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# Sustainability through Different Lenses

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## ABSTRACT

*This research paper takes a closer look at India's journey towards sustainable energy solutions, focusing on government policies, business initiatives and how consumers are changing their behavior. India is the world's third largest energy consumer and faces the challenge of balancing impressive economic growth with environmental conservation.*

*India has actively adopted renewable energy sources, especially solar and wind power, in line with global sustainability trends. Additionally, the country is actively promoting cleaner transportation options, such as electric vehicles, and exploring the integration of ethanol to create more environmentally friendly fuels, thereby promoting sustainability across all fields.*

*The study is structured around two main questions. First, it evaluates the measures taken by the Indian government to promote energy sustainability. The analysis shows that India has taken a pragmatic approach, using financial incentives and international partnerships to promote clean energy adoption. Second, it looks at how consumers, especially in the Asia-Pacific region, respond to sustainable products. Research shows that consumers are increasingly willing to invest in environmentally friendly options.*

*Businesses, regardless of size, play an important role in sustainable environmental development. Many of them apply environmental, social and governance (ESG) criteria to promote ethical practices and environmental responsibility. This corresponds to consumer preferences increasingly for sustainable products. Investors are also looking at ESG factors, putting pressure on companies to comply with these criteria.*

*The linkages between sustainable development efforts are evident in global initiatives such as the Paris Agreement and growing cooperation between countries and businesses. Challenges remain, including trust issues around sustainability claims and difficulties in disseminating information. However, the shift to sustainable practices is undeniable. Consumers are increasingly aware of sustainability, which is reshaping business strategies and driving innovation. This transformation not only meets consumer needs but also contributes to a more sustainable and environmentally responsible future.*

**Keywords:** Sustainability, Consumer Practices, Corporate Role.

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## **I. INTRODUCTION**

Energy powers the world, but its conventional sources have raised an urgent predicament – their environmental toll. Climate change, akin to a global alarm, has galvanized the pursuit of cleaner, sustainable energy alternatives. A significant part of our energy still emanates from fossil fuels, leaving an indelible mark on our planet. Within this context, India, the world's third-largest energy consumer, stands as a fascinating case study in the quest for sustainable energy solutions. The fastest growing country finds itself at a crossroads, balancing its remarkable economic ascent with the imperative to safeguard its environment.

India's transformative journey toward sustainability is emblematic of global shifts. While fossil fuels, including coal and oil, continue to underpin its energy landscape, India has embarked on an ambitious trajectory towards utilizing renewable sources. Solar and wind power now comprise a substantial portion of the nation's energy generation, aligning with the global push for eco-friendly energy production. Yet, India's commitment extends beyond energy generation with the nation actively promoting electric vehicles, exploring integration of ethanol for cleaner fuel, and fostering a sustainable ecosystem for its industries.

Importantly, India's endeavours reverberate worldwide. Governments, corporations, and conscientious consumers across the globe are reshaping their roles in building a more sustainable future. This collaborative effort transcends economic boundaries, envisioning a world more attuned to environmental concerns and fortified against climate challenges. India's journey unfolds not merely as a national narrative but as an integral part of a broader global movement, one where the present generation acknowledges its responsibilities to the planet and strives to provide a greener, more equitable legacy for generations to come.

### **(A) Research Questions**

1. Is the Indian Government taking the right steps to promote sustainability in terms of energy?
2. Are consumers gravitating towards corporations promoting sustainable environmental development through their products?

### **(B) Literature Review**

#### **a. Changes driven by energy**

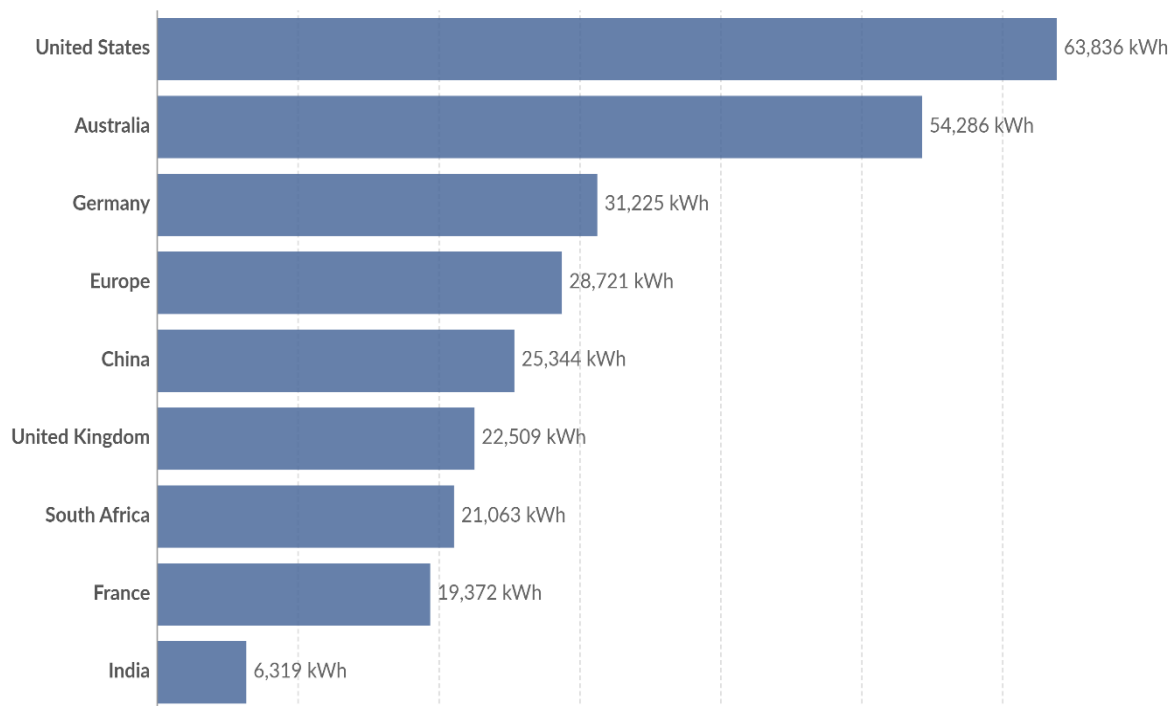
Energy is the blood for the entire world and its growing population, however, the means through which is generated is self-destructive. Climate change has been the theme for development of sustainable sources of energy. Apart from climate crisis, the paradigm of the world economy can shift with changes in demand and supply of fossil fuels as occurred in 1973. The crisis acted

as a catalyst forcing world leaders to recognise their over dependence on fossil fuels. For an average person, fossil fuels are used to run cars, generators, etc as a direct energy source. Electricity is considered a clean source of energy but in 2019, around 64% of the world's electricity came from fossil fuels. Till the world starts weaning off fossil fuels to generate electricity it can never be termed as clean energy as the primary source of power will still be fossil fuels. The below chart provides a greater idea at the scope of usage,

### Fossil fuel consumption per capita, 2022



Fossil fuel consumption per capita is measured as the average consumption of energy from coal, oil and gas per person.

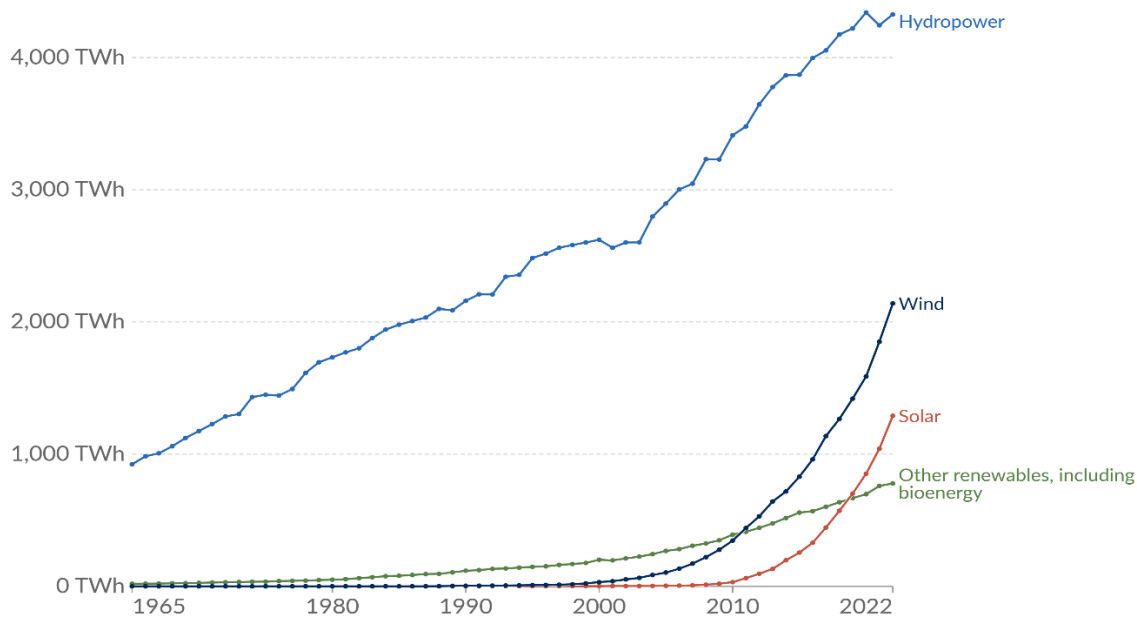


Source: Energy Institute Statistical Review of World Energy (2023)

OurWorldInData.org/energy • CC BY

The picture is bleak as it exposes the world's dependence upon fossil fuels which has grown with every year since the Industrial Revolution but with climate change inching its ugly nose into the room every day this is the time to make the switch. Countries all over the world are making efforts to protect the environment and promote clean green energy for use in both corporate and personal life. These efforts are backed by a equal amounts of intent and major investments into research and development of technology.

## Modern renewable energy generation by source, World



Source: Ember's Yearly Electricity Data; Ember's European Electricity Review; Energy Institute Statistical Review of World Energy  
OurWorldInData.org/renewable-energy • CC BY

The above chart proves that active measures are taken as the technology for harnessing renewable energy grown substantially. Moreover, the world has doubled its wind energy output in the past decade which is a bold statement of intent.

### b. India's Efforts

India is the third largest consumer of energy due to its growing economy and ever-improving standard of living. Over 80% of India's energy needs are fulfilled using: coal, oil and solid biomass. Oil consumptions and imports have also grown rapidly due to rising ownership of vehicles. The Indian government's approach towards utilizing renewable sources of energy has been pragmatic but non-compromising. Presently, India devotes around 3% of its GDP to energy investment with a major portion going towards clean energy. This growth is apparent as the installed Renewable energy capacity (including large hydro) has increased from 76.37 GW in March 2014 to 150.54 GW in November 2021, i.e. an increase of around 97%. India currently ranks 4th in terms of renewable energy installed capacity and India generates 42.26% of total installed generation capacity.

The Indian government has largely relied on international players to aid with these projects resulting in rapid growth. Utilizing their existing innovation and capabilities, the government opened its doors and provided a royal welcome in the Indian way, by allowing 100% FDI through the automatic route. This facilitates a formality free market with minimal government interference. Solar has been a target to tame for the government since 2017, upon announcing

Gurgaon as a solar city. Geo-location also plays to India's advantage as it gets 300 days of sunlight which is strong enough to harness energy. Prime Minister schemes like Schemes such as Pradhan Mantri Kisan Urja Suraksha evamUtthaanMahabhiyan (PM-KUSUM) which aims to aims to add solar capacity of 30,800 MW by 2022 with total central financial support of Rs. 34,422 Crore including service charges to the implementing agencies.

The Scheme consists of three components:

- Component A: 10,000 MW of solar capacity through installation of small Solar Power Plants consisting of individual plants of capacity upto 2 MW.
- Component B: Installation of 20 lakh standalone Solar Powered Agriculture Pumps.
- Component C: Solarisation of 15 Lakh Grid-connected Agriculture Pumps.

The deadline for the same is 31<sup>st</sup> of March, 2026 and the country seems to be on track to achieve the goals. Support from the central government reveals the intent and provides investors' the confidence to harbour risks while earning profits. Wind energy has been another major focus of the government due to large open spaces with flat land allowing flow of high-speed winds.

As per Clyde and Co. as of 31 March 2022, India has installed generation capacity of 4.07.797 MW. Almost Fifty-eight percent of this installed generation capacity is based on fossil fuels. While India has a large-scale deployment of onshore wind energy technologies, there are no offshore wind farms in India. India has a wind power potential of 695.50 GW at 120m hub height. The states which have a high potential are Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, and Tamil Nadu. India has set a target of 30 GW of offshore wind installations by 2030. To aid India's transition to sustainable technology, two projects supported by European Union were undertaken: Facilitating Offshore Wind Energy in India (FOWIND) and First Offshore Wind Power Project in India (FOWPI). Furthermore, the Indian Ministry of New and Renewable Energy along with the Danish Energy Agency established the Centre of Excellence for Offshore Wind and Renewable Energy as a joint initiative. The aim of these projects to facilitate and accelerate the implementation of the Indian offshore wind strategy through various initiatives for spatial planning and permitting process, financial framework and auction design, grid and supply chain infrastructure, and technical standards and rules. Based on the assessments, Gujarat and Tamil Nadu are states with the most potential for offshore wind energy development with Tamil Nadu having a potential of approximately 35 GW and Gujarat of 36 GW, as per the National Institute of Wind Energy (NIWE),

Petrol and Diesel have always been a vindictive resource for our country with prices constantly governed by international markets and thereby governing our usage and economy. Today, India

imports 85% of its oil requirement<sup>3</sup>. Being dependent on other countries and events for such an important resource is unwise and the government recognized the same. Electric Vehicles are being given enormous support, both financially and otherwise. Customers are being given rebates and corporations, e.g, TATA, Mahindra, etc, are using these to incentivise customers and provide them with an experience that is worthy. Along with electrification of vehicles, usage of ethanol is also being researched with both mixing and independent usage being considered. The success of these field trials and studies paved the way for EBP in India. The Government of India vide its resolution dated 3rd September, 2002 decided to launch Ethanol Blended Petrol (EBP) Programme in January, 2003 for sale of 5% ethanol blended Petrol in nine States and four UTs. Supply of ethanol under the EBP Programme has increased from 38 crore litres during ESY 2013- 14 to 173 crore litres during ESY 2019-20 resulting in increase in blend percentage from 1.53% to 5.00% respectively. This was possible due to the government notifying two interest subvention schemes for molasses-based distilleries. Under the aforesaid scheme of DFPD, interest subvention at the rate of 6% per annum or 50% of rate of interest charged, whichever is lower on the loan sanctioned was borne by the central government for a period of 5 years. DFPD approved 368 projects for setting up of new distilleries / expansion of existing distilleries. Loans amounting to about Rs.3600 crore have been sanctioned by banks to 70 sugar mills so far; 31 projects have been completed creating a capacity of 102 crore litres as a result. Further, the allocation for the ongoing ESY (2020-21) has surged to 332 crore litres, which is 91% more in comparison to the ethanol supplies received during preceding ESY (2019-20).

India has seen extraordinary successes in its recent energy development, but many challenges remain, and the Covid-19 pandemic has been a major disruption in our progress. Multiple corporations have also been at the forefront of such developments.

ITC Limited, a leading Indian conglomerate, launched the e-Choupal initiative as a pioneering effort to empower rural farmers. The initiative establishes internet kiosks in rural areas, providing farmers with access to agricultural information, market prices, and best practices. By enhancing the livelihoods of rural farmers and reducing the need for unnecessary travel, this initiative contributes to sustainability in multiple ways. It aligns with ethical imperatives by uplifting rural communities and reducing the carbon footprint associated with traditional agricultural practices.

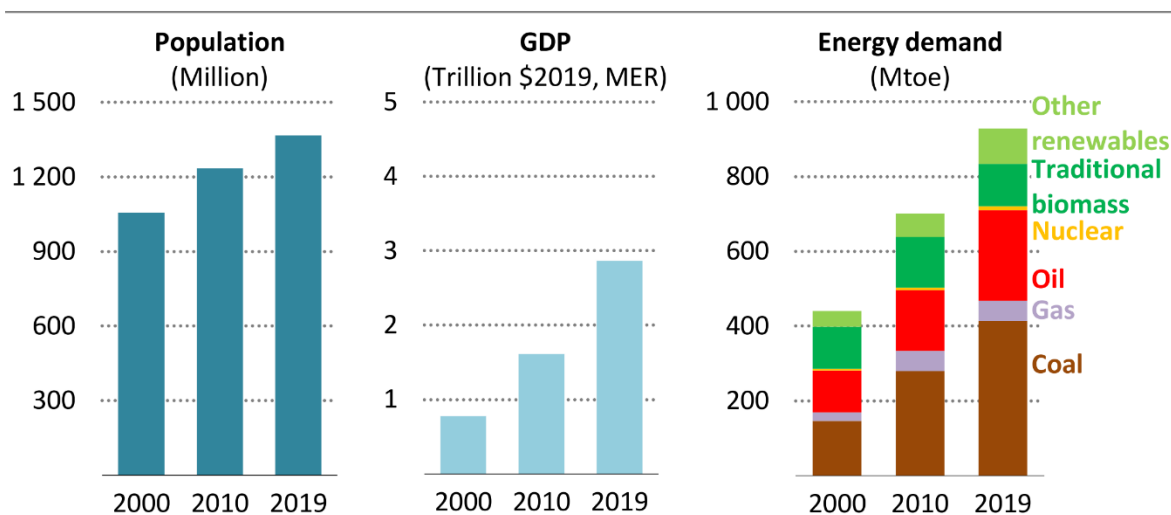
Mahindra & Mahindra, a prominent automobile manufacturer, has made significant strides in aligning its sustainability efforts with the United Nations' Sustainable Development Goals

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<sup>3</sup> PPAC's Snapshot Of India's Oil And Gas Data, January, 2021

(SDGs). Particularly, their commitment to SDG 13 (Climate Action) is evident in their development of electric vehicles (EVs). These EVs not only reduce greenhouse gas emissions but also promote clean and sustainable mobility. By aligning their business with global sustainability goals, Mahindra & Mahindra sets an example for other automotive companies and contributes to a more sustainable transportation sector.

India's overall growth till 2019 has been condensed in the below graph<sup>4</sup>:



*Rising population and incomes since 2000 have underpinned a doubling of energy use in India, but per capita energy use is still less than 40% of the world average.*

## II. WHAT IS SUSTAINABLE ENVIRONMENTAL DEVELOPMENT?

From our early classes we have been taught about the environment and that it is getting destroyed which will lead to our inevitable deaths and hence we should protect it to prevent us from getting incinerated. However, as we started our journey in the higher echelons of studies and our maturing minds started comprehending our grave dependency on polluting resources as well as existing practices. The question quickly changed from, “How to protect the environment?” to “How to protect our convenience and peace of mind with minimal compromise on the environment?” Professors and think tanks around the world soon had an answer for us and that answer was to promote the usage of natural resources and phase out non-renewable forms of energy as well as analysing every single aspect of business sectors and to identify potential improvements in materials being used, e.g., packaging. This terminology is often confused with the sustainable development goals or their more popular acronym, SDGs, released by the UN for all its member countries to aim for. It is indeed quite similar in its end goal of being kinder to our planet and its inhabitants, but the goals are made taking the

<sup>4</sup> India Energy Outlook 2021 (windows.net)



environment and the people in mind whereas Sustainable Environmental Development focuses solely on the environment. Furthermore, Sustainable Environmental Development is targeted towards the business sector rather than countries. The brevity of the most popular definition of sustainable development - development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This concept of conserving resources for future generations is one of the major features that distinguish sustainable development policy from traditional environmental policy, which also seeks to internalize the externalities of environmental degradation. The overall goal of sustainable development (SD) is the long-term stability of the economy and environment; this is only achievable through the integration and acknowledgement of economic, environmental, and social concerns throughout the decision-making process.

### **III. KEY PLAYERS**

Corporations and Industries alike are present at the forefront of such practices. Producers, retailers, etc shoulder the responsibility of promoting sustainable development due to their high impact owing to their large-scale operations. Furthermore, these practices also lead to less waste or rather, sustainable waste which will not or negligibly harm the environment. Sustainable Environmental Development is at the forefront of many corporations regardless of size with some taking the compliance route as compared to using it as a competitive advantage. The former is governed by the government through their policies, rules and various legislations being brought to curb environmental damage. India's complicated regulatory and legal framework causes businesses to run into problems with corporate governance, regulatory compliance, and corruption. This is where Environmental Social Governance (ESG) is the most useful. ESG refers to a set standard for a company's behaviour used by companies to follow governance, ethical practices, environment-friendly measures, and social responsibility. It is a framework allowing for corporation evaluations upon various ethical and sustainability issues including environment. Here's a breakdown of what an ESG score typically consists of:

- **Environmental:** A company's impact on the environment, such as its carbon footprint, waste, water use and conservation, and the clean technology it uses and creates in its supply chain.
- **Social:** A company or fund's impact on society and how it advocates for social good and change. Analysts closely examine its involvement and stances on social issues, such as human rights, racial diversity within hiring and inclusion programs, employees' health and safety, and community engagement.

- Governance: How an exchange-traded fund (ETF) or company is managed or “governed” for driving positive change. It encompasses reviewing the quality of its management and board, executive compensation and diversity, shareholder rights, overall transparency and disclosure, anti-corruption, and corporate political contributions.

This data is then used for understanding the overall impact, positive and negative and for determining future steps to be taken. These legislations are directed towards corporations while considering their overall size and potential impact to promote a certain level of equity during implementation. Governments around the world are currently trying to implement policies consisting of new and innovative alternatives of current practices. Corporations are being given various incentives, e.g, tax concessions to provide a kick start to operations which, with time, will become staple throughout sectors.

Globalisation has caused a domino effect for industries as an action taken in one country affects multiple countries. But the same domino effect can also be played as a royal flush, one sustainable action trickling its positive affects all across the globe. Nearly 200 countries have now ratified the Paris Accord to limit global warming to 1.5°C, and more than 127 countries have now imposed taxes or bans on plastic bags. It is a similar concept to technology spillover but with a much higher level of co-operation between countries and businesses due to the dire situation. For example, global retailer H&M partners with over 700 suppliers who manufacture in 1,600 factories across Europe, Asia and Africa. These suppliers employ over 1.56m predominantly female workers, mostly in Bangladesh and China. All suppliers must abide by H&M’s code of conduct, which aims to ensure that textiles are sourced from responsible, sustainable manufacturers, and that items created for the company adhere to a set of ethical standards including fair wages for workers, a ban on child labour and acceptable working conditions.<sup>5</sup> 75% of Nike shoes and apparel are now made with some recycled material, for instance, and leftover material scraps are used in production to minimize environmental impact and reduce costs. The company is also working toward using 100% recycled energy across the value chain.<sup>6</sup>

Investors are another piece of this sustainable puzzle and are considered the driving force of any decision taken by a business. Their primary goal is profit and that is governed by their product/services for the end consumer. ESG factors has become a crucial aspect in investor

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<sup>5</sup> The H&M Supply Chain Could Be the Model to Follow in Making Fast Fashion Sustainable (thomasnet.com)

<sup>6</sup> Nike Supply Chain Sets the Pace for the Activewear Industry (thomasnet.com)

decision making. 78% of global investors saying that they place more emphasis on ESG now than they did five years ago and 65% believing that ESG will become standard practice over the next five years. India has mandated that its top 1,000 listed companies to provide climate reporting starting in 2023.

#### **IV. ROLE OF THE CONSUMER**

30 years ago, the primary focus of corporations was profit and employee satisfaction. It was a 2D environment where the consumers were considered insects to be pulled in by the sweetest nectar and the competition was trying all formulas to make theirs delicious. The biggest enemy and threat of corporations was the “aware consumer”, and all businesses are at the mercy of the consumer. With the advent of global connectivity, consumers have all the latest information and “trends” at their fingertips, literally. The popularity of Google searches for terms related to biodiversity and nature loss, relative to all searches, have grown by 16% globally since 2016. Emerging countries in Latin America and Asia have seen the greatest increase in the popularity of searches for nature-related topics. In India, the popularity of such searches increased by an incredible 190%. Public demand for action is rapidly growing through protests, petitions and campaign donations. Between 2016 and 2018, global news media coverage of nature-based protests grew by a steady 7%. Between 2018 and 2019, however, coverage jumped by a whopping 103%, driven by protest movements such as Extinction Rebellion. The call for bold, decisive action by governments and businesses on behalf of the planet and future generations is getting louder and louder. Twitter also released an official report in 2020 revealing those conversations about sustainability, “clean” corporations and natural products—those that are environmentally friendly and health-enhancing—are among the fastest-growing topics on the platform. Corporations took advantage of this digital revolution through green marketing and pulled in consumers through appealing their sustainable mindset. Mahindra and Mahindra CEO Anish Shah also said climate change should not be seen as a potential disaster but “think of it as an opportunity.”<sup>7</sup>

#### **V. ACCENTUATING ASIA-PACIFIC’S POSITION**

Consumers in Asia-pacific have been a driving force behind corporations adopting major forms of ESG.

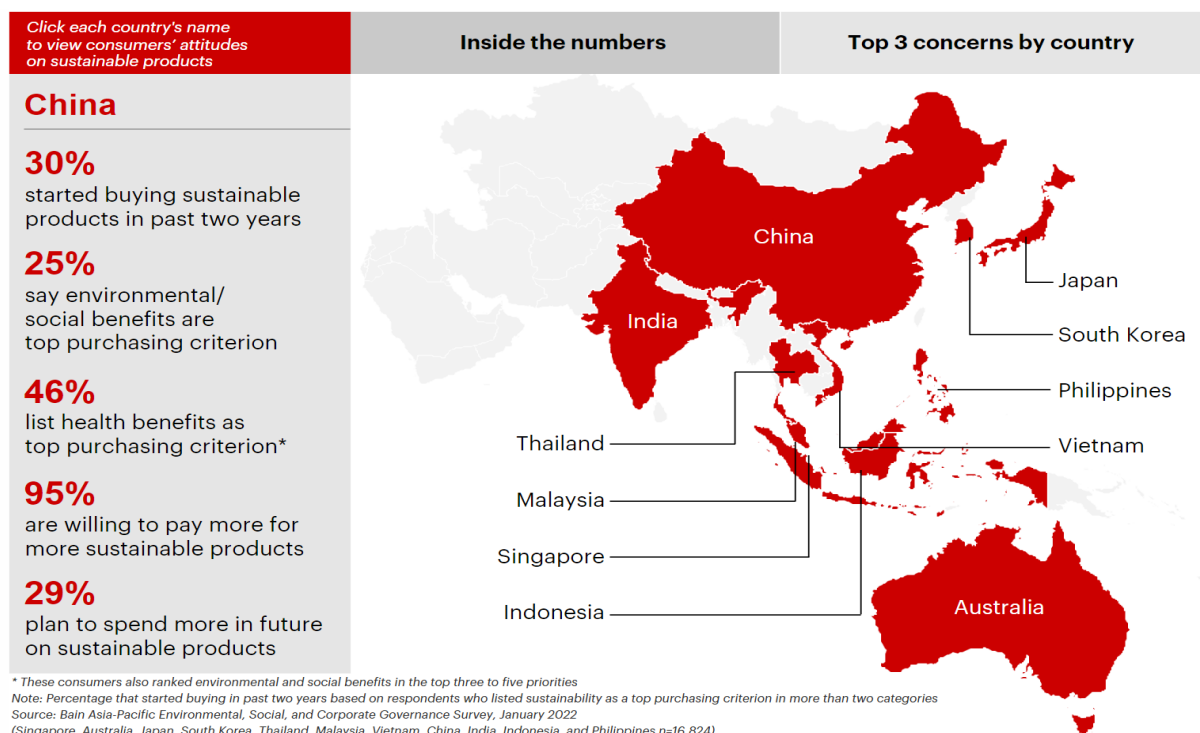
Bain & Company surveyed 16,000 Asia-Pacific consumers, across 11 countries and 7 consumer products categories, supplemented with more than 55 hours of deep-dive interviews. 90% said

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<sup>7</sup> M&M chief supports govt incentives to promote sustainability, Energy News, ET EnergyWorld (indiatimes.com)

that they are willing to spend a premium on sustainability products, but don't buy these goods due to a lack of information or the simple fact that they don't trust claims of sustainability. Diving deeper into the report, multiple myths are busted, and baseless excuses exposed. 15% of consumers don't buy sustainable goods because of a lack of information or the simple fact that they don't trust claims of sustainability. Another 10% mentioned low availability and only 16% cite price as a barrier. The last marker is one of the biggest shocks but bodes well as it shows the intent of consumers to be sustainable and support sustainable products. With the passage of years, wealth of nations has increased thereby increasing purchasing power of citizens. It allows them the choice to purchase products without prejudice but with freedom.

Apple products are a great example as consumers buy them, not only for their great quality, but also for their sustainable nature. In their latest keynote, they had a dedicated segment which showed off their progress towards full carbon neutrality and sustainability. Apple recognizes that sustainability is playing a huge role in decision-making for consumers and are utilizing it to create a competitive advantage. Sustainability allows them to set themselves apart from the competition and provide consumers with a peace of mind and bragging rights. Apple claims that, each carbon neutral Apple Watch model meets the following strict criteria: 100 percent clean electricity for manufacturing and product use, 30 percent recycled or renewable material by weight, and 50 percent of shipping without the use of air transportation. These combined efforts result in at least a 75 percent reduction in product emissions for each model.



## **VI. CONCLUSION**

As the world grapples with the imperative of sustainable energy, India's determined strides toward renewable sources stand as a testament to its commitment to a greener future. The government's pragmatic approach, coupled with international collaborations and financial incentives, has propelled substantial growth in renewable energy capacity. Solar and wind energy initiatives, along with a focus on electric vehicles and ethanol usage, underscore India's intent to reduce fossil fuel dependency.

In the corporate realm, businesses are recognizing sustainability not merely as a moral imperative but as a competitive advantage. The adoption of ESG criteria is becoming standard practice, driving companies to prioritize ethical practices, environmental responsibility, and social impact.

Crucially, consumers, empowered by information and global connectivity, are pushing corporations to adopt sustainable practices. Their willingness to spend premiums on sustainable products reflects an evolving mind-set. This consumer-driven shift is redefining corporate strategies and incentivizing sustainability-focused innovation.

While challenges persist, including trust gaps in sustainability claims and information dissemination, the path towards sustainable environmental development is irrevocably set. Global initiatives like the Paris Accord and increasing co-operation between nations and corporations exemplify the interconnectedness of sustainability efforts. By embracing sustainability, corporations are not only meeting consumer demands but also contributing to a more resilient, environmentally conscious future.

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