



International Centre for Environment Audit and Sustainable Development (iCED)

Centre of Excellence on Environment Audit & Audit of Blue Economy

Comptroller and Auditor General of India

2023





Foreword

It gives me immense pleasure to introduce you to the vibrant and engaging journey of the International Centre for Environment Audit and Sustainable Development (iCED), Jaipur. This uniquely placed Global Training Facility for the Supreme Audit Institution (SAI) community is dedicated to capacity building and research in environmental audit and sustainable development issues.

Beginning its journey in 2010 as part of SAI India's global out-reach in building extensive knowledge and experience-sharing networks, iCED has morphed into a pioneering Global Training Facility (GTF) of the INTOSAI, closely associated with the INTOSAI Working Group On Environmental Auditing (since March 2011) and the Working Group on Audit of Extractive Industries (since August 2016).

Using an inter-disciplinary approach and valuable partnerships with leading academic institutions as well as a world-wide faculty corps, iCED's approach is to seed, with passion and commitment, high quality products in training and research, to steer a global collaborative network among SAI's in sharpening audit focus on cutting-edge and multi-faceted areas of environment audit and sustainable development.

Since inception, iCED has trained more than 1500 participants from 145 nations across the world in areas ranging from climate change mitigation and adaptation strategies, net zero goals, climate finance, hazard assessment and framework for disaster management, sustainable and resilient agriculture, use of Remote Sensing and Geographical Information System (GIS) in environmental audit to marine and coastal ecosystem conservation. It has also built and promoted inter-disciplinary and trans-disciplinary research on topics as diverse as Auditing Plastic Waste - Audit Benchmarks for SAIs, Municipal Solid Waste Management, Urban Flooding, Air Pollution, Marine-Eco Systems etc.

It now embarks on an ambitious journey of becoming a Centre of Excellence on Environment Audit & Audit of Blue Economy. An area of evolving criticality, where SAIs need to scale up their audits, to ensure the long-term sustainability of primarily ocean-based eco-systems, with backward and forward linkages to the fresh-water as well as land-based eco-systems, processes and networks.

As Mahatma Gandhi once famously observed ‘one must care about the world one will not see’. While humanity has progressed, for the planet to survive, sustainability of development is the crux of existential wellbeing for all future generations.

In this journey, SAI India has a constructive engagement with the challenge of building capacity and fostering research/ knowledge and experience- sharing among the Global SAI community, through an institution like iCED, Jaipur. In an area as complex and labyrinthine as the Blue Economy, straddling sectors as varied as fisheries and marine agricultural resources to renewable energy and maritime transportation networks, iCED now seeks to be a repository of knowledge and experience sharing, with global out-reach and engagement.

I invite you to peruse a snap-shot of iCED’s pathway, through this publication, with vignettes of its capacity building, research and knowledge sharing so far; along with its road-map of being a Centre of Excellence on the Blue Economy.

I reiterate that iCED represents a segment of our overall dedication to raising the value and relevance of the global auditing fraternity- through professionalism and building institutional capacity in established as well as emerging areas of audit.

(Girish Chandra Murmu)
Comptroller and Auditor General of India



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iCED



Global Training Facility (GTF) of the Working Group on Environmental Audit (WGEA) and of the Working Group on Dedicated centre Audit of Extractive to conduct Industries (WGEI) of extensive the International capacity building Organizations of and reasearch Supreme Audit facility in the area Institutions of Environment (INTOSAI). Audit and Sustainable Development.

Conducts training programmes on Environment Audit under the Indian Technical and Economic Cooperation Programme (ITEC) sponsored by the Ministry of External Affairs, Government of India.

Undertakes research related to audit processes, including on the governance structures related to the Environment and Sustainable Development.

Set up under the aegis of the Comptroller and Auditor General (C&AG) of India for capacity building, knowledge sharing and research in the area of environment.

**About
iCED**



OUR VISION

iCED strives to be a global Centre of Excellence for improving accountability and governance in the area of environment and sustainable development.

OUR MISSION

iCED strives to develop high quality products in training and research to enrich environment audit through an inter-disciplinary approach enabled by valuable partnerships.



FOUR PILLARS OF iCED

CAPACITY BUILDING

- Fostering learning and building capacity
 - Carefully curated customized training programmes
-

RESEARCH

- Compile Study reports/Best practices compilations/ Articles
 - Developing training tools in collaboration with Audit Field office and other Supreme Audit Institutions
-

KNOWLEDGE REPOSITORY

- Provide dynamic and contemporary inputs to audit
 - Promote mainstreaming of Blue Economy in audit
-

EXPERIENCE SHARING

- Knowledge sharing platform with other SAIs/domain experts
 - Collaboration with reputed institutes
 - Interactive forums outreach
-

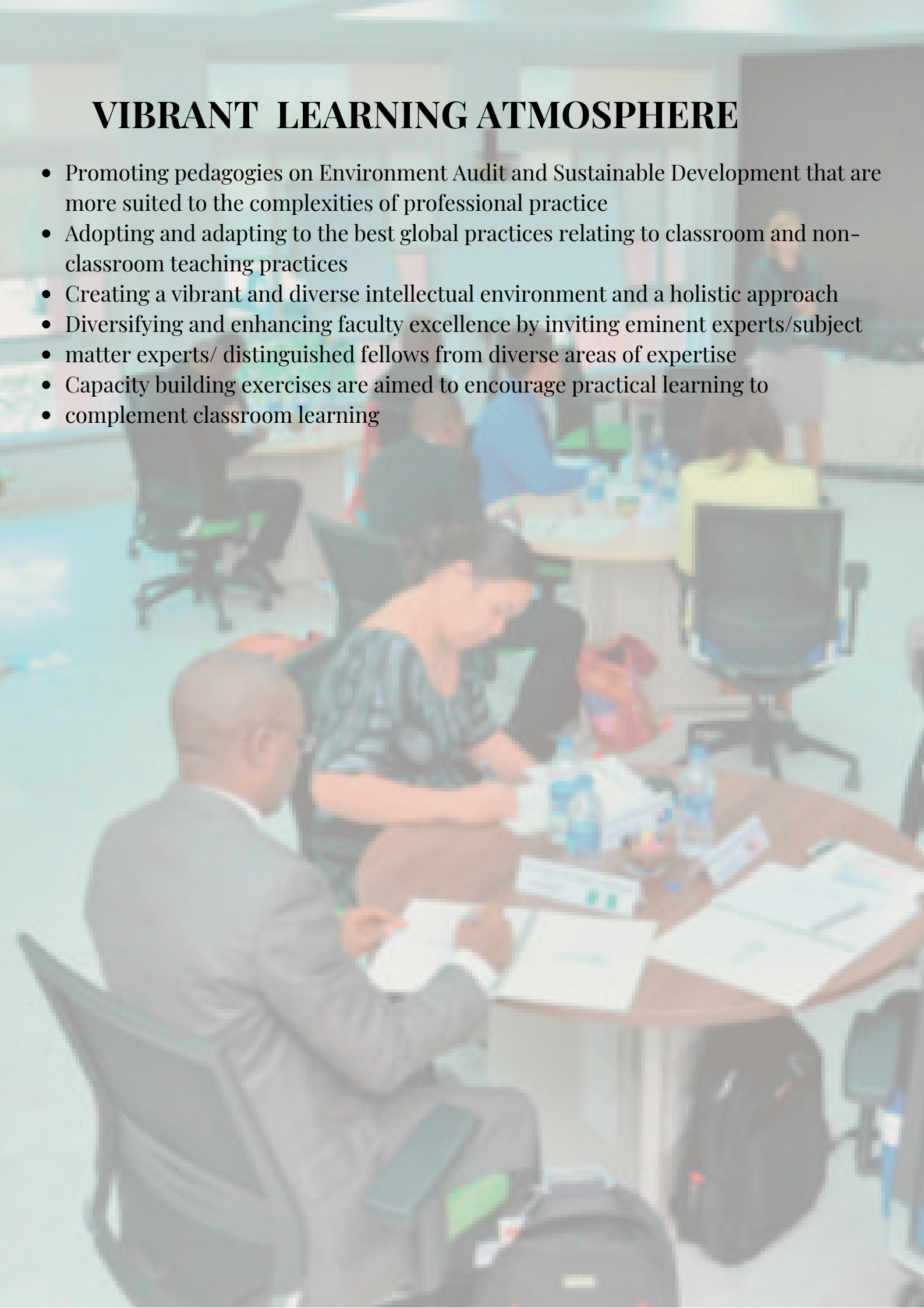
IMPARTING WORLD CLASS TRAINING



- Biodiversity including wetlands and Delta Management
- Mining and Extractive Industries
- Air and Water Pollution
- Waste Management
- Climate Change Mitigation and Adaptation Strategies
- Tackling Desertification and Sustainable Agriculture
- Water Pollution
- Natural Resource Accounting
- Renewable Energy
- Sustainable Development Goals
 - a. Combating Desertification
 - b. Food Security and Sustainable Agriculture
 - c. Clean Water and Sanitation

VIBRANT LEARNING ATMOSPHERE

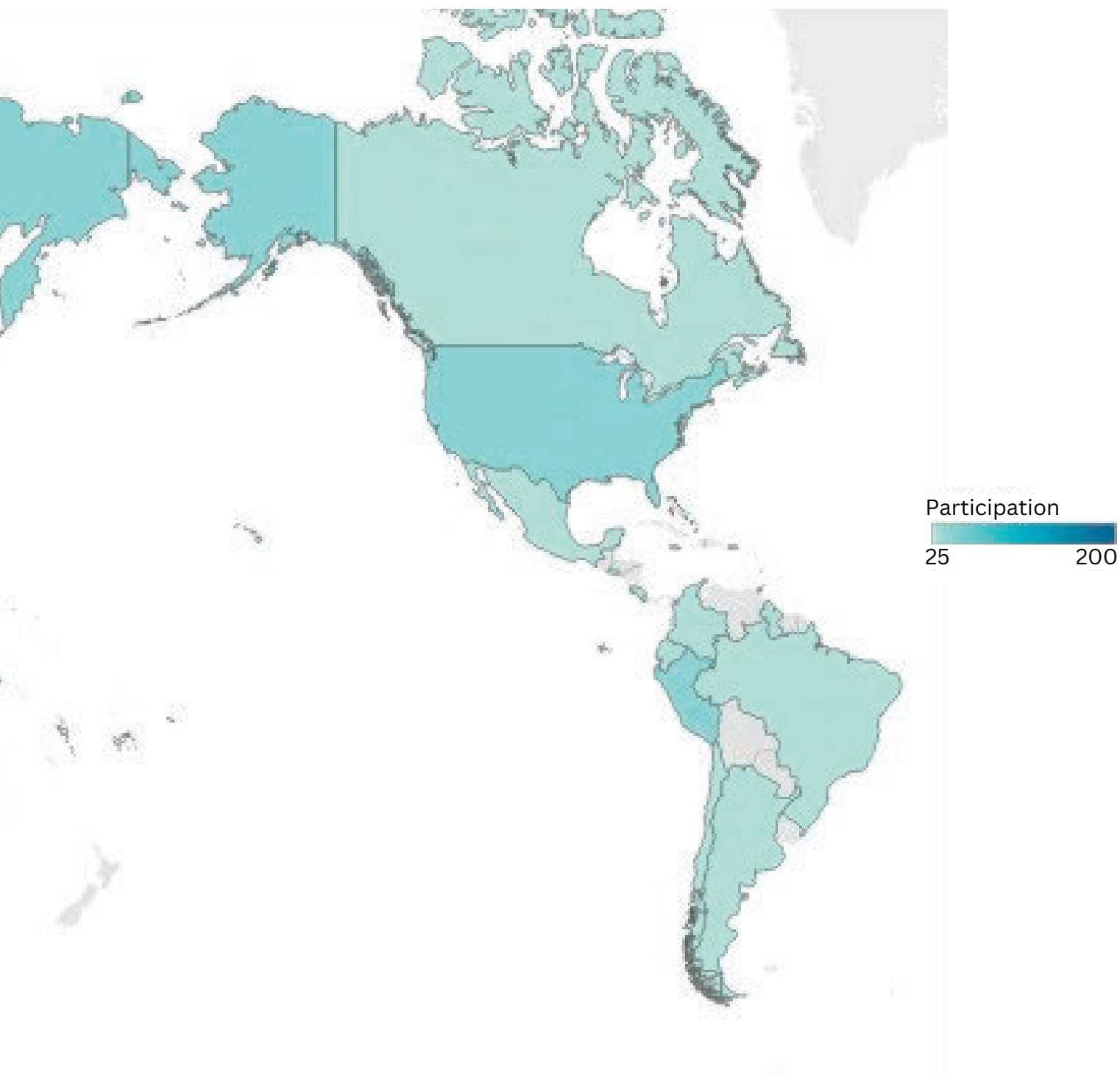
- Promoting pedagogies on Environment Audit and Sustainable Development that are more suited to the complexities of professional practice
- Adopting and adapting to the best global practices relating to classroom and non-classroom teaching practices
- Creating a vibrant and diverse intellectual environment and a holistic approach
- Diversifying and enhancing faculty excellence by inviting eminent experts/subject matter experts/ distinguished fellows from diverse areas of expertise
- Capacity building exercises are aimed to encourage practical learning to complement classroom learning



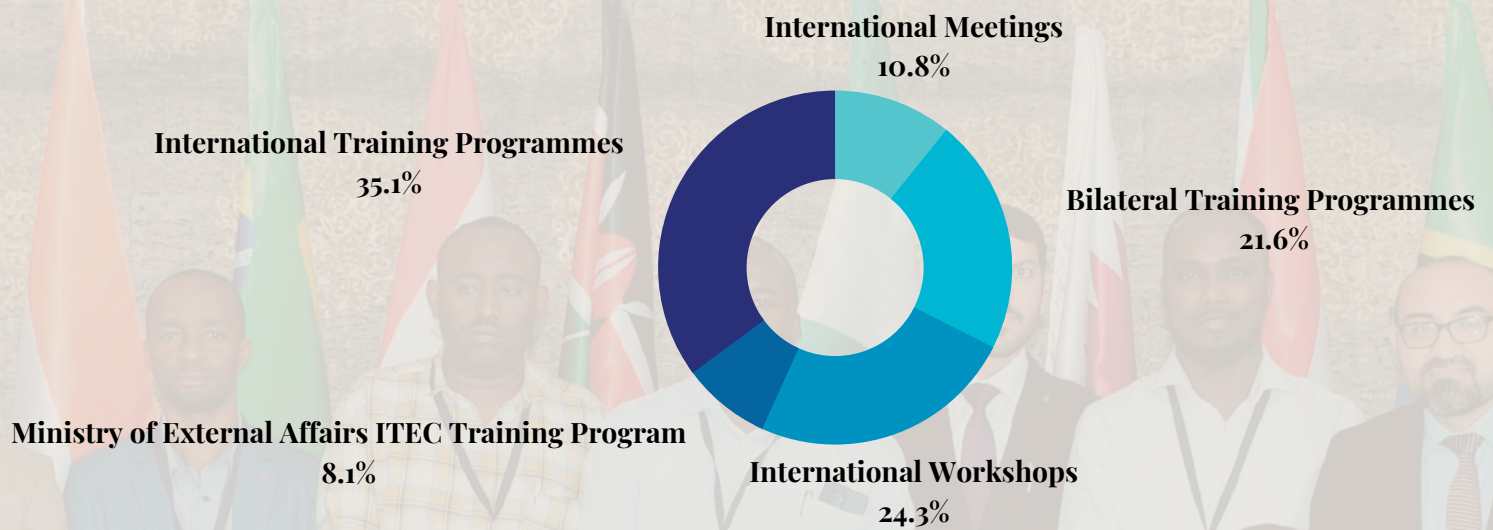
iCED, has imparted training to more than 6000 participants



from 145 SAIs around the globe. Flagship courses are iCED's hallmark.



iCED'S GLOBAL OUTREACH



Ministry of External Affairs ITEC Training Program
8.1%



Glad to participate in the International Workshop on “Climate Change Mitigation and Adaptation strategies including Green Finance
- I had the opportunity to exchange knowledge and experiences with the participants.

Mr. Elsaawi Elmubarak Ibrahim Ahmed,
SAI Sudan (February-2023)

I would like to thank iCED. Overall, the workshop was something very educational to me and I am sure I have grasped the Knowledge which I will propose for Implementation in my country especially in the field of audit.



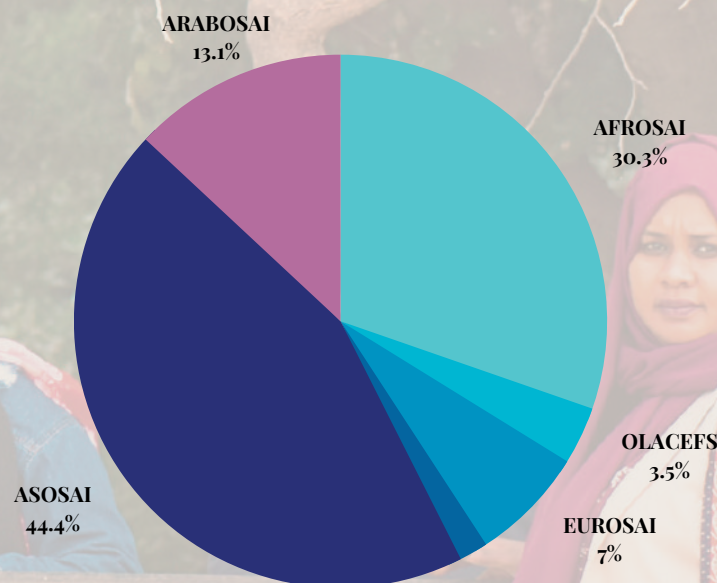
Mr. Sitiveni Lulu Naivota,
SAI Fiji (February-2023)



I would like to express my sincere thanks for being part of the workshop on ‘Climate Change Mitigation and Adaptation Strategies including Green Finance’. It has been a pleasure to be part of such a diverse and engaged group. I enjoyed the sessions and the participatory discussions.

Ms Ramona Bortnowschi, Principal Manager, ECA
February-2023

PARTICIPATION BY REGIONAL WORKING GROUPS ON ENVIRONMENTAL AUDITING



Ms Corinne Horton
SAI Australia (February-2023)

The local excursions were interesting and appreciated. The support and guidance from the staff when on the excursions was very appreciated. The learning exercise was also positive. Overall I thank SAI India for hosting and providing the opportunity to attend on an Important topic.

The stay at campus was excellent. The campus is very pleasant, the accommodation was comfortable and the staff is very attentive.



Mr Rafael Lopes Torres,
SAI Brazil (FEBRUARY-2023)



Topics were relevant and diverse. Lot of areas were covered in a short period of time. Most of the faculties were very knowledgeable and interactive. Both of the study tours were relevant and enjoyable. The trips and activities were a good exposure. Everything at iCED is great, from the food, staff, rooms and recreation activities available. In general, the sessions were interactive and informative and the extra activities and campus facilities were very good. It was a pleasure to be here and I hope to come again. Thank You for having us.

Ms Aminath Shuaau Mohammed
SAI Maldives December-2022

RESEARCH at iCED





Auditing Plastic Waste - An Overview and Experience from - SAI India (October -22)



Auditing Climate Change- An Overview and Experience from SAI India (April - 22)



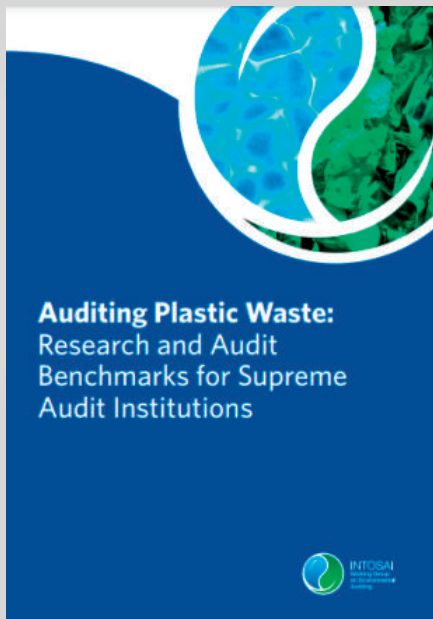
Training Options for SAIs- International Centre for Environment Audit and Sustainable Development (iCED) - Sustainability on Campus

Representing SAI India at Global Forums

**INTOSAI
WGEA Work
Plan 2023-25**

SAI India is the Executive Group for the Climate Scanner project of INTOSAI WGEA Work Plan 2023-25.

iCED is acting as the technical focal point of SAI India for providing inputs related to the Climate Scanner project.



INTOSAI Working Group on Environmental Auditing (WGEA) adopted this topical issue into its Work Plan 2020-2022.

SAI India volunteered to lead the research project.

In September 2022, INTOSAI WGEA officially launched the document developed under the Quality Assurance procedure for non-IFPP documents.

It marks that auditing plastic waste has emerged as a pioneering audit topic catering to future development trends of audit work, and is also a norm for all SAIs.

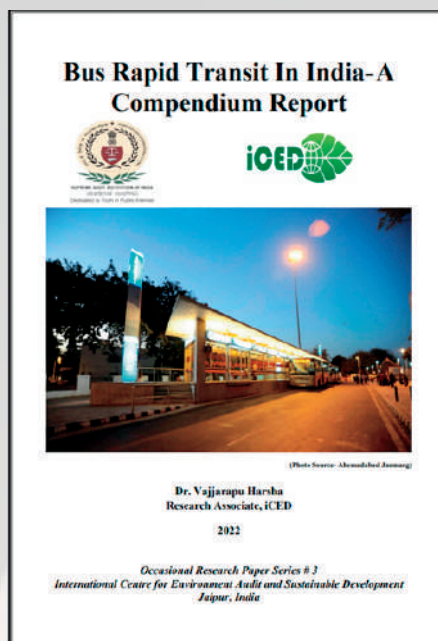
Research at iCED



iCED publishes a quarterly newsletter on environment audit and sustainable development named 'Green Files'.

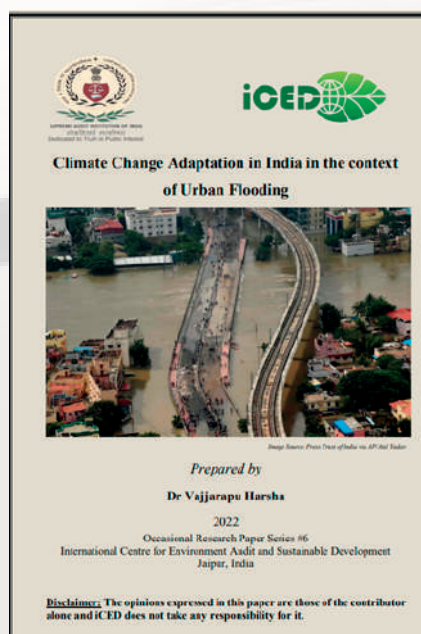
The newsletter highlights issues on environment and sustainable development which enables audit offices to identify areas of audit concern.

Quarterly Newsletter "Greenfiles" is an information packed cornucopia of news on environment and sustainable development.



In the context of the challenges of Bus Rapid Transport (BRT) development in Indian Cities, this Occasional Research Paper seeks to identify the pioneering strategies to support BRT implementation in Indian cities.

This paper contains inter-alia critical information about the various Indian cities that adopted BRT and their configuration, BRT standards and the design guidelines from the Indian Roads Congress (IRC) and the challenges Indian BRT is facing with possible measures for improvement. This report also contains information on pioneers in Global BRT systems for many years and some best practices that can be adopted for a successful BRT.



This Research Paper contains ample information about various flood events in India and the associated losses in terms of mortality and economy, climate change adaptation strategies and existing gaps in developing these strategies. The Paper outlines a macro-level framework that helps in building efficient adaptation strategies to urban flooding based on the latest available literature.

VISION

We strive to act as a global Centre of Excellence in capacity building and research in Environment Audit and Sustainable Development, including the evolving focus area of the Blue Economy.

A photograph of a fishing boat named 'YVONNE PELLWORM' on the water. The boat is blue and white, with a yellow mast. It is surrounded by many seagulls, some of which are flying in the sky. The boat is pulling a large net. The water is greyish-blue, and the sky is overcast.

iCED- Centre of Excellence

MISSION

Using an interdisciplinary approach made possible by valuable partnerships, we strive to develop high quality products in training and research to enrich environment audit.



on Audit of Blue Economy

C&AG speaks



Blue economy is an economic system that encompasses a spectrum of policy and operational dimensions aimed at conserving marine and freshwater environments while promoting their sustainable use, producing food and energy, supporting livelihoods, and acting as a driver for economic advancement and welfare.

Blue economy takes forward the concept of Lifestyle for Environment (LiFE), introduced by India at the COP26 Glasgow summit, which emphasises the need for ‘mindful and deliberate utilisation’ to sustain and revitalise the marine and freshwater environments. As a priority area, it serves to bring the focus of SAIs to particularly (but not exclusively) SDG 14, viz. Life Below Water.

**G C Murmu
C&AG of India**

Marine Non-Living Resources

- Seabed mining
- Oil and gas
- Desalination
- Deep Sea Mining



Marine Ecosystem Services

- Carbon sequestration
- Waste Disposal for land-based industry
- Protection of biodiversity
- Coastal Protection
- waste-water treatment
- Tourism and cultural activities

BLUE

Marine Living Resources

- Fisheries (primary fish production) and Aquaculture
- Secondary fisheries and related activities
- Trade of seafood products
- Trade of non-edible seafood products





Renewable Energy Sources

- Off shore wind energy
- Floating Solar Cells
- Tidal Energy

ECONOMY

Blue Finance

- Initial Public Offering (IPO)
- Blue Bonds
- Other Blue Investments



Commerce & Trade

- Shipping and ship building
- Ports and related services
- Maritime transport
- Tourism and recreation



UNITED NATIONS

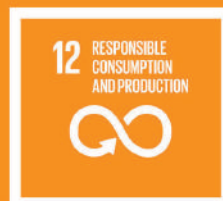
SDGs and Blue economy



Conserve and sustainably use the oceans, seas and marine resources for sustainable development



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss



Ensure sustainable consumption and production patterns

Sustainable Development Goals

SDG 14 TARGETS

- 
- The infographic features a central vertical line with ten circular target icons. Each icon consists of three concentric circles with a colored center: 14.1 (green), 14.2 (blue), 14.3 (green), 14.4 (green), 14.5 (blue), 14.6 (blue), 14.7 (blue), 14.a (blue), 14.b (blue), and 14.C (blue). Lines connect each icon to its corresponding text description on either side of the central axis.
- 14.1**
By 2025, prevent and significantly reduce marine pollution of all kinds
 - 14.2**
By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts.
 - 14.3**
Minimize and address the impacts of ocean acidification.
 - 14.4**
By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans
 - 14.5**
By 2020, conserve at least 10 per cent of coastal and marine areas.
 - 14.6**
By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies.
 - 14.7**
By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources.
 - 14.a**
Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines.
 - 14.b**
Provide access for small-scale artisanal fishers to marine resources and markets.
 - 14.C**
Provide access for small-scale artisanal fishers to marine resources and markets

Interlinkages between SDG 14 Targets and Blue Economy

14.1
Fisheries, Aquaculture, Maritime
transport, ports and related services,
shipping and ship building, Waste
disposal management, Desalination
(fresh water generation), Coastal
development, Coastal and Maritime
tourism

14.3
Coastal and marine area
management, protection, and
restoration activities, Ocean
monitoring and surveillance

14.5
Fisheries

14.a
Renewable (offshore) energy,
Desalination (fresh water
generation), Extractive industries
Bioprospecting and biotechnology

14.c
Sectors under 14.3 and Maritime
transport, ports and related
services, shipping and ship
building

14.2
Sectors under 14.1 and Extractive industries,
Coastal and marine area management,
protection, and restoration activities, Ocean
monitoring and surveillance

14.4
Fisheries , Ocean monitoring and surveillance

14.6
Sectors under 14.3 and Activities supporting
carbon sequestration (blue carbon), Coastal
development, Coastal and Maritime tourism

14.b
Fisheries Bioprospecting and biotechnology,
Ocean monitoring and surveillance,
Maritime transport, ports and related
services, shipping and shipbuilding,
Renewable (offshore) energy

SDG 14

UN GLOBAL INDICATORS

14.1.1 Index of coastal eutrophication; and plastic debris density

14.2.1 Number of countries using ecosystem-based approaches to managing marine areas

14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations

14.4.1 Proportion of fish stocks within biologically sustainable levels

14.5.1 Coverage of protected areas in relation to marine areas

14.6.1 Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing

14.7.1 Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries

14.a. Proportion of total research budget allocated to research in the field of marine technology

14.b. Degree of application of a legal/regulatory/ policy/institutional framework which recognizes and protects access rights for small-scale fisheries

14.c. Number of countries making progress in ratifying, accepting and implementing international laws, for the conservation and sustainable use of the oceans and their resources

SDG 14

INDIA'S NATIONAL INDICATORS

14.1.1 Coastal Water Quality Index

14.1.2 Percentage use of nitrogenous fertilizer to total fertilizer (N, P & K)

14.2.1 Percentage change in area under mangroves, (similar to indicator 14.5.2)

14.2.2 Percentage of coastal marine protected areas in relation to Territorial Seas (Similar to 14.5.1)

14.3.1 Average marine acidity (pH) measured at agreed site of representative sampling stations

14.4.1 Maximum Sustainable Yield (MSY) in fishing, (in MillionTonne/Year)

14.5.1 Percentage of coastal marine protected areas in relation to Territorial Seas (Similar to 14.2.2)

14.5.2 Percentage change in area under mangroves, (similar to indicator 14.2.1)

14.a.1 Allocation of budget resources (Budget Estimates) for Ocean Services, Modelling, Applications, Resources and Technology (OSMART) scheme, (in Rs. crore)

14.b.1 Assistance to the traditional/artisanal fishers for procurement of FRP boats and other associated fishing implements, (in Number & in Rs. lakh)

Capacity Building on Audit

14 LIFE BELOW WATER

- Overview of Blue Economy”
 - “Multi-dimensional aspects of auditing Blue Economy”
 - “Experience Sharing on Audit of Blue Economy related issues”
 - “Climate Change with reference to Marine Ecosystem, Biodiversity Loss and Marine Pollution”
-

3 GOOD HEALTH AND WELL BEING

- Audit of Ground Water Management, Pollution and Regulation”
 - “Audit of Air Pollution and Environmental issues Associated with Transport and Energy Sectors”
-

8 DECENT WORK AND ECONOMIC GROWTH

- Environmental Issues in Sustainable Cities, Government Establishment and Public Sector Enterprises with focus on SDGs”
-

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

- Audit of Extractive Industries”(INTOSAI WGEI)
-

15 LIFE ON LAND

- “Audit of Bio-diversity Conservation Measure”
 - "Introduction to Environmental Auditing" (INTOSAI WGEA)"
-

of Blue Economy and SDGs

14 ZERO HUNGER

- Audit of Climate Change, Mitigation and Adaptation Strategies.
-

7 AFFORDABLE AND CLEAN ENERGY

- Audit of Air Pollution and Environmental issues Associated with Transport and Energy Sectors
 - Renewable Energy strategies and mechanism with special reference to solar energy
-

11 SUSTAINABLE CITIES AND COMMUNITIES

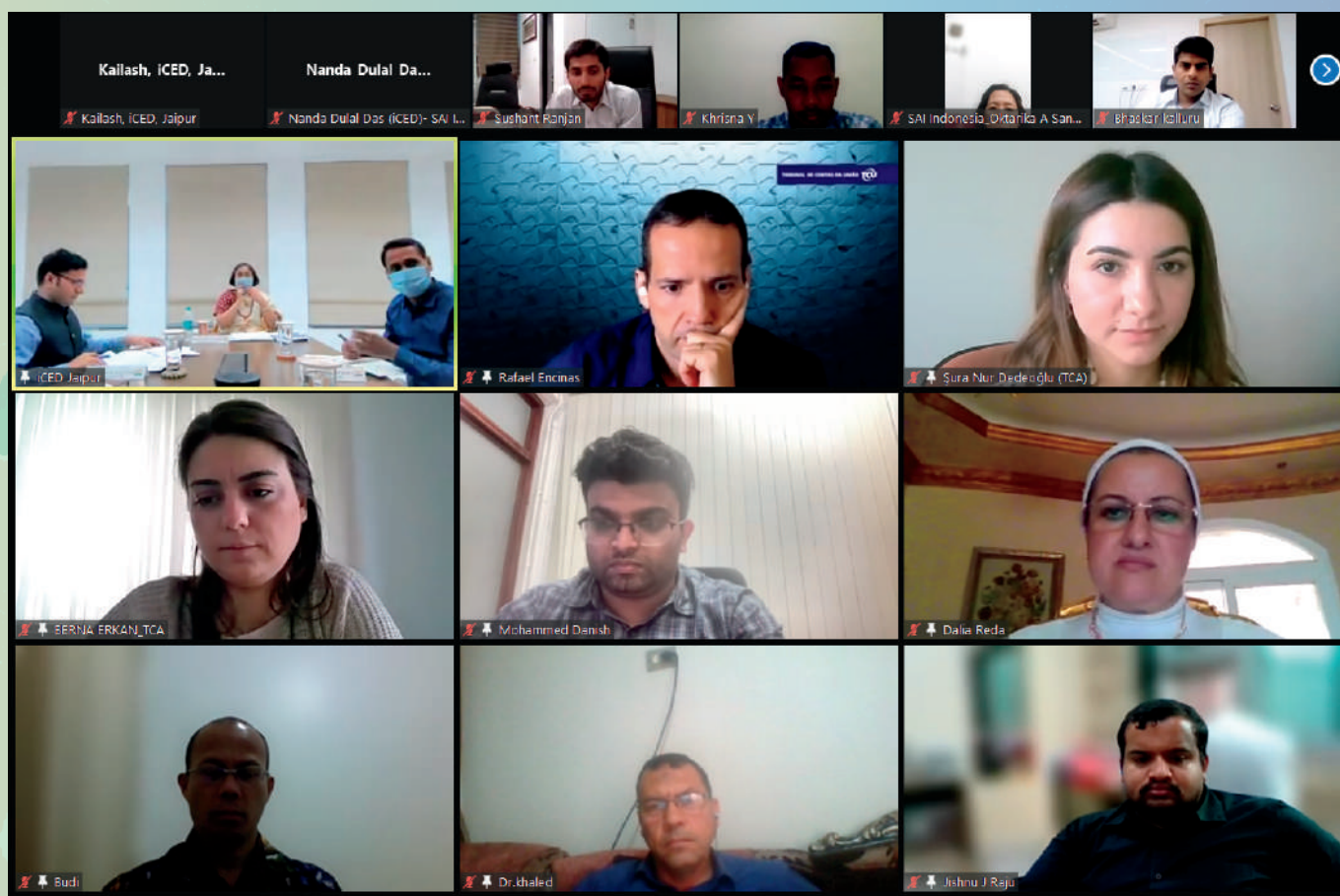
- Environmental Issues in Sustainable Cities, Government Establishment and Public Sector Enterprises with focus on SDGs”
-

13 CLIMATE ACTION

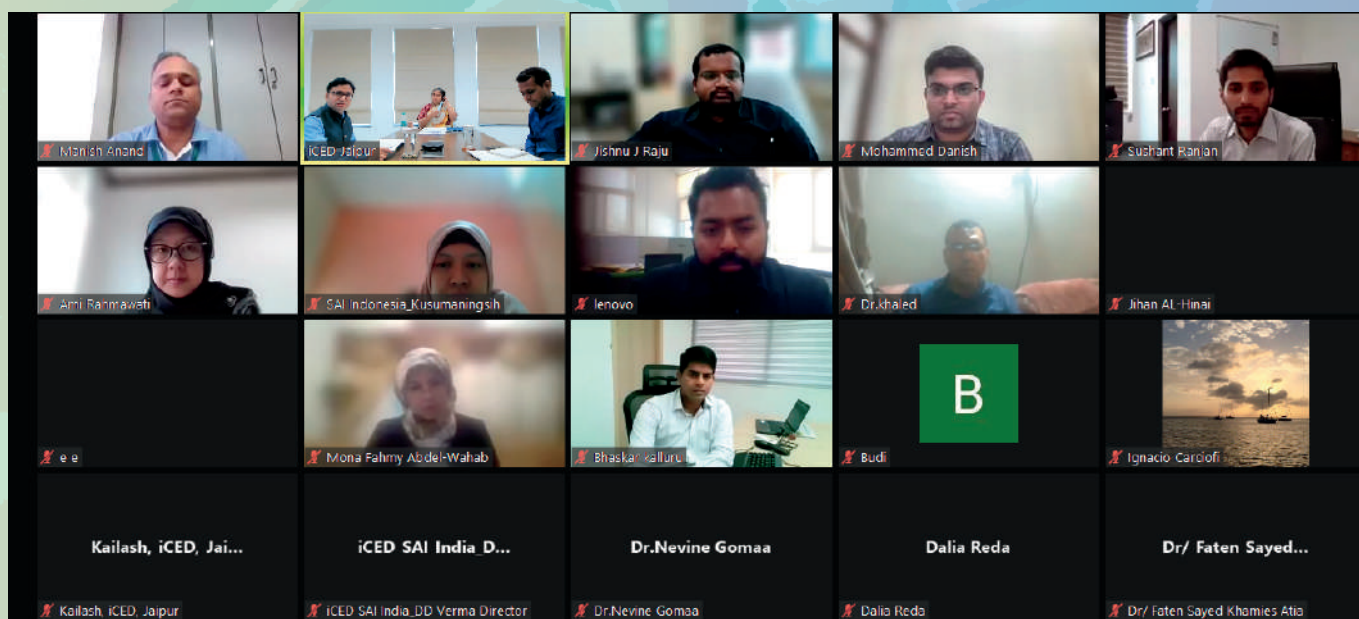
- Audit of Climate Change, Mitigation and Adaptation Strategies
 - Climate Change with reference to Marine Ecosystem, Biodiversity Loss and Marine Pollution
 - Audit of Climate Change with special reference to Green Finance and Energy Security
 - Audit of Climate Change and Net Zero Initiatives
-

iCED kicks off its capacity building exercise by focussing on the following major components of the Blue Economy viz. Coastal and Marine Ecosystem; Sustainable Marine Fishery Management; and Sustainable Marine Tourism.

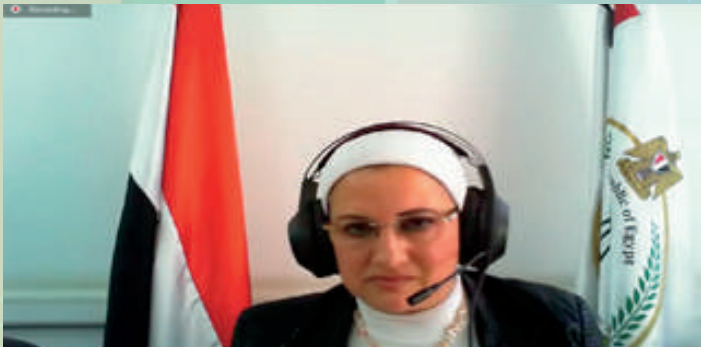
International Webinar on "Experience Sharing on Audit of Blue Economy related issues" held at iCED on 27 April 2023



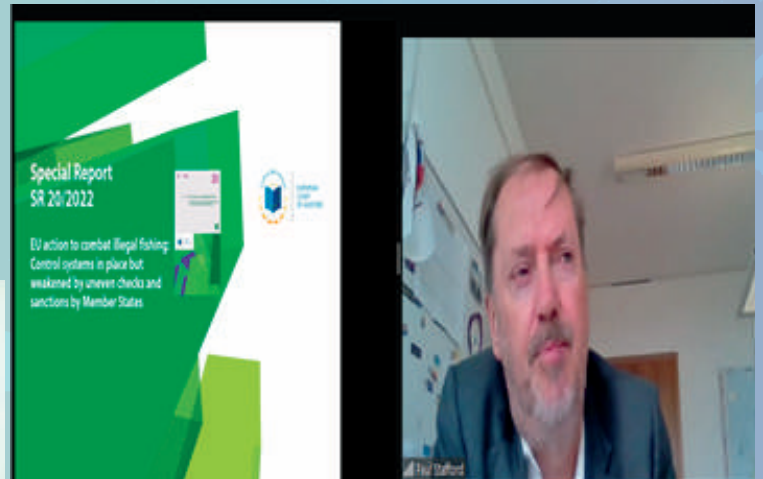
Thirty-two participants representing 07 SAIs (Including SAI India) attended the program through virtual mode.



International Webinar on "Experience Sharing on Audit of Blue Economy related issues" held at iCED on 27 April 2023

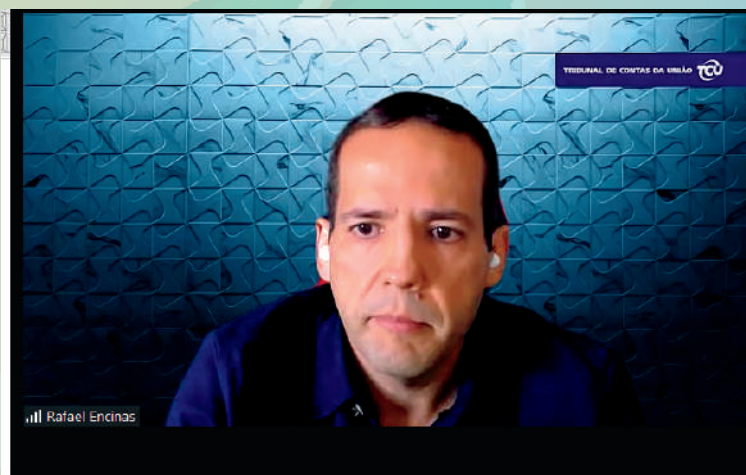


Mrs. Dalia Moustafa el Behbety, ASA Egypt, delivering the session on Audit of the Blue Economy: Experience Sharing by ASA Egypt



Mr. Paul Stafford, ECA delivering the session on Audit of the Blue Economy: Experience Sharing by the European Court of Auditors

Eight experts from seven organisations such as TERI India, SAI India, the European Court of Auditors (ECA), ASA Egypt, the National Audit Office of China (CNAO), the National Audit Office of SAI Oman, and the Federal Court of Accounts – Brazil delivered the sessions and interacted with the participants.

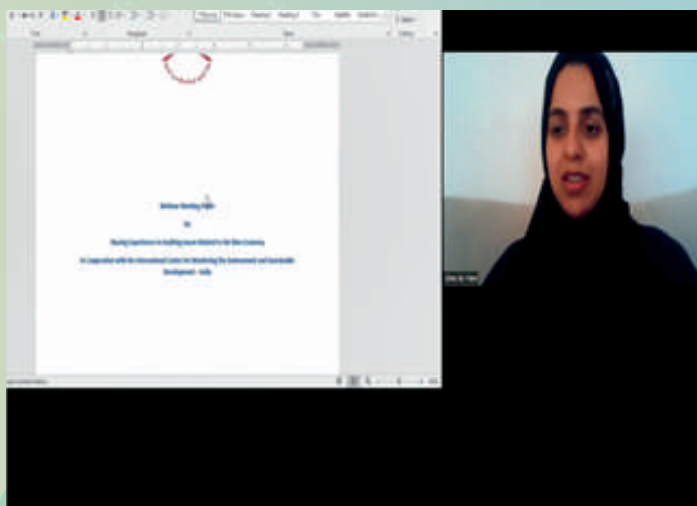


Mr. Rafael Encinas, SAI Brazil delivering the session on Audit of the Blue Economy: Experience Sharing by The Federal Court of Accounts (TCU), Brazil



Experts from CNAO delivering the session on Audit of the Blue Economy: Experience Sharing by the CNAO, China

International Webinar on "Experience Sharing on Audit of Blue Economy related issues" held at iCED on 27 April 2023



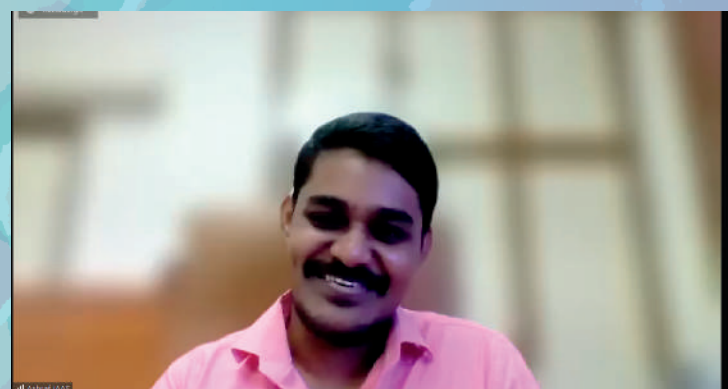
Ms. Jayhan Hamood Al Hanai, SAI Oman, delivering the session on Audit of the Blue Economy: Experience Sharing by SAI Oman



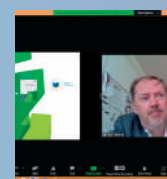
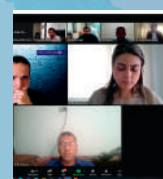
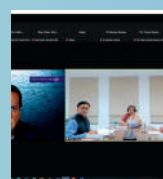
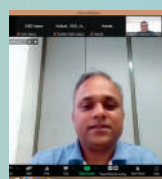
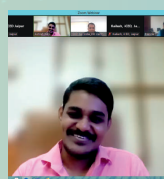
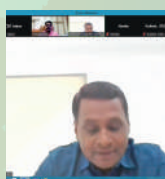
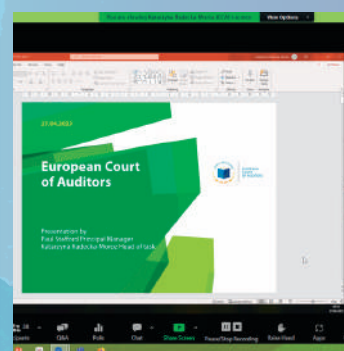
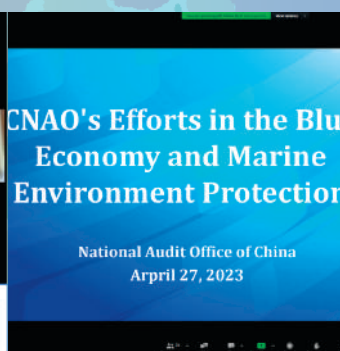
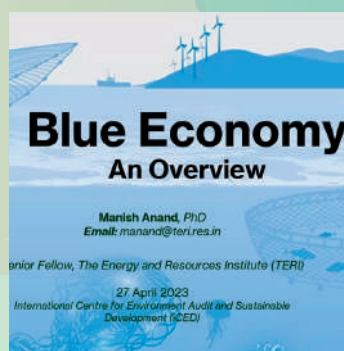
Mrs Katarzyna Radecka-Moroz, ECA delivering the session on Audit of the Blue Economy: Experience Sharing by the European Court of Auditors



Session on Overview of Blue Economy Dr Manish Anand, Senior Fellow, Centre for Resource Efficiency & Governance, TERI, India .



Mr. Mohd. Ashraf J S, SAI India delivering the session on Audit of the Blue Economy: Experience Sharing by SAI India



iCED:

Extensive green belt of nearly 10,537 plants and trees, including shrubs, hedges,



a Sustainable Campus

and plants of a bio-diverse terrain 85% Green Campus sprawling over 16 acres



iCED CAMPUS-



Solar Farm

Use of renewable energy. The capacity of solar farm is 50 KVA. 648 MWh Renewable Energy Generation.



Sewage Treatment

Having capacity of 40 Cubic Metre, recycles 9500 liters per day of waste water. Grey water is treated within campus and used for the gardens. 9500 litres per day Treated water from the STP.



Drip Irrigation

Drip irrigation method is also used for water conservation

SUSTAINABILITY SNAPSHOTS



Rain Water Harvesting
Conserving rainwater for use in water deficient periods. 4.50 million litres rain water harvested through pits.



Rare Trees Park
Conservation of rare tree species of the region and other medicinal herbs.
10,000+ Trees Plants & Shrub Plants



Composting
Composting of organic waste within campus

STATE OF THE ART

The image shows a large, modern auditorium with tiered seating. The seats are arranged in rows, facing a curved stage area. The ceiling is composed of large, geometric, light-colored acoustic panels. The walls are decorated with a pattern of colorful, rectangular panels in shades of blue, green, and yellow. The stage area is equipped with a large screen and various audio-visual equipment. The overall atmosphere is professional and high-tech.

iCED provides large spacious training halls as well as necessary equipment for the capacity development activities such as projector, screens, photocopier, printers, and stationery folders during the period of meeting. Besides we have a large auditorium having seating capacity for at least 80 persons with social distancing for Audio-Visual presentations for large events.

INFRASTRUCTURE



Library at iCED provides a comfortable reading space in an air conditioned environment for participants to study and research. The library has computer stations also for the participants to access online resources. Easy access to books and journals catalogue is available through intranet. We have almost 3000+ books/journals/documents in the library







A CHERISHED JOURNEY AT iCED

"Time past and time future.....

Point to one end, which is always present."

(T.S.Eliot)



iCED's journey cements SAI India's commitment towards preserving the living environment in it's picturesque and sylvan campus. It also enshrines SAI India's dedication to core values of independence, integrity and professionalism.

**International Centre for Environment Audit and Sustainable
Development (iCED)**

Jaipur, India

Contact us:

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