Confederation of Indian Industry

Eastern Region

Tackling Climate Crisis

New Age Organisations & Mindset Shift

FOCUSED CASE STUDIES ON RELEVANT INDUSTRIES IN THE EASTERN REGION OF INDIA

November 2024

GreenEnco

Maximising Asset Values

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I. Executive Summary

The world as it is today, has seen several natural calamities that have caused a large loss of life and property while indicating larger losses in the coming years, posed by climate change.

The states of Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Jharkhand, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Odisha, Tripur comprise the Eastern Region of India. This is a region of diverse landscapes and topography – and prone to natural calamities that threaten its habitat of people, plants and animals.

While policies are being formulated nationally as well as in these states, it is also a giant ownership on the industry in this region to ensure undertaking culture changes that enable them to adopt climate change practices faster.

The eastern region of India is home to the largest MSME base and energy-intense manufacturing base. This is also a newfound base for growing the services sector, with sectors like IT, healthcare, education, hospitality industries seeing massive investments in the past few years. This has given fillip to infrastructure development and urbanisation.

While undertaking such developmental goals, corporate mindfulness is an imperative.

This CII-GreenEnco White Paper outlines strategies for cultivating a climate-conscious culture within organizations. By fostering a culture and mindset shift, organizations can contribute significantly to global climate change mitigation efforts while also improving their operational efficiency and corporate image.

This white paper serves as a foundation for understanding the intersection of cognitive dissonance and climate action in organizational settings. By embracing cultural shifts and implementing tailored initiatives, organizations can enhance their environmental impact and fulfill their sustainability commitments effectively.

II. Climate crisis – the road markers that we may have missed!

Human development has grown exponentially over the last few decades with technology, travel, consumerism and human activity sprawling rapidly. To cater to the needs of this development, infrastructure, and mobility have grown like never before.

Human activities to the planet are like sugar to a diabetic. The rapid urbanisation has led to the necessity of meeting the growing consumer demands with adequate infrastructure and convenience and commodities, while putting pressure on the environment and the ecosystem.

This is largely driven by an unprecedented rise in the overall temperatures. The world leadership has signed a legally binding treaty under UNFCC's COP21 agreement in Paris in 2015, with a target of containing this rise in temperature to less than 1.5 degrees Celsius by the end of this century.

This rapid global warming is largely due to the emission of greenhouse gases (GHGs), particularly from combustion of fossil fuels.

That the world is dealing with a climate crisis is neither a new nor a distant concept. It is not something happening to somebody else in some other world – it is not a first world or third world problem.

Climate crisis is something that is in our here and now – our very present moment. For decades we have witnessed unparalleled acceleration in global temperatures, primarily attributed to human activities – development of infrastructure, our consumption patterns, our travel habits and overall use of the earth's resources.

We have noticed the impact - we have waited for nature to strike our coastlines, our mountainous regions, our deserts and forests with vengeance and fury – but we have lived in a certain willful dissonance that this is the responsibility of people or leaders beyond our own selves and communities.

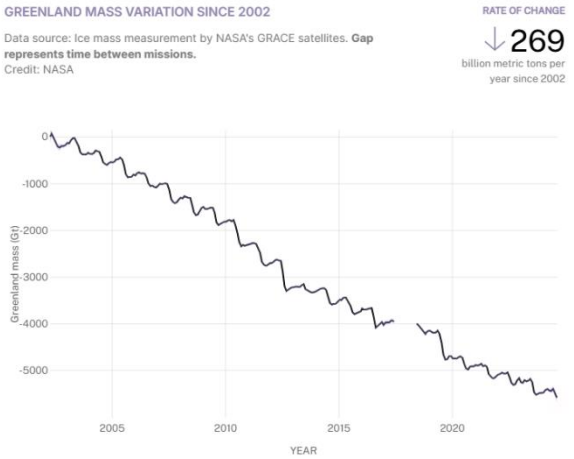
As the urgency of addressing climate change intensifies, organizations play a crucial role in driving sustainable practices. Fostering a climate-conscious culture is not just an environmental imperative but also a strategic business decision that can lead to innovation, cost savings, and enhanced reputation.

However, have we refused to recognize the perils of this crisis? Have we internalized wasteful practices so much so that they have formed patterns? Are we still in a denial that natural

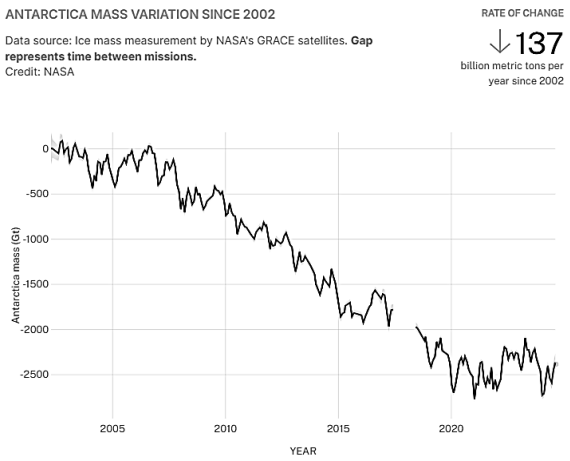
disasters such as typhoons, hurricanes and earthquakes are not standalone issues? Have the result of mindless overuse by our own species not hit home hard enough yet?

2012-2024: Arctic & Antarctic Ice Caps – A history by 2040?

Throughout Earth's history, the gradual rise in global temperatures has led to glaciers melting. However, the current pace of climate change threatens to accelerate this process dramatically, potentially resulting in unprecedented glacier disappearance. The world's oceans absorb approximately 90% of Earth's excess heat, particularly affecting marine glaciers in polar regions and along the Alaskan coastline, speeding up their melting.



According to NASA, Greenland and Antarctica's ice sheets store about two-thirds of the fresh water on Earth. They are losing ice due to warming, contributing to about one-third of the average global sea level rise since 1993. In 1994, around 800 billion metric tons of ice were lost annually; this has now increased to over 1.2 trillion tons. The glaciers hold enough ice—about 170,000 cubic kilometers—to raise sea levels by nearly half a meter. The most pressing issue is climate change, driven largely by human activities.



The melting polar ice caps will impact everyone on Earth. With less polar ice, more sunlight is absorbed, leading to faster global warming, destabilized food systems, increased natural disasters, and extreme weather changes. Additionally, rising sea levels will directly affect coastal communities.

2019 – Fire in the Amazon Rainforests – highest deforestation in 2019

The Amazon rainforest spans approximately 670 million hectares (1.7 billion acres) and is the world's largest CO2 sink, absorbing up to 25% of global CO2 emissions, which is vital for regulating atmospheric CO2 levels and mitigating climate change. However, deforestation driven by agriculture, livestock grazing, mining, and logging poses a significant threat. Land is commonly cleared using slash-and-burn techniques, which often lead to uncontrolled fires.

Despite laws against deforestation in Amazonian countries, enforcement is lax, resulting in widespread illegal activities. Fires, mainly occurring during the dry season, are estimated to be 99% man-made, often clustering near roads and agricultural areas.

Recent satellite data revealed alarming trends: Brazilian authorities reported a deforestation rate of 970,000 hectares in 2019, the highest loss in over a decade. Data from August 2020 showed a 28% increase in fires within the Amazon, raising concerns about the ecosystem's capacity to combat global warming. Environmental scientists warn that ongoing deforestation could push the Amazon to a "tipping point," risking its transformation from forest to savanna under certain climate conditions exacerbated by human activity.

2019-2020 - Australian Bushfire

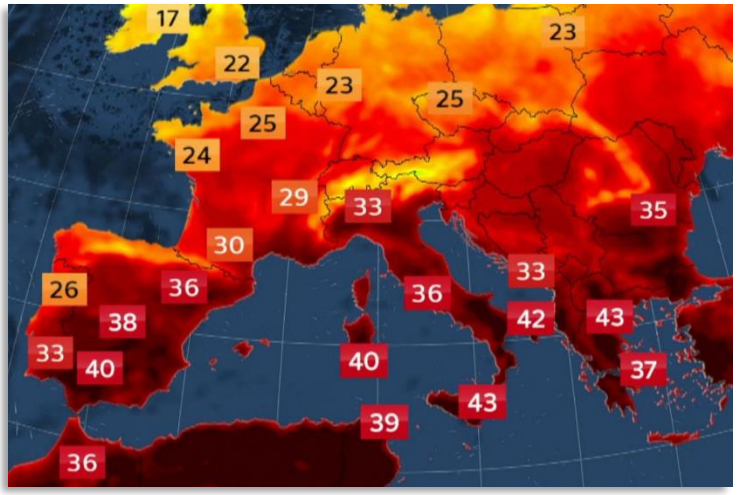
Up to 19 million hectares were burnt, with 12.6 million hectares primarily of forests and woodlands. Nearly 3 billion animals were impacted by the blazes. While the fires are not caused by climate change, the frequency and impact have been worsened by it. Further, emissions from these bushfires were estimated between at 400 million tonnes of CO2 to even 1 billion tonnes. Australia, according to WWF, 'lost a significant portion of its natural capital over just four months.' Natural regrowth and carbon capture takes years – perhaps a decade, according to estimates.

The orange glow of the bushfire front in Bowraville, NSW. © Adam Dederer / WWF-Aus

2024: The European heat wave

The European heat wave of 2024 has had far-reaching consequences on both human life and biodiversity across the continent. Soaring temperatures, particularly in Southern Europe where they have exceeded 40°C (104°F), have led to a surge in heat-related illnesses and fatalities, especially among vulnerable populations such as the elderly and those with pre-existing health conditions.

The extreme heat has also placed immense strain on healthcare systems and urban infrastructure.



In terms of biodiversity, the impact has been equally severe. Many plant species are experiencing accelerated wilting and desiccation, disrupting local ecosystems. Aquatic life in rivers and lakes is under threat due to rising water temperatures and decreasing oxygen levels.

Terrestrial animals are facing challenges in finding adequate water sources and cooler habitats, leading to changes in migration patterns and breeding cycles. Furthermore, the heat wave has exacerbated wildfire risks, potentially destroying vast areas of natural habitats.

This widespread ecological stress underscores the urgent need for comprehensive climate adaptation strategies to protect both human communities and the rich biodiversity of Europe.

MORE INTERNATIONAL CALAMITIES DRIVEN BY CLIMATE CHANGE

2022 European Drought

In 2022, Europe faced its worst drought in 500 years, marked by record temperatures and significantly reduced rainfall. This led to widespread crop failures, lower hydroelectric power generation, and disruptions in river transport, affecting major rivers like the Rhine, Po, and Danube, which reached historic low water levels. Agriculture was hit hard, with some regions seeing crop yields drop by up to 50%.

2022 Pakistan Floods

During the summer of 2022, Pakistan suffered catastrophic flooding that submerged one-third of the country. Triggered by heavy monsoon rains and melting glaciers, the floods impacted over 33 million people, causing destruction of infrastructure and agriculture. The disaster, linked to climate change, resulted in over 1,700 deaths and economic losses exceeding $40 billion.

2020-2022 Southwestern North American Drought

From 2020 to 2022, the southwestern U.S. and parts of Mexico experienced a severe "megadrought." Climate change exacerbated this prolonged dryness, leading to significant water shortages in major reservoirs like Lake Mead and Lake Powell. The drought severely impacted agriculture, increased wildfire risks, and imposed water usage restrictions, making it one of the region's worst in over 1,200 years.

2021 Henan Province Cloudburst, China

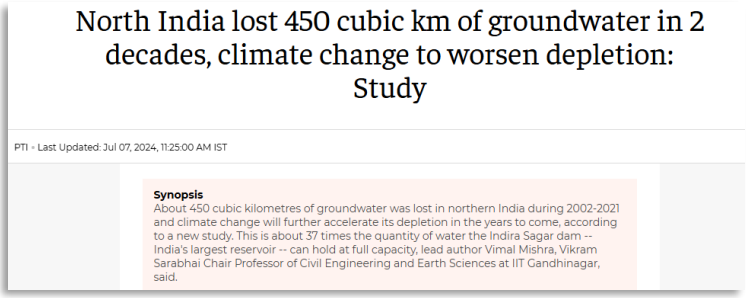
In July 2021, Henan province in central China experienced extreme rainfall, with Zhengzhou receiving a year's worth of rain in just three days. The resulting urban flooding submerged subway tunnels and streets, causing over 300 deaths and substantial economic losses. The intense rainfall overwhelmed drainage systems, illustrating cities' vulnerability to climate-related extreme weather.

2021 Western European Floods

In July 2021, Western Europe, particularly Germany and Belgium, was struck by severe floods due to heavy rainfall that caused rivers to overflow and flooded urban areas. The disaster resulted in over 200 deaths and billions in damage. Its intensity, particularly in developed countries, raised concerns about Europe's readiness for extreme weather events linked to climate change.

III. India – greater the diversity, more the challenges!

A look at some major climate change impacts that indicate how fast we are hurtling towards doomsday!



2022 Bengaluru Cloudburst

In September 2022, Bengaluru, India's tech hub, experienced a severe cloudburst event that led to widespread flooding. The city received 131.6 mm of rainfall in just three hours, causing chaos in the city's infrastructure. Many areas, including upscale neighborhoods and tech parks, were inundated. The event exposed the city's inadequate drainage system and unplanned urban development, leading to calls for improved urban planning and climate resilience measures.

Kerala Floods (2018)

- **Impact**: Heavy rainfall leading to landslides and severe flooding.
- **Damage**: Estimated cost of INR 31,000 crore ($4.5 billion).
- **Loss of Life**: 493 people lost their lives.

Chennai Floods (2015)

- **Impact**: Excessive rainfall leading to urban flooding.
- **Damage**: Estimated losses of ₹15,000 crore ($2.4 billion).
- **Loss of Life**: Around 500 people dead.

Uttarakhand Floods (2013)

- **Impact**: Sudden glaciers melt, and heavy rainfall caused severe floods.
- **Damage**: Estimated damage exceeding ₹6,000 crore ($970 million).
- **Loss of Life**: Over 5,700 fatalities

CALAMITIES IN THE EASTERN REGION

AMPHAN 2020 – Super-cyclone in the Bay of Bengal. Storm surges reached 15 ft in areas like Digha, West Bengal

- $13.8 billion in damage in India (West Bengal & Odisha) & $131 million in Bangladesh
- Casualties - 100 people in India and 26 in Bangladesh
- Displaced 4.9 million more from their homes
- Costliest tropical cyclone ever recorded in India and the North Indian Ocean
- Winds reached 100 mph and uprooted trees and ripped roofs off houses

Bangladesh scarred by Super Cyclone Amphan even after four years, with displaced people still refugees & land uncultivable

Affected people are living in dire straits of housing and employment

Odisha Cyclone Fani (2019)

- **Impact**: Highest wind speeds recorded in the region.
- **Damage**: Approximately ₹8,000 crore ($1.1 billion).
- **Loss of Life**: 89 lives lost.

Heavy rain in Sikkim triggers multiple landslides, bridge damaged

With the bridge down, Mangan district headquarters in Sikkim is cut off from the rest of the State.

Published – September 27, 2024 10:56 am IST – Gangtok

PTI

Business News / India News / Odisha Flood: 250 Villages Affected In Balasore As Rivers Overflow,

Odisha flood: 250 villages affected in Balasore as rivers overflow, over 400 people evacuated

Preliminary assessments indicate that 264 villages across 56 gram panchayats and 17 wards in Jaleswar municipality have been affected by the flood. Heavy rainfall over the past four days has exacerbated the flood situation as the Subarnarekha, Budhabalang, and Jalaka rivers continue to rise.

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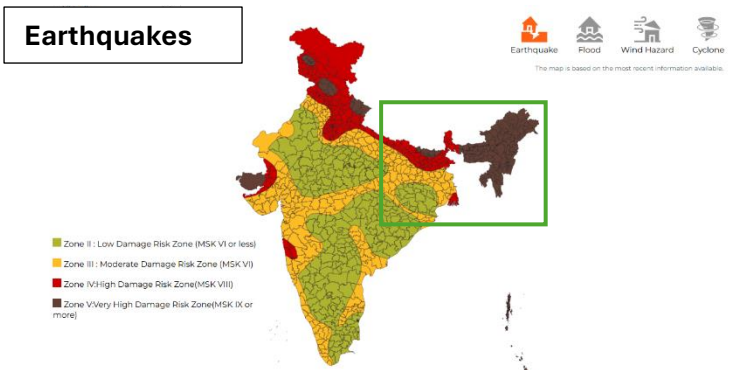
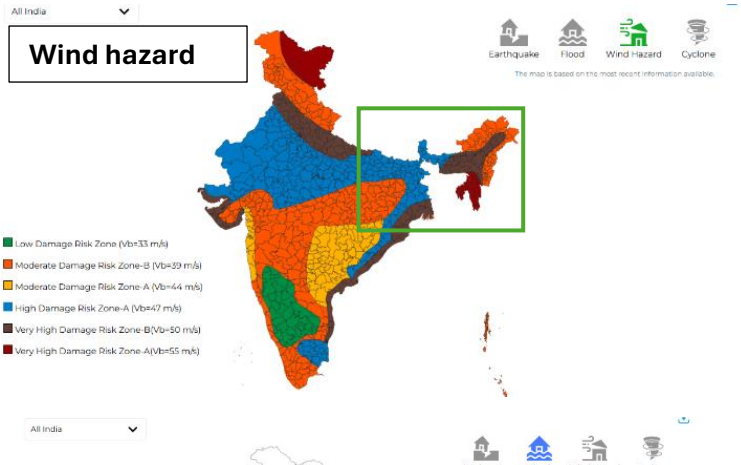
Natural Calamity Risk in the coming years

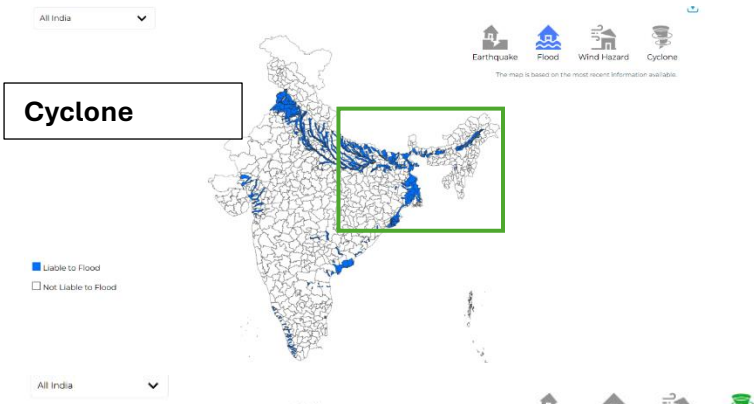
Earthquakes



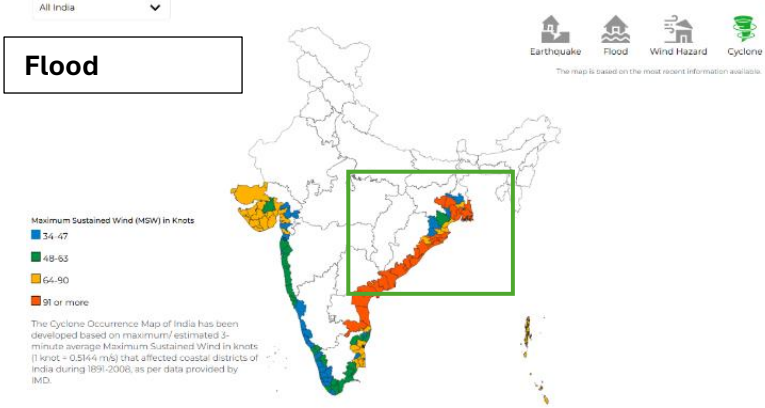
Wind hazard



Cyclone



Flood



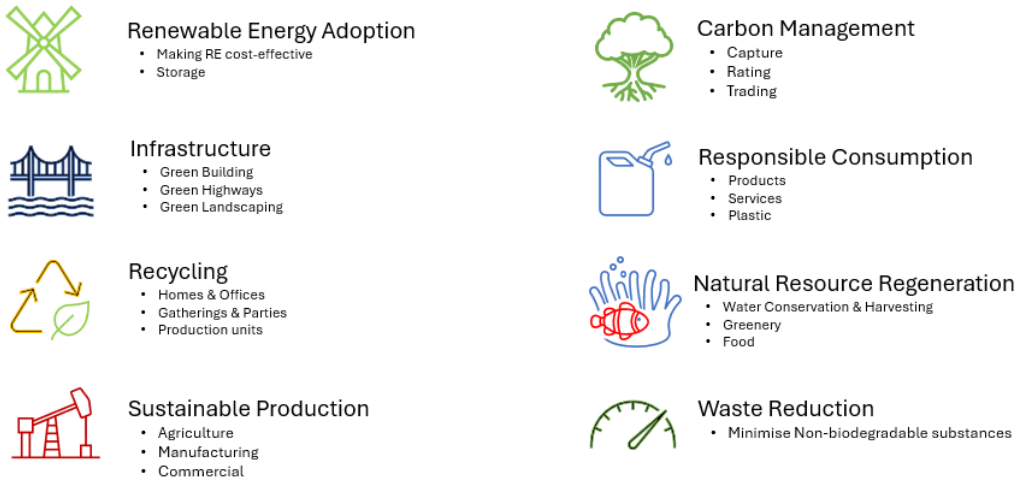
(Source: NITI Aayog Disaster Vulnerability Mapping, 2024)

Biggest contributors to climate change

Contribution of Different Industries in Waste, Emissions, and Pollution in India:

- **Industrial Sector**: Major contributor to air and water pollution, owing to inadequate waste management.
- **Agriculture**: Significant emissions from fertilizers and pesticides leading to soil degradation and water pollution.
- **Transport Sector**: Significant CO2 emissions from vehicles, which constitute a large portion of urban pollution.
- **Construction**: Generates huge amounts of solid waste and emissions from cement and material production.
- **Energy Sector**: Coal-based power plants are major sources of air pollution and GHG emissions.

Broader Initiatives



New practices and methods are available for faster adoption of climate positive initiative.

- Increased automation: Many manufacturers accelerated the adoption of automated processes, reducing the need for on-site workers and potentially lowering energy consumption.
- Energy-efficient equipment: Some companies used the slowdown as an opportunity to upgrade to more energy-efficient machinery.
- Optimized production schedules: Manufacturers often consolidated production runs to minimize energy use during start-ups and shutdowns.
- Remote monitoring and maintenance: The adoption of IoT and remote monitoring technologies reduced the need for on-site personnel, potentially lowering emissions from commuting.
- Waste reduction initiatives: Many companies focused on reducing waste in their processes, which often leads to lower energy consumption and emissions.

IV. Net-Zero Target and Low Carbon Solutions

Eastern India faces unique challenges and opportunities in the transition to a net-zero economy. While Eastern India plays a significant role in India's overall emissions due to its industrial base and reliance on coal for energy, it also has vast potential for solar energy.

1. **Decarbonisation of Power Sector & True Potential of Solar**:

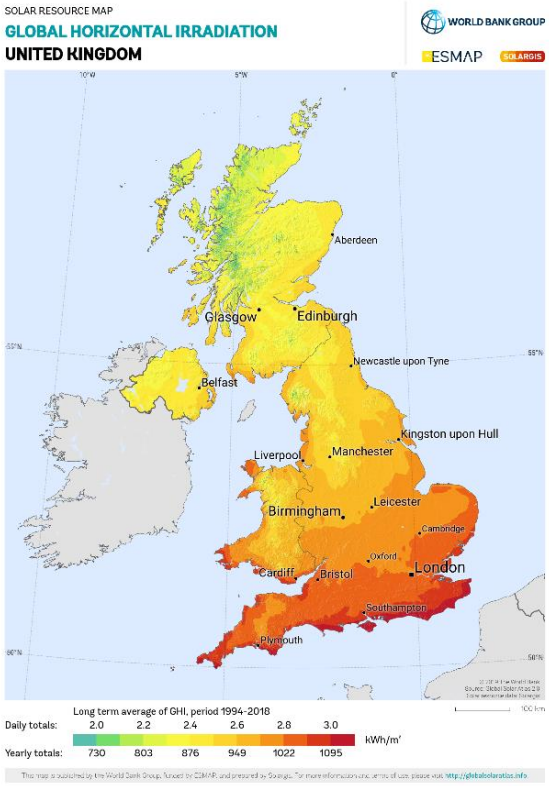
    - **Solar Energy Potential**: With high levels of solar irradiance, Bihar, Jharkhand, and Odisha can scale up solar capacity significantly. Historically, the solar potential in the Eastern region has been underestimated.

      Global Horizontal Irradiance (GHI) in the UK varies between 730 kWh/m^2 to 1095 kWh/m^2 and GHI in Germany varies between 949 kWh/m^2 to 1241 kWh/m^2. Whereas in West Bengal, it varies between 1534 kWh/m^2 to 1680 kWh/m^2. The lower irradiance level available in West Bengal is 40% higher than the highest irradiance level compared to the UK and 24% higher than the highest irradiance level compared to the Germany.

      As of 2023, the **solar PV installation capacity** in the UK has reached approximately 15 GW and Germany has reached approximately 70 GW, making it one of the largest solar markets in Europe and globally. Whereas the solar installation capacity in West Bengal is approximately 2.5 GW.

      The total area of West Bengal is approximately 88,752 square kilometers (34,267 square miles). The total area of the UK is approximately 243,610 square kilometers (94,058 square miles).

      Based on the solar resource and area available, West Bengal has a true potential of over 7 GW solar.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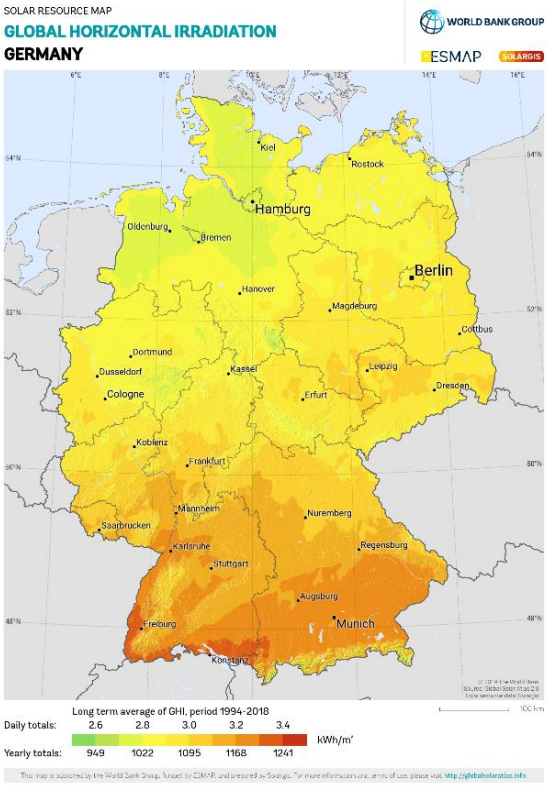
GLOBAL HORIZONTAL IRRADIATION
UNITED KINGDOM
WORLD BANK GROUP
ESMAP
SOLARGIS
Aberdeen
Glasgow
Edinburgh
Belfast
Newcastle upon Tyne
Kingston upon Hull
Liverpool
Manchester
Birmingham
Leicester
Cambridge
Oxford
Cardiff
Bristol
London
Southampton
Plymouth
Long term average of GHI, period 1994-2018
Daily totals: 2.0 2.2 2.4 2.6 2.8 3.0 kWh/m²
Yearly totals: 730 803 876 949 1022 1095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Augsburg
Freiburg
Munich
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Long term average of GHI, period 1994-2018
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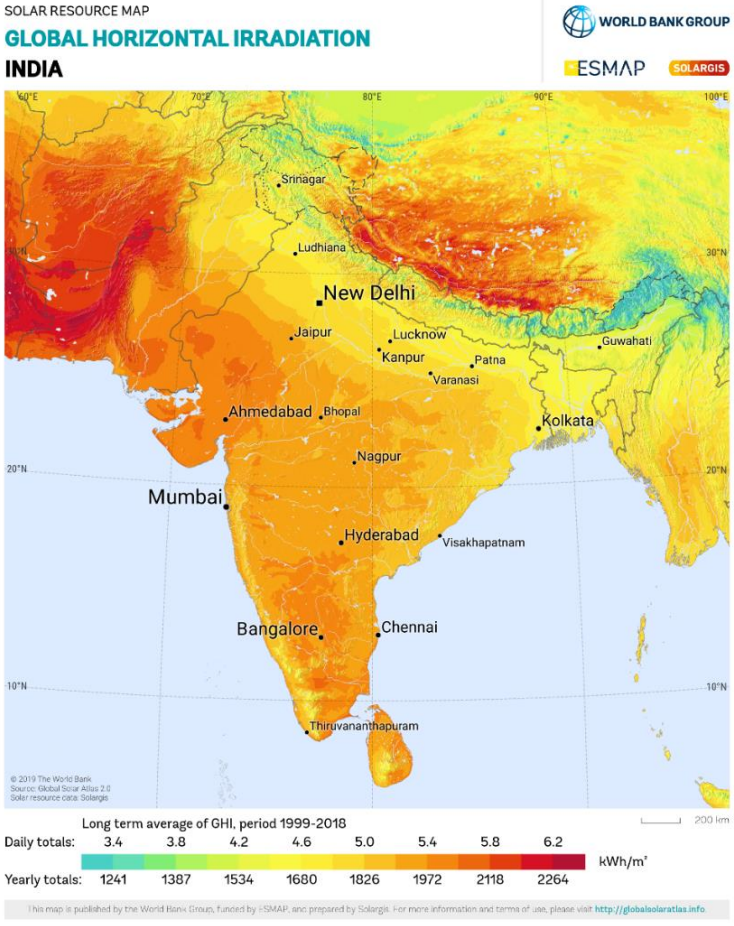
Yearly totals: 949 1022 1095 1168 1241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Varanasi
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Kolkata
Nagpur
Mumbai
Hyderabad
Visakhapatnam
Bangalore
Chennai
Thiruvananthapuram
© 2019 The World Bank
Source: Global Solar Atlas 2.0
Solar resource data: Solargis
200 km
Long term average of GHI, period 1999-2018
Daily totals: 3.4 3.8 4.2 4.6 5.0 5.4 5.8 6.2 kWh/m²
Yearly totals: 1241 1387 1534 1680 1826 1972 2118 2264
This map is published by the World Bank Group, funded by ESMAP, and prepared by Solargis. For more information and terms of use, please visit http://globalsolaratlas.info

2. **Energy Storage and Grid Modernisation**:
    - **Energy Storage Systems (ESS)**: To ensure reliability and manage intermittency from renewables like solar and wind, energy storage solutions such as batteries is essential.
    - **Smart Grids**: A modernized energy grid with demand-side management, distributed energy resources, and Active Network Management (ANM) with real-time monitoring can optimize energy use, reduce losses, and integrate renewable energy sources more effectively.

State	Status
West Bengal	Leading in smart grid initiatives, with pilot projects in select urban areas to improve power quality and reduce outages
Odisha	Focus on modernizing power distribution infrastructure and implementing smart metering solutions
Chhattisgarh	Emphasis on rural electrification and improving the reliability of power supply in remote areas
Bihar	Efforts to reduce transmission and distribution losses through grid upgradation and anti-theft measures
Jharkhand	Exploring potential for pumped hydro storage and improving grid connectivity in mineral-rich areas

3. **Electrification of Transport**:
    - **Electric Buses and Vehicles**: Eastern India can leverage the growing trend of electric mobility. Cities like Kolkata can invest in electric buses and promote electric two-wheelers and three-wheelers for last-mile connectivity.
    - Charging Infrastructure: Building a robust EV charging network is essential to encourage the adoption of electric vehicles.

Electric Vehicle (EV) Index by HERE Technologies and SBD Automotive, released on World EV Day, provides an in-depth look at how states and union territories are faring in their transition to electric mobility. This index ranked comprehensive index ranks Indian states and territories according to key metrics influencing electric vehicle adoption, usability, and accessibility.

V. Climate Change: Why is it a mindset issue?

The eastern Indian states face several common challenges in renewable energy sector, including a lack of public awareness about proper practices, insufficient funding for infrastructure & capacity building, and limited implementation of renewable energy projects, especially solar project compared to its true potential in the eastern region.

THE POSTIVE ENVIRONMENTAL IMPACT OF COVID-19

The COVID-19 pandemic provided scientists with an unprecedented opportunity to observe rapid changes in Earth's atmosphere due to sudden reductions in emissions. This natural experiment revealed surprising interactions between climate change and air pollution, demonstrating that these issues are inextricably linked.

Global lockdowns led to a swift decrease in air pollution and greenhouse gas emissions. For instance, in China, nitrogen dioxide levels fell by up to 30 percent in some areas during the initial lockdown period. Similarly, global CO_2 emissions decreased by approximately 6.4 percent in 2020 compared to 2019, the largest single-year decrease ever recorded.

A comprehensive study utilizing satellite data from NASA and other space agencies uncovered unexpected findings about atmospheric changes during this period. The research, published in the Proceedings of the National Academy of Sciences on November 9, 2020, focused on four key atmospheric components:

- Carbon dioxide and methane (greenhouse gases)
- Nitrogen oxides and microscopic nitrate particles (air pollutants)

The study's lead author, Joshua Laughner from Caltech, emphasized the importance of considering air quality and climate as interconnected issues. This research, involving scientists from approximately 20 institutions worldwide, provides valuable insights into addressing both climate warming and air pollution simultaneously.

One notable finding was that while nitrogen oxide levels decreased rapidly in urban areas (by up to 50 percent in some cities), the reduction in carbon dioxide was less pronounced due to its longer atmospheric lifetime. This highlights the complexity of atmospheric chemistry and the need for long-term strategies to combat climate change.

The study's results underscore the potential for rapid environmental improvements when drastic measures are taken, but also reveal the intricate relationships between various atmospheric components that must be considered in future climate and air quality policies.

The pandemic was an opportunity to disrupt and reinvent. But mostly, the world went back to old ways of overusing the environment and continued to evolve old processes rather than disrupt and make way for a new world.

Human psychology – what is causing our dissonance?

Despite knowing the perils of this climate crisis and the impact it will have on our future generations, why are we not able to contain it? Have we formed unhealthy patterns – recognized or unrecognized? Do we lack intention?

The biggest problem for the climate change fight isn't technology – it's human psychology.

Conservation scientists have suggested from their research that most people consider Climate Change as a distant problem –

1. "Happening to polar bears"
2. "Happening to generations several hundred years from now"

We are a victim of our own species. We have invented words, such as "Inclusion" to gather efforts of different communities that we know are for our own sake. But we have formed patterns of usage that are hard to break.

Take the example of physical exercise. We know that exercise and movement is good for our overall well-being. It releases the chemicals needed to maintain a healthy body and a healthy mind. A recent study by the World Health Organization (WHO) found out that a third of the world's adult population is inactive.

Take another example – addiction. Addiction can be of two types – recognized addiction and unrecognized addiction.

Recognised addiction relates to being addicted to items that are well-known to form habits that are hard to let go of – smoke, substances, alcohol. Etc.

Unrecognised addiction are those habits, of a bigger subset outside our recognized addiction, that form a pattern without our knowledge or cognition.

Climate Communication

Our mindset also translates into how we communicate the problem –

"It is a policy issue"

"It is the responsibility of someone else (businesses, leaders, policymakers, scientists at NASA etc.)"

Growth Mindset vs Fixed Mindset

A Matrix on Climate Change Perspectives

In 2006 world-renowned Stanford University psychologist Carol Dweck published her iconic book **MINDSET**. Her work found that people tended to fall sharply into two categories regarding their 'intelligence capabilities.' They either considered their intelligence as a fixed and finite quantity, or they saw it as something that had the ability to grow and change shape through learning.

Applied to climate-intelligence, the 'growth versus fixed mindset matrix,' matrix will help you to explore how individuals might approach the complex issue of climate change. In doing so, one can better understand how different perspectives influence attitudes and actions towards this global challenge.

ASPECT	GROWTH MINDSET	FIXED MINDSET
UNDERSTANDING OF CLIMATE SCIENCE	• Climate science is an evolving field • I am eager to learn and stay updated on new research	• Climate science is too complex • Engaging with new information is cumbersome at times
PERSONAL RESPONSIBILITY	• Individual actions can contribute to positive change • I am constantly adapting my lifestyle to be more climate conscious	• Individual actions are insignificant • Personal changes are good to talk about, hard to implement
PROBLEM-SOLVING APPROACH	• I always look for innovative solutions and technologies • I always try new approaches first	• New solutions are a waste of time • Traditional methods always work best
COLLABORATION	• I value everyone's perspective • I like working with others to address climate issues	• I would rather work alone or with like-minded individuals • Opposing viewpoints slows me down
RESPONSE TO SETBACKS	• Setbacks are great learning opportunities • I persist in face of challenges	• Setbacks are disappointing to me • I may give up on climate action efforts
POLICY SUPPORT	Let us look at the old policies and new information and bring in some changes	The existing policies are good enough; no need for any new ones
EDUCATION AND AWARENESS	• I actively seek to educate self and others • I promote climate awareness through my life	• I may avoid or dismiss climate education efforts • Spreading awareness is not my job
LONG-TERM PERSPECTIVE	Okay, this will be profitable but let us examine the long-term impacts and future generations	There will be some long-term hazards, but right now this makes sense

The matrix illustrates how a growth mindset can lead to more proactive, adaptive, and collaborative approaches to addressing climate change. Individuals with a growth mindset are more likely to:

- Engage with evolving climate science and adapt their understanding
- Take personal responsibility for their environmental impact
- Embrace innovative solutions and technologies
- Collaborate effectively with diverse groups
- Persist in the face of challenges and setbacks
- Support flexible and adaptive climate policies
- Actively participate in climate education and awareness efforts
- Consider long-term impacts and make decisions accordingly

In contrast, a fixed mindset may lead to resistance to change, scepticism towards new information, and a tendency to avoid personal responsibility or action on climate issues.

Fostering a growth mindset in individuals and communities could significantly enhance our collective ability to address climate change. By encouraging openness to new ideas, resilience in the face of challenges, and a willingness to learn and adapt, we can create a more effective and sustainable approach to combating this global issue.

VI. Organisational Culture - Values, Beliefs, Practices

Cognitive dissonance occurs when individuals or organizations hold conflicting beliefs or values, leading to discomfort and avoidance of change. In the context of climate change, many organizations profess commitment to sustainability but fail to implement effective practices. This dissonance can hinder meaningful climate action and result in negative environmental impacts.

Understanding Cognitive Dissonance in Organizational Cultures

Organizational culture encompasses the values, beliefs, and behaviors that shape how an organization operates. When there is a mismatch between stated values (e.g., sustainability) and actual practices (e.g., resource consumption), cognitive dissonance arises. Employees may sense the inconsistency but feel powerless to challenge it, leading to disengagement and inaction on climate initiatives.

Below are some key industry cases, relevant to the Eastern Region of India

A. CASE STUDY: Education & training across levels cannot be compromised upon

Overview

A Manufacturing Firm A is an established leader in its industry, recognized for its engineering excellence. However, the firm's attempts to implement sustainability measures have fallen short due to a lack of cultural commitment.

Background

In an effort to reduce its environmental footprint, Manufacturing Firm A launched a sustainability program that included waste reduction and energy efficiency improvements. The initiative was well-publicized, emphasizing the firm's dedication to environmental responsibility.

Key Issues

Despite the valid objectives, the firm did not invest adequately in employee training or outreach related to sustainability practices. As a result, employees lacked the necessary knowledge and skills to contribute to the initiative effectively. Communication regarding the importance and expected contributions to sustainability was insufficient.

Impact

This lack of training led to poor participation in sustainability initiatives, significantly reducing the program's effectiveness. Employees felt disconnected from the sustainability goals, contributing to a culture of complacency and undermining the overall mission.

Lessons Learned

- **Education and Training are Critical**: Organizations must prioritize training concerning sustainability practices and cultivate a culture of environmental awareness among employees.
- **Strengthening Communication**: Establishing ongoing dialogues about sustainability goals fosters engagement and accountability among employees.

B. CASE STUDY: Consistent Employee Communication is Essential

Overview

Power Company B is a major electricity provider that has faced significant scrutiny for its reliance on fossil fuels while simultaneously promoting renewable energy initiatives.

Background

In response to growing public demand for clean energy, Power Company B announced a vision to increase its renewable energy portfolio by 50% within the next decade. The company initiated public campaigns to highlight its commitment to sustainability while continuing to operate coal-fired power plants.

Key Issues

Despite its public commitments, Power Company B struggled to shut down or transition its existing fossil fuel plants. Internal resistance and financial implications led to slow progress in achieving its renewable energy goals. Employees felt torn between the company's outward green image and its ongoing reliance on non-renewable energy sources.

Impact

The company faced backlash from environmental groups and a drop in consumer confidence. Employee morale decreased as many felt that their contributions to sustainability were undermined by the company’s actions, creating cultural dissonance.

Lessons Learned

- Commitment to Transition: Genuine sustainability efforts must involve a clear roadmap for transitioning away from fossil fuels.
- Consistent Messaging: Communication should match actions; employees need to see that change is truly happening.

C. CASE STUDY: Responsible Sourcing from Responsible Vendors

Overview

Retail Corporation D is a major global retailer that has publicly committed to sustainability and environmental responsibility. However, the company's practices in its supply chain have drawn criticism, highlighting issues of cognitive dissonance between its stated values and actual operations.

Background

In an effort to enhance its corporate social responsibility profile, Retail Corporation X announced a comprehensive sustainability strategy focused on reducing carbon emissions and promoting responsible sourcing. The company invested millions in marketing campaigns to promote its green initiatives.

Key Issues

Despite these commitments, the company continued to source materials from suppliers implicated in deforestation and unsustainable practices. This conflict between their marketing message and procurement actions led to significant backlashes from consumers, environmental activists, and stakeholders.

Impact

The dissonance resulted in a decline in consumer trust and brand loyalty, as customers felt misled by the company's sustainability promises. Employee engagement also suffered; surveys revealed that many felt disillusioned and frustrated by the company’s failure to act on its sustainability pledges.

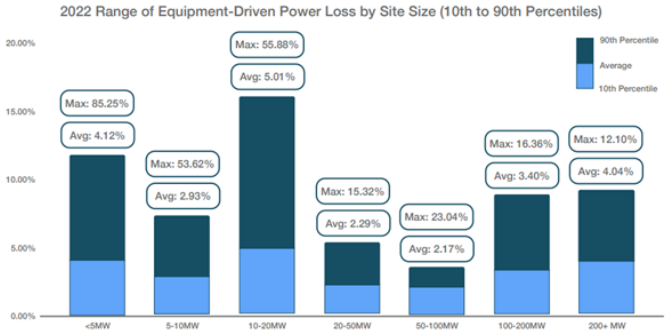
Lessons Learned

- **Alignment is Critical**: Corporations must ensure that all aspects of their operations, especially supply chains, align with sustainability goals to avoid damaging brand reputation.
- **Transparent Practices**: Clarity in operations with honest communication of challenges and progress can foster trust and reinforce commitment to sustainability.

D. CASE STUDY: Enhancing Solar Asset Performance with Technology Company E's pvAPM Technology and Support Circular Economy

Overview

In 2022, the solar industry faced significant challenges, reporting losses of approximately USD 2.5 billion due to power generation shortfalls. According to Mercom, the rate of underperformance in solar systems nearly doubled from 1.61% in 2019 to 3.13% in 2022, with expectations of exceeding 6% by 2025. This trend indicated widespread issues across various solar installations, primarily due to design faults, poor installation practices, and inadequate operation and maintenance (O&M).



As the solar photovoltaic (PV) market evolves, the need for innovative technical due diligence (TDD) is more crucial than ever. Recognizing this, Technology Company E developed a proprietary PV Asset Performance Management platform to enhance operational performance in solar energy systems.

Key Achievements of Technology Company E's

- Combining artificial intelligence (AI) and machine learning (ML) with expert solar insights, enabled real-time tracking and identification of inefficiencies.
- The platform addressed technical and commercial aspects, offering comprehensive solutions tailored to solar operations and a holistic asset management approach.
- An average increase of 8% in energy generation across projects in Europe and Asia.

Impact on Solar Industry

- The integration of smarter asset optimization strategies has transformed existing reactive O&M teams into proactive units.
- By utilizing advanced analytics and data-driven methodologies, solar asset managers can anticipate and address potential issues before they impact energy generation.
- Helping circular economy by increasing investors' confidence on the uplifted solar assets to attract further investment to new solar projects, creating environmental impact by offsetting further CO_2 emission and social impact by creating more jobs.

Lessons Learned

Small changes have a huge impact. Leveraging advanced analytics is essential for addressing inefficiencies especially in solar asset management.

VII. Fostering Climate Consciousness Culture

As the urgency of addressing climate change intensifies, organizations play a crucial role in driving sustainable practices. Fostering a climate-conscious culture is not just an environmental imperative but also a strategic business decision that can lead to innovation, cost savings, and enhanced reputation.

SUGGESTED CULTURE ACTION

To overcome cognitive dissonance and align organizational values with actions, companies need to implement cultural changes and initiatives that foster a commitment to sustainability. This entails a holistic approach that encompasses the following building blocks:

1. **Inspired Leadership:** Leaders must demonstrate unwavering commitment to climate consciousness through actions, policies, and resource allocation. This includes modelling sustainable practices and prioritizing climate initiatives.
2. **Employee Engagement and Empowerment:** Involve employees in decision-making processes & empower them for ideation to take initiatives for climate-friendly practices. Establish programs that encourage active participation in sustainability projects.
3. **Transparent Communication:** Regularly communicate goals, progress, and challenges to build trust and accountability within the organization. Sharing information fosters a culture of openness about sustainability efforts.
4. **Sustainable Practices Integration:** Integrate climate considerations into all business processes and decision-making frameworks, ensuring that sustainability is a fundamental aspect of operations.
5. **Training and Education:** Implement continuous education programs to keep all employees informed about climate issues and organizational sustainability goals. This encourages a shift in mindset and builds competency in sustainable practices.
6. **Accountability Structures:** Establish clear metrics for measuring progress towards sustainability goals. Implement systems that hold all levels of the organization accountable for achieving climate-related targets.

By focusing on these cultural changes and initiatives, organizations can effectively bridge the gap between their climate commitments and actions, fostering a more sustainable future.

Strategies – the 3 I's of Mindful Culture Development

INITIATIVE

- **Disrupt & Evolve**
  Address common obstacles such as resistance to change, resource constraints, and competing priorities through strategic communication, phased implementation, and demonstrating the business case for climate action **everyday**
- **Climate Literacy Program**
  Develop a comprehensive climate education curriculum for all employees, covering basic climate science, organizational impacts, and individual action opportunities.
- **Sustainability Challenge**
  Organize company-wide sustainability challenges to encourage innovation and participation in climate-conscious practices.

INCLUSION

- **"I" first –** While we have incorporated many concepts, like inclusion, diversity, sustainability, question also lies in **individual ownership**. Social impact and sustainability must be cultivated within the self and other. These principles have to be adopted in individual everyday philosophy
- **Green Team Initiative**
  Establish cross-departmental green teams to spearhead climate initiatives and foster peer-to-peer engagement
- **Climate-Conscious Supply Chain**
  Extend climate consciousness to the supply chain by setting sustainability standards for suppliers and partners.

IMPACT

- **Measuring Success**
  Establish key performance indicators (KPIs) to track progress, including metrics on carbon emissions, energy efficiency, waste reduction, and employee engagement in climate initiatives.
- **Transparent Reporting**
  Regularly publish climate performance reports to maintain accountability and showcase progress to stakeholders.
- **Rewards & Recognition**
  Recognise people who regularly embody sustainable practices to encourage others to adopt the same. Hire people with a mindset for community development and practising sustainability.

Responsibilities of Key Stakeholders

C-Suite Executives

- Set the organizational vision for climate consciousness
- Allocate necessary resources for sustainability initiatives
- Integrate climate considerations into strategic planning
- Communicate the importance of climate action to stakeholders

Board of Directors

- Oversee the organization's climate strategy and performance
- Ensure climate risks are adequately addressed in risk management processes
- Hold management accountable for meeting climate-related goals

Sustainability Officers

- Develop and implement comprehensive sustainability strategies
- Coordinate cross-departmental climate initiatives
- Monitor and report on the organization's climate performance
- Stay informed about emerging climate technologies and practices

Human Resources

- Incorporate climate consciousness into recruitment and onboarding processes
- Develop training programs to enhance climate literacy across the organization
- Integrate climate-related performance metrics into employee evaluations

Marketing and Communications

- Develop internal & external communications strategies to promote climate initiatives
- Ensure transparent reporting of the organization's climate efforts and achievements
- Engage with stakeholders to gather feedback on climate-related initiatives

Employees

- Actively participate in climate education and awareness programs
- Contribute ideas for improving sustainability in their work areas
- Implement sustainable practices in daily work routines
- Act as climate ambassadors within and outside the organization

GreenEnco
Maximising Asset Values

Confederation of Indian Industry

WOMEN IN LEADERSHIP

"Inclusive leadership that values women's contributions foster an environment where sustainable decisions are made more effectively, positively influencing ESG outcomes."

Ratan Tata, Former Chairman of Tata Sons

Research indicates that organizations with diverse leadership teams, particularly those led by women, tend to perform better in sustainability initiatives:

1. **Diverse Perspectives**: Women in leadership bring diverse viewpoints that lead to innovative problem-solving and holistic approaches to sustainability challenges. This diversity can help address complex environmental issues more effectively.

2. **Stakeholder Engagement**: Female leaders often emphasize strong stakeholder engagement and social responsibility, fostering a collaborative approach that benefits both the organization and the wider community. Women-led initiatives tend to prioritize inclusivity, which opens the door for broader participation.

3. **Results-Oriented Goals**: Studies show that companies led by women are more likely to set measurable and results-oriented sustainability goals. This focus on accountability drives greater tangible outcomes in climate action.

4. **Financial Performance**: Research from McKinsey & Company indicates that companies with gender-diverse executive teams are 21% more likely to experience above-average profitability and are 27% more likely to have superior value creation. This correlation can drive sustainability as part of a bigger business strategy.

5. **Sustainability Culture**: Organizations with women leaders often cultivate a sustainability-oriented culture that encourages collaboration, emotional intelligence, and long-term thinking—essential components for effective climate initiatives.

> *"Women leaders bring diverse perspectives that help organizations address complex issues including climate change and social inequality, significantly enhancing ESG outcomes and fostering sustainable practices"*
>
> ***Larry Fink***
> *CEO of BlackRock*

> *"Organizations led by women demonstrate a significant understanding of addressing social and environmental challenges, which leads to more sustainable business practices and positive impacts on communities."*
>
> ***Sir Richard Branson***
> *Founder of Virgin Group*

> *"Research indicates that companies with higher female representation in leadership roles are more likely to prioritize sustainability and social responsibility, translating into stronger performance and positive community impact."*
>
> ***Dr. Ranjay Gulati***
> *Professor of Business Administration at Harvard Business School*

Case Study: Ceres (Led by CEO Mindy Lubber)

Overview

Ceres is a nonprofit organization advocating sustainability in business and investment strategies. Under the leadership of CEO Mindy Lubber, Ceres has influenced corporate practices towards environmental responsibility and social equity.

Background

Ceres works with companies to integrate sustainability into their operations and strategies. Mindy Lubber's leadership has empowered a network of over 700 companies to commit to climate action and sustainable practices.

Key Achievements

- Cultivated partnerships leading to over $40 trillion in invested capital aimed at sustainable practices.
- Supported the development of Corporate Sustainability Reporting, influencing companies to disclose their environmental impacts.

Impact

The organization has facilitated significant changes in corporate behavior, pushing for transparency and accountability regarding climate impacts. This has strengthened the business case for sustainability across industries.

KPI

- 50% of the world's largest companies now report on sustainability issues due to Ceres' influence.
- Companies involved in Ceres initiatives have reported a significant reduction in energy consumption, resulting in savings of up to $2 billion annually.

Case Study: IKEA (Led by COO Barbara Duffy)

Overview

IKEA, under the leadership of Barbara Duffy, Chief Operating Officer, has made impressive strides toward sustainability in its operations and product offerings.

IKEA aims to become a climate-positive business by 2030. Duffy has led transformative initiatives that not only reduce carbon emissions but also promote circular economy principles.

Key Achievements

- Committed to using 100% renewable energy sources for operations and supply chains by 2025.
- Launched a program to enable customers to return and recycle used products, increasing product lifespan and reducing waste.

Impact

IKEA's sustainability efforts have not only helped the environment but also increased customer engagement and brand loyalty. Customers now favor brands that contribute positively to climate initiatives.

KPI

- Over 60% of IKEA's products are designed with sustainability in mind.
- The company has reduced greenhouse gas emissions across its value chain by over 15% since 2016.

VIII. Conclusion

Fostering a climate-conscious culture is a journey that requires commitment, collaboration, and continuous improvement. By clearly defining responsibilities and implementing targeted strategies, organizations can create a culture where climate consciousness becomes an integral part of their identity and operations, contributing to a more sustainable future.

CII & GreenEnco are committed to work together with corporations in fostering a culture of sustainable leadership in the Eastern Region.

About GreenEnco

GreenEnco is a knowledge driven social consulting enterprise working in the renewable energy space with the mission - Creating A Better World in a Changing Climate. We are headquartered in the UK, and the Indian office in Kolkata with a vision to create an impact from the Eastern Region of India. We help to optimize solar assets making them more efficient, through technology intervention.

The GreenEnco team has a cumulative experience of over 100 years in renewable energy, value engineering, technical due diligence, data analysis and software development. Our team have supported over £800M Techno-Commercial due diligence in the new build and merger & acquisition solar market in EMEA and APAC. In business for the past 7 years, we have created an impact across 16 countries in 4 continents.

We are a team of 20 professionals driven by Passion, Partnership, Innovation, Vitality, Ownership & Trust. Diversity, Equity & Inclusion lies at the heart of everything we do. In 2024-25, we are bringing Young Climate Champions from secondary and senior secondary schools onto the Advisory Board of GreenEnco to encourage and enable climate consciousness at an early age.

www.greenenco.co.uk

Confederation of Indian Industry

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, with around 9,000 members from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 365,000 enterprises from 294 national and regional sectoral industry bodies.

For more than 125 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness, and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Through its dedicated Centres of Excellence and Industry competitiveness initiatives, promotion of innovation and technology adoption, and partnerships for sustainability, CII plays a transformative part in shaping the future of the nation. Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes across diverse domains including affirmative action, livelihoods, diversity management, skill development, empowerment of women, and sustainable development, to name a few.

For 2024-25, CII has identified "Globally Competitive India: Partnerships for Sustainable and Inclusive Growth" as its Theme, prioritizing 5 key pillars. During the year, it would align its initiatives and activities to facilitate strategic actions for driving India's global competitiveness and growth through a robust and resilient Indian industry.

With 70 offices, including 12 Centres of Excellence, in India, and 8 overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and USA, as well as institutional partnerships with about 300 counterpart organizations in almost 100 countries, CII serves as a reference point for Indian industry and the international business community.

Confederation of Indian Industry Eastern Region

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