Underwear for Potty Training babies and Baby Laundry Detergent.

Apart from being 100% cotton, the outer lining which gives waterproofing is made of laminated cloth. The absorption of the diaper is done by layers and layers of organic cotton which is known to be highly absorbent. The dry feel is provided by a fleece layer which quickly wicks away moisture. **The diaper is also designed in a way that it fits a baby from 3 months to 3 years.**

Reusable cloth diapers are revolutionizing the world of diapers. A company press note said its diapers offer all the conveniences offered by a disposable diaper – long hours absorption (even all night), dry feel to baby and waterproofing. Since they are made of cloth they are safe for babies' skin. They are washable and can be reused up to 300 times!

"That essentially means the same diaper lasts the entire diapering phase of the baby and sometimes even outlasts that. Some cloth diapers are made of organic materials like organic cotton which makes them highly sustainable. Cloth diapers work out cheaper too. With disposables a baby needs around 5500 diapers," the note claimed.

Covestro, Tekmar Group Tie-up to Make Subsea Cable Eco-friendly

The growing offshore wind farm market requires a sustainable value chain capable of delivering robust and long lasting subsea infrastructure whilst reducing the industries environmental impact. To achieve this, the offshore industry is urgently seeking renewable materials matching their high performance requirements from the supply chain.

Covestro and **Tekmar Group**, a press note said, have embraced this challenge and are collaborating to develop more sustainable subsea products by leveraging each other's expertise. Covestro Elastomers develops cast elastomer systems to provide solutions for the offshore energy market. Tekmar is a leading producer of polyurethane based cable protection systems for the global offshore energy markets.

A key component of the cable protection system is the bend restrictor, which along with the rest of the system, is designed to protect cables in the ocean for decades. So, why not propose an alternative polyurethane elastomer system for more sustainable casting of these products? One of the major challenges is the reconciliation of sustainability and technical performance, without any compromise on quality, the note added. To solve this, Covestro has developed a new polyurethane elastomer system based on its CO2 Technology, now called Triturn®, which contributes to reducing the products' carbon footprint.

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The note said that the new system for bend restrictors from Covestro, which was recently honored with the UTECH Europe Award 2021 in the CASE category (CASE stands for coatings, adhesives, sealants and elastomers), allows to reuse CO2 as a valuable material source in polyol production and to reduce up to 20 percent of the fossil raw materials which is normally used for the polyol.

The new system also makes significant technical gains by being easier to process and improving non-aging properties in salt water. Tekmar is using the new PU system to manufacture sample products at its facility in the North East of England and is currently conducting a range of tests on the products.

Through a long-term collaboration, Covestro and Tekmar are proactively shaping the subsea protection industry by introducing an alternative and more sustainable solution to move the offshore industry forward.

With 2020 sales of EUR 10.7 billion, Covestro is among the world's leading polymer companies. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative, sustainable solutions for products used in many areas of daily life. In doing so, Covestro said it is committed to the circular economy principles. The company is in automotive, transportation industries, construction, furniture and wood processing, as well as electrical, electronics, and household appliances industries. Other sectors include sports and leisure, cosmetics, health and the chemical industry itself. At the end of 2020, Covestro has 33 production sites worldwide and employs approximately 16,500 people.

India and UK Take Green Partnership to a New Level

By Richard Heald, Executive Chair, UK India Business Council

570 British companies operate in India. They see a lot of promise in collaborating with Indian companies in identifying business opportunities – both technical and financial – to strengthen each other's fight against the climate crisis.

Businesses all over the world are increasingly, and rightly, taking up their role in contributing to sustainable development and a positive societal impact. That includes supporting a greener future, helping to nurture widespread education, maintaining a healthy population, and upholding equality for all people. As this duty extends itself across national borders through trade and investment, the scope for international collaboration and learning is hugely positive, to the benefit of business and its shareholders, and to wider society.

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This shift is the result of changing priorities from investors, employees, and consumers. Not only are these the 'right' things to do, they are measurable, recognisable and economically sustainable approaches. Increasingly people want to work for such companies, consumers want to buy goods and services from companies which are recognised as helping the environment, and more and more investors are increasing their weightings towards such sustainable practices, accelerating behaviour at Board Level and within 'C-Suites'.

The UN Sustainable Development Goals are the universal framework for sustainable development, made up of 17 goals that cover all aspects of development, from hunger and sanitation, to industry and climate action. India has a committed voice in Prime Minister Modi in these important areas. Indeed, the UK India Business Council (UKIBC) would argue that an ongoing and close Indian involvement in seeking solutions to the UN Sustainable Development Goals underpins many of the reforms seen thus far in India.

Environmental consciousness is particularly relevant at the moment due to the recent UN Climate Change Conference, or COP26, after much anticipation. At COP26, Prime Minister Johnson and Prime Minister Modi jointly announced three high-profile commitments that will see our countries work in partnership across renewable energy grids, finance, and disaster relief. All are important but I will focus on one in particular as not only exemplary of important climate action but of UK-India partnership:

The Green Grids Initiative — One Sun One World One Grid (GGI-OSOWOG) is the first international network of global interconnected solar power grids. By working together, countries can benefit from the endless energy of the sun, using their energy and sharing it with other countries at times when they are in daylight hours. In response, they would receive energy from other countries during night-time hours. Of course, this already exists at a bilateral and regional level, but the One Grid sets out a global energy ecosystem. This partnership between the UK and India leading together on a global stage is right and appropriate for the fifth and sixth largest economies in the world.

As COP26 indeed showed, climate-related and sustainable finance will be vital to help poorer countries to invest in climate-resilient infrastructure and clean energy, and to incentivise sustainable behaviours. Government support is vital, but this monumental effort will require the public and private sectors to work hand-in-hand.

The Scotch Whisky Association became the UK's first food and drink trade association to be recognised as a Race to Zero partner in the lead up to COP26 in Glasgow in November 2021. The

Strategy commits the sector to reaching net zero in its operations by 2040 with ambitious targets to drive down the industry's environmental impact in key areas including water use, packaging and responsible land use. These sentiments were echoed by companies across the industry such as Pernod Ricard and Diageo.

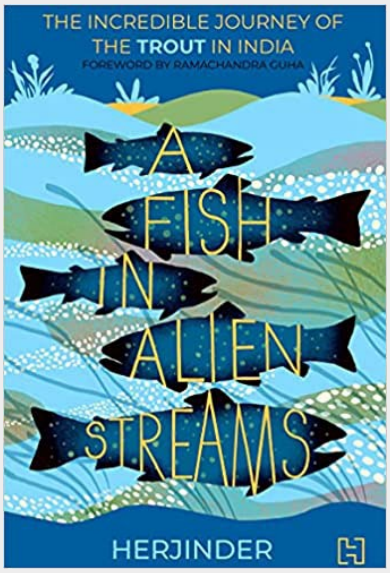
The net result of this more conscientious action plan for India and other partner countries is responsible, sustainable products for consumers that meet the needs of today and the future. And as trade, investment and collaborations take place between our countries, companies gain new technologies, new ways of working, and direct support to bolster their efforts, to the advantage of wider society in both countries.

Richard Heald,
Executive Chair, UK India Business Council

The bilateral relationship between the UK and India is growing to new heights under the new Comprehensive Strategic Partnership announced by our two Prime Ministers in May 2021. The 'CSP' is indeed 'comprehensive', committing our countries to working together across areas including health, education, energy, finance, defence, and climate, underpinned by trade and investment, namely the people and businesses working between our two countries. It is businesses and people that ultimately make the relationship, so as more businesses take on this added responsibility to support society, trade and investment will be win-win for people and business.

We at UKIBC have always maintained that trade and investment between the UK and India should be about partnership, collaboration, and a two-way relationship. Business will play a key role in the innovation, production, and distribution of the goods required to overcome global challenges, not least the urgent pandemic recovery and climate change. As a result, the drive for sustainability and the tackling of development challenges, as well as profit and financial gains, will be incorporated into trade and investment, thus contributing to global cooperation towards the same societal goals.

With more than 570 UK companies working in India, and the acknowledged notion that business has a societal role to play, investment is helping to engender prosperity in education, healthcare, gender equality, and energy, as well as creating jobs and economic growth. UK and Indian partners will, and are, shaping each other's societies as a result. India's benefit is our benefit, and our benefit is India's benefit.



Of Homesick Colonialists and Trout

The history of colonisation in India usually talks of the military, economic and political occupation of the country by imperialists. Rarely, does it talk of how homesick colonialists altered their surroundings to make them more akin to their homeland. How they dotted the landscape with their manicured gardens, clock towers and other colonial structures – and as this book, *A Fish in Alien Streams* narrates – populated its rivers with their favourite trout!

I'm neither a fish-eater nor have I ever attempted fishing. Yet I enjoyed reading this delightful slice of our colonial past festooned with several lively excerpts drawn from an impressive collection of personal letters, books, magazines, journals and the like. For instance, the first chapter of the book begins with a letter from 17 June 1856 that Henry Stedman Polehampton, chaplain of Lucknow, wrote to his brother in England:

My Dear Edward,

Pray do send me a diary. Every scrap from England is interesting, and your letters are feasted on as they arrive. I thank you for your fresh assurances of affection to me…

I had in my mind's eye at the moment our paddling up that brook at Pontesbury together last summer. What a pleasant day that was, and what a nice lot of trout we killed!

From here on, the narrative goes on to unravel how during the 19th and 20th centuries, many Europeans in India – an assortment of company employees, army officials, Christian missionaries etc – were pining for the salmon and the trout – superior game-fish of their native land. Many tried searching for similar species in Indian streams. In his book, The Rod in India, published in 1873, Henry Sullivan Thomas of the Madras Civil Service wrote of the legendry Indian fish, the mahseer:

…I say a Mahseer shows more sport than a salmon… each individual Mahseer makes a better fight than a salmon of the same size… my prejudices were all in favour of the salmon, a sort of lion of the waters, whom I have grown up looking on with respect from childhood, and as being a fellow-countryman. But the Mahseer compelled me to… honour him in spite of my prejudgment to the contrary.

I was amazed to find many such impassioned narratives built around fish, in this book. It was even more surprising to learn about the lengths to which a clutch of British anglers (people who fish with a fishing rod, as a hobby) went, to import trout into Indian waters – simply because it made for a better fishing experience!

As historian Ramachandra Guha points out in his foreword, "the effort – in time, money, intellectual focus and organizational effort – was colossal, almost comparable to fighting a war even." Yet the passion was so intense that despite the failures, they persisted and eventually succeeded in breeding the trout in the rivers of Kashmir, and from there on, in many other parts of the country and even in Ceylon.

Image credit – A monochrome icon of a rainbow trout. Based on http://commons.wikimedia.org/wiki/ File:RainbowTrout.jpg

The narrative takes us through all these geographies and the unique challenges they posed to the fish. But the trout proved to be resilient and eventually began to thrive in many streams across the subcontinent.

All this took place at a time when even the term 'invasive species' had not been coined. So, hardly anyone was thinking of the ecological and environmental concerns in adding a new species to an ages-old ecosystem. Most were gloating over introducing a 'superior fish' into Indian waters. Yet, as the author concludes from his research, this exotic species were far from being in harmony with the local ecoclimatic conditions. So, once their patrons left the country, these fish too began to decline.

Today, they are largely restricted to streams in and around Kullu, where the author, Herjinder, encountered them in 2009. A journalist by vocation, he had been sent on an assignment to a trout farm to cover 100 years of the introduction of trout in Himachal Pradesh. However, as he found, the newspaper feature could hardly begin to cover this fascinating story of immigrant fish that made Indian waters their home. So, he spent a decade researching it.

Even though the subject may sound specialist, the narrative is light, lucid and peppered with tales from a colourful cast of fishing enthusiasts. My only quip, if at all I need to make one, is that I wished the publishers and author had also included a few visuals to complete this otherwise wholesome portrait from our past. Unlike cricket, the British passion for fishing didn't quite hold in independent India. So, a visual sense of how the various fish being spoken about looked, a few newspaper clippings, photographs of anglers with their trout catch etc might have aided lay readers a little better. Nevertheless, if you're a nature lover, do add this enjoyable and enlightening read to your bookshelf. It is a unique contribution to the natural and social history of British colonialism in India.

Making Room for Elephants

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