Summary of Stakeholder Workshop in Indonesia

Project title:	TA 6742-REG Output 4: Risk financing solutions and transfer mechanisms to promote climate resilience for ecosystems
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Project overview and workshop purpose

This multi-stakeholder Asian Development Bank (ADB) project, funded by Asia-Pacific Climate Finance Fund (ACliFF) and the Global Environment Facility (GEF), aims to identify, recommend and demonstrate the applicability of sustainable financing and risk management models and approaches for coral reef ecosystems in targeted, high-opportunity sites in four countries, namely Fiji, Indonesia, the Philippines and Solomon Islands, towards increasing the climate resilience of coastal businesses, communities and their livelihoods.

The purpose of this workshop was to present the study findings of all the assessments conducted in Nusa Penida, Bali, Indonesia and receive feedback from the stakeholders.

Attendance

The meeting was attended by 40 participants in Bali and by 20 participants virtually. Attendees comprised of representatives from the consulting team from Landell Mills consortium, the ADB, national and local Government, NGOs, and other stakeholders.

Presentations

All materials including presentations and recording, will be uploaded to the ADB Knowledge Event Repository in the link below: https://events.development.asia/learning-events/risk-transfer-mechanisms-partnerships-coral-reef-finance-and-insurance-asia-and

Summary

Agenda. The agenda and list of invitees is annexed to this note. Key sessions covered:

- Project Objectives, Activities and Timeline
- Climate Risk Assessment Alison Drill, Disaster Risk and Insurance,
- Coral Reef Vulnerability Assessment & Coral Reef Post-Disaster Risk Management and Restoration Plan and Gender Action Plan
- Coral Reef Ecosystem Valuation & Cost Benefit Analysis
- Policy, Legal and Regulatory Conditions to Support Financing Mechanisms and Risk Transfer Instruments
- Risk Financing and Insurance Recommendations
- Synthesis and Next Steps

Key conclusions from workshop

- Nusa Penida coral reefs have great value and offer an excellent opportunity for risk transfer, risk management and recovery solutions.
- Parametric insurance for sea surface temperature (SST) is a viable option. Excessive rainfall should be dealt with through an emergency fund.
- The cost associated with coral reef management and post event disaster risk financing is Rp 3.5 bn/Ha over a 5-yr period. The restoration cost post event is Rp2.6 bn for 1 Ha, with likely economies of scale.
- Based on probabilistic modelling and a premium payout estimate of up to Rp1 bn/event, with smaller payouts for less intense but more frequent SST events, the estimated premium would be Rp150 m/yr from yr2-5. It is recommended that the premium and claim amounts are scaled to enable restoration of larger areas, subject to capacity and resources.
- Risk transfer finance options include tourism-related fees and will require improved collection and governance.
- BLUD has been identified as the most suitable policyholder and it is recommended that it is established as soon as is practicable.
- In the meantime, it is recommended that a multi-stakeholder taskforce is established to coordinate interim implementation steps, including how the restoration plan will be established and implemented.

Recommended next steps to be adopted by stakeholders:

- Advocate policies at the provincial level by presenting the concept of coral reef insurance to the Governor, to ensure alignment with the region's vision and mission and natural resource protection priorities.
- Strengthen sustainable funding schemes, including integrating KKP entrance fees into travel tickets and developing tourism levies (e.g., diving) to support insurance premium payments.
- Initiating the establishment of the Nusa Penida KKP BLUD as a prerequisite for transparent and flexible financial management, as well as an official channel for insurance claim funds to flow into restoration activities.
- Establishing a temporary multi-stakeholder task force to prepare collaboration mechanisms, transparent distribution of claim funds, and rapid response to emergencies such as mass coral bleaching.

A list of questions and answers from the workshop are provided in Annex 1.

Next steps

This note and link to the event site in ADB Knowledge Event Repository[1] (where all meeting materials will be uploaded) will be shared with all the meeting attendees.

[1] https://events.development.asia/learning-events/risk-transfer-mechanisms-partnerships-coral-reef-finance-and-insurance-asia-and

Annex 1 - Key questions and answers

Questions on climate risk assessment

- Q: *How do extreme rainfall and rising sea surface temperatures (SST) impact coral reefs at specific locations within the region? Where are the most affected coral reefs? At what depth are corals most seriously impacted?* (Eddi Widana, Representative of the Marine Conservation Management Unit – Bali)
  - A: The answer was supported by the slides presented by Alison Drill (Swiss Re). The pattern of bleaching impacts is greatly influenced by variations in coral location and depth. In areas with weak currents or calmer waters, SSTs can rise more quickly, resulting in higher Degrees Heat WeekS (DHW). On the other hand, in areas with strong currents, such as in some zones of Nusa Penida, the potential for warming may be slightly reduced due to the upwelling effect that brings cooler water. This explains why satellite data (e.g., NOAA) can show different DHW variations than field data—especially in shallow locations, bays, or locations less exposed to currents.
  - Alison also emphasized that parametric insurance parameters operate at a regional scale, not at individual points. Therefore, the model prioritizes extreme ocean heat events that are widespread rather than confined to a single point.
- Q: *Why is NOAA data used as the primary benchmark for this assessment? (Fajar, Nuruh Marine Conservation Area of Nusa Penida). In fact, Indonesia has BMKG data which also records sea surface temperatures and other climate parameters.*
  - Alison clarified that parametric insurance requires data that are historically long, consistent methodology, available quickly in real-time, verifiable by third parties, and freely available to the public (open data). NOAA data meets these five conditions.
  - Swiss Re is willing to cross-calibrate with BMKG data for local improvements.
- Q: *How is the parametric insurance model applied in this context?* (Fajar, Nuruh Marine Conservation Area of Nusa Penida). Fajar emphasized that most of the coral damage on Nusa Penida stems from human activities (tourism, boat anchors, snorkeling), not climate risks, and questioned the relevance of parametric models to the actual sources of damage.
  - Alison clarified that Parametric insurance does not replace area management related to anthropogenic risks.
  - Specialized parametric models address extreme climate risks (long-term ocean warming & extreme rainfall).
  - Damage resulting from tourism activities does not qualify as an insurable peril because it originates from human behaviour, is local in nature, and is highly variable.
  - Parametric were chosen to expedite payments, ensure restoration funds are quickly available, and provide financial protection in the event of major climate events that are particularly challenging for area management.
- Q: *If the SST reaches a certain threshold (e.g. DHW 6), but no bleaching occurs, can a claim still be submitted?*
  - Alison clarified that Parametric insurance does not work based on evidence of direct physical damage, but rather on mutually agreed statistical triggers. A high DHW trigger is considered to represent a very high probability that damage will occur, so a claim remains valid even if some areas appear to be unbleached.
  - The principle is “When the trigger is reached, payout happens — regardless of physical inspection.”
  - The trigger amount (e.g. DHW = 6, 8, or 12) will be negotiated during the policy stage.

Questions on coral reef vulnerability assessment

- Q: Can the survey data presented help revise the Area Management Plan (RPKK)? Is there data on depth, seabed conditions, and changes in coral cover compared to previous years? (Representative of the Bali KKP UPTD, Eddi Widana)
  - Selina Ward explained that the 13-site survey covered depth, coral cover, and substrate conditions, and can serve as the latest baseline for the RPKK. Some sites showed new coral recruitment, while others experienced stress from weak currents and sedimentation.
  - Changes in coral cover can be mapped, but long-term trend analysis requires additional data from the government.
- Q: *Are locations with strong currents really more resistant to bleaching? Do the survey results show significant differences between locations?* (Representative of MPA Nusa Penida, Fajar)
  - Selina clarified that locations with strong currents are generally better protected from extreme heating because of the cooling water currents. Calm/stagnant locations are more vulnerable, especially when DHW is high. Surveys show that vulnerability varies between locations, even within the same area.
- Q: *Are tourism pressures (snorkeling, diving, boat routes) included in the vulnerability assessment?*
  - Yes, tourism pressure is observed and recorded as an ecological stressor. However, human pressure is not included as an insurance parameter, but rather as part of area management.
- Q: *Can the results of this survey be used to determine priority restoration zones?* (Local Government/Regulator)
  - Yes, the data shows the most vulnerable and most resilient locations. Restoration zones should consider historical bleaching levels, current strength, healthy coral cover, and coral recruitment potential.

Questions on coral reef restoration plan

- Q: *How to determine the extent of healthy and unhealthy coral? In restoration activities, is it more important to map healthy corals or unhealthy corals? When is the recovery method applied and what are the criteria?* (Agustini, BPSPL Denpasar)
  - Selina explained that budgets and planning are prepared based on predictions of rescue actions that may need to be taken. Determination of the area is guided by the results of surveys and monitoring of conditions after the incident. Restoration methods are applied after mortality is stable and conditions allow for restorative measures. Questions on the policy and governance analysis, and parametric insurance
- *A participant questioned the need for a legal entity and formal framework to define the scientific parameters used as parametric insurance triggers. He questioned the relationship between data requirements from the BMKG (Meteorology, Climatology, and Geography) and satellite data from NOAA, and how all of this data should be calibrated to ensure the accuracy of claim triggers.*
  - Veda explained that the policy team used various sources of scientific data known as data guardian.
  - Veda emphasized that the official authority for climate and meteorological data is the BMKG, so all data used as the basis for insurance triggers must be calibrated with BMKG data.
  - Because the system uses global satellite data (e.g. NOAA), coordination is required to ensure that all data is validated by national authorities before being used in the insurance mechanism.

- Veda also emphasized the importance of cooperation between national institutions and international data providers to ensure that the trigger mechanism remains scientifically sound and institutionally valid.

- Q: *How the results of ecosystem valuations and economic studies could be used to improve local management, optimize coral reef management, and support monitoring and restoration activities?* (Rastia O'Rerry — Marine Fisheries, Ministry of Conservation Ecosystem, KKP)
  - James Spurgeon (Ecosystem Valuation Specialist in the project) explained that the current area management is relatively effective, but there is still room for optimization based on the valuation results.
  - Economic valuation allows governments and area managers to understand the economic dependence of communities on coral reefs, identify economic risks and opportunities, and prioritize the most strategic restoration and monitoring areas.
  - James emphasized that this study supports the implementation of targeted monitoring as well as data-based restoration, so that interventions are more efficient, targeted, and have long-term impacts.

- Q: *Who is responsible for conducting assessments for insurance purposes?" Which agency will be responsible for conducting post-disaster damage assessments as the basis for parametric insurance claims? Is there a dedicated assessment agency or standardized mechanism?*
  - Damage assessment will be closely related to the formation of a BLUD or risk management entity as a policy holder.
  - A formal framework will be developed to ensure the assessment process is objective, standardized, and in accordance with the mandate of the designated institution.
  - The moderator emphasized that this scheme is being designed to have a strong regulatory basis before being implemented.

- Additional clarifications provided by Alison Drill, based on questions:

  - Officers have full authority to use claim funds according to previously prepared guidelines.
  - Clear guidelines for use of funds are required, including the relationship between premiums, BLUD funds, and restoration activities.
  - The hazard insured must be scientifically defined and directly linked to reef damage (e.g. extreme temperature anomalies).
  - Historical hazard parameters are important, especially in the light of previous bleaching events.
  - Parametric insurance is only one part of a broader risk management system, and conservation activities still require additional funding.