



Adaptation Futures Conference

**“COASTAL ADAPTATION  
AND BLUE ECONOMY  
STRATEGIES FOR  
ENHANCING RESILIENCE  
AND PRESERVING  
CULTURAL IDENTITY IN  
FIJI'S OCEAN OF ISLAND”**

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# Structure of Presentation

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- Frameworks
- Coastal adaptation and blue economy
- Resilience
- Cultural identity
- Indigenous frameworks
  - Research
  - *Mana and Kuita*
- Conclusion
- Acknowledgements





## Background – Fiji's Ocean of Islands

- Fiji is an ocean nation, with more than 330 islands scattered across an Exclusive Economic Zone (EEZ) spanning over 1.3 million square kilometers. This vast maritime territory embodies the Pacific concept of the "ocean of islands" — where the sea connects rather than divides communities.
- The Rewa Delta represents Fiji's largest and most ecologically significant mangrove ecosystem, covering approximately 8,800 hectares and accounting for 24% of the nation's total mangrove resources (Cameron et al, 2021). Yet this vital system faces mounting pressures from climate change, including sea-level rise, coastal erosion, flooding events, and salinity intrusion into freshwater systems.
- Between 2000 and 2020, the Rewa Delta experienced a concerning 9% decline in mangrove coverage — a loss of 697 hectares that threatens both ecological functions and community resilience (Avtar et al, 2021).

## Global frameworks

UNFCCC and Paris Agreement 2016

UNCLOS and Biodiversity Beyond National Jurisdiction (BBNJ) Agreement 2026

CBD and Kunming-Montreal Global Biodiversity Framework 2022

United Nations Declaration on the Rights of Indigenous Peoples 2016

Sustainable Development Goals (SDG14)

## Regional frameworks

Framework for Resilient Development in the Pacific (FRDP) 2017 - 2030

Pacific Mangrove Initiative & SPREP Ocean Governance Framework 2024 - 2026

2050 Strategy for the Blue Pacific

SAMOA Pathway 2014

National Adaptation Plan 2018

National Ocean Policy 2025

Climate Change Act 2021

National Biodiversity Strategy and Action Plan (NBSAP 2020 – 2025)

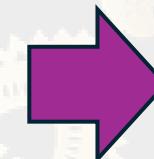
Adaptation Fund Rewa Catchment Programme 2025

## National frameworks

**Coastal  
adaptation  
and  
blue  
economy  
strategies**



**FOR  
enhancing  
resilience**



**AND  
preserving  
cultural  
identity**

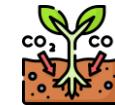
# Rewa Delta Mangroves – A Living System

The Rewa Delta mangroves function as a complex, interconnected living system that provides multiple layers of value to both nature and humanity



## Ecological Richness

- Home to **121 finfish species** across **47 families**
- Serves as a **critical nursery ground** for coastal fisheries
- Mangrove forests offer **breeding, feeding, and shelter habitats**
- Supports the **marine food web** throughout Fiji's waters



## Carbon Sequestration

- Stores approx. **1,700 tons of CO<sub>2</sub> equivalent per hectare**
- Fiji's **largest blue-carbon reservoir**
- Acts as a **natural climate solution** through carbon storage



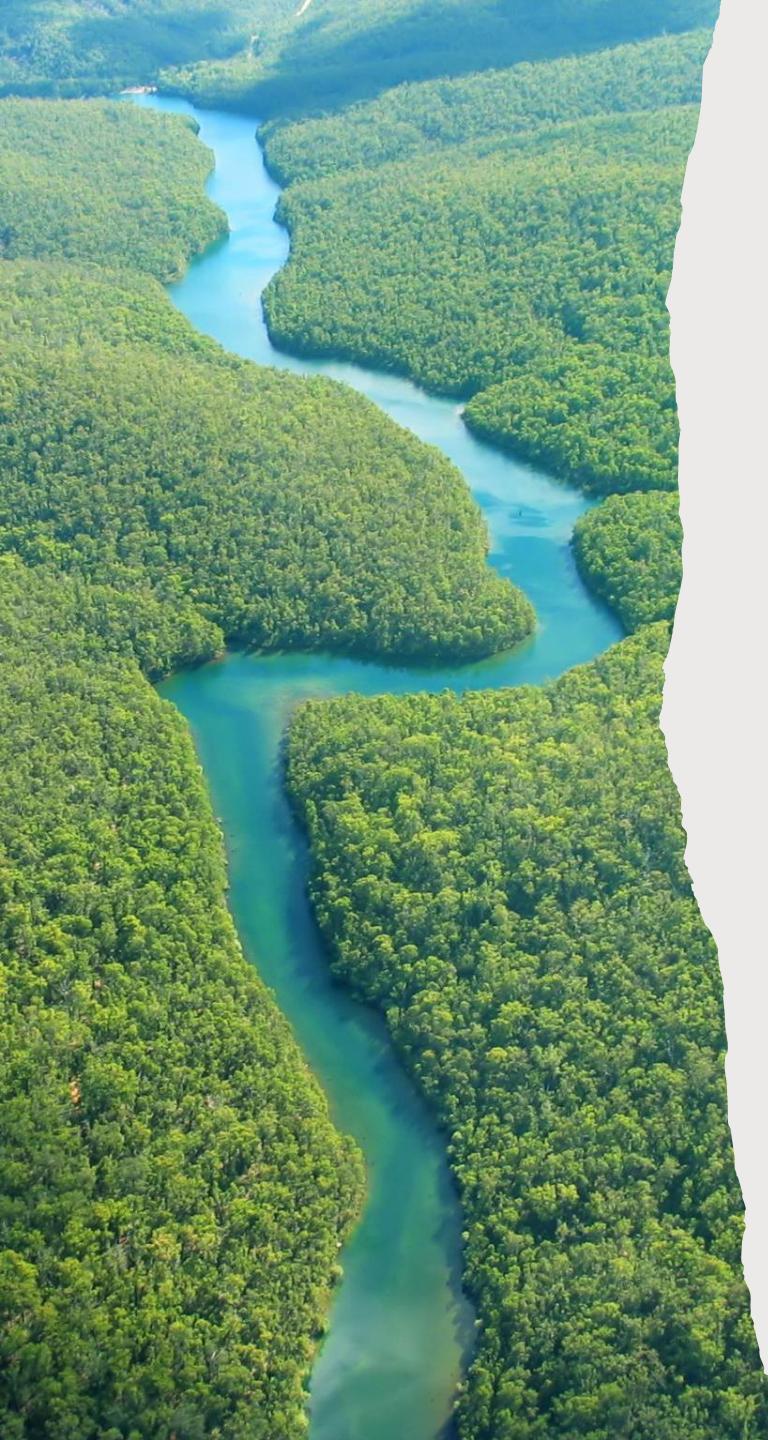
## Economic Lifeline

- **92% of households** rely on mangrove resources
- Supports **fisheries, eco-tourism, and firewood collection**
- Vital to **local economic survival** and community resilience



## Cultural Significance

- Features **cultural keystone species** like the Mana (mud lobster), **totems** (animal, plant) & sayings (ibole)
- Deeply embedded in **Rewan identity and cosmology**
- Guides **community decision-making and resource stewardship**



## ADAPTATION

- Soft & hard

## ECONOMY

- Mangroves, fishery



Image source: Adi Nacola

# Coastal Adaptation Strategies in Rewa Delta

The Rewa Delta communities are implementing a portfolio of adaptation strategies that balance soft, community-based approaches with hard infrastructure interventions — all guided by the precautionary principle in anticipation of future climate scenarios.

## Soft Adaptation (Community-Based)

**Mangrove replanting programs:** Community-led restoration initiatives that rebuild degraded mangrove forests using locally appropriate species and traditional planting knowledge

**Tabu zones:** Temporary or permanent no-take areas declared through customary authority, allowing ecosystems to recover while maintaining community governance over marine resources

**Traditional Ecological Knowledge mapping:** Systematic documentation of TEK related to species distribution, seasonal patterns, historical changes, and management practices — ensuring this knowledge informs contemporary adaptation planning

## Hard Adaptation (Infrastructure)

**Riverbank reinforcement:** Strategic stabilization of eroding riverbanks using both engineered solutions and nature-based materials

**Elevated housing:** Raising homes and community buildings above anticipated flood levels to protect families and assets

**Hybrid green-gray systems:** Innovative approaches that combine mangrove buffers with engineered structures, leveraging the strengths of both natural and built infrastructure

## Precautionary Planning

Adaptation strategies incorporate planning for inland mangrove migration corridors, recognizing that sea-level rise will require these ecosystems to shift landward. Proactive land-use planning now can prevent future conflicts and ensure ecosystem continuity as climate impacts intensify. This approach acknowledges uncertainty while taking prudent action to preserve future options.

# Blue Economy Opportunities

The Rewa Delta's mangroves offer substantial blue economy opportunities that can provide sustainable livelihoods while maintaining ecosystem health. These opportunities demonstrate how conservation and economic development can advance together when guided by cultural values and ecological principles.

## ○ Sustainable Fisheries and Aquaculture

Development of mud crab fattening project and oyster farming with the Muanaia Women's Group that work with natural mangrove systems rather than against them, providing protein and income while maintaining biodiversity.

## ○ Eco-Tourism and Cultural Heritage

DISCOVER Fiji Tours conduct eco-tourism activities along the Rewa River that showcase both ecological wonders and cultural heritage sites, creating tourism revenue streams that incentivize conservation and cultural preservation.

## ○ Blue Carbon Credits

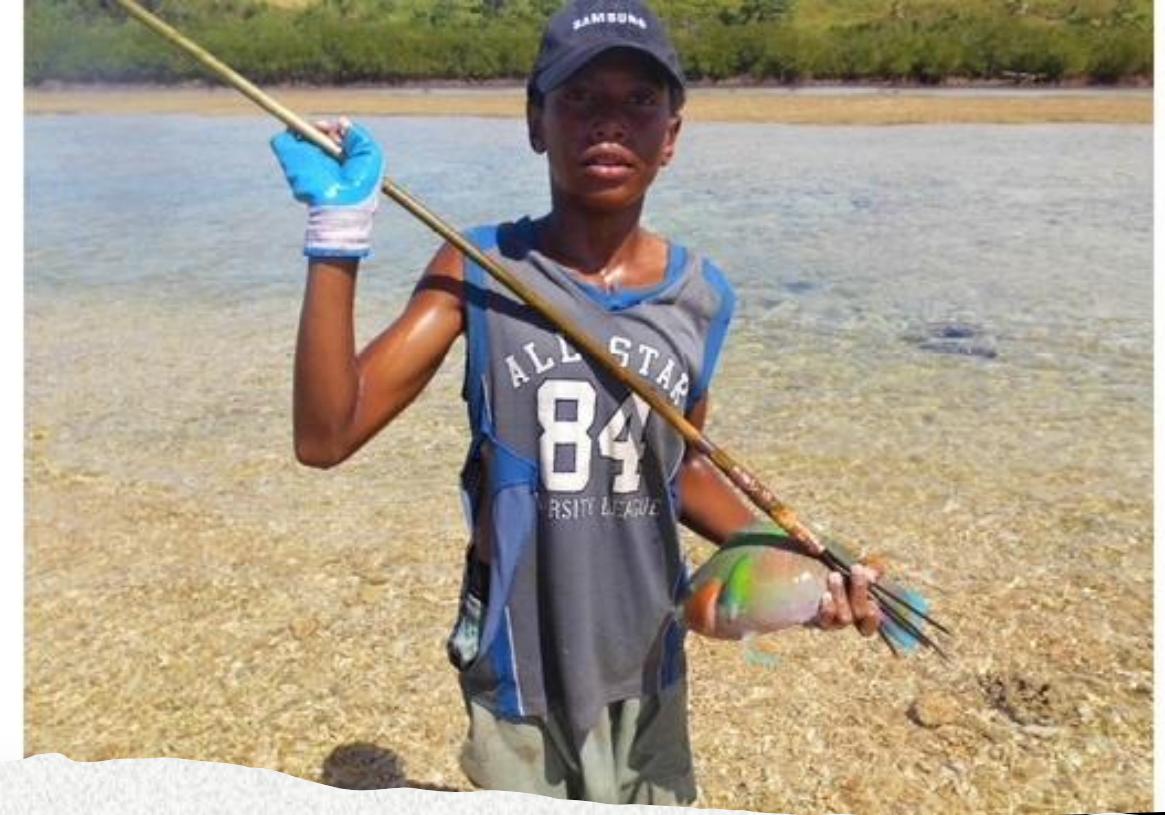
Protection of existing mangroves generates substantial carbon credits. Avoiding conversion of mangrove forests can save up to 1,518 tonnes of CO<sub>2</sub> equivalent per hectare — creating potential carbon finance revenue while addressing global climate change.



## ○ Livelihood Co-Benefits

Economic modeling estimates approximately USD \$335,000 in avoided losses when mangrove ecosystems remain intact — losses prevented through continued ecosystem services like storm protection, fisheries productivity, and coastal stabilization.

Blue economy approaches transform conservation from a cost into an investment, aligning economic incentives with ecological and cultural preservation.



## RESILIENCE

- Health security
- Food security
- Water security
- Climate security
- Economic security
- Cultural security (including community governance)

# Resilience and Identity

True coastal adaptation must simultaneously foster biophysical resilience while preserving the cultural identity that gives communities meaning and cohesion. These two dimensions are inseparable — resilience without identity is mere survival, while identity without resilience cannot endure.

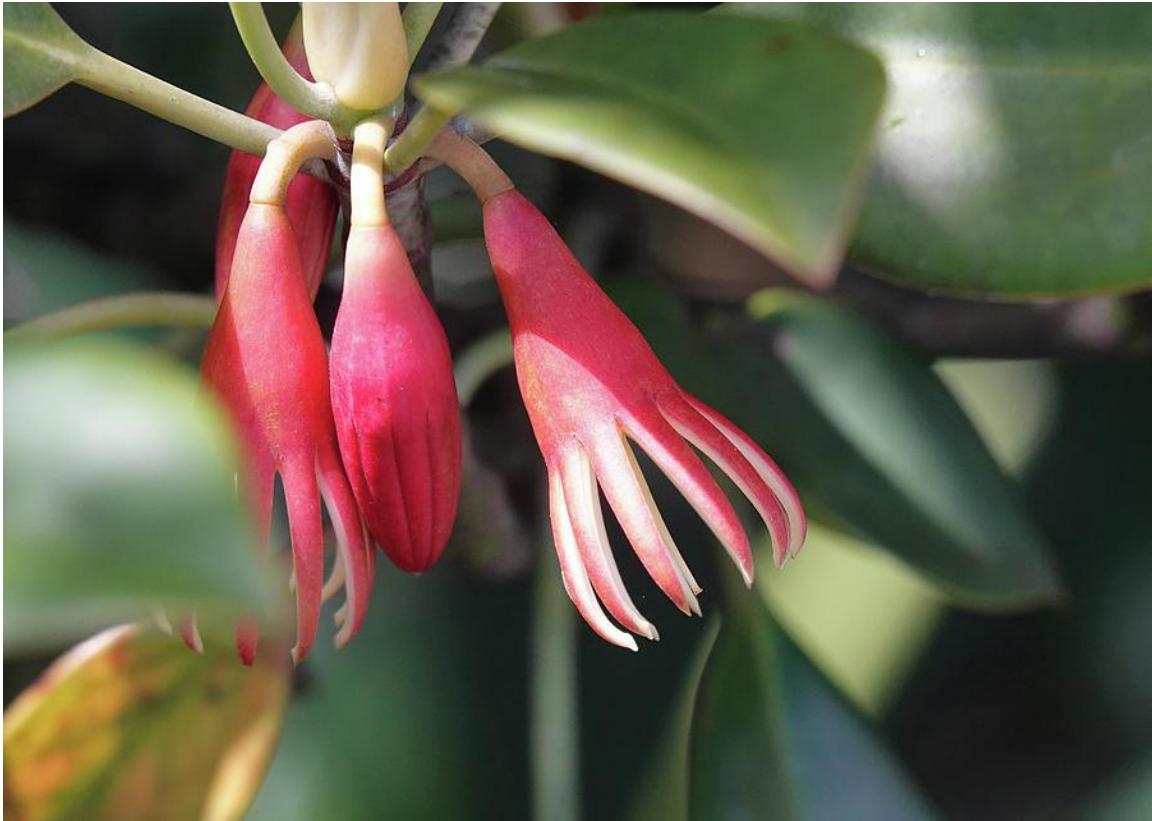
## Preserving Identity

- Cultural heritage and storytelling - The 27 archaeological and cultural sites recorded during the 2013 biodiversity assessment — including chiefly installation grounds and sacred burial places — demonstrate that mangroves are a cultural landscape, a living archive of Rewa's history
- Cultural narratives - Metaphors like the *Mana* and *Kuita* ensure that adaptation planning speaks to cultural identity, embedding modern initiatives within traditional knowledge systems and worldviews
- Women and youth engagement - Ensuring intergenerational knowledge transmission and gender-inclusive participation maintains cultural continuity while bringing diverse perspectives to adaptation strategies.
- Vanua-based stewardship - Resource management rooted in traditional knowledge, customary tenure and traditional governance systems ensures that stewardship reflects cultural values rather than externally imposed conservation models.

## Fostering Resilience

- Food and livelihood security - Maintaining ecosystem productivity ensures communities can feed themselves and generate income, reducing vulnerability to external shocks and market fluctuations.
- Water and ecosystem health - Mangroves filter water, prevent saltwater intrusion, and maintain the hydrological balance that supports agriculture and drinking water supplies in coastal zones.
- Community governance - Strong local institutions guided by customary authority and democratic participation enable collective decision-making and coordinated action in the face of threats
- Climate Resilience – communities' vulnerability to Climate Change is minimized through appropriate climate action – adaptation & mitigation

The mangroves themselves are more than ecosystem services — they are places where ancestors are buried, where chiefs were installed, where creation stories unfold. Protecting mangroves means protecting memory, identity, and belonging.



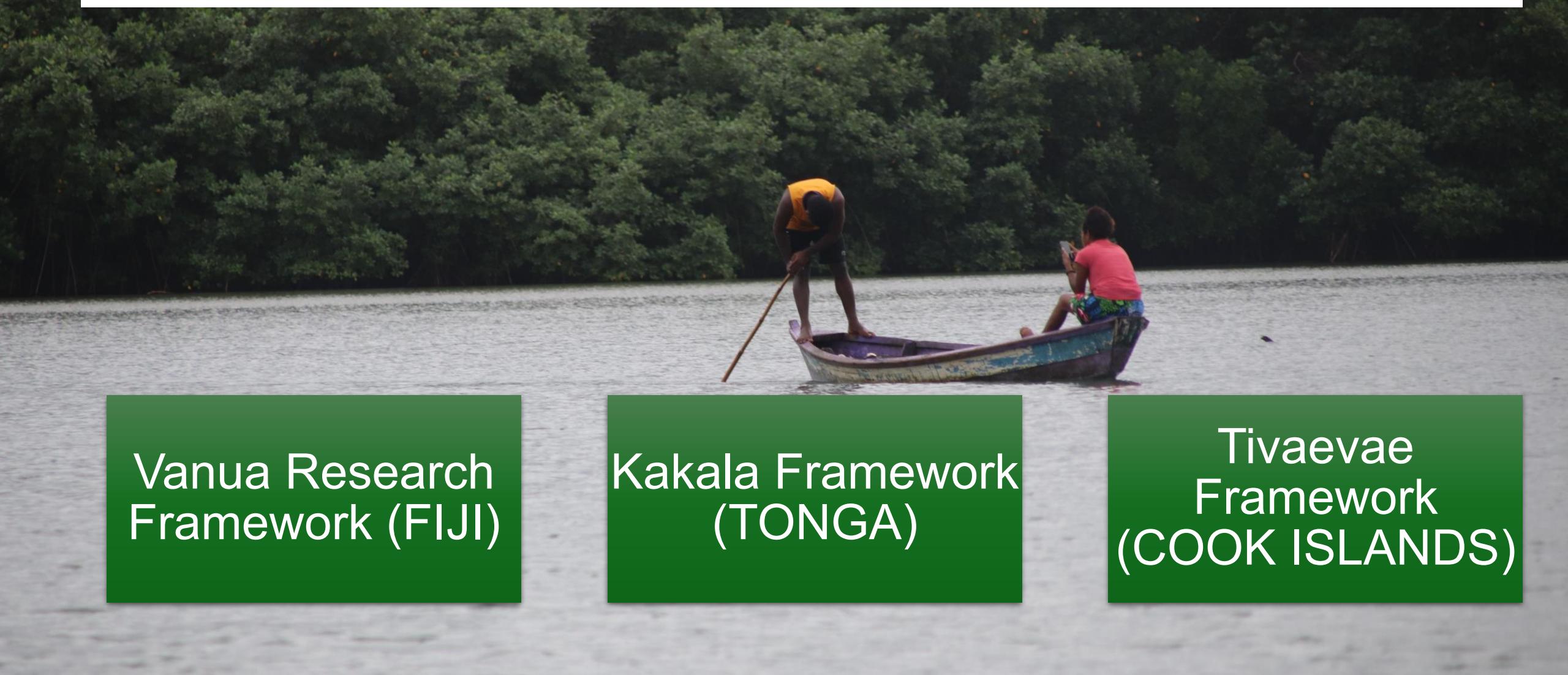
# Cultural Metaphors of Adaptation & Resilience

## Preserving Identity Through Meaningful Communication

In Pacific Island communities, effective communication requires more than translation — it demands cultural contextualization that resonates with indigenous worldviews and lived experiences. The Rewa Delta communities have developed powerful cultural frameworks using totemic species as metaphors

**Making it make sense!**

# Traditional - Culturally appropriate approaches to **Research**

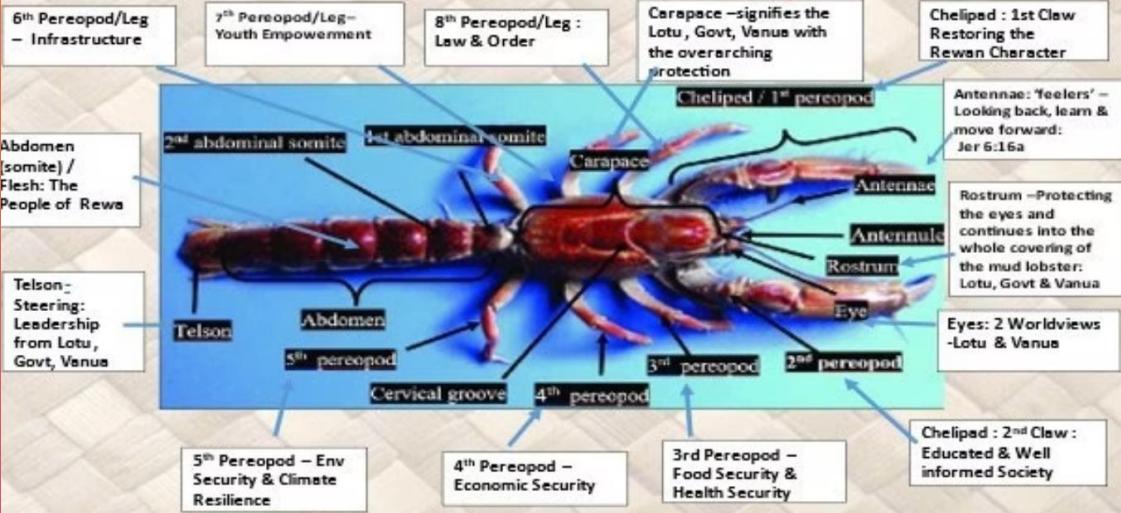


Vanua Research  
Framework (FIJI)

Kakala Framework  
(TONGA)

Tivaevae  
Framework  
(COOK ISLANDS)

# FRAMEWORK OF THE Rewa SDP- using the metaphorical Mana



## The Mud Lobster (Mana)

The Mana serves as the organizing metaphor for the Rewa Strategic Development Plan, embodying community priorities through its very physiology. This approach ensures that development planning speaks to cultural identity rather than imposing external frameworks.

## The Octopus (Kuita)

The Kuita framework guides community engagement protocols for projects and programs, with its eight legs representing eight essential principles for respectful, effective collaboration with indigenous communities.



# The Mana Framework

– Physiological and Cultural Essence



Image source: Paddy Ryan

## Physiological representation:

Two eyes

- Represent the dual worldviews through which the Rewan community perceives reality: the *Vanua* (traditional indigenous cosmology) and *Lotu* (Christian faith). This duality reflects the lived experience of contemporary Pacific communities navigating multiple knowledge systems
- Eight Chelipeds and Legs (Pereopods)

## Physiological representation:

The eight legs embody the eight priority areas of the Rewa Strategic Development Plan. The interconnectedness of these legs demonstrates how each priority area contributes to the overall movement and effectiveness of community development — no single leg can function independently.

## Essence:

**Community Delicacy:** The Mana is known as the "*kakana* for the *Yalomatua*" (food for the ancestors/spirits), deeply embedded in ceremonial and daily life

## Essence:

**Keystone Species:** Ecologically, the Mana functions as a keystone species in mangrove ecosystems, helping to define the entire system through its engineering activities — earning it the title "Friends of the Mangroves" and "Biological Marvel."

## Essence:

**Cultural Saying:** "*Dua ga na sigani cola qele*" (Only one day to dig the earth) — a metaphorical expression signifying the attitude of focused, purposeful work that communities should bring to adaptation efforts.

## Essence:

**Habitat Symbolism:** Living between land and sea, the Mana represents the liminal space where communities must adapt to changing conditions.

## Essence:

**Adaptation Metaphor:** The Mana undergoes molting (*Vakatukakaso*) and can perform "reflex amputation" to survive threats — powerful metaphors for community resilience and adaptive transformation.

# Kuita Framework – Eight legs of Community Engagement



**Building on Social Capital:** These eight protocols leverage and strengthen the features of the community's social capital — the connectedness and networks; rules and sanctions; reciprocity and trust that enable collective action and adaptive capacity.

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**Building on Social Capital:** These eight protocols leverage and strengthen the features of the community's social capital — the connectedness and networks; rules and sanctions; reciprocation and trust that enable collective action and adaptive capacity.

## 1. Engage with Respect

As an insider through proper doors at various levels. Respect community priorities ("For Us By Us" – FUBU, and "Nothing About Us Without Us" – NAUWU) without rubber-stamping or box-ticking exercises. No colonial relics. Earn trust through genuine relationship building

## 3. Utilize Traditional Ecological Knowledge

Recognize TEK encompasses values and beliefs, skills (*gonedau, bati*), practices, and knowledge (both public and sacred). Understand that totems are used for conservation, implemented within kinship systems (*veiwekani*) — emphasizing connectedness and networks.

## 5. Apply Indigenous Methodologies

Use culturally grounded research frameworks such as the *Vanua* Research Framework (Fiji), *Kakala* Framework (Tonga), or *Tivaevae* approach (Cook Islands) — methodologies developed by and for Pacific peoples.

## 7. Create Talanoa Spaces

Establish spaces for dialogue that allow for refocusing, strategizing, negotiating, and adaptive strategy development. *Talanoa* enables communities to respectfully engage.

## 2. Observe Protocols

Honor *Vanua* governance structures, ceremonies (such as *sevusevu*), and village schedules (market days, *solesolevaki*). Apply wisdom and emotional intelligence — what locals call *vuku yalomatua*.

## 4. Practice Proper Etiquette

Attend to behavior, appropriate dressing, voice modulation (knowing when to speak and when to listen), Free Prior and Informed Consent (FPIC), and UN Declaration on the Rights of Indigenous Peoples (UNDRIP) principles.

## 6. Embrace solesolevaki (working together)

Commit to co-design, co-implementation, and co-management. Practice reciprocation while expecting nothing in return — the essence of collective work in Pacific cultures.

## 8. Communicate Meaningfully

Present ideas and concepts through indigenous frameworks that make sense within the community's cultural context — exactly what the Mana and Kuita metaphors accomplish.

# Conclusion



## A Living Classroom of Adaptation and Identity

The Rewa Delta stands as a living classroom where theory meets practice, where global frameworks translate into community action, and where the future of coastal adaptation is being written in mangrove mud and traditional knowledge.

The blue economy must be rooted in cultural values and ecosystem stewardship — not imposed from outside, but grown from within. Economic development divorced from cultural identity and ecological health is neither sustainable nor desirable. The Rewa experience demonstrates that prosperity and preservation can advance together when communities lead.

Traditional knowledge is not a relic of the past but an essential tool for navigating an uncertain future. The Mana and Kuita frameworks show how indigenous metaphors can organize complex adaptation planning in ways that resonate deeply with community experience, making global frameworks locally meaningful.

***"Each hectare of Rewa mangrove stores approximately 1,700 tonnes of CO<sub>2</sub> equivalent — making it Fiji's largest blue-carbon bank."***

Yet its deeper value lies in what it teaches: that adaptation begins with community, and resilience begins with culture. The carbon stored in roots and soil matters tremendously for global climate mitigation, but the knowledge stored in stories and metaphors may matter even more for human survival.

### For Policy-Makers

Invest in community-led adaptation that honors indigenous governance. Create enabling policies that support rather than supplant traditional authority. Recognize that the most effective adaptation strategies emerge from communities themselves.

### For Practitioners

Approach communities with humility, following the eight legs of the Kuita. Co-design rather than prescribe. Build relationships before building projects. Recognize that you are guests in someone else's home.

### For Researchers

Document traditional knowledge with respect and proper protocols. Ensure FPIC. Return research benefits to communities. Use indigenous methodologies that honor Pacific ways of knowing and being.

**The Rewa Delta reminds us that coastal adaptation is ultimately about people — their homes, their livelihoods, their ancestors, their children, their identity. The mangroves will migrate inland as seas rise, but only if we plan corridors now. Communities will adapt to climate change, but only if we preserve the cultural foundations that enable collective action. The future belongs to approaches that honor both science and story, both global frameworks and local knowledge, both economic opportunity and cultural integrity.**

# Vinaka vakalevu!

## Acknowledgements

### Traditional Landowners and Traditional Knowledge Holders

We honor the Gone Marama Bale na Roko Tui Dreketi, Turaga Vunivalu; the Rewa Provincial Council, Na Turaga iTaukei and the Rewa Provincial Office. We kindly acknowledge the elders and traditional knowledge holders who maintain and transmit the stories, metaphors, and practices that connect past to future. Your teachings guide our path forward.

### Communities of the Rewa Delta

Our deepest gratitude to the communities of the Rewa Delta who have been the true architects of the adaptation strategies and cultural frameworks presented here. Your wisdom, resilience, and generosity in sharing knowledge have made this work possible.

### Research and Implementation Partners

Thank you to SPREP (Secretariat of the Pacific Regional Environment Programme), the Adaptation Fund, Conservation International UNDP GEF SGP, and all partners who have supported community-led conservation and adaptation initiatives in the Rewa Delta.

### Global Frameworks Community

We acknowledge the international policy frameworks — UNFCCC, CBD, UNCLOS, UNDRIP — that create space for indigenous voices and community-based approaches in global climate action. May the Rewa Delta example inform and inspire continued evolution of these frameworks.

### Next Generation

To the youth of Fiji and the Pacific who will inherit both the challenges of climate change and the wisdom of their ancestors: may you find strength in your identity, courage in your traditions, and hope in the mangroves that bend but do not break.

□ **Contact for further information:** This presentation represents ongoing collaborative research and practice in the Rewa Delta. We welcome dialogue with development partners, other practitioners, policy-makers, and communities navigating similar challenges across the Pacific and beyond.

*"We are not drowning, we are fighting." — Pacific Climate Warriors*

The Rewa Delta embodies this fighting spirit — not through resistance alone, but through the creative integration of traditional knowledge, ecosystem stewardship, and community governance. This is adaptation with dignity, resilience with identity, and a blue economy that remains true to blue waters and green mangroves.