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CLIMATE EMERGENCY

आयाम परिवर्तन
एक नई पहचान

VISION

"To ensure development is not only sustainable and easy to access but, also simplistic and scalable."

MISSION

To conceptualize, develop, manage and implement result-oriented initiatives through mobilization and utilization of resources to create a positive social impact

SECTORS OF EXPERTISE

We have successfully bridged the gap between businesses and communities through our value-based sustainable social intervention in the sectors of **Health, Environment, Education, Skills, and Livelihood.**

LIVELIHOOD

The livelihood comprises the capabilities, assets (including both material and social resources) and activities which act as prerequisites for a means of living. Nowadays, sectoral experts and academician debate more on the topics such as livelihood security and sustainable livelihood frameworks, that range from primary sector (agriculture) to the secondary sector (manufacturing) to tertiary sector (services).

ENVIRONMENT

It is an unequivocal truth that environment is a key for the existence of life on this planet. Well-managed soil and nutrients underpin food production to the critical role of biodiversity to protect human health against the spread of infectious diseases while clean air in our cities can prevent the premature deaths and illness of millions. Noticeably, water scarcity is one of the key challenges that India faces today with its dried up reservoirs, polluted lakes and groundwater, responsible for a big destruction. Besides, quite evidently Climate Change is turning into a reality today.

HEALTH

India's healthcare suffers from quality, quantity, access and affordability issues. A staggering 70% of India's population lives in rural areas and has no or limited access to hospitals and other health institutions. Preventive healthcare is a need today to build a healthy and developed nation.

EDUCATION

Despite being one of the fastest growing economies, India is struggling to ensure even the basic universal elementary education to all. Public education quality is still debatable while access is still a challenge. As per Census 2011, India's literacy rate is at 74.04% and gender literacy gap is noted to be at 16.68%. It also reveals that about 32 million children aged between 6 to 13 years have never attended any educational institution.

SKILLS

India is projected to have one of the youngest populations in the world by 2021, with 64% of its likely population in the 15–59 age bracket.Hence, there is a need to optimally leverage the advantage of this "demographic dividend". To respond to this change, the Government of India has taken up the ambitious task of skilling and upskilling 500 million people by 2022.The current skill development landscape has a large number of entities, with the umbrella body being the Ministry of Skill Development and Entrepreneurship, established in 2014

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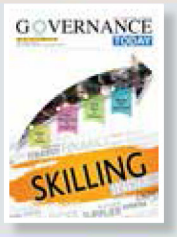

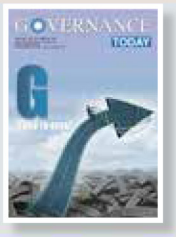

'Governance Today' has no history to look back. But looking at the nomenclature, the magazine is engaged in a broad range of special-interest publishing, relevant to 'Today', ultimately, making it a comprehensive and effective resouce.

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CONTENT

Paris Agreement on Climate Change

In short, the Paris Agreement is an international agreement to deal with climate change. From 30 November to 11 December 2015, representatives of governments from 195 countries met in Paris to discuss a possible new global agreement to combat

India's Akash missile system achieves historic feat

In an unprecedented development, India has become the first country globally to demonstrate the capability to attack four

Addressing the Urgent Challenges of Environmental Sustainability

As we embark on a new year, the pressing need to address global environmental concerns becomes increasingly evident. The complex interplay of climate change, biodiversity loss, deforestation, water scarcity,

Scope Feature and Challenges in the path of Renewable energy

The discovery of traditional sources of energy, mainly fossil fuels, gave a new direction to the development of human history. It is noteworthy that fossil fuels have the potential to meet the energy demands of the entire world for several hundred years. It

The potential of India in the field of Wind Energy?

In the Indian context, wind energy potential is expected to increase in the future as some of the older wind energy stations may be replaced with wind turbines that have higher efficiencies.

Modi's Vision on Climate Changes

PM Modi presented India's vision to the world to deal with climate change. In a World Bank program, he said that if the world has to overcome climate change, then every human being will have to

Global food security and climate change

The number of people suffering from acute food insecurity in 82 countries due to war is expected to increase from 135 million to 345 million. In Ukraine, supply chain disruptions, and the continued

Impact of climate change on health: the price of inaction

Where Bharat is serious about the climate change issue America has announced to withdraw from the Paris Agreement.

Apart from other challenges, its devastating impacts on human health and well-being will also intensify. No one anywhere around the world is beyond its reach, although millions of people – especially women, children, the elderly, ethnic minorities, people with pre-existing health problems, and those living in poverty – are among the most vulnerable.

Heat-related illnesses and deaths are increasing due to changing climate conditions; Changing patterns of infectious disease transmission, further increasing the likelihood of deadly disease outbreaks and pandemics; worsening maternal and child health outcomes; And the health impacts of extreme weather events such as floods, droughts, wildfires, and hurricanes are increasing. Climate change places significant pressure on health systems, increasing demand for health services while also impairing the ability of systems to respond. The climate crisis is also rapidly worsening food security, access to safe drinking water, and basic human needs such as sanitation and clean air. The result, according to new data from the World Bank, is that a warming climate could cause at least 21 million additional deaths by 2050 from just five health risks: extreme heat, stunting, diarrhea, malaria, and dengue.

Continued climate change is expected to make achieving the global goal of poverty eradication even more challenging. A recent World Bank study estimated that an additional 132 million people (more than half of whom live in sub-Saharan Africa and South Asia) could be affected by climate change. Of these, 44 million will be in extreme poverty by 2030 due to health impacts.

Best regards

ajit sinha

AJIT SINHA
Editor-in-Chief

The Global Partnership on Artificial Intelligence (GPAI), comprising 29 member countries, has unanimously adopted the New Delhi Declaration. The declaration emphasizes the need to address the risks associated with the development and deployment of artificial intelligence (AI) systems while promoting fair access to critical resources for AI innovation.

Comparison with the UK AI Security Summit Agreement

Unlike the agreement signed at the United Kingdom AI Security Summit, where countries committed to addressing risks from AI systems, the New Delhi Declaration aims to strike a balance between innovation and the associated risks. While acknowledging the economic benefits of AI, the announcement highlights concerns related to fairness, privacy, and intellectual property rights.

Key points of GPAI New Delhi announcement

The GPAI New Delhi announcement underlines the rapid progress in AI systems and their potential for economic growth, innovation, and job creation. It advocates a global framework rooted in democratic values and human rights, which ensures personal data protection, intellectual property rights, privacy, and security. The declaration also supports equitable access to resources critical to AI innovation.

Focus on agriculture and diverse membership

GPAI members are committed to supporting AI innovation in the agriculture sector, marking it as a new thematic priority. The Declaration emphasizes the importance of a diverse membership, with a particular focus on low- and middle-income countries to ensure a wide range of expertise and perspectives.

India's first winter expedition to the Arctic

Objectives of the scientific mission

A team of four scientists will lead this historic winter voyage, dedicated to making atmospheric observations, studying polar changes, and monitoring sea ice variations during the polar nights. These efforts aim to uncover important insights into the complex interrelationships between the Arctic climate and the Indian monsoon system, thereby contributing to a deeper understanding of the impacts of global warming.

Himadri Research Canter

The Himadri Research Station in Svalbard, Norway will serve as the operational base for year-round observations. This strategic location enhances efficiency and expands the scope of India's research capabilities in the Arctic region. The campaign seamlessly aligns with India's Arctic policy prioritizing scientific cooperation, environmental protection, and sustainable development in the dynamically evolving Arctic landscape.

Climate dynamics unveiled

Apart from demonstrating India's commitment to pushing its scientific frontiers, this winter expedition represents significant progress in fostering international collaboration to understand the complexities of our planet's climate dynamics. The success of this mission is expected to lay the foundation for a continued presence and ongoing research in the Arctic, which will mirror India's established operations in the Antarctic.

The world's largest meditation center

Prime Minister Narendra Modi inaugurated the Swaraveda Mahamandir, a grand seven-story temple located in the Umrah area of Varanasi. This grand spiritual edifice is a testament to architectural splendor and serves as a center of meditation with a seating capacity of 20,000 persons.

Centenary Celebration of Vihangam Yoga

The inauguration coincided with the centenary celebrations of Vihangam Yoga, which marks the 100th anniversary of the establishment of Vihangam Yoga Institute by Sadhguru Sadaphal Devji Maharaj. Prime Minister Modi actively participated in the festivities during his visit to the temple and stressed its cultural and spiritual significance.

Main features of Swarveda Mahamandir

Impressive Design: The temple features a spectacular design with 125 petalled lotus domes, positioning it as one of the largest meditation centers globally.

Strategic Location: Located in the Umrah area, about 12 km from the Varanasi city center, the Swaraveda Mahamandir is spread over a vast area of 3,00,000 square feet.

Historical Foundation: The foundation of the Mahamandir was laid in 2004 by Sadhguru Acharya Swatantra Dev and Sant Pravar Vigyan Dev.

Collaborative Construction: The construction of the temple involved the collaborative efforts of 600 workers and 15 engineers, demonstrating dedication and teamwork.

Architectural elements: The teak wooden ceiling and doors with intricate carvings, along with 101 fountains, contribute to the architectural richness of the temple.

Spiritual Verses: Verses from the Swarveda, a spiritual text by Sadhguru Shri Sadaphal Devji Maharaj, adorn the walls of the seven-story superstructure.

Aesthetic Elements: Pink sandstone adorns the walls, along with a beautiful garden with medicinal herbs, which adds to the overall grandeur.

India's first winter expedition to the Arctic

India has achieved a notable milestone in its polar research operations with the launch of its inaugural winter expedition to the Arctic. Launched at Prithvi Bhawan, New Delhi, this unprecedented venture is set to highlight the deep impact of the Arctic on global climate, sea levels, and biodiversity.

Who was U Muthuramalinga Thevar?

Every year on October 30, a remarkable event takes place in central Kolkata, India, when hundreds of people from the Thevar community of West Bengal gather for the Thevar Jayanti Guru Puja. The occasion marks the birth anniversary of U Muthuramalinga Thevar, a prominent politician and leader of the Thevar community. The festival is a vibrant blend of religious reverence and cultural significance, honouring the man whose contribution to India's freedom struggle and the fight against untouchability left an indelible mark on the nation.

Thevar's remarkable life and legacy

U Muthuramalinga Thevar was not only a politician but also the secretary of the Harijan Sevak Sangh in Ramnad district of Tamil Nadu. He strongly opposed untouchability and in 1939, led the Harijans in the Meenakshi temple of Madurai, challenging the prevailing discriminatory practices. In addition, he strongly opposed the repressive Criminal Tribes Act of 1920, which he was instrumental in abolishing.

Thevar community in West Bengal

The Thevar community in West Bengal consists of more than 3,000 people spread across the state. In Kolkata, they live in areas like New Market, Janbazar, and Lake Garden, often running businesses or working in catering. A large number of roadside shops selling idli and dosa are run by the Thevar community in central Kolkata.

India's Akash missile system achieves historic feat

In an unprecedented development, India has become the first country globally to demonstrate the capability to attack four targets simultaneously with its indigenous Sky Surface to Air (SAM) weapon system. According to defence officials, the successful demonstration took place during Exercise Astrashakthi 2023 at Surya Lanka Air Force Station on December 12.

multitasking power of the sky

During the exercise, the Indian Air Force effectively engaged four unmanned aerial targets simultaneously using a single Akash firing unit. Targets approaching in close formation from the same direction were strategically divided to attack defense assets from multiple directions simultaneously.

system deployment

The Akash firing unit deployed for this historic display comprised the

Firing Level Radar (FLR), Firing Control Center (FCC), and two Akash Air Force Launcher (AAFL), each armed with five missiles.

operational performance

Targets were assigned to the Akash firing unit to neutralize the targets, with firing commands being issued to engage four targets. Two Akash missiles were launched sequentially from two launchers, with the same launcher assigned to the next two targets. All four missiles were successfully launched and shot down at their maximum range, about 30 km, within a short period of time.

importance of achievement

This achievement holds great significance for India's defence capabilities and global prestige. The ability to attack multiple targets simultaneously enhances India's strategic strength and establishes the Akash missile system as a formidable defence asset.

Implications for Export Initiatives

India, historically a major arms importer, is actively striving to become a notable arms exporter. The successful demonstration of the Akash missile system is in line with these initiatives, demonstrating the technological strength of India-made weapons. The Akash weapon system designed and developed by the Defence Research and Development Organization (DRDO) has been in service with the Indian Air Force and Army for the past decade.

The world's deepest underground physics laboratory launched

China has launched the world's deepest and largest underground physics laboratory, the Deep Underground and Ultra-Low Radiation Background Facility for Frontier Physics Experiments (DURF), located beneath Jinping Mountain in Sichuan province. Commissioned after three years of extensive upgrades, the laboratory aims to revolutionize the global search for dark matter, a hypothetical form of matter that does not interact with light or electromagnetic fields.

Main features of DURF: Extreme depth

Located at 2,400 meters depth, DURF offers a unique advantage in blocking most cosmic rays that could interfere with observations, allowing more precise experiments.

Promote dark matter research

Scientists believe DURF will make an important contribution to advancing dark matter research by offering special testing conditions not available elsewhere.

Ultra-low cosmic ray flux

The laboratory's location exposes it to exceptionally small amounts of cosmic rays, about one hundred millionth of the rays present at the Earth's surface, creating ideal conditions for precise experiments.

Benefits of DURF facility

Ultra-low cosmic ray flux ensures minimal interference during experiments. Extremely low environmental radiation, providing a clean and controlled research environment. Extremely low radon concentrations, reducing background noise in experiments.

The extremely clean space provides researchers with special conditions for advanced physics experiments.

Barracuda: India's fastest solar-electric boat

Taking a significant step towards eco-friendly maritime transport, India's fastest solar-electric boat, Barracuda was formally launched at Navagathi Pannavali Yard in Alappuzha.

collaborative innovation

Jointly developed by Mazagon Dock Shipbuilders and Newalt, the state-of-the-art Barracuda stands as a testament to collaborative innovation in the maritime sector.

Key Features of Barracuda

The Barracuda, named after a fish, is designed by Newell for workboat purposes. Claiming a top speed of 12 knots and a remarkable range of 7 hours on a single charge, the 14-metre long and 4.4-metre wide vessel is powered by twin 50 kW electric motors, a marine-grade LFP battery, and 6 kW of solar power. is equipped.

Navigation in challenging marine environments

Engineered to navigate through waves up to 4 meters high, the Barracuda excels in challenging marine environments. Certified under IRS, it can seat 12 passengers, promising noise-free, vibration-free, and pollution-free travel.

Mazagon Dock Shipbuilders plans to introduce Barracuda, now officially named Solar Power, at its Mumbai dock. This completely eco-friendly ship is designed to meet a variety of needs while contributing to a clean and calm ocean.

What is the 'Build for Bharat' initiative?

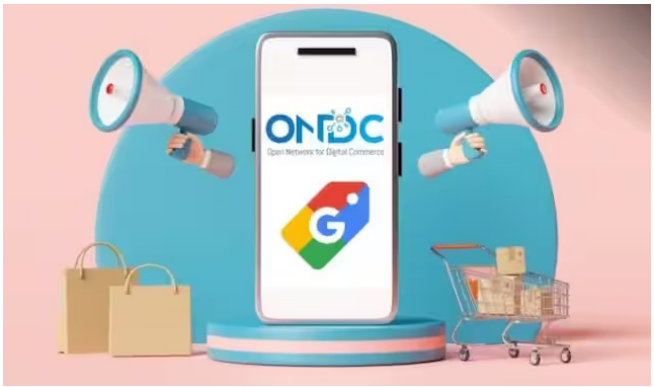
Open Network for Digital Commerce (ONDC) officially launched the 'Build for Bharat' initiative in collaboration with Google Cloud India, Antler in India, Paytm, Proteus, and Startup India. This nationwide program aims to address challenges in digital commerce, promoting innovation and practical solutions across various sectors. The initiative is expected to involve over 2,00,000 participants including startups, enterprises, and educational institutions.

Major categories of initiatives:

NextGen Ventures (Category 1): focuses on fostering venture creation at ONDC, providing a pathway for ambitious founders and early-stage teams to raise capital, and launch, and scale companies. Winners in this category will receive exclusive opportunities, mentorship, and equity-free grants.

Scalable Solutions (Category 2): ONDC invites participation from organizations and individuals with a focus on addressing friction points faced by network participants (NPs) on the platform.

Foundation Solutions (Category 3): Designed for college students over 18, to identify proof of concept for friction points faced by NPs.



Awards and Collaborations:

Category 1 winners will receive exclusive opportunities from Antler in India, mentorship from industry leaders, and equity-free funding of up to Rs 5 crore ($600,000).

The winners of Category 2 and 3 will receive cloud credits from Google Cloud India to drive further innovation in their projects.

ONDC

Open Network for Digital Commerce (ONDC), established on December 31, 2021, under the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, aims to democratize and decentralize e-commerce. ONDC's mission is to provide greater choice and autonomy to customers while ensuring access and inclusion for sellers, especially small and local enterprises. The 'Build for India' initiative aligns with ONDC's mission to transform digital commerce in India.

Climate Change Performance Index (CCPI) 2024 released

India has ranked seventh in climate performance during 2022, making significant progress compared to last year when it was ranked eighth. Given the absence of countries in the first three ranks within the 'very high' performance category, this positive trajectory effectively places India in fourth position. The ranking is part of the annual report, Climate Change Performance Index (CCPI) 2024, which was published on the sidelines of COP28 in Dubai on 8 December.

Key findings from the report

Top performers:

Denmark retained the top spot with a remarkable score of 75.59%, showing its continued commitment to climate action.

Estonia and the Philippines secured the second and third ranks with scores of 72.07 and 70.70, respectively.

India is next with a score of 70.25%, which marks a significant improvement from last year's score of 67.35.

Global trends in climate performance

Most developed countries, including the United Kingdom, the United States, and Italy, have seen a decline in climate performance over the past year.

Saudi Arabia is ranked lowest (67th), while host country UAE is ranked 65th.

Urgent need for global action

The report emphasizes that CCPI countries will need to achieve an emissions peak by 2025 to be in line with the 1.5°C target and aim to halve emissions by 2030 (vs. 2020 levels).

Despite the urgency, global greenhouse gases increase in 2022, with atmospheric CO2 now 50% higher than pre-industrial levels.

Challenges and opportunities for India

India's high population contributes to low per capita energy use, which plays an important role in its high ranking in climate performance.

In the greenhouse gas emissions and energy use categories, India ranks 9th and 10th respectively, benefiting from a low per capita benchmark.

However, in renewable energy, India ranks 37th, indicating the need for accelerated progress.

Who is Leon Marchand?

In an exciting development at the World Swimming Championships in Japan, 21-year-old Leon Marchand achieved a remarkable feat by breaking the previous individual world record of famous American swimmer Michael Phelps in the 400m individual medley.

Marchand's remarkable feat

Under the guidance of legendary coach Bob Bowman, who played a key role in the illustrious career of Michael Phelps, Leon Marchand achieved a brilliant time of 4 minutes and 2.50 seconds in the 400m individual medley, setting a new world record. This outstanding performance eclipsed Phelps' previous record of 4:03.84, which had remained unbeaten since the 2008 Beijing Olympics.

Phelps' legacy

Considered the most decorated athlete in the history of the Summer Olympics, Michael Phelps achieved an extraordinary feat by winning a total of 28 medals in five Olympics. Among these achievements, there were an impressive 23 gold medals, the highest number of Olympic golds ever achieved. Phelps also set world records in several events, such as the 200 m freestyle, 100 m and 200 m butterfly, and the 200 m and 400 m individual medley (IM).

Although Phelps retired in 2016, his legacy lives on through his contributions to relay programs. Her world records in the 4×100 m freestyle and 4×200 m freestyle remain unbroken, the first being the longest-standing world record and the last remaining world record from the 2008 Olympics.

Future challenges and options

In the future, Marchand has upcoming competitions in the 200 m butterfly, where she took silver last year. However, he may face scheduling conflicts and may opt to withdraw from the 200 m breaststroke event as its semi-finals coincide with the 200 m IM final.

Hon'ble Union Minister of Heavy Industries Dr. Mahendra Nath Pandey inaugurates newly-constructed BHEL Sadan

Hon'ble Union Minister of Heavy Industries, Dr. Mahendra Nath Pandey inaugurated the newly constructed BHEL Sadan on the occasion of BHEL Day, in the presence of Hon'ble Minister of State for Power and Heavy Industries, Sh. Krishna Pal Gurjar. On this occasion, Sh. Kamran Rizvi, Secretary (Heavy Industries), Sh. Vijay Mittal, Joint Secretary (Heavy Industries), Sh. Koppu Sadashiv Murthy, Chairman and Managing Director BHEL, Directors, Chief Vigilance Officer, and other officers and employees were present.

In his address, Hon'ble Union Minister of Heavy Industries, Dr. Mahendra Nath Pandey citing the clarion call of the Hon'ble Prime Minister for achieving the target of 'Net Zero' carbon emissions by 2070, said that this 18-storey eco-friendly green building constructed as per the latest technology and standards, is a symbol of BHEL's commitment towards environmental protection.

The Hon'ble Minister noted that the building, equipped with a 30-kW solar power system, reflects BHEL's commitment to move further towards green energy. Recalling BHEL's contribution towards creating an Aatmanirbhar Bharat, since its inception, Dr. Pandey added that, BHEL is not only striving towards making India self-reliant in the fields of energy and infrastructure but it is also making significant contributions in the field of defence and space.

In his address, Hon'ble Minister of State for Power and Heavy Industries, Sh. Krishna Pal Gurjar, observed that the new building with a capacity to seat over 2000 people, will facilitate all the Delhi-NCR based offices to work from a single office, and will result in better coordination and improved performance. Sh. Gurjar also appreciated BHEL's efforts towards green energy with a special mention to the MoUs signed by the company with Coal India Limited and NLC India Limited for commercial size coal gasification projects.

Speaking on the occasion, Sh. Kamran Rizvi, Secretary (HI) shared that for an organisation to have its own properties, gives confidence and motivation to its employees. He further noted that this new building, a symbol of BHEL's glorious history and stature, would serve as an inspiration to us all in the days to come.

Earlier, welcoming the delegates, and everyone else present there, Sh. K. Sadashiv Murthy, CMD, BHEL called upon all the employees to work harder for the sustainable development of the company. Speaking on the occasion, the CMD noted that considering most of the employees working in the Delhi-NCR region, live in the company's Township at Noida, with the shifting of all the offices to the new building, the employees will experience a better work-life balance. On the occasion, a cultural programme was also presented by BHEL employees.

REC wins ICAI Award for Excellence in Financial Reporting for FY2022-23

REC Limited, a Maharatna PSU and a leading NBFC, has been awarded 'Plaque' under the 'Financial Services Sector (Other than Banking and Insurance)' category at the ICAI Awards for Excellence in Financial Reporting for the financial year 2022-23.

REC's Director (Finance) Shri Ajoy Choudhury, ED (Finance) Shri Sanjay Kumar and HoD (Finance) Shri Jatin Kumar Nayak received the award from the Hon'ble Chief Minister of Chhattisgarh, Mr. Vishnu Deo Sai at the ceremony held at Raipur. Hon'ble Cabinet Ministers of Chhattisgarh, Mr. Brij Mohan Agrawal and Mr. O.P.Choudhary were also present in the event along with ICAI President CA Aniket Sunil Talati, Vice President CA Ranjeet Kumar Agarwal, Research Committee Chairman & Vice Chairman and the ICAI Council Member.

This is the only award bestowed by the ICAI under this category and the selection has been made, based on the accounting practices, policies adopted for disclosure, presentation of financial statements, other information contained in the Annual Report and degree of compliance with Indian Accounting Standards, Statutory guidelines, Regulations, etc. by the Company.

Sh. Ajoy Choudhury expressed gratitude for the recognition and highlighted the dedication of REC Limited's team in maintaining top-notch financial practices.

Recently, REC was recognized for its exceptional performance in risk management and bestowed with the 'Golden Peacock Award' by the Institute of Directors (IOD). Additionally, the company was conferred the 'Best Central PSU' Award in the Financial Services category at the Dun & Bradstreet PSU Awards 2023. The Institute of Chartered Accountants of India through its Research Committee organizes the ICAI Awards for Excellence in Financial Reporting since the year 1958 to recognize and encourage excellence in the preparation and presentation of financial as well as non-financial information in the annual reports by the entities across various sectors.

About REC Limited

REC Limited is an NBFC focusing on Power Sector Financing and Development across India. Established in 1969, REC Limited has completed over fifty years of operations. It provides financial assistance to state electricity boards, state governments, central/ state power utilities, independent power producers, rural electric cooperatives and private sector utilities. Its business activities involve financing projects in the complete power sector value chain; for various types of projects including Generation, Transmission, Distribution and Renewable Energy. REC's funding illuminates every fourth bulb in India. REC has recently diversified into financing infrastructure and logistics sector as well. The Loan Book of REC stands at Rs 4.74 Lakh Crore, ending the first quarter of the current financial year.

REC Limited successfully issued inaugural Yen Denominated Green Bonds aggregating to JPY 61.1 Billion

REC Limited, a Maharatna CPSE under the Ministry of Power, announced that it has successfully issued its inaugural JPY 61.1 billion 5-year, 5.25-year and 10-year Green bonds issued under its US$ 10 billion Global Medium Term Notes Programme. Proceeds from the issue of the Bonds will be applied to finance the Eligible Green Projects in accordance with the Company's Green Finance Framework, RBI's ECB Guidelines and the approvals granted by it from time to time.

Salient features of the transaction

- REC Limited's eleventh venture into the international bond market and inaugural Yen Bond issuance which is also the first Yen Green Bonds issuance by any Indian PSU
- 5-year, 5.25-year and 10-year bonds issued at yield of 1.76%, 1.79% and 2.20% respectively
- Largest ever Euro-Yen issuance in South and South East Asia
- Largest Yen-denominated issuance from India
- Largest non-sovereign Yen-denominated issuance ever from South and South East Asia.
- The transaction witnessed interest both from Japanese and international accounts with number of orders from each at 50%, international allocation being one of the highest for any other Indian Yen deal.

Commenting on the occasion, Mr. Vivek Kumar Dewangan, IAS, Chairman & Managing Director, REC Limited said, "The journey towards

India's energy transition demands a visionary approach to financing that aligns with our commitment to sustainable development towards a cleaner and greener energy landscape. REC stands resolute in its pledge to promote green and clean energy through this Green issuance. As a frequent issuer in the international debt capital markets, we are always in the lookout to tap new markets and further diversify our funding sources. We are delighted to successfully price our inaugural Euro-Yen Green bonds, which reaffirms REC's position as an established issuer with deep access to global funding, while maintaining the overall cost of funding lower than the industry standards."

The notes will be rated Baa3/ BBB–/BBB+ (Moody's/Fitch/JCR) and will be listed exclusively on Global Securities Market of India International Exchange (India INX) and NSE IFSC in GIFT City, Gandhinagar, Gujarat. DBS Bank, Mizuho, MUFG, and SMBC Nikko are the joint lead managers for the issue.

About REC Limited:

REC is a 'Maharatna' company under the administrative control of the Ministry of Power, Government of India, and is registered with RBI as Non-Banking Finance Company (NBFC), Public Financial Institution (PFI) and Infrastructure Financing Company (IFC). REC is financing the entire Power-Infrastructure sector comprising Generation, Transmission, Distribution, Renewable Energy and new technologies like Electric Vehicles, Battery Storage, Pump Storage projects, Green Hydrogen, Green Ammonia projects etc. More recently REC has also diversified into the Non-Power Infrastructure sector comprising Roads & Expressways, Metro Rail, Airports, IT Communication, Social and Commercial Infrastructure (Educational Institution, Hospitals), Ports and Electro-Mechanical (E&M) works in respect of various other sectors like Steel, Refinery, etc. REC Ltd. provides loans of various maturities to State, Central and Private Companies for creation of infrastructure assets in the country.

REC Ltd. continues to play a key strategic role in the flagship schemes of the Government for the power sector and has been nodal agency for Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGAYA), Deen Dayal Upadhaya Gram Jyoti Yojana (DDUGJY), National Electricity Fund (NEF) Scheme which resulted in strengthening of last mile distribution system, 100% village electrification and household electrification in the country. REC has also been made the nodal agency for certain States and Union Territories for the Revamped Distribution Sector Scheme (RDSS).

Paris Agreement on Climate Change

In short, the Paris Agreement is an international agreement to deal with climate change. From 30 November to 11 December 2015, representatives of governments from 195 countries met in Paris to discuss a possible new global agreement to combat climate change. The Paris Agreement, consisting of 32 pages and 29 articles aimed at reducing greenhouse gas emissions, is recognized as a landmark agreement to curb global warming.

The 23rd Conference of Parties (COP) was organized in the German city of Bonn to implement the global agreement to control climate change. COP-23 will be chaired by Fiji's Prime Minister Frank Bainimarama. It is estimated that a large number of people from all over the world will participate in this conference. But despite all the preparations, there is not the same enthusiasm for COP-23 to be held in Bonn as there was in the Paris conference.

The biggest challenge of this conference is to decide the status and direction of the commitments made under the Paris Agreement. Whenever there is talk of climate change or global warming the Paris Agreement is mentioned.

In this article, we will discuss why the Paris Agreement is so important and whether has there been any change in its relevance after America's separation.

OBJECTIVE :

The main objective of the Paris Agreement is to keep the global average temperature from exceeding 2 degrees centigrade above pre-industrial levels by the end of this century.

The Paris Agreement is based on limiting the amount of greenhouse gases emitted by human activities. Additionally, the agreement also mentions the need to review each country's contribution to reducing emissions. Under this, the concept of Nationally Determined Contribution has been proposed and every nation has been expected to voluntarily set emission targets for itself.

The Paris Agreement provides that developed countries should help poor countries adapt to climate change and promote renewable energy by providing "climate finance".

Although the agreement has some binding elements, such as reporting requirements, other important aspects of the agreement, such as setting emissions targets, are not binding.

India’s Nationally Determined Contribution

India has set a target of reducing its emission intensity by 33-35 percent by 2030 as compared to 2005 under the Nationally Determined

Contribution (NDC).

India has promised to create a carbon sink equivalent to 2.5 to 3 billion tonnes of CO2 by 2030 through tree plantation and an increase in forest cover.

India will act as the anchor of a global solar alliance of all countries located between the Tropic of Cancer and Capricorn.

Paris Agreement importance.

The current commitment (Kyoto Protocol) related to greenhouse gas emissions will expire in 2020. Therefore, the Paris Agreement will decide what should be done after the year 2020.

India has set a target to reduce its emissions intensity. This requires huge investment in agriculture, water resources, coastal areas, health, and disaster management and for this, the agreement has provided that developed countries will give 100 billion dollars annually to their developing counterparts.

Paris Agreement is important for India in the context that India has succeeded in establishing the difference between developing and developed countries.

However, these are the points citing which America has announced to withdraw itself from the Paris Agreement.

The critical side of the Paris Agreement

A report by the United Nations Framework Convention on Climate Change says that even if all countries meet their carbon emission reduction commitments, it will not be possible to meet the goal of keeping global temperature rise within 2 degrees Celsius.

Most of the provisions of the agreement are based on "promises" and non-binding targets, while what is needed are firm commitments.

The only way for countries to reduce emissions is through Nationally Determined Contribution (NDC). Therefore, without global binding rules, cutting emissions will be a difficult task.

Bonn conference is important

A country like America being out of the Paris Agreement is naturally a big blow. However, the Bonn Conference must ensure that America's absence does not lead to compromise on climate change goals.

In fact, a lot has been achieved so far from these conferences related to climate change. Since the first conference in Rio in 1992, the world has made significant progress in reducing carbon emissions.

The Bonn conference is considered to be the most attended COP conference. This is because now representatives of the private sector, and local and regional governments are also participating in it. COP conferences have indirectly opened doors for many sectors.

The problem of carbon emissions can be solved by promoting green technologies while reducing emissions, which will require strong financial assistance to developing countries and needs to be recognized at the Bonn Conference.

Understanding global warming?

Due to the excessive exploitation of natural resources and human activities, the amount of gases like carbon dioxide, methane, etc. is increasing in the atmosphere. Gases like carbon dioxide work to keep the earth warm by trapping heat. If carbon dioxide were not present in the atmosphere, the Earth would be nothing more than an icy desert.

But, due to an increase in the amount of CO2 in the atmosphere, more heat is being retained by CO2 than is required to keep the Earth warm, due to which the average temperature has increased dangerously.

This is the increase in global warming and when global warming increases, the ice at the poles will melt, the sea level will rise and many big cities of the world will be submerged.

It is noteworthy that compared to the year 1880 when the average annual temperature was calculated for the first time, an increase of 1.3 degrees Celsius has been observed in the average annual temperature of the year 2016. It is estimated that there is a difference of 5 degrees Celsius between today's temperature and the temperature of the last ice age.

The only way to tackle climate change is to reduce emissions of greenhouse gases like carbon dioxide and methane.

Although the agreement has some binding elements, such as reporting requirements, other important aspects of the agreement, such as setting emissions targets, are not binding.

Scope Feature and Challenges in the path of **Renewable energy**

Ajit K. Sinha

The discovery of traditional sources of energy, mainly fossil fuels, gave a new direction to the development of human history. It is noteworthy that fossil fuels have the potential to meet the energy demands of the entire world for several hundred years. It also played an important role in the industrial revolution that took place in the twentieth century. But its excessive consumption across the world also gave rise to many challenges due to which the world was forced to think about its replacement. In the 1970s, environmentalists began promoting renewable energy as a way to reduce our dependence on fossil fuels. At the beginning of the 21st century, 20 percent of the world's energy consumption was coming from renewable energy. It is noteworthy that in the last few years, India has also expanded its power generation capacity significantly. In the last three years, energy obtained from renewable sources has increased by about 25 percent.

It is energy that depends on natural sources. This includes various forms of solar energy, geothermal energy, wind, tide, water and biomass. It is noteworthy that it can never expire and is constantly renewed.

Renewable energy resources are spread over a much wider area than conventional sources of energy (which are present in a very limited area of the world) and can be easily available to all countries.

These are not only environmentally friendly but also have many economic benefits associated with them.

It is a clean source of energy, meaning it has minimal or zero carbon and greenhouse emissions. In contrast, fossil fuels emit large amounts of greenhouse gases and carbon dioxide, which are largely responsible for global warming, climate change, and deterioration in air quality. Apart from this, fossil fuels also emit sulphur into the atmosphere, which causes acid rain. The use of renewable energy significantly reduces the dependence on fossil fuels as a source of energy.

Helpful in employment generation

Renewable energy is a better and cheaper source than other conventional options. It is noteworthy that as the prevalence of renewable energy is increasing in the world, new and permanent jobs are also being created. For example, in countries like Germany and Britain, many new jobs have been created to encourage the use of renewable energy.

Stability in energy prices, Public health

Due to the promotion of renewable energy, it is being used

extensively in many countries of the world, due to which there has been considerable stability in energy prices at the global level.

Many studies have revealed that there is a direct relationship between renewable energy and people's health and whatever investment governments make in renewable resources energy has a clear impact on the health level of the common people. It is noteworthy that greenhouse gases, carbon, sulphur, etc. emitted by fossil fuels are very harmful to human health.

Although oil, natural gas, and coal are found in abundance in nature, the alarming rate at which they are being consumed makes it clear that one day they will surely run out. Apart from this, it is not

possible to recover them in a short time, because this process takes more than millions of years.

Fossil fuels emit greenhouse gases like methane and carbon dioxide, which are capable of damaging the ozone layer. The extraction of fossil fuels has endangered the environmental balance in some areas. Moreover, coal mining has endangered the

lives of many mine workers.

Currently, extraction of fossil fuels has also become a very expensive process, due to which their prices have been significantly affected, Transportation of fossil fuels is considered very risky, as their leakage can pose serious dangers. They contribute a lot to global warming.

Keeping in mind the responsibility towards clean earth, India has resolved that by the year 2030, 40 percent of our installed capacity of power generation will be based on clean sources of energy. It has also been decided that 175 gigawatts of renewable energy capacity will be installed by the year 2022. This includes achieving 100 GW capacity from solar energy, 60 GW from wind energy, 10 GW from bio-power, and 5 GW from small hydro projects.

With the achievement of this ambitious target, India will join the ranks of the world's largest clean energy producers. It will even surpass many developed countries.

In the year 2018, the share of thermal energy in the total installed capacity of the country was 63.84 percent, nuclear energy was 1.95 percent, hydropower was 13.09 percent and renewable energy was 21.12 percent.

Generating more energy from renewable resources than fossil fuels remains a major challenge. A large amount of electricity is still being produced from fossil fuels, which clearly shows that renewable energy is still not capable enough to meet the energy requirements of the entire country.

Energy production from renewable resources completely depends on weather and climate. If the weather is not favorable for energy production, then we will not be able to produce energy as per requirement. Renewable energy technologies are still quite new to the market due to which they lack the required efficiency.

Government efforts to promote renewable energy

Jawaharlal Nehru National Solar Mission

Jawaharlal Nehru National Solar Mission was launched on January 11, 2010, by the then Prime Minister of India. Under this mission, an ambitious target of producing 20,000 MW of grid-connected solar energy by the year 2022 was set. In 2015, the Government of India gave its approval to increase India's solar power capacity target five times to 1,00,000 MW by 2022.

National Biogas and Manure Management Program

The National Biogas and Manure Management Program is a central sector scheme. Under this, a provision has been made to establish a biogas plant to promote biogas as a source of cooking fuel and lighting in homes in rural and semi-urban areas of the country.

Suryamitra Program

The program was initiated by the National Institute of Solar Energy under the Ministry of New and Renewable Energy. The objective of this program is to provide skills to the youth in this field because of the new opportunities arising in the field of solar energy at the national and international levels. The Suryamitra program also prepares the youth to become new entrepreneurs in the solar energy sector.

Solar Loan Program

This program was started in the year 2003 and in just three years, more than 16,000 solar home systems have been financed through 2,000 bank branches. This program worked especially in rural areas of South India where electricity had not yet reached.

It is noteworthy that the average cost per MW of a thermal plant is about 25 percent less than that of a solar plant. Thermal plants are of huge capacity and on average one thermal plant generates the same amount of electricity as 18 solar or wind plants. Therefore, to move towards non-fossil clean energy, it is necessary to build large solar and wind plants in the future so that they can function similarly to thermal plants.

Statistics show that in the last two decades, 63 percent of the total production capacity has come from the private sector. Therefore, it is clear that if renewable energy is to be promoted in the country, the private sector will have to be encouraged to invest as much as possible.

The potential of India in the field of Wind Energy?

Stuti Bhushan

In the Indian context, wind energy potential is expected to increase in the future as some of the older wind energy stations may be replaced with wind turbines that have higher efficiencies.

The wind energy sector has not been adequately exploited yet, there are immense possibilities to fulfill this purpose in ocean areas. Globally, exploration in this area is still in its infancy. The frequency of cyclones in the eastern part of India is a major obstacle to the development of wind energy. Probably, there is enough potential for the development of wind energy in the western coastal areas of India. India is a country with approximately 7,516.6 km long coastline and there is ample opportunity to develop wind energy in all its Special Economic Zones.

It has been reported by the National Institute of Wind Energy, Chennai that the western states have immense potential in terms of a stable and consistent wind flow from Gujarat, Maharashtra, and Karnataka to Tamil Nadu and Andhra Pradesh. According to the year 2019 data, Tamil Nadu is the largest producer of wind energy with a capacity of 9,075 MW.

wind energy sector has not been adequately exploited yet, there are immense possibilities to fulfill this purpose in ocean areas. Globally, exploration in this area is still in its infancy. The frequency of cyclones in the eastern part of India is a major obstacle to the development of wind energy.

Governments need to deal with issues such as planning constraints and grid connection challenges.

To sustain and expand the growth in wind-based generation capacity, policymakers need to streamline the processes for granting permits, including land allocation and grid connection projects.

Workforce planning for large-scale renewable energy deployment should be an early policy priority and investment in the grid should triple from current levels by 2030.

Greater public-private partnerships are also needed to address the "new geopolitics of the wind supply chain."

A strong international regulatory framework is needed to address increasing competition for commodities and rare minerals.

Understanding of Wind Energy

(Electricity is produced by using the kinetic energy created by air in motion. It is converted into electrical energy using wind turbines or wind energy conversion systems. The air first hits the blades of the turbine, causing them to rotate and the turbine attached to them also starts rotating. It converts kinetic energy into rotational energy by rotating a shaft connected to a generator resulting in the production of electrical energy through electromagnetism. Electricity is sent to homes, businesses, schools, etc. through transmission and distribution lines. The amount of energy that can be extracted from wind depends on the size of the turbine and the length of its blades. The amount of energy that can be extracted from the wind is proportional to the dimensions of the rotor and the cube of the wind speed.

Theoretically, when wind speed doubles, wind energy potential increases eight times.)

Modi's Vision on Climate Changes

Manish Sinha

PM Modi presented India's vision to the world to deal with climate change. In a World Bank program, he said that if the world has to overcome climate change, then every human being will have to fight it. PM Modi shared his views on LiFE mission, sustainable development and other issues in his video message during the program. He said that climate change cannot be fought only from the conference room table. It will have to be fought on the dinner table of every house. Adding further, he said, that when an idea comes from the discussion table to the dinner table, it becomes a mass movement.

In the World Bank program Mission Life, PM Modi said that every family and every person will have to be made aware of how they can save this earth. The PM said that now the time has come to change the thinking.

PM Modi has said that one of the most powerful ways to fight climate change is behavioural change which should start from every household. Let it be known, a program titled 'Making it Personal: How Behavioural Change Can Tackle Climate Change' was organized at the World Bank, in which PM Modi joined virtually and gave this important message to the whole world. Addressing the program, he said that one of the most powerful ways to fight climate change is behavioural change which should start from every household.

PM Modi said, Chanakya, a great Indian philosopher, had written two thousand years ago:

"जल बिन्दु निपातेन क्रमशः पूर्यते घटः|
स हेतुः सर्व विद्यानां धर्मस्य च धनस्य च ||"

That is, when small drops of water mix together, they fill the pitcher. Similarly, knowledge, good deeds, or wealth increase gradually. There is a message for us in this. By itself, each drop of water may not seem like much, but when it comes with many other such drops it makes an impact.

It is noteworthy that in October 2022, the United Nations Secretary-General and PM Modi launched Mission LiFE. Mission Life means a campaign that protects the environment. In this, every person has been appealed to understand his responsibility. An appeal has been made to carry forward small to big works keeping the environment in mind.

In the World Bank program, PM Modi asked the whole world to work unitedly in this direction. He said that every good deed may seem insignificant for one planet, but when billions of people around the world do it together, its impact becomes huge. We believe that the individuals who make the right decisions for our planet are vital in the fight for our planet. This mission is the core of LiFE. The preamble of the CoP-27 outcome document also talks about sustainable lifestyles and consumption and it is surprising to see that experts in the field of climate change have also adopted this mantra.

Global food security and climate change

Manvendra Kumar

The number of people suffering from acute food insecurity in 82 countries due to war is expected to increase from 135 million to 345 million. In Ukraine, supply chain disruptions, and the continued economic impact of the COVID-19 pandemic, drove food prices to all-time highs.

Global food insecurity was already increasing, largely due to climate events. Global warming is affecting weather patterns, causing heat waves, heavy rainfall, and drought. Rising food prices were a major factor in pushing nearly 30 million additional people into food insecurity in low-income countries in 2021

Also, the way food is often produced today is a big part of the problem. It has recently been estimated that the global food system is responsible for about a third of greenhouse gas emissions – second only to the energy sector; It is the number one source of methane and biodiversity loss.

About 80% of the global population is most at risk from crop failure and hunger due to climate change in sub-Saharan Africa, South Asia, and Southeast Asia, where farming families are disproportionately poor and vulnerable.

Up to a certain point, rising temperatures and CO2 may be beneficial to crops. But rising temperatures also accelerate evaporation from plants and soil, and crops must also have enough water to thrive.

For areas of the world that already struggle with water scarcity, climate change will rapidly impact agricultural production through reduced water supplies. There has been an increase in extreme events such as floods and severe storms, heat stress, and the spread of pests and diseases.

Above a certain point of warming – and especially above a 2°C increase in average global temperatures – it becomes more difficult and more expensive to adapt. In countries where temperatures are already very high, such as the Sahel belt of Africa or South Asia, rising temperatures may have a more immediate impact on crops such as wheat that are less heat tolerant.

Without solutions, declining crop yields, especially in the world's most

food-insecure regions, will push more people into poverty – resulting in an estimated 43 million people in Africa alone falling below the poverty line by 2030.

Use water more efficiently and effectively, combined with policies

to manage demand. Building more irrigation infrastructure may not be a solution if future water supplies prove insufficient to supply irrigation systems – as our research shows may indeed be the case for some countries. Other options include the use of advanced water accounting systems and technologies, including soil moisture sensors and satellite evapotranspiration measurements, to better manage water demand as well as assess the amount of water available. A i=3>. Such measures could facilitate techniques such as alternate wetting and drying of paddy fields, thereby saving water as well as reducing methane emissions.

So switch to less thirsty crops. For example, rice farmers may switch to crops that require less water such as maize or beans. Doing so would also help reduce methane emissions, as rice is a major source of agri-food emissions. But a culture that has been growing and eating rice for thousands of years can't so easily switch to another less thirsty, lower emissions crop.

Improve soil health. it is very important. Increasing organic carbon in the soil helps it retain water better and helps plants access water more easily, increasing resilience to drought. It also provides more nutrients without the need for more chemical fertilizer – a major source of emissions. Farmers can restore lost carbon by using cover crops, especially those with large roots, in rotation rather than tilling the soil and leaving fields fallow. Such nature-based solutions to environmental challenges could provide 37% of the climate change mitigation needed to meet the goals of the Paris Agreement. However, farmers will need time, awareness raising, and training to adopt these practices. In places where farms are small and farmers cannot afford to leave fields fallow or even grow legume crops, improving soil health can pose a challenge.

(The World Bank Group's Climate Change Action Plan (2021-2025) is enhancing support for climate-smart agriculture in the agriculture and food value chains and policy and technical interventions to increase productivity, improve resilience, and reduce GHG emissions. Through. The Bank also helps countries tackle food loss and waste and manage the risks of floods and drought. For example, in Niger, a Bank-supported project aims to benefit 500,000 farmers and herders in 44 communities through the distribution of improved, drought-tolerant seeds. More efficient irrigation, and expanded use of forestry for farming and conservation agriculture techniques. To date, the project has helped 336,518 farmers manage their land more sustainably and brought 79,938 hectares of land under more sustainable farming practices.)

United Nations Framework Convention of Climate Change (UNFCCC)

Raj Bhushan

In the year 2015, in a significant development on the issue of climate change under the United Nations Framework Convention of Climate Change (UNFCCC), certain understanding may be termed as one of the most important affirmative steps in the field of climate change. It is pertinent to note that another summit named the Kyoto Protocol col which was signed in 1997, was the first effective measure under the UNFCCC, and, the same culminated in The Paris Agreement popularly known as the Conference of the Parties (COP) 21. The Kyoto Protocol was the UNFCCC initiative to reduce the Greenhouse gas concentration to reduce global warming concentrations in the atmosphere as envisaged in Article 2 -"in achieving its quantified emission limitation and reduction commitments under Article 3, to promote sustainable development". The Kyoto Protthe ocol was instrumental in the identification of greenhouse gases (Annex A) and as per commitment towards reducing the same the parties – "jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation" (Article 3). There were six greenhouse gases identified which are Carbon Dioxide, Methane, Nitrous Oxide, Hydrofluorocarbon, and Sulfur Hexafluoride whereas Nitrogen Trifluoridewas included in the list during the Doha Round.

Paris Agreement

The Paris Agreement signed by 194 countries, including the United States, is an international treaty to mitigate the effects of climate change had agreed to limit the global average temperature increase to below 2 degrees Celsius and establish an action-oriented framework. Unlike past UN initiatives, the signatories' countries were required to follow a 5-year cycle wherein they had to submit their National Determined Contributions (NDCs) to stipulate their climate action plans transparently. One of the significant aspects of this plan was to have a unique plan for each signatory country in light of their respective economic, political, and social situation and to aim to reduce greenhouse gas emissions and to bat climate change. This also includes meaningful cooperation between the signatory countries in relation to technological and financial assistance and devising a customised support framework to help them to implement their climate action plans effectively. Keeping in view to meet each country's specific needs, encouraging both developed and developing nations to take action, the developed countries under this support framework were given a predominant role to take the driving seat in imparting financial support due to their greater resources and capabilities. Therefore, the Paris Agreement includes an Enhanced Transparency Framework and all signatory countries submit the progress report in relation to their respective climate actions and progress. This Agreement suffered a jolt when one of the important signatories United States considered the Paris Agreement as an executive agreement as opposed to a legally binding treaty and it refused to ratify the Agreement. It is pertinent to note that four days after the Paris Agreement came into force, Donald Trump was elected as US president. The United States, a main player belonging to the League of Developed Nations and a prominent member of the modern geopolitical set had witnessed a change in political guard. This led to realigning their commitment as mandated in the Paris Agreement and withdrawing from the Paris Agreement. In a White House press release on June 1, 2017, Trump said, "To fulfil my solemn duty to protect the United States and its citizens, the United States will withdraw from the Paris Climate Accord,". Trump rejected the scientific consensus on climate change and he said "The bottom line is that the Paris Accord is very unfair at the highest level to the United States." Ostensibly, two main issues were imping the Trump decision first is Trump's poll commitment to revitalize the

coal industry and second his firm belief that the global warming was created by China to weaken American competitiveness.

Though the Trump administration had decided to withdraw from the Paris Agreement however as per Article 28 of the Agreement it can only be effective after one year of the withdrawal notice to the depository and the withdrawal notice can only be served three years after the agreement comes into the force in signatory country. Consequently, the United States filed its intent to withdraw on November 4, 2019, and a year from the date of notice on November 4, 2020, the United States formally withdrew from the Agreement however just after the US election in the year 2020 the United States joined the Agreement when Democrat government under Mr. Joe Biden took office. United States ' Withdrawal led to an increase in the carbon price for other countries while reducing its carbon price. In January 2020, President Biden signed the instrument to bring the United States to joint back into the Paris Agreement and the United States officially became a Party to the Agreement again. As per the press release by the US Administration- " The Paris Agreement is an unprecedented framework for global action. We know because we helped design it and make it a reality." The United States, as a member and one of the principal contributors to carbon emissions and also being an advanced technologically equipped country has worked alongside other signatory parties to combat climate change. This also prompted other US allies and signatory county such as EU countries to join the Agreement and take action against climate change and work together towards the success of achieving the desired goal. After the United States rejoined the Agreement the main challenge associated with many international agreements regarding its enforceability has been addressed. Paris Agreement requires the signatory country to monitor and report carbon emissions, it does not have a legal mandate to force a signatory country to reduce emissions. If a country that signs onto the Paris Agreement fails to meet international obligations, other countries might use diplomatic means or international relations to enforce the same.

COP28

This month in Dubai COP28 took place in Dubai with a declaration to mitigate to keeping 1.5°C within reach. At COP28, a two-week-long conference got underway with the World Climate Action Summit, which brought together 154 Heads of State and Government. Deliberations on energy transition were an important part of COP28 to tackle necessary emissions reductions, course correction and cut emissions in line with the Paris Agreement. The insurmountable challenge before each contracting nation at this juncture is how to build the energy system of tomorrow and work towards a future environment-friendly energy system free of fossil fuels by 2050 including by scaling the deployment of all available solutions and technologies. "I asked you to approach this with a different mindset and to be cooperative and I also asked everyone to be flexible" - said Dr. Sultan Ahmed Al Jaber, COP28 President, UAE Special Envoy for Climate Change, and Minister of Industry and Advanced Technology.

The impetus was made on the flexibility and the mindset by taking the historic step to work together towards achieving the required target. Significant meaningful and immediate cooperative actions were contemplated and action action-oriented agenda was discussed. This was a significant move by all nations in COP28 which witnessed worldwide participation and unfettered commitment towards the issue of climate change and global warming. This was also significant given the current

geopolitical scenario which is polarised because of the Russia-Ukraine war and the Israel-Hamas conflict. It is heartening to see all global stakeholders including private individuals come together and show their commitment towards the issue of climate change. It also shows the significant acceptability and seriousness towards a greater commitment by all nations. At the summit discussions continued setting a 'new collective quantified goal on climate finance' in 2024, taking into account the needs and priorities of developing countries. The new goal, which will start from a baseline of USD 100 billion per year, will be a building block for the design and subsequent implementation of national climate plans that need to be delivered by 2025.

The Intergovernmental Panel on Climate Change (IPCC) recently released a suggestion that it is desirable to cut global greenhouse gas emissions by 43% by 2030 if we need to achieve the determined goal of the Paris Agreement of limiting global warming to 1.5°C. The summit is taking place in a polarised world where two global wars are happening making the contemporary geopolitical situation non-conducive where poor developing countries have been feeling the impacts of the crisis. The first achievement is that the parties reached a historic agreement on the operationalization of the loss and damage fund and funding arrangements on the first day of the conference. A fund was agreed upon that will be disbursed to support countries who are suffering, irreversible damages due to climate change. As a result of climate-linked extreme weather conditions causing damage. Though the fund was conceptualized in the last COP27 it came into existence this year. The Countries have shown unfettered commitments and the fund started coming in moments after the decision more than USD 700 million to date have been collected.

Against this backdrop there are some interesting outcomes were also achieved. For the first time in 30 years of private negotiations, the word fossil fuel has been achieved, written in the decision text of a COP28 Sumit. This was a great achievement of this summit because there have been major talks among international academia and scientists about the fossil fuels leading to excess emissions of greenhouse gases and making global warming worse but there was no endorsement by any international forum and address the fossil fuels for the very first time. This is also very interesting to note that UAE was the first COP oil and gas-producing country that managed to achieve the inclusion of the word fossil fuel in the final text. This is a great accomplishment and a major milestone that the final document on this issue discussed the need to transition away from fuel and move towards net zero energy systems.

Bharat's Perspective

Bharat is engaging in the capacity of a developing country but its position on climate change is very significant. We have also witnessed the G20 summit when common sustainable development in the backdrop of one earth, one family, and one future was emphasized. Bharat has contributed only 3% to historical Carbon Dioxide emissions. This means emissions of Carbon Dioxide emitted between 1872 about 2019 for all the Carbon Dioxide emitted by all countries of the world. In this period, Barat's share is 3% today on an annual basis. So Bharat is a small contributor to the climate change problem both historically as well as today but considering Bharat is a most populous country, the per capita emissions are far below the world standards, despite this, Bharat has National Determinates Contributions (NDC) in place as mandated by the Paris Agreement. The NDC has three parts and Bharat is on track to meet at least 2 out of 3 of the targets that it has pledged to the Paris Agreement.

In the COP Sumit, Bharat reminds developed countries that they have a responsibility to take the lead on action. They should be taking more rapid and urgent action to phase out fossil fuels. Bharat is a big advocate for the concept of equity and the need for developed countries to take the lead in action and transfer resources to developing countries to help them de-carbonize. Bharat has not inclined to take on any new targets or any new pledges beyond what it has committed in its NDC in the Paris Agreement. This is in sync with Bharat's position which is based on the principle of historical responsibility as the larger burden should be on developed countries.

Under the Paris Agreement, Bharat had committed to achieve three targets under its National Determinates Contributions (NDC). The first target is a 45% reduction of emissions intensity of GDP by 2030, the second is to have 50% non-fossil installed power capacity by 2030 and the third is to increase its carbon sink by 2.5 to 3 tonnes through additional forest and tree cover. Bharat recently published its national greenhouse gas report of 2019 and this was submitted in the national communication to the UNFCCC. Under this, the Ministry of Environment has announced that Bharat is meeting the time-bound required target Bharat has already reduced the emission density of GDP by 33% between 2005 and 2019 and its target is to reduce it by 45% by 2030. With its non-fossiled power capacity, at present Bharat has a 41% share of clean power in terms of capacity. According to a Ministry of Environment document, the Central Electricity Authority (CEA) projects that by the year 2030, Bharat will overachieve and will have like 62% non-fossiled fuel excluding nuclear power which comprises 2% non-fossiled fuel. Therefore, this target will be achieved comfortably. It is also striving to achieve the target of a carbon sink and has a vehement commitment to achieving carbon sink data. Bharat commitment to meeting its NDC is very encouraging by achieving 2 out of 3 targets. Bharat is targeting net zero capacity by 2070.

In context to Bharat one of the important greenhouse gases Methane which is more perilous to the environment as compared to any other greenhouse gas mainly caused due to the paddy cultivation or agriculture sector, is the biggest challenge for Bharat. Bharat is also very critical of the sudden curb on Methane gas because it has direct relations to the agriculture sector. Bharat had played a significant role in the past and was also instrumental in managing to get the last statement changed in the earlier summit where it was said that out the coal or the thermal

use of coal or extraction of coal per power generation. But Bharat had suggested that not just coal but the statement must include that all fossil fuels should be faced out and that is where Bharat started asserting itself.

Prime Minister address in COP28

Prime Minister Sh. Narendra Modi in his address to the member nations made several points at COP 28. In his speech, he mentioned that Bharat's population is 17% of the world's population and shares global carbon emissions of less than 4% which is way below the world's data. Prime Minister strongly advocated Bharat's commitment to fulfill National Determined Contributions (NDC) and Bharat's commitment to approaching net zero emission in 2070. Prime Minister Modi has also emphasized one earth, one family, and one future was discussed by Bharat its G-20 presidency. Prime Minister also talked about the Green Development Pact on sustainable development and emphasized the government initiative on the use of hydrogen gas and biofuel. The prime minister also announced pro-active, pro-planet, positive energy which was termed as Green Credit Initiative which is to create a carbon sink with the help of public participation.

Future Roadmap

Amid global confrontation in the Middle East and Russia-Ukrain war, the negotiations on the 'enhanced transparency framework' at COP28 laid the ground for a new era of implementing the Paris Agreement. UN Climate Change is developing the transparency reporting which was demonstrated at COP28. The final versions of the reporting tools should be made available to Parties by June 2024.

The next two years will be critical. At COP29, governments must establish a new climate finance goal, reflecting the scale and urgency of the climate challenge. At COP30, they must come prepared with new nationally determined contributions that are economy-wide, cover all greenhouse gases, and are fully aligned with the 1.5°C temperature limit.

Though Bharat is maintaining its pledge as envisaged in the Paris Agreement in a time-bound manner, there are other additional initiatives that Bharat has undertaken in cooperation with other nations as a true leader and responsible nation. The Government of Bharat in its press release says– "reaffirm our commitment to work together for the common objective for greener, cleaner and healthier planet as we have one Earth, we are One family and share One future."

Addressing the Urgent **Challenges of Environmental** Sustainability

Prof. (Dr) Aditya Tomer

Addl. Director/ Jt. HOI, Amity Law School Noida, Dr. Sumitra Singh & Ms Akriti Gupta, Student Amity Law School Noida

As we embark on a new year, the pressing need to address global environmental concerns becomes increasingly evident. The complex interplay of climate change, biodiversity loss, deforestation, water scarcity, and pollution necessitates concerted efforts and innovative solutions to foster a sustainable future for all.

In an era defined by rapid environmental change and escalating global challenges, strategic foresight, innovative solutions, and collaborative action are imperative to navigate the complex landscape of sustainability, address pressing environmental concerns, and forge a resilient and inclusive future for humanity.

Global concerns regarding environmental issues encompass a broad range of challenges and threats that affect ecosystems, biodiversity, human health, and socio-economic development worldwide. Here are some key areas of concern:

Climate Change Rising global temperatures, sea-level rise, extreme weather events, and changes in precipitation patterns are linked to greenhouse gas emissions from human activities, leading to widespread impacts on ecosystems, communities, and economies.

Biodiversity Loss: Habitat destruction, overexploitation of natural resources, pollution, and invasive species are contributing to the rapid decline of species and ecosystems, threatening biodiversity and ecological balance.

Deforestation and Land Degradation: Unsustainable agricultural practices, logging, urbanization, and infrastructure development lead to deforestation, soil erosion, desertification, and loss of arable land, affecting food security and ecosystem services.

Water Scarcity and Pollution Increasing demand for freshwater resources, pollution from industrial and agricultural activities, inadequate wastewater treatment, and unsustainable water management practices are exacerbating water scarcity, deteriorating water quality, and threatening aquatic ecosystems

Air Pollution: Emissions from transportation, industry, energy production, and biomass burning contribute to air pollution, leading

to health problems, environmental degradation, and climate impacts.

Waste Management Inadequate waste management practices, including improper disposal, landfilling, and plastic pollution, are causing environmental pollution, harming wildlife, and contaminating terrestrial and aquatic ecosystems.

Ocean Health Overfishing, habitat destruction, pollution, ocean acidification, and climate change are affecting marine biodiversity, disrupting marine ecosystems, and threatening the sustainability of fisheries and coastal communities.

Natural Disasters Increasing frequency and intensity of natural disasters, such as hurricanes, floods, droughts, wildfires, and earthquakes, are causing widespread destruction, displacing populations, and straining disaster response and recovery efforts.

Environmental Injustice vulnerable and marginalized communities often bear a disproportionate burden of environmental degradation, pollution, and climate impacts, exacerbating social inequalities and inequities in access to resources and environmental benefits.

Addressing these global environmental concerns requires collective action, international cooperation, sustainable development practices, policy reforms, technological innovations, community engagement, and individual responsibility to foster a resilient, equitable, and sustainable future for all.

Some featured articles on environmental concerns discuss Climate Change: A Global Imperative and the escalating impacts of climate change, characterized by rising temperatures, sea-level rise, and extreme weather events, underscore the urgency to accelerate climate action, reduce greenhouse gas emissions, and transition to renewable energy sources to mitigate climate risks and build climate-resilient communities. Biodiversity Crisis and Protecting Our Natural Heritage The unprecedented rate of biodiversity loss poses profound ecological, economic, and social implications. Adopting sustainable land-use practices, conserving critical habitats, combating wildlife trafficking, and promoting biodiversity conservation are essential to safeguarding ecosystems, preserving biodiversity, and promoting ecological balance. Sustainability of water and ensuring Access and Quality addressing water scarcity, pollution, and unsustainable water management practices requires integrated water resource management, wastewater treatment, water conservation initiatives, and equitable access to clean and safe drinking water to protect human health, support economic development, and sustain aquatic ecosystems. Waste Management towards a Circular Economy transitioning from linear to circular economy models, emphasizing reduce, reuse, and recycle principles, promoting sustainable consumption and production patterns, and implementing effective waste management strategies are crucial to minimizing waste generation, reducing environmental pollution, and fostering resource efficiency.

The areas that have been focused on Climate Resilience and Adaptation Strategies harnessing cutting-edge technologies, data-driven insights, and interdisciplinary collaborations to develop robust climate resilience strategies, enhance

adaptive capacity, and integrate climate considerations into policy frameworks, infrastructure development, and community planning to safeguard livelihoods and ecosystems in a changing climate. Biodiversity Conservation and Ecosystem Restoration advancing conservation science, implementing ecosystem-based approaches, and scaling up restoration initiatives to reverse biodiversity loss, restore degraded habitats, and promote sustainable land-use practices, recognizing the intrinsic value of biodiversity and the essential role of healthy ecosystems in supporting planetary health and human well-being. Circular Economy and Sustainable Resource Management promote circular economy principles, fostering innovation in waste reduction, resource recovery, and sustainable consumption patterns, and advancing circular business models, supply chain sustainability, and product stewardship initiatives to minimize waste generation, optimize resource utilization, and transition towards a regenerative and sustainable economy.

Highlighting the importance of environmental justice, addressing environmental inequalities, promoting inclusive and participatory decision-making processes, and ensuring equitable access to environmental benefits and resources are fundamental to advancing social justice, reducing vulnerabilities, fostering resilient and sustainable communities, and Showcasing emerging technologies, digital innovations, and transformative solutions that are revolutionizing environmental monitoring, sustainable agriculture, renewable energy systems, water purification, waste management, and environmental conservation efforts, driving progress towards achieving sustainability goals and catalyzing positive change at scale.

During this process, there were many Global Initiatives and Collaborative Efforts have taken place Showcasing international cooperation, collaborative initiatives, innovative solutions, and best practices to address global environmental challenges, promote sustainable development, and accelerate progress toward achieving the Sustainable Development Goals (SDGs) and the objectives of the Paris Agreement on Climate Change. UNFCCC, COP26, PARIS AGREEMENT, COP 27, COP28, and recently an event hosted in India in the capital New Delhi G20 all the leaders and NGOs, and other environmentalists got Involved and took Action for the Planet empowering individuals, communities, organizations, and businesses to take action, adopt sustainable practices, support environmental initiatives, advocate for policy reforms, and contribute to collective efforts to protect the environment, promote sustainability, and create a better world for future generations. Engage and Contribute and take Action for Sustainability empowering individuals, organizations, businesses, and communities to engage in sustainability initiatives, adopt responsible practices, advocate for policy reforms, participate in collaborative projects, and contribute to creating a more sustainable, equitable, and prosperous world for present and future generations.

Many lives and natural aspects have been affected by this like permafrost, Tsunamis, Droughts,

Melting of glaciers and ice , etc

Permafrost Global concerns regarding environmental issues Permafrost, which is a ground that remains frozen for two or more consecutive years, plays a critical role in the Earth's climate system. There are several global concerns associated with permafrost thawing due to climate change:

Release of greenhouse gases, infrastructure damage, changes in landscape, cultural impact. And if Certainly, let's delve deeper into the concerns surrounding permafrost degradation from a more professional perspective:

Carbon Feedback Mechanism thawing permafrost releases previously sequestered carbon in methane and carbon dioxide. This feedback mechanism can intensify global warming, creating a cycle where increased temperatures lead to more thawing, which in turn releases more greenhouse gases.

Infrastructure Vulnerabilities regions with extensive permafrost, such as parts of Siberia and Northern Canada, have infrastructure built on this frozen ground. As it thaws, structures can become unstable, leading to potential economic losses and safety concerns.

Hydrological Changes Permafrost acts as a barrier, influencing groundwater flow and surface water dynamics. Its thawing can alter hydrological patterns, affecting water availability, and quality, and contributing to phenomena like thermokarst lakes.

Biodiversity Impact Permafrost regions host unique ecosystems adapted to cold conditions. Thawing can lead to habitat fragmentation, altering species distributions, and potentially leading to biodiversity loss.

Economic Implications Industries reliant on permafrost, such as certain types of agriculture, mining, and tourism, may face operational challenges and increased costs due to changing ground conditions and associated risks.

Addressing these concerns necessitates interdisciplinary research, policy interventions, and international collaboration to mitigate the impacts of permafrost degradation and adapt to its changing dynamics.

Here Is a case study to explain it further

Permafrost Degradation and Infrastructure Challenges: A Case Study of the Kolyma Highway, Russia

Introduction:

Permafrost, the permanently frozen ground covering vast regions of the Arctic and subarctic, is a critical component of the Earth's cryosphere. Its stability is now under threat due to global climate change, leading to significant implications for infrastructure, ecosystems, and communities. This article delves into the impacts of permafrost degradation on the Kolyma Highway in northeastern Russia, highlighting the complex challenges posed by changing environmental conditions.

Background:

Constructed during Stalin's era using forced labor, the Kolyma Highway, often referred to as the "Road of Bones," spans over 1,200 miles across remote and frigid landscapes. The region's harsh climatic conditions, characterized by extensive permafrost coverage, have historically shaped the highway's construction and maintenance challenges.

Key Impacts of Permafrost Degradation:

1. Infrastructure Damage:

The degradation of the Kolyma Highway serves as a stark reminder of the vulnerability of infrastructure built on permafrost. Sections of the highway have experienced sinking and cracking as the underlying permafrost thaws, leading to increased maintenance costs, safety hazards for motorists, and disruptions in transportation networks.

2. Release of Greenhouse Gases:

The thawing permafrost beneath the Kolyma Highway has become a source of greenhouse gas emissions, particularly methane and carbon dioxide. These emissions not only contribute to Russia's overall greenhouse gas footprint but also exacerbate global climate change impacts, creating a concerning feedback loop.

3. Feedback Loop:

The interconnected nature of permafrost degradation and regional warming has initiated a feedback loop along the Kolyma Highway. As temperatures rise, more permafrost areas undergo thawing, further degrading the road and intensifying infrastructure challenges. This self-reinforcing cycle underscores the urgency of addressing both the causes and consequences of permafrost degradation.

4. Cultural and Historical Impact:

Beyond its infrastructural significance, the Kolyma Highway holds profound cultural and historical importance, traversing areas associated with the Gulag labor camps and other significant sites. The thawing permafrost poses risks to these heritage sites, threatening the preservation of historical artifacts and the memory of the region's complex past.

Conclusion:

The case of the Kolyma Highway illustrates the multifaceted challenges posed by permafrost degradation, encompassing infrastructural vulnerabilities, environmental impacts, and socio-cultural considerations. Addressing these challenges requires integrated strategies that prioritize adaptive infrastructure design, robust maintenance practices, and proactive climate change mitigation measures. Moreover, the case underscores the broader implications for vulnerable communities and the imperative of preserving cultural heritage in rapidly changing permafrost regions.

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This article offers a comprehensive exploration of the impacts of permafrost degradation on the Kolyma Highway, integrating scientific insights, historical context, and socio-cultural considerations to provide a nuanced understanding of the complex challenges posed by changing environmental conditions in the Arctic and subarctic regions.

Tsunamis global concerns regarding environmental issues A tsunami, often referred to as a seismic sea wave or tidal wave, is a series of ocean waves generated by abrupt disturbances in the sea floor, such as earthquakes, volcanic eruptions, or underwater landslides. Tsunamis can travel across entire ocean basins at high speeds and, upon reaching shallow waters near coastlines, can grow in height and cause significant destruction.Most

tsunamis are caused by underwater earthquakes where the sea floor is abruptly uplifted or displaced. Other triggers include volcanic eruptions, submarine landslides, or, less commonly, meteorite impacts. Tsunamis can cause extensive damage to coastal communities, infrastructure, and ecosystems. The inundation of coastal areas by powerful tsunami waves can lead to loss of life, displacement of populations, and long-term socio-economic impacts.Efforts to mitigate the impacts of tsunamis include the development of early warning systems, seismic monitoring networks, and public education initiatives to promote preparedness and evacuation procedures.Tsunamis, as natural phenomena, have significant environmental implications and raise global concerns related to various environmental issues: Coastal Ecosystems

Habitat Destruction Tsunamis can devastate coastal ecosystems, including coral reefs, mangroves, and coastal wetlands, which serve as vital habitats for marine biodiversity

Sedimentation and Erosion The force of tsunami waves can alter coastal topography, leading to sediment deposition and erosion, which can impact marine habitats and water quality.

Marine Environment

Pollution Tsunamis can result in the release of pollutants, including chemicals, oil, and debris, into marine environments, posing risks to marine life and ecosystems

Fisheries Impact Coastal fisheries may suffer from the destruction of fishing infrastructure and the depletion of fish stocks due to environmental changes caused by tsunamis.

Climate Change and Sea-Level Rise

Coastal Vulnerability Rising sea levels, exacerbated by climate change, can increase the vulnerability of coastal communities to the impacts of tsunamis, amplifying the risks of inundation and damage.

Ecosystem Resilience Climate change may affect the resilience of coastal ecosystems to tsunamis, with potential implications for ecosystem recovery and adaptation.

Human-Environment Interactions

Land-Use Planning Tsunami events highlight the importance of sustainable land-use planning and coastal zone management practices that consider natural hazard risks and promote ecosystem resilience.

Disaster Preparedness Enhancing disaster preparedness and response strategies can contribute to minimizing environmental impacts and fostering community resilience to tsunamis and related hazards.

International Cooperation and Governance

Global Collaboration addressing the environmental challenges associated with tsunamis requires international cooperation, knowledge sharing, and collaborative efforts to develop adaptive strategies and resilience-building initiatives

Policy Frameworks Strengthening policy frameworks and governance mechanisms at national, regional, and international levels can facilitate coordinated action and integrated approaches to mitigate the environmental impacts of tsunamis and enhance environmental sustainability.

In summary, tsunamis underscore the interconnectedness of environmental, social, and economic dimensions in the context of natural hazards, highlighting the need for holistic approaches to address global concerns and promote environmental stewardship and resilience in the face of natural resources

To understand it more here is a more scientific and professional description of tsunamis

A Multifaceted Hydrological and Geophysical Analysis1. Generation Mechanisms: Seismic Tsunamis: Predominantly triggered by the sudden displacement of tectonic plates, particularly in subduction zones, resulting in the generation of seismic waves that propagate

through the oceanic crust, displacing large volumes of water and initiating tsunami waves.Volcanic Tsunamis: Stem from volcanic eruptions, where the expulsion of volcanic materials and the structural collapse of volcanic edifices can induce rapid water displacement, generating localized but potentially destructive tsunami waves. Landslide-Generated Tsunamis: Originating from subaqueous landslides, often associated with geologically unstable coastal or submarine terrains, causing the abrupt displacement of water masses and the formation of tsunamigenic waves.2. Hydrodynamic and Wave-Current Interactions: Long Wave Dynamics: Tsunamis are characterized by shallow water wave dynamics, with long wavelengths relative to water depth, enabling efficient energy propagation across oceanic expanses with minimal attenuation. Wave-Current Synergism: Tsunami-induced currents can exhibit intricate flow patterns, including undertows, rip currents, and eddy formations, resulting in complex hydrodynamic interactions that further amplify coastal hazards and navigation risks.3. Environmental and Geomorphological Impacts: Coastal Geomorphodynamics: Tsunamis engender significant morphological transformations in coastal landscapes, encompassing sediment redistribution, erosional processes, and depositional landform alterations, thereby influencing coastal geomorphological evolution and ecosystem dynamics.Infrastructure and Coastal Engineering Resilience: Coastal infrastructure, encompassing harbors, ports, seawalls, and coastal defenses, is inherently vulnerable to tsunami-induced hazards, necessitating advanced engineering solutions, structural resilience enhancements,

and adaptive coastal management strategies to mitigate risks and ensure infrastructure sustainability.4. Mitigation, Preparedness, and Integrated Management: Early Warning and Monitoring Systems: The development and implementation of comprehensive tsunami early warning systems, integrating seismological monitoring networks, oceanographic sensors, real-time data analysis, and communication infrastructure, are paramount for facilitating timely hazard alerts, coordinating emergency responses, and minimizing societal impacts. Integrated Coastal Zone Management (ICZM): A holistic approach to coastal zone management, encompassing scientific research, policy formulation, stakeholder engagement, and community-based initiatives, is essential for fostering coastal resilience, enhancing adaptive capacity, promoting sustainable land-use practices, and facilitating informed decision-making processes to mitigate tsunami risks, safeguard coastal communities, and preserve environmental integrity. In summary, tsunamis epitomize complex hydrological and geophysical phenomena with profound environmental, societal, and infrastructural implications, necessitating rigorous scientific inquiry, state-of-the-art monitoring capabilities, multidisciplinary collaboration, and adaptive management frameworks to comprehend the intricacies of tsunami dynamics, develop effective mitigation strategies,

and foster resilient coastal systems in the context of evolving natural hazards and global environmental change.

Let's dive into the case study focusing on the 2011 Tōhoku earthquake and tsunami in Japan, a catastrophic event that had significant scientific, environmental, and societal implications.

The 2011 Tōhoku Earthquake and Tsunami: Impacts, Responses, and Lessons Learned

Introduction:

The 2011 Tōhoku earthquake and tsunami in Japan was a catastrophic event that had profound implications for understanding natural hazards, disaster management, and societal resilience in the face of complex environmental challenges.

Background:

On March 11, 2011, a massive magnitude 9.0 earthquake struck off the northeastern coast of Japan's Tōhoku region, triggering a powerful tsunami that devastated coastal communities and caused widespread destruction across multiple prefectures.

Key Impacts:

1. Humanitarian Crisis:

- The earthquake and tsunami resulted in over 15,000 confirmed deaths, with nearly 3,000 people reported missing, and tens of thousands displaced from their homes due to severe infrastructure damage and the loss of livelihoods.

2. Environmental Consequences:

- The disaster led to a nuclear meltdown at the Fukushima Daiichi Nuclear Power Plant, resulting in the release of radioactive materials and necessitating extensive decontamination efforts and long-term environmental monitoring.

- Coastal ecosystems were significantly impacted, with the destruction of habitats, alteration of sediment dynamics, and disruption of marine biodiversity posing long-term challenges for ecological recovery.

3. Societal and Economic Implications:

- The economic losses from the disaster exceeded $200 billion, encompassing extensive property damage, business disruptions, and the loss of critical infrastructure, highlighting the vulnerability of regional and national economies to natural disasters.

- The disaster underscored the importance of community resilience, emergency preparedness, and effective disaster response mechanisms, leading to enhanced public awareness, policy reforms, and infrastructure improvements to mitigate future risks and safeguard vulnerable populations.

Mitigation and Recovery Efforts:

- The Japanese government and international community mobilized rapid response efforts, including search and rescue operations, medical assistance, and humanitarian aid delivery, supported by extensive international collaboration and assistance.

- Comprehensive reconstruction and recovery initiatives were undertaken, focusing on rebuilding infrastructure, restoring communities, and revitalizing local

economies, guided by sustainable and resilient design principles to enhance disaster resilience and adaptive capacity in the affected regions.

Lessons Learned and Future Implications:

- The 2011 Tōhoku earthquake and tsunami highlighted the need for integrated risk assessment, early warning systems, and multi-hazard mitigation strategies to address the evolving challenges posed by tsunamis, earthquakes, and related disasters in a changing climate and global environment.

- The disaster emphasized the importance of proactive disaster management, resilience-building, and sustainable development practices to mitigate risks, protect communities, and promote long-term sustainability and resilience in the face of natural hazards and environmental uncertainties.

Conclusion:

The 2011 Tōhoku earthquake and tsunami in Japan serve as a poignant reminder of the profound and far-reaching impacts of natural disasters, necessitating comprehensive understanding, proactive mitigation measures, and collaborative efforts to foster resilience, safeguard communities, and promote sustainable development in the face of evolving natural hazards and environmental risks.

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This article provides a comprehensive overview of the 2011 Tōhoku earthquake and tsunami in Japan, exploring the key impacts, mitigation and recovery efforts, lessons learned, and future implications, to elucidate the complex challenges posed by natural disasters and the importance of effective disaster management and resilience-building strategies in fostering sustainable development and safeguarding vulnerable communities in a dynamic and interconnected world.

Empowering Sustainable Futures together, We Can Make a Difference embrace the opportunity to shape a sustainable future, contribute to global sustainability efforts, and become a catalyst for positive change in your community, industry, and beyond Join us in our mission to address global environmental concerns, foster sustainability, promote resilience, and create a brighter and more sustainable future for all.

My life is my students

Dr Achyuta Samanta, Founder, KIIT

Kalinga Institute of Industrial Technology (KIIT), one of the most popular universities in India and a sought-after destination for professional education, has become the top choice for students among self-financing institutions for it stands true to its commitment of unlocking limitless possibilities. The exponential yet organic growth of the university, from a skill training institute to a globally acclaimed institution of excellence, has happened in a short span of about 25 years. The university has not only put Odisha on the map as an education hub but has had a significant impact on the socio-economic landscape, transforming Bhubaneswar into a vibrant and thriving city.

It spans an impressive 36 square kilometres, with infrastructure and facilities second to none, creating an environment conducive to learning, growth, and holistic development. The academic standards at KIIT are top-notch, with a globally competitive curriculum, cutting-edge labs, hands-on learning, and distinguished faculties from India and abroad. The environment in and around the university, with its 'home away from home' accommodations, exchange programs, and a vibrant student activity centre make it an attractive destination for aspiring students. Its impeccable placement record, bolstered by strong industry connections underscore the brand that its Founder has built over the years. The sports infrastructure and the plethora of extracurricular activities foster an environment where students can explore and develop diverse skills, embrace fitness and pursue sports alongside their academic pursuits.

Nationally, KIIT has carved out a prestigious position, earning the 16th spot in the National Institute Ranking Framework (NIRF), Government of India. Moreover, the National Assessment and Accreditation Council (NAAC) has bestowed upon KIIT an A++ grade, underlining its excellence in education as recognised by the Ministry of Education, Government of India. Internationally, its acclaim continues to grow. The Times Higher Education Ranking for 2024 positions KIIT in the 601-800 rank band and in the field of Computer Science Engineering, the institute shines, ranking between 301 and 400. Among young universities, it holds a position between 151 to 200. KIIT's affiliations speak volumes about its quality and global reach. It is affiliated with IET, UK, and ABET of USA, ensuring that its curriculum and pedagogy meet international standards. The engineering programme of KIIT University has received accreditation from the National Board of Accreditation (NBA) in Tier 1 Format, recognised by the Washington Accord. In terms of global impact, KIIT's QS Ranking stands between 901 and 1000, indicating its growing impact on sustainability worldwide.

However, the essence of KIIT's journey to excellence lies beyond rankings and affiliations. It is deeply rooted in the vision and leadership of its Founder, Dr Achyuta Samanta. His life, marked by sacrifice and dedication to education, deeply resonates with students and members of faculty at KIIT. His philosophy of humanism and compassion is a fundamental part of KIIT's culture.

The inception of KIIT in the early 90s by Dr Achyuta Samanta with a modest sum of Rs. 5000, equivalent to about a hundred dollars at the time, and its evolution today is an inspiring story of its journey and demonstrates how vision and perseverance can create an institution of great standing. Dr Samanta, despite his busy schedule and high social standing, never misses an opportunity to interact with and motivate the students. The Founder's dedication is evident in every aspect of campus life, from the look and feel of the university, green cover, quality of the hostel facilities, academics to the individual care taken of each student. He does it to ensure that KIIT remains as the most student-friendly and parent-friendly university. His life is devoted to the betterment of the students and he always says his life is his students. He has given his life, blood and sweat to the institution and its success.

GOVERNANCE TODAY

Presents

INDUSTRY ACADEMIA NTERFACE CONCLAVE 2024

FUTURE OF EDUCATION IN THE **AI** ERA

Shri. Dharmendra Pradhan
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Smt. Annpurna Devi Yadav
Hon'ble Minister of State for Education Govt. of India

Shri. Amitabh Kant
Former Chief Executive Officer, NITI Aayog

Shri. Amod Kanth
Social activist and former policeman

M L Srivastava
Additional Chief Secretary cum PCCF (HoFF) (Retd)

Topics of discussions

- Technology Integration
- Creative Teaching Methods
- Team Teaching & Interdisciplinary Integration
- Innovations in Education Raising Scientific Literacy
- Learning & Teaching through Arts
- Extracurricular Activities
- Vocational Training
- Informal Learning
- Life-Long Learning
- Employability Issues

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