



WEBINAR HIGHLIGHTS

[Ocean System Innovations in Marine Health, Climate Resilience, and Renewable Energy](#)

21 August 2025

ADB Energy Sector Emerging Areas Knowledge Sharing Series

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Background

The health of our oceans is vital to the planet's climate stability, food security, and biodiversity. Yet, marine ecosystems are increasingly under threat from pollution, overfishing, and climate change. At the same time, emerging innovations, from sustainable aquaculture to marine monitoring technologies and ocean thermal energy conversion, are offering new pathways to protect and restore ocean environments.

This webinar showcased real-world projects and case studies that are driving impact at the intersection of marine health, sustainability, and innovation. By bringing together practitioners, innovators, and policymakers, the session highlighted scalable solutions and fostered cross-sector dialogue to accelerate ocean-positive action.

The discussion emphasized **innovative solutions and cross-sector collaborations** to tackle marine ecosystem degradation, plastic pollution, and climate change, through advances in ocean monitoring, regenerative aquaculture, and renewable ocean thermal energy.

Opening Remarks

Cindy Cisneros-Tiangco, Director, ADB Emerging Areas

Key Highlights

1. Innovation and collaboration are creating new opportunities to protect and restore marine environments.
2. Sustainable aquaculture and marine monitoring technologies demonstrate how food security and policymaking can align with ecological balance.
3. Ocean-based renewable energy solutions, such as ocean thermal energy conversion, show the potential of oceans as both ecosystems to safeguard and sources of sustainable power.
4. The session highlighted pioneering examples and fostered cross-sector dialogue to identify scalable and transferable approaches.
5. Partnerships across sectors are essential to accelerating ocean-positive action and ensuring oceans remain central to climate stability, food security, and sustainable economies.

**Presentation 1:****From Space to Shore: Satellite and AI Insights for Water Resilience in Southeast Asia**

Speaker: James Doherty, CEO and Founder of Planetixx

Key Highlights

1. **Global Monitoring Power.** Satellite data enables geographically unlimited monitoring, with daily to weekly revisits and the ability to track trends over decades using archives.
2. **Plastic Mapping.** Algorithms can detect slicks of debris in the ocean (e.g., off Ghana, UAE, and Manila Bay), identifying hotspots for targeted interventions before dispersal.
3. **River Inputs.** 80% of plastic enters oceans via rivers; satellite tracking provides early warnings to prevent leakage at source.
4. **Actionable Insights.** Outputs include risk maps, debris flow models, and landfall predictions, helping governments and clean-up operators plan cost-effective interventions.
5. **Health Impacts.** Data links plastic pollution to increased rates of diseases like typhoid and dengue, providing evidence for integrating public health with environmental strategies.

Conclusion / Way Forward

Satellite-based monitoring of oceans can reduce monitoring costs by a factor of ten, improve clean-up efficiency twenty-fold, and allows the alignment with international regulations and reporting standards. The technology is now being applied in Southeast Asia to scale impact.

Presentation 2: Globalization, Cultural Practices, and Food Security in Pacific Islands

Speaker: Chris Kitalong, VP/Associate Director, Palau Community College, Cooperative Research and Extension

Key Highlights

1. **Historical Dependence** – Palau's development was shaped by colonial ties, leading to reliance on imports and tourism, with limited domestic industry.
2. **Cultural Knowledge Loss** – Globalized education systems have eroded traditional ecological knowledge, weakening health and resilience.
3. **Health Crisis** – Shift from subsistence diets to imported foods has fueled non-communicable diseases (NCDs), now at emergency levels in many islands.
4. **Integrative Solutions** – Research integrates traditional medicine with clinical trials (e.g., for diabetes), validating indigenous approaches while introducing modern techniques.
5. **Food and Aquaculture Revitalization** – Projects to revive taro patches, improve soil management, and strengthen aquaculture (fish, taro, agroforestry) aim to balance imports, tourism demands, and cultural identity.

Conclusion / Way Forward

Sustainable development in island contexts requires **integrating traditional knowledge, local food systems, and cultural practices** with modern innovations to address health, food security, and resilience challenges.



Presentation 3: Leading Green Transformation of Island Regions with the GX Model with OTEC at its Core in Cooperation with ADB

Speaker: Prof. Yasuyuki Ikegami, Professor and Director, Institute of Ocean Energy, Saga University, Japan

Key Highlights

1. **SIDS Energy Challenges** – Land space constraints limit PV and wind; OTEC offers ocean-based renewable power potential.
2. **Technology Overview** – OTEC uses the temperature difference between warm surface water and cold deep seawater to generate electricity.
3. **Demonstration Success** – Okinawa's 100kW plant proved technical feasibility, paving the way for MW-scale commercial applications.
4. **Multi-Benefit Potential** – Deep seawater also supports aquaculture, cosmetics, desalination, cooling, and agriculture.
5. **Pacific Applications** – Japan is supporting a pre-feasibility study in Nauru in partnership with the UN Climate Technology Centre and Network with proposed funding from the Green Climate Fund. Japanese experts are from Saga University, the Overseas Environmental Technology Centre of Japan and Tokyo University.

Conclusion / Way Forward

OTEC is moving toward commercialization, with potential to provide **renewable energy, water, and economic co-benefits** to Pacific SIDS. Strategic partnerships and cost reduction are key to wider adoption.

The webinar is moderated by Mike Abundo, CEO of OceanPixel and ADB Consultant.