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INTERNATIONAL CONFERENCE
on
BLUE ECONOMY

Empowering Sustainable Growth through Marine Ecosystem

23 - 24 January 2025

Venue: Auditorium, Campus 6, KIIT DU
Bhubaneswar, Odisha

DETAILED PROGRAM REPORT

Supported By

NITI Aayog | बाइरैक birac | Fisheries & Animal Resources Development Department, Government of Odisha | विज्ञान एवं प्रौद्योगिकी विभाग DEPARTMENT OF SCIENCE & TECHNOLOGY | पत्तन, पोत परिवहन एवं जलमार्ग मंत्रालय MINISTRY OF PORTS, SHIPPING AND WATERWAYS | SAGARMALA PORT-LED PROSPERITY | Ministry of Environment, Forest & Climate Change | LiFE Lifestyle for Environment

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मंत्री
पर्यावरण, वन एवं जलवायु परिवर्तन
भारत सरकार

सत्यमेव जयते

भूपेन्द्र यादव
BHUPENDER YADAV

MINISTER
ENVIRONMENT, FOREST AND CLIMATE CHANGE
GOVERNMENT OF INDIA

MESSAGE

India, with its vast coastline extending over 7,500 kilometers and an Exclusive Economic Zone (EEZ) of 2.02 million square kilometers is well-positioned to unlock the immense potential of the Blue Economy. The nation's extensive coastline with rich marine biodiversity, and strategic location provides a strong foundation for a sustainable, ocean-based economy and possesses great potential for socio-economic development of coastal community.

The Government of India, under the visionary leadership of Hon'ble Prime Minister, Shri Narendra Modi ji is committed to harnessing the Blue Economy potential of the country to drive sustainable growth, promote livelihoods, and protect our coastal ecosystem and oceanic resources. As India embarks on its journey to become a Viksit Bharat by 2047, contribution from Blue Economy will increase manifold. India's commitment to sustainability within the Blue Economy framework ensures that economic progress is achieved without compromising ecological integrity.

I congratulate ***Bhubaneswar City Knowledge Innovation Cluster*** **(BCKIC) Foundation for organising this important "*International Conference on Blue Economy*"**, for initiating insightful deliberation among experts, researchers, policymakers, industry leaders, community representatives, Civil Society Organisations, students from across the globe to discuss the vast potential and challenges of sustainable fisheries, ocean-based renewable energy, marine conservation, and the role of technology in advancing the Blue Economy.

(Bhupender Yadav)

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सर्बानंद सोणोवाल
SARBANANDA SONOWAL

सत्यमेव जयते

पत्तन, पोत परिवहन और जलमार्ग मंत्री
भारत सरकार
Minister of Ports, Shipping and Waterways
Government of India

MESSAGE

It is a great moment to have this distinguished gathering at the International Conference on Blue Economy 2025. Organized by the Bhubaneswar City Knowledge Innovation Cluster (BCKIC), this unique platform brings together policymakers, industry leaders, researchers, and students to explore the immense potential of the Blue Economy in fostering sustainable growth.

Under the visionary leadership of Hon'ble Prime Minister Shri Narendra Modi ji, India has embraced the transformative power of the Blue Economy. Through initiatives such as Maritime India Vision 2030, Sagarmala, and PM Gati Shakti, we are strengthening maritime infrastructure, promoting coastal community development, and integrating economic progress with environmental sustainability. These efforts have positioned India as a global leader in sustainable maritime practices.

Odisha, with its extensive coastline and abundant marine resources, stands at the forefront of this mission. This conference highlights innovations in marine bio manufacturing, maritime security, and disaster management, showcasing the talent and creativity of our youth.

I commend the organizers for bringing together such a dynamic group of individuals and fostering meaningful discussions. Let us commit to realizing the vision of a thriving Blue Economy, where prosperity is harmonized with sustainability for our communities and marine ecosystems.

Thank you, and I wish the conference great success.

(Sarbananda Sonowal)

Place: New Delhi
Date: 22nd January, 2025

SAGARMALA
PORT-LED PROSPERITY

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स्वच्छ भारत
एक कदम स्वच्छता की ओर

International Conference on Blue Economy: Empowering Sustainable Growth through Marine Ecosystem

Date: 23rd & 24th January 2025

Executive Summary of the Conference

Following the resounding success of National Conference on Blue Economy organised on 19th & 20th February 2024 at Bhubaneswar, the Bhubaneswar City Knowledge Innovation Cluster (BCKIC) in partnership with Institute of Life Sciences (BRIC ILS), IIT Ropar and Kalinga Institute of Industrial Technology (KIIT) organised the "International Conference on Blue Economy: Empowering Sustainable Growth through Marine Ecosystem" on 23rd & 24th January 2025 at KIIT University, Bhubaneswar.

The International Conference on Blue Economy 2025 served as a platform of convergence to support Blue Economy based activities. The conference was supported by various Government agencies, embassies, industries, foundations etc. The conference witnessed conglomeration of more than 50 blue economy aligned startups, showcasing their products and technologies in sector of blue economy. Additionally, the conference served as an enabling platform for innovations and technology in the marine sector, inviting professionals from diverse fields to explore the vast potential of marine ecosystem in various applications. Furthermore, the conference successfully created a platform for dialogue exchange, learning, and networking by showcasing the latest research, breakthrough ideas, and transformative technologies in the blue economy sector.

Key Engagements During the Conference:

- **Super Sessions & Panel Discussions** focussed on important areas of blue economy
- **Policy Roundtable** where policymakers discussed on various policy level interventions in this sector
- **Networking & Collaborations** with B2B, B2G & G2G Meetings
- **Cross-Border Dialogues** & exchange of best practices

- **Industry – Academia Interaction** for fostering innovations and technological advancements in the blue economy sector
- **Mission 50 Blue Economy** Startup Showcasing
- **Research Presentations & Technology Pitching** showcasing various innovations and technological advancements in the blue economy sector
- **Investor Pitching** to explore private investment opportunities for the blue economy-based startups

Impact Numbers

Key Stakeholders Engaged

Session Wise Coverages

DAY 1 (23rd Jan 2025)

Inaugural Session

Members:

- Dr. Mrutyunjay Suar, DG R&D and Innovation, KIIT & Chairman, BCKIC
- Dr Namrata Misra, CEO, BCKIC
- Dr. Debasish Dash, Director, BRIC-ILS
- Dr. Parvinder Maini, Scientific Secretary, O/o PSA, GoI
- Prof. Achyuta Samanta, Founder, KIIT & KISS
- Guest of Honour: Dr Rajesh Gokhale, Secretary, DBT, GoI
- Chief Guest: Smt. Pravati Parida, Hon'ble Dy Chief Minister, Odisha

Addressing the stakeholders, **Smt. Pravati Parida, Hon'ble Dy Chief Minister, Odisha** remarked that Odisha plays an important role in Prime Minister's vision of promoting Blue Economy as a mission program for Viksit Bharat. She highlighted that the state will actively work towards harnessing the state maritime resources for the socio-economic advancement of the region. She stressed on the potential of our oceans, seas, and the state's brackish water lagoon i.e., the Chilika Lake, to improve the livelihood of local communities in the coastal states. She also emphasized the importance of leveraging the latest innovations, scientific advances, and best practices to harness marine biotechnology while conserving waters for future generations. Furthermore, she highlighted that Odisha is putting a lot of efforts in sectors like - fisheries, aquaculture, marine biotechnology, coastal ecotourism and offshore renewable energy for maintaining the economic balance and development with environmental conservation, ensuring long-term prosperity.

Smt. Pravati Parida also released the **Mission 50 Blue Economy Startup Compendium** highlighting startup-based technologies in the blue economy sector & Souvenir of the conference which included several research abstracts on diverse sectors from academicians and researchers of different institutions across India.

Dr Rajesh Gokhale, Secretary, DBT, GoI delivered a keynote address as a Guest of Honour where he mentioned India's vision for Vikshit Bharat emphasizes bio-innovations to drive self-reliance, integrating biotechnology into healthcare, agriculture, and marine sectors. He also highlighted about Odisha's vast coastline presenting opportunities in marine biodiversity, bioprospecting, and aquaculture, with applications in pharmaceuticals and bio-based industries. Sustainable marine ecosystems are key to the Blue Economy, balancing ecological conservation with industrial growth. Dr Gokhale also emphasized on the future strategies to address climate change and biodiversity loss through resilient technologies. He put a lot of focus on the recently approved **BioE3 Policy** which aims to boost entrepreneurship, employment, and excellence in biotechnology and how this policy will play a crucial role in promoting blue economy-based activities in India.

Further, Dr Rajesh Gokhale inaugurated the **Mission 50 Blue Economy Startup Pavillion** where 50 top blue economy-based startups from PAN India showcased their technologies across various sub sectors of blue economy. At the pavilion he mentioned startups as key stakeholder in this sector for creating employment, enhance resource efficiency, and foster eco-friendly solutions, ensuring sustainable economic growth while protecting marine ecosystems.



Dr. Parvinder Maini, Scientific Secretary, O/o PSA, GoI delivered a Power Talk which initiated with the focus on growing pressure on land resources and climate change which has necessitated a shift toward sustainable ocean resource utilization, making the Blue Economy a crucial solution for economic growth and environmental balance. She highlighted that this approach reimagines oceans by focusing on sustainable practices that ensure economic development, social well-being, and marine ecosystem health. She talked about India's Deep Ocean Mission, launched in 2021 which aims to explore deep-sea resources using advanced submersibles, fostering scientific and technological advancements. Additionally, she also focused on the Sagarmala Project on modernizing ports, promoting coastal shipping, and developing coastal communities, ultimately reducing logistics costs and enhancing maritime infrastructure for holistic economic progress. Furthermore, Dr Maini also highlighted that BCKIC Foundation, an initiative of the Office of Principal Scientific Adviser to the Govt of India and one of the eight S&T

Clusters in India is working relentlessly with various stakeholders towards positioning Odisha as launchpad for Blue Economy in India.

Prof. Achyuta Samanta, Founder of KIIT & KISS, commended the leadership of various institutions and stakeholders for organizing the multi-stakeholder meeting on the Blue Economy and formulating a strategic roadmap for Odisha to leverage its maritime resources for socio-economic progress. Highlighting the crucial role of the private sector in sustainable development, he encouraged industries, academia, startups, and the government to collaborate in promoting sustainable ocean resource utilization, modern fishing practices, and coastal tourism. He also reaffirmed KIIT's commitment to supporting this vision and contributing to the state's maritime growth initiatives.

Dr. Debasis Dash, Director of DBT-ILS, Bhubaneswar, emphasized the vital role of oceanic microorganisms in nutrient cycling, ecological interactions, and their response to environmental changes. He noted that studying the microbiomes of marine animals is an expanding area of marine science. Additionally, he underscored the significance of bioprospecting marine microbial metagenomes for discovering natural products with high commercial potential, which can greatly contribute to the Blue Economy.

Dr. Mrutyunjay Suar, DG R&D & Innovation, KIIT University and Chairman, BCKIC emphasized that building a sustainable and resilient Blue Economy requires collective efforts rather than the work of a single institution or individual. He stressed the need for collaboration among academia, industry, policymakers, government bodies, startups, and scientists, all united under a shared vision to position Odisha as a leader in sustainable maritime development. He mentioned about Bhubaneswar City Knowledge and Innovation Cluster (BCKIC) which has already taken a step forward by organizing this convergence platform for all stakeholders to exchange knowledge and resources in the blue economy sector and BCKIC is committed to fostering partnerships across various sectors using a hub-and-spoke model to establish Odisha as a launchpad for Blue Economy in India.

Dr. Namrata Misra, CEO of BCKIC, highlighted that building a sustainable and resilient blue economy requires collective action rather than the efforts of a single institution or individual. She emphasized the importance of collaboration among academia, industry, policymakers, government bodies, startups, and scientists, all working towards a shared vision to position Odisha as a leader in sustainable maritime development. She noted that the Bhubaneswar City Knowledge and Innovation Cluster (BCKIC) has already taken a significant step by creating a convergence platform for stakeholders to exchange knowledge and resources in the blue economy sector. Committed to fostering partnerships, BCKIC follows a hub-and-spoke model to establish Odisha as a launchpad for India's blue economy. She expressed gratitude to all stakeholders, including sponsors, funding agencies, institutions, incubators, and guests, whose contributions were instrumental in the event's success.

Leadership Talk

Members:

- Dr. Shailesh Nayak, Director, NIAS Bengaluru
- Mr. G. S. Krishnan, President, ABLE
- Sh. P.L. Haranadh, IRTS, Chairman, Paradip Port Trust

Dr. Shailesh Nayak, Director, NIAS Bengaluru is his leadership address mentioned that India's Blue Economy holds immense potential for driving sustainable growth, fostering innovation, and enhancing livelihoods. With a vast coastline, rich marine biodiversity, and strategic maritime resources, the oceans offer opportunities in fisheries, aquaculture, renewable energy, coastal tourism, and deep-sea exploration. He also highlighted Sustainable Ocean management is essential to balance economic development with environmental conservation. Through initiatives like Sagarmala and the Deep Ocean Mission, India is advancing maritime infrastructure and research. He put a lot of focus on collaboration among academia, industry, and policymakers to harness ocean resources responsibly. At the end he mentioned that together, we can position India as a global leader in the Blue Economy.

Mr. G. S. Krishnan, President, ABLE talked about the Association of Biotech Led Enterprises (ABLE) which plays a crucial role in advancing India's Blue Economy by promoting innovation, research, and entrepreneurship in marine biotechnology. It facilitates collaboration between industry, academia, and policymakers to develop sustainable solutions in aquaculture, marine bioresources, and bioprospecting. He also emphasized on ABLE's support to startups and biomanufacturing hubs in leveraging ocean-based resources for pharmaceuticals, biofuels, and environmental conservation. He also highlighted that through advocacy, policy recommendations, and capacity-building initiatives, ABLE fosters a thriving ecosystem for marine biotechnology, contributing to economic growth, environmental sustainability, and India's leadership in harnessing ocean resources for long-term socio-economic development.

Sh. P.L. Haranadh, IRTS, Chairman, Paradip Port Trust highlighted that Paradip Port Trust plays a crucial role in the vision of by enhancing maritime trade, modernizing port infrastructure, and promoting coastal shipping. Paradip Port Trust is committed to sustainable port operations, renewable energy adoption, and fostering fisheries and marine-based industries. Through strategic initiatives, Paradip Port Trust aims to boost regional development, create employment, and support India's maritime ambitions. He also emphasized on the Sagarmala Project which is vital for Paradip Port Trust in advancing Blue Economy activities by modernizing infrastructure, enhancing cargo handling, and promoting coastal shipping. It boosts fisheries, maritime trade, and port-led industrialization, reducing logistics costs and fostering regional development.

Panel Discussion on Marine Biomanufacturing

Members:

- Dr. P. M. Murali, President, ABLE Council of Presidents (Chairperson)
- Dr. Shrikumar Suryanarayan, Founder, Sea6 Energy
- Dr. Mrutyunjay Suar, DG R&D and Innovation, KIIT & Chairman, BCKIC

Discussion Summary:

The session explored the potential of the blue economy to drive biomanufacturing while addressing key challenges like biomass scarcity, climate change, and the lack of scalable seaweed farming solutions. It highlighted large-scale tropical seaweed farming, with pilot farms in Lombok reducing costs and supporting sustainable aviation fuel (SAF) and fertilizers. KIIT-TBI's bio-foundry, backed by DBT & BIRAC, aims to advance marine

biomanufacturing and connect research, innovation, and policy sectors. Sea6 Innovations showcased agri-inputs from seaweed that enhance crop productivity by 30% and efforts to develop biofuels in collaboration with Hindustan Petroleum. Dr. Murali stressed collaboration for convergence, while Dr. Srikumar and Dr. Suar presented insights into seaweed farming and bio-manufacturing. The session emphasized that with strategic collaboration and innovation, India can position itself as a global leader in the blue economy, promoting biomanufacturing for sustainable development.

Recommendations from the Panel:

- Expand pilot projects and partnerships with industries (e.g., Sea6 and Hindustan Petroleum) to demonstrate viability.
- Build a collaborative framework between Andhra Pradesh and Odisha to create a blue economy corridor for integrated efforts.
- Scale up seaweed production to meet national energy and agricultural input demands
- Strengthen public-private partnerships to drive innovation and funding in marine biomanufacturing

Policy Track

Members:

- Dr. Chandrasekhar Panda, Partner- Digital and Technology Consulting, McKinsey & Company
- Dr. Lung-Jieh Yang, Counsellor & Director, TECC, Taiwan

Discussion Summary:

The session focused on Blue Economy as a crucial driver of policy reforms, contributing 30% to India's $1.4 trillion economy and playing a vital role in achieving the Vikshit Bharat 2047 vision of a $30 trillion economy. It is also expected to generate 40% of the economic gains from the India-Middle East corridor. Collaboration between Taiwan's hardware expertise and India's software capabilities can enhance bilateral cooperation, particularly in semiconductor manufacturing, where Taiwan excels due to its unique and complete ecosystem. This cluster-based approach has positioned Taiwan as a global leader in semiconductors. The Blue Economy's strategic significance extends beyond national growth, influencing key economic corridors and global partnerships, reinforcing its role in India's long-term economic transformation.

Recommendations from the Panel:

- Need to build a resilient ecosystem to achieve the Vikshit Bharat 2047 milestone.
- Taiwan wants to participate in the cooperation framework like Indo-Pacific Ocean Initiative being organised by India.
- Taiwan signed MoU with DST and is positive to have cooperation with India in 5 industries including semiconductor, defence, next gen. comm., security & surveillance and AI.

Panel Discussion on Maritime Security

Members:

- Vice Admiral Ramakant Pattnaik (Retd.), Indian Navy (Chairperson)
- ADG Donny Michael, PTM, TM, Coast Guard Commander, Eastern Seaboard
- Rear Admiral Shantanu Jha, NM CSO (ops), HQENC, Indian Navy
- Major General Atanu Patnaik (Retd.), Indian Army

Discussion Summary:

The session underscored maritime security as the foundation of a sustainable blue economy, highlighting key challenges such as illegal fishing, piracy, technological gaps in monitoring, policy implementation issues, and insufficient funding. Promising opportunities discussed included advanced surveillance technologies like satellite tracking and drones, sustainable fisheries through data-driven methods, and the Indian Coast Guard's expanded role in safeguarding maritime ecosystems. Government initiatives promoting clean energy and blue economy R&D were also noted. Collaboration among public, private, and international stakeholders was emphasized to address cross-border challenges. The session reinforced that maritime security is crucial for economic stability, environmental sustainability, and livelihoods. The Indian Coast Guard's role in supporting secure maritime trade and fisheries was repeatedly highlighted. A balanced approach to economic activities and ecological preservation was stressed, with policy coherence and inter-agency coordination emerging as key areas for improvement.

Recommendations from the Panel:

- Strengthen maritime surveillance capabilities by adopting advanced technologies such as real-time data analytics and AI-driven tools.
- Conduct awareness programs for coastal communities on sustainable fishing practices and security protocols.
- Develop funding mechanisms to incentivize sustainable maritime activities and infrastructure development.
- Establish a comprehensive national strategy for the blue economy that integrates maritime security as a central pillar.

- Promote international collaboration on maritime safety and environmental conservation in shared waters

<u>Panel Discussion on Marine Resources</u>

Members:

- Dr. Arabinda Mitra, Former Scientific Secretary, O/o PSA, GoI (Chairperson)
- Dr. Prakash Chauhan, Director, ISRO-NRSC, Hyderabad
- Dr. Mukesh Kumar, Head of Industry Resilience, University of Cambridge
- Dr. Ramanuj Narayan, Director, CSIR-IMMT, Bhubaneswar
- Prof. Dinabandhu Sahoo, Professor, University of Delhi

Discussion Summary:

The session explored sustainable practices, technological advancements, and collaborations crucial for managing India's marine resources while balancing economic growth and environmental conservation. Key discussions included the development of marine technology for maritime needs, creating robust marine databases using remote sensing for biomass mapping, disaster mitigation, and pollution control. The need for a global supply chain observatory to optimize marine logistics was emphasized. Advancing

infrastructure and workforce capacity, particularly for mariculture and seaweed cultivation, was highlighted, along with the exploration of marine resources for critical minerals. A major takeaway was the necessity of generating transparent and accessible marine databases to support informed decision-making, sustainable resource management, and innovation in the Blue Economy. The session underscored the role of technological advancements and infrastructure in ensuring long-term marine sustainability while addressing pressing challenges like microplastic pollution, ocean acidification, and climate-related impacts.

Recommendations from the Panel:

- Conduct comprehensive computational analysis and ensure effective dissemination of marine data.
- Develop economic models based on robust maritime infrastructure to drive growth
- Prioritize geospatial mapping for better understanding and management of marine resources
- Focus on achieving self-reliance (Aatmanirbhar Bharat) by advancing technology and fostering skilled human resources.
- Integration of outer space, inner space, and land through transparent and cohesive policies

Panel Discussion on Multi-Omics: Diving Deep for Marine Wealth

Members:

- Dr. Debasis Dash, Director, BRIC-ILS, Govt of India (Chairperson)
- Dr. Ramana Ch V, University of Hyderabad
- Dr. G Dharani, NIOT, Chennai
- Dr. Gulam Syed, BRIC-ILS, GoI
- Dr. Sumit Biswas, BITS Goa

Discussion Summary:

The session emphasized the crucial role of multi-omics technologies in harnessing marine wealth, addressing challenges such as inadequate marine biodiversity data and the need for sustainable extraction methods. It highlighted the integration of genomics, proteomics, and metabolomics to explore bioactive compounds for pharmaceuticals, nutraceuticals, and cosmetics. Key opportunities included marine microbial bioprospecting, climate resilience through marine omics, AI-driven analytics for biodiversity studies, and marine bio-manufacturing, particularly using bacteria and proteobacteria. The discussion stressed the importance of robust marine biodiversity databases, the role of multi-omics in aquaculture and conservation, and the need for collaboration among research institutions, startups, and incubators to translate scientific insights into practical applications.

Recommendations from the Panel:

- Establish centralized marine omics databases to facilitate global access and collaboration.
- Increase investments in computational tools and bioinformatics to enhance marine biodiversity research
- Foster partnerships between academia, industry, and startups to drive applications in marine biotechnology.
- Implement training programs to build a skilled workforce specializing in marine omics.

Panel Discussion on Coastal Disaster Management

Members:

- Dr. Swati Basu, Former Scientific secretary, O/o PSA to GoI (Chairperson)
- Dr. Balaji Ramakrishnan, Director, NIOT, Chennai
- Mr. Nitesh Kumar, Head of Programs, Global Green Growth Inst., New Delhi
- Dr Tune Usha, Scientist – G, MoES, GoI

Discussion Summary:

The session, supported by the Global Green Growth Institute, New Delhi, focused on coastal disaster management within the blue economy framework. Key challenges discussed included the need for marine spatial planning, rising sea levels, and limited data for deep ocean exploration. Experts highlighted opportunities such as deep-sea exploration for renewable resources, marine spatial planning for sustainable resource use, and community-centric approaches for resilience. Dr. Balaji emphasized deep ocean missions, while Dr. Tune stressed assessing marine resources before exploitation. Dr. Nitesh advocated livelihood diversification and utilizing community knowledge for disaster preparedness. The session underscored the integration of blue economy

principles with disaster management and sustainability, emphasizing a holistic approach. Key takeaways included the necessity of community involvement, spatial planning, and ecosystem understanding to balance economic growth with environmental protection.

Recommendations from the Panel:

- Expand marine spatial planning initiatives to map resources and potential disaster-prone areas
- Engage local communities in resilience planning and incentivize environmental stewardship
- Align national programs with international coalitions such as the Ocean Rise and Coastal Resilience Coalition
- Build integrated systems combining blue economy advancements with disaster management frameworks for long-term sustainability

Investor Track

Members:

- Dr Anand Govindaluri, Founding Director & CEO, Govin Capital Singapore
- Mr. Mayuresh Raut, Partner, Seafund
- Mr. Dhiraj Kumar Sinha, Venture Capitalist VC
- Mr. Sushil Sharma, Founder, Marwari Catalyst
- Mr. Anubhav Tiwari, Chief Innovation Officer, NIELIT- MeitY, GoI
- Mr. Vartul Jain, Senior Investment Analyst, IPV Advisors
- Mr. Saumyajit Guha, Startup Evangelist

Discussion Summary:

The session centered on the various risks investors face when entering new or volatile sectors, particularly the Blue Economy, which includes industries like fisheries, aquaculture, marine biotechnology, renewable ocean energy, and coastal tourism. Given the evolving nature of these sectors, investors must navigate uncertainties such as regulatory challenges, environmental risks, fluctuating market demand, and technological feasibility. The discussion emphasized the importance of thorough due diligence, including assessing policy frameworks, sustainability concerns, and financial viability. Identifying and evaluating high-potential projects or startups requires a strategic approach, considering factors like innovation potential, scalability, and long-term economic and environmental sustainability. Experts highlighted risk mitigation strategies, such as diversifying investments, forming strategic partnerships, and leveraging government incentives or grants. The session also stressed the role of data analytics, impact assessment tools, and stakeholder collaboration in making informed investment decisions. By understanding and managing these risks, investors can contribute to the sustainable growth of the Blue Economy.

<u>Panel Discussion on Climate Change</u>

Members:

- Sh. Upendra Tripathy, (Retd. IAS), Former Secretary, MNRE, GoI (Chairperson)
- Dr. Subhanjoy Mohanty, Associate Professor, Imperial College London
- Dr. Ajit K Patnaik, Former PCCF Odisha, Consultant World Bank
- Dr Manoranjan Hota, Former Adviser, MoEF & CC, GoI
- Dr. Pushp Bajaj, Program Lead, CEEW
- Mr. Kamran Naseem, Senior Associate, ARCADIS, Netherlands

Discussion Summary:

The session underscored the ocean's vital role in climate regulation and its vulnerability to climate change. Key concerns included the ocean absorbing 90% of heat from greenhouse gases, resource exploitation threatening sustainability, and rising sea levels, which could reach up to 2 meters by 2100 if unchecked. The unpredictability of glacier melting further heightens climate risks. Promising opportunities discussed included climate finance negotiations, leveraging carbon dioxide beneficially, and restoration projects like Chilika Lake. The session emphasized that climate change directly threatens coastal infrastructure and the blue economy. Effective adaptation requires community involvement, policy transformation, and social sustainability. A multi-faceted approach integrating technology, policy changes, and community engagement is essential for building resilience against climate change.

Recommendations from the Panel:

- Increase awareness and involvement of local communities in adaptation strategies.
- Leverage private sector funding for climate finance and foster innovation in carbon utilization.
- Develop and implement transformative policies for sustainable practices, focusing on resilience against climate change impacts.

DAY 2 (24th Jan 2025)

Startup Track

Moderator: Dr. Mrutyunjay Suar, DG R&D and Innovation, KIIT & Chairman, BCKIC

Startups Showcased:

- Maqnum Water Engineering Technology (M-WET)
- Gocarin Industries Pvt Ltd
- Qualivon Technologies Pvt Ltd
- Algae Labs Pvt Ltd
- Trustless Pvt Ltd
- Scrapify Pvt Ltd
- Chemactiva Pvt Ltd

- Blueharvest Exchange Corporation Pvt Ltd
- Thinkraw Innovative Solutions Pvt Ltd
- Coratia Technologies Pvt Ltd
- Aqua Doctor Solutions Pvt Ltd

11 innovative startups presented their cutting-edge technologies in the blue economy sector, highlighting advancements in sustainable ocean resources, marine conservation, and renewable energy. These companies showcased solutions ranging from aquaculture innovations and ocean-cleaning technologies to sea-weed cultivation and smart maritime logistics. Their presentations emphasized the importance of sustainable development in marine industries, addressing climate change, biodiversity protection, and economic growth. By leveraging technology and innovation, these startups aim to create a more resilient and environmentally responsible ocean economy.

<u>Panel Discussion on Research & Innovation</u>

Members:

- Prof. K. Umamaheshwar Rao, Director, NIT Rourkela (Chairperson)
- Dr. Mukesh Kumar, Head of Industry Resilience, University of Cambridge
- Mr Sudipto Sen, CEO, Asterix Innovations, Kolkata
- Dr. Dhiraj Kumar, Chief Manager -Technical (Health Care), BIRAC, DBT, GoI

Discussion Summary:

The session emphasized fostering innovation and bridging the gap between academia and industry through impactful research. The chairman highlighted India's strong academic ecosystem, which has produced many intellectuals but still lags globally in Ph.D. numbers. Dr. Dhiraj Kumar stressed the need for resilient ecosystems to support translational research and commercialization, detailing government funding opportunities to bring academic research to market. Key opportunities discussed included developing public-private partnerships to drive innovation, strategies for research commercialization through startup ecosystems, and leveraging AI and big data for digital transformation in R&D. The session underscored the need for stronger frameworks to ensure industry-relevant research, innovation-driven ecosystems to accelerate commercialization, and resilience in research to address societal challenges. Marine biotechnology and bioeconomy were highlighted as crucial areas for future exploration. The discussion reinforced the importance of translating research into real-world solutions that contribute to economic and environmental sustainability.

Recommendations from the Panel:

- Organize dedicated workshops and roundtables to strengthen academia-industry networks and identify shared goals.
- Create innovation hubs that focus on bridging gaps in funding, mentoring, and scaling innovative projects.
- Establish global research collaboration programs to foster knowledge exchange and increase access to cutting-edge resources.

Panel Discussion on Pathways to Blue Economy for India: A World Bank Analytics

Members:

- Ms. Anuja Shukla, Environment Specialist, The World Bank
- Prof. R Ramesh, Advisor, Govt. of Tamil Nadu
- Dr. Ajit K Pattnaik, Former PCCF Odisha, Consultant World Bank

Discussion Summary:

The session explored pathways to a sustainable blue economy in India, as analyzed by the World Bank. Key challenges included weak governance frameworks, fragmented policies under ICZM and SHORE, insufficient "blue finance," and a lack of systematic ocean accounting. However, promising opportunities were highlighted, such as the World Bank's engagement pillars, India's Blue Economy Policy, and advancements in ocean accounting. The session emphasized successful ICZM and SHORE pilot projects as scalable models. A long-term roadmap integrating policy, technology, and finance was discussed. The importance of cohesive governance, climate resilience, and community involvement emerged as critical themes. Ocean accounting was recognized as a vital tool for balancing economic growth with conservation. Additionally, experts stressed the need for increased blue finance to support both small and large-scale coastal projects. Overall, the discussions reinforced the urgency of structured policies, strategic investments, and sustainable marine resource management.

Recommendations from the Panel:

- Strengthen the ICZM framework by integrating state and local-level policies with national objectives.
- Enhance stakeholder capacity-building programs for effective policy implementation.
- Create a comprehensive ocean accounting framework to evaluate economic and environmental outcomes.
- Establish dedicated blue finance funds and incentivize private sector participation in blue economy ventures.
- Develop and adopt innovative technologies for waste management, carbon sequestration, and biodiversity preservation in marine ecosystems.

<u>Panel Discussion on Marine Industry & Trade</u>

Members:

- Smt. Usha Padhee, IAS, Principal Secy, Comm & Transport Dept, GoO (Chairperson)
- Dr. Satheesh Shenoy, Former Director, INCOIS & National VP, VIBHA
- Rear Admiral Brijesh Vashishta (Retd), IIT Ropar

Discussion Summary:

The session explored the marine industry's role in India’s vision of becoming a developed nation by 2047, addressing challenges like port logistics, inland connectivity, capacity constraints, and climate change. It emphasized aligning policies with technological advancements, demographic profiling, and employment generation to strengthen the Blue Economy. Inspired by aviation’s lightweight strategies, sustainability in shipping can be improved through operational efficiencies. Expanding Paradeep, Dhamra, Gopalpur, and proposed ports like Astarang and Subarnarekha will boost maritime trade. Support for startups and MSMEs through free testing facilities, expedited project timelines, and technology adoption is crucial. Key takeaways include the need for policies focusing on connectivity and skill development, leveraging AI and advanced logistics to enhance efficiency, and addressing Paradeep’s near-saturation by expanding capacity and infrastructure. Overall, the session underscored the necessity of modernization, policy reforms, and innovation to drive sustainable growth in India’s maritime sector.

Recommendations from the Panel:

- Strengthen inland connectivity to improve access to ports and optimize trade routes.
- Expand port capacities and promote the establishment of Special Economic Zones (SEZ) near Paradeep to enhance exports.
- Formulate policies to support startups, MSMEs, and industries, including free testing facilities and reduced project delays.

<u>Panel Discussion on Convergence – Enabling Blue Economy</u>

Members:

- Sh. Vivekananda Pai, Secretary General, VIBHA (Chairperson)
- Dr. Neel S. Bhavesh, Group Leader, Transcription Regulation, ICGEB New Delhi
- Dr. Badri Narayanan, Scientist, Thermo Fisher Scientific
- Mr. Vivek JM, Environmental Policy & Resource Efficiency Advisor, GIZ India
- Dr. Vishakha Raina, Professor, School of Biotechnology, KIIT University

Discussion Summary:

Sh. Vivekananda Pai emphasized the need for workforce development in marine sectors and highlighted opportunities in marine tourism, construction, transportation, offshore

wind energy, and marine security. Dr. Neel Bhavesh connected Samudramanthan to 14 Blue Economy themes, addressing deep-sea operational challenges and the monetization of maritime data. Dr. Badrinarayan introduced a marine biotechnology program focused on sustainable bio-resource innovation. Mr. Vivek JM elaborated on EU-Indian Circular Economy initiatives, algae-based sustainability, and workforce upskilling. He explored synergies between Blue, Circular, and Green Economies. Dr. Vishakha Raina stressed life sciences and biotechnology's role in marine resource management, sustainable biofuels, and modular machine design. She advocated for a circular economy, proposing a sharing model for marine transportation and infrastructure while underscoring the need for strong policies. Collectively, the discussions focused on fostering innovation, addressing skill gaps, and ensuring sustainable economic transformation within the Blue Economy framework.

Recommendations from the Panel:

- Continuous capacity building processes needs to be done by different stakeholders for workforce development in marine sectors.
- A policy gap is there in this sector, hence, there is a need of coming up with robust policy framework for the Blue Economy.
- A national level marine biotechnology program needs to be created to leverage bio-resources for innovation

Panel Discussion on Ideation Track

The ideation track, organized in collaboration with ACS Publications, aimed to foster creativity, innovation, and problem-solving among young students and scholars from various academic institutions in the blue economy sector. This initiative provided a platform for emerging talents to present groundbreaking ideas addressing challenges in marine sustainability, resource management, and technological advancements. The selected participants showcased their innovative solutions before a panel of esteemed jury members comprising industry experts, academicians, and policymakers. Their ideas spanned key areas such as marine conservation, renewable energy, sustainable fisheries, and ocean-based biotechnology. The event not only encouraged knowledge exchange but also inspired young minds to contribute actively to the development of a resilient and sustainable blue economy, bridging the gap between research and real-world applications through innovative thinking and collaboration.

Panel Discussion on Marine Aquaculture

Members:

- Dr U Chandrasekhar, Vice Chancellor-GGU, Rajahmundry (Chairperson)
- Mr. Prem Sanker Satpathy, Executive Director, Magnum Sea Foods Limited
- Dr. Chime Youdon, National Maritime Foundation (NMF), New Delhi
- Dr. GVM Gupta, Director, Centre for Marine Living Resources & Ecology (CMLRE), MoES, GoI

Discussion Summary:

The session underscored aquaculture's crucial role in the Blue Economy and the challenges hindering its sustainable growth in India, despite the country being the second-largest producer. Key barriers include limited access to advanced technology, fragmented research, and environmental threats like plastic pollution and climate change. Promising opportunities include fostering collaboration among research institutions, industries, and policymakers, expanding deep-sea aquaculture to meet rising seafood demand, and leveraging biotechnology for cost-effective, sustainable feed solutions. The discussion highlighted that India's aquaculture potential remains largely untapped due to a lack of role models and slow technological adoption. Climate change and plastic pollution pose significant risks, necessitating urgent research and mitigation strategies. Emphasizing sustainable business models and scaling deep-sea mariculture could help meet the projected seafood demand by 2030. Strengthening innovation, policy support, and industry partnerships will be vital for unlocking aquaculture’s full potential in India’s Blue Economy.

Recommendations from the Panel:

- Improve access to cost-effective technologies for aquaculture feed and management.
- Promote investment and policies to enable large-scale adoption of mariculture in deeper waters.
- Conduct research on the effects of plastic pollution and climate change, with actionable solutions to mitigate their impact on aquaculture.

Panel Discussion on Institution-Incubator Network

Moderator: Dr. Namrata Misra, CEO, BCKIC

Representatives from Funding Agencies:

- Dr. Sujit Das, Officer-Technical, BIRAC, DBT, GoI,
- Mr. Omkarnath Suprabhat Rath, Program Director, MSH, MeitY, GoI

Incubators Participated:

1. PSG-STEP
2. IIT-Bhubaneswar REP
3. BRIC ILS Bioincubator
4. nTEC, CSIR-IMMT
5. AIC-NITF
6. SSU Incubator
7. AIC-CCMB
8. CSIR-IITR CITAR BioNEST

Institutions Participated:

1. NIT Rourkela
2. IIM Sambalpur
3. NIOT
4. National Centre for Aquatic Animal Health
5. Berhampur University
6. Trident Academy of Technology
7. Ramadevi University
8. I CAR-CIFA
9. BITS Pilani
10. OUTR
11. KIIT University
12. IISER Kolkata

The session focused on fostering collaboration between incubators, academic institutions, and policymakers to enhance the development of marine biotechnology in India. It aimed to bridge gaps between research and commercialization by encouraging translational research, industry partnerships, and policy support. Experts discussed strategies to leverage India's vast marine resources for sustainable innovations, fostering entrepreneurship, and scaling marine biotech solutions globally. The session also highlighted the importance of integrating advanced technologies, improving regulatory frameworks, and strengthening research ecosystems to position India as a global leader in marine biotechnology. This collaborative approach seeks to drive innovation, economic growth, and environmental sustainability.

<u>Panel Discussion on Coastal Community Engagement</u>

Members:

- Ms Abha Mishra, Head of Office - Odisha, UNDP (Chairperson)
- Sh. Kedar Kumar Swain, IFS (Retd), Former Chief Conservator of Forests (Wildlife), Odisha
- Ms. Dharitri Lenka, Climate Activist & Women Leader
- Mr. Madhusmit Pati, Secretary, Nature’s Club
- Mr. Siddhant Panda, Program Manager, Socratus Foundation

Discussion Summary:

The session, chaired by Ms. Abha Misra, emphasized the integration of community development into a sustainable blue economy. Key challenges discussed included ecological imbalances, illegal fishing, biodiversity threats, and the lack of local community involvement in policymaking. Promising opportunities highlighted successful community-led ecotourism and mangrove restoration in Bhitarkanika, innovative programs like Gram Swabhiman promoting pond rejuvenation and green entrepreneurship, and policy integration through collaborative platforms aligning government, communities, and markets. Citizen juries and climate champions were recognized as crucial for fostering sustainability at the grassroots level. Discussions underscored that balancing ecology, economy, and community emotions is essential for long-term sustainability. Community engagement in drafting and implementing policies ensures their effectiveness and acceptance. Traditional practices such as sustainable fishing and ecotourism were seen as viable solutions for resilient livelihoods. Urgent challenges like illegal fishing, human-wildlife conflicts, and stakeholder coordination require immediate action to strengthen the blue economy framework.

Recommendations from the Panel:

- Establish platforms to involve local communities in policy formulation and decision-making processes.
- Strengthen enforcement against illegal fishing practices and provide incentives for sustainable fishing.
- Scale up successful initiatives like mangrove-based ecotourism and green entrepreneurship programs across coastal regions.
- Organize citizen juries and Gram Sabhas to identify challenges and opportunities, ensuring participatory development.
- Promote traditional practices using biodegradable materials to replace harmful substances like Styrofoam.
- Develop integrated frameworks aligning community needs with government policies and market opportunities.

Mission 50 Blue Economy Startup Showcasing

A total of 50 startups from across India were selected to showcase their innovative solutions in the blue economy sector, presenting cutting-edge technologies aimed at sustainable marine resource management, ocean conservation, and economic growth. These startups demonstrated advancements in areas such as aquaculture, marine biotechnology, renewable energy, and coastal resilience. The pavilion, highlighting these breakthrough innovations, was officially inaugurated by Dr. Rajesh Gokhale, Secretary, Department of Biotechnology (DBT), Government of India. His presence underscored the government's commitment to fostering innovation and sustainability in the marine sector, encouraging collaboration between startups, policymakers, and industry leaders to drive a thriving blue economy.

Scientific Poster & Research Presentation Session

Over 60 innovative ideas and research projects were presented by students and scholars, showcasing their contributions to various aspects of the blue economy. These presentations covered a wide range of topics, including sustainable fisheries, marine biodiversity conservation, ocean renewable energy, climate resilience, and coastal ecosystem management. The event provided a platform for young researchers to share groundbreaking insights and propose solutions to pressing challenges in the marine sector. By fostering academic engagement and interdisciplinary collaboration, the initiative aimed to bridge the gap between research and real-world applications, promoting sustainable development and technological advancements in the blue economy sector.

Media Coverages

आजाद सिपाही

किट में ब्लू इकोनॉमी पर अंतरराष्ट्रीय सम्मेलन

The Statesman

Odisha to play a vital role in advancing Blue Economy: Dy CM

Marine bio-manufacturing, bio-fuel emphasized

THE NEW INDIAN EXPRESS

International Conference on Blue Economy inaugurated at KIIT

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