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# Measuring Resilience in Production Landscapes and Seascapes: A tool for communities

Bergamini, N. & Eyzaguirre, P.

World Parks Congress, 17 November 2014, Sydney

# In partnership with:

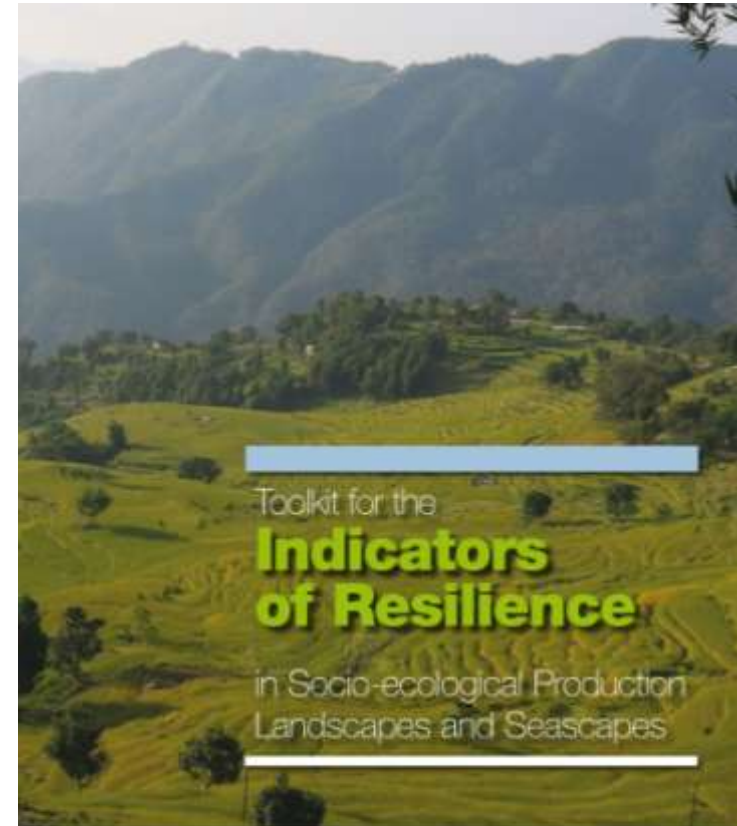


*Empowered lives.  
Resilient nations.*



# The Toolkit

**Chapter 1:** familiarizing the reader with the relevant concepts of resilience and SEPLS.



# Socio-ecological Production Landscapes and Seascapes (SEPLS)

Mosaic production landscapes/seascapes that have been shaped through long-term harmonious interactions between humans and nature in a manner that fosters well-being while maintaining biodiversity and ecosystem services (Gu & Subramanian 2012).



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# Resilience in SEPLS

The long-term persistence of community-managed landscapes and seascapes that employ appropriate management and use of natural resources and biodiversity defines them as **resilient** systems.



Biodiversity International\F. van Oudenhoven



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# The Toolkit

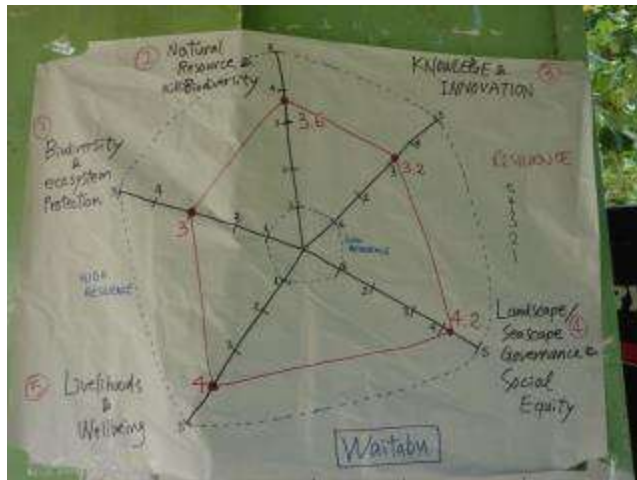
Chapter 2: the set of 20 qualitative and quantitative indicators.



# Indicators of resilience

The indicators are designed to capture community perceptions of different aspects of key systems which contribute to resilience.

- Ecological
- Biodiversity (ABD)
- Cultural
- Social
- Economical



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# Developing the Socio-ecological Resilience Indicators

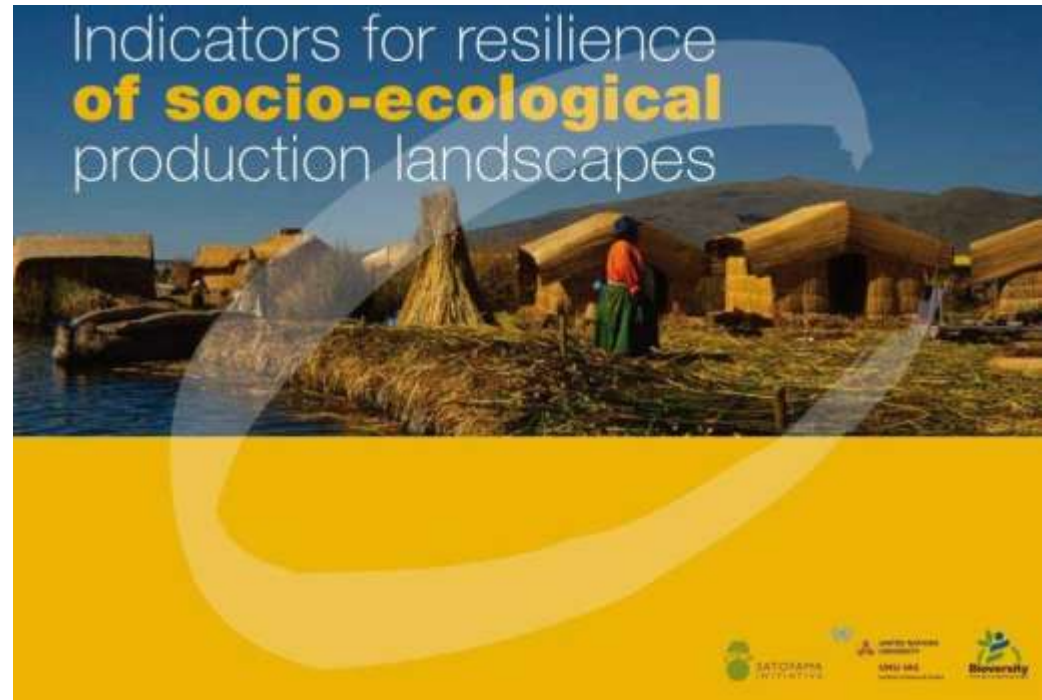
Conceptual framework developed Bioversity International 2008-2010. \*

First applications and testing by UNU-IAS and Bioversity in Cuba 2011: An IPSI collaborative activity.

Field-tested by Bioversity International in Bolivia, Kenya, Nepal, Fiji, Mongolia, Tanzania and Uganda and used in 20 countries participating in the COMDEKS Project.

Revised based on the above experiences (2014).

Development of a **toolkit** to provide practical guidance for making use of the SEPLS resilience indicators.



\* Social-ecological indicators of resilience in agrarian and natural landscapes. Van Oudenhoven, Mijatovic, and Eyzaguirre, P. *Management of Environmental Quality*: (2011). 22(2):154-173.

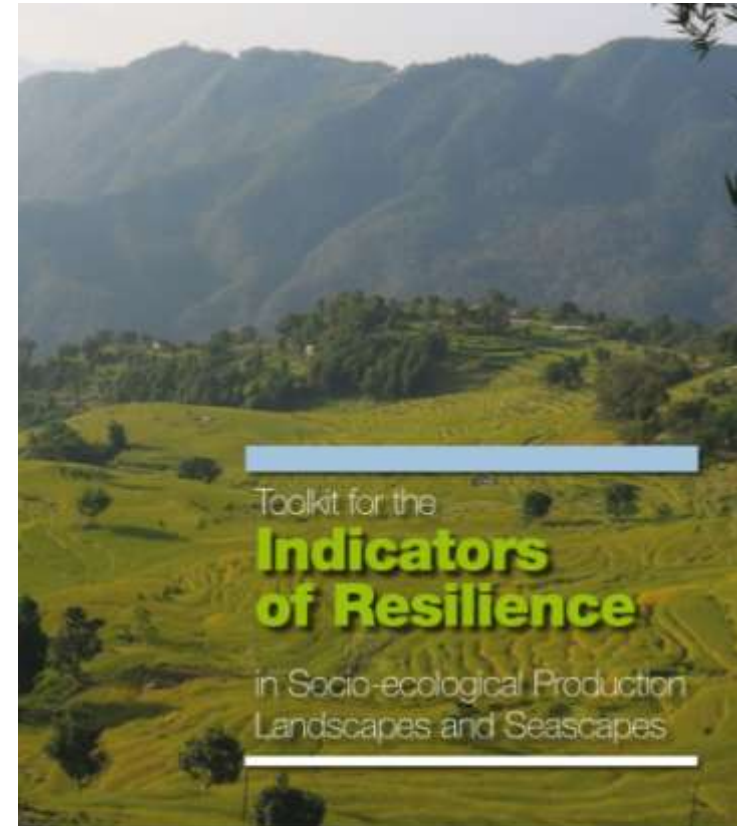


System	Country	Site	Coordination
<b>Inland water systems (Lakes, Watersheds, Wetlands)</b>	Kyrgyzstan	Lake Issyk-Kul	COMDEKS Kyrgyzstan
	Malawi	Tukombo-Kande, Lake Malawi	COMDEKS Malawi
	Niger	Tabalak Lake	COMDEKS Niger
	Cambodia	Steung Siem-Reap Watershed	COMDEKS Cambodia
	Ecuador	Alto Napo River Watershed, Amazon	COMDEKS Ecuador
	Costa Rica	Rio Jesus Maria Watershed	COMDEKS Costa Rica
	Slovakia	Vychodoslovenska nizina Lowland	COMDEKS Slovakia
<b>Coastal seascapes</b>	El Salvador	Jaltepeque-Naja Lempe	COMDEKS El Salvador
	Fiji	Natewa and Tunuloa Peninsula	COMDEKS Fiji
		Bouma National Heritage Site – Taveuni Island	National Trust of Fiji Bioversity International
	Indonesia	Semau Island	COMDEKS Indonesia
	Turkey	Datça-Bozburun Peninsula	COMDEKS Turkey
<b>Mountain ecosystems</b>	Bhutan	Gamri Watershed	COMDEKS Bhutan
	Bolivia	Candelaria	PROINPA Bioversity International
	Ghana	Weto Range	COMDEKS Ghana
	India	Kumaon Region, Uttarakhand	COMDEKS India
	Nepal	Makawanpur	COMDEKS Nepal
		Begnas	LI-BIRD, Bioversity International
	<b>Agro-pastoral systems</b>	Brazil	Jequitinhonha Valley
Cameroon		Bogo Region	COMDEKS Cameroon
Cuba		Chucillas del Toa MaB Reserve	INIFAT Bioversity International
Ethiopia		Gibel Gibe Catchment	COMDEKS Ethiopia
Kenya		Kitui	Bioversity International
Tanzania		Lushoto (2 communities) (Kwang'wenda in Humid warm zone another from Humid cold zone)	Bioversity International
Uganda		Rakai District (Kiwaguzi, Kyaluwakula, Kiganda, Lukyamo, Kigiimbi and Gosoola villages)	Bioversity International
<b>Grasslands</b>		Mongolia	Central Selenge Region
	Ulaanbaatar and the Central /Hangai Region		JASIL Bioversity International
	Namibia	Ipungu-ya-Shilongo Conservancy	COMDEKS Namibia

Adapted from COMDEKS

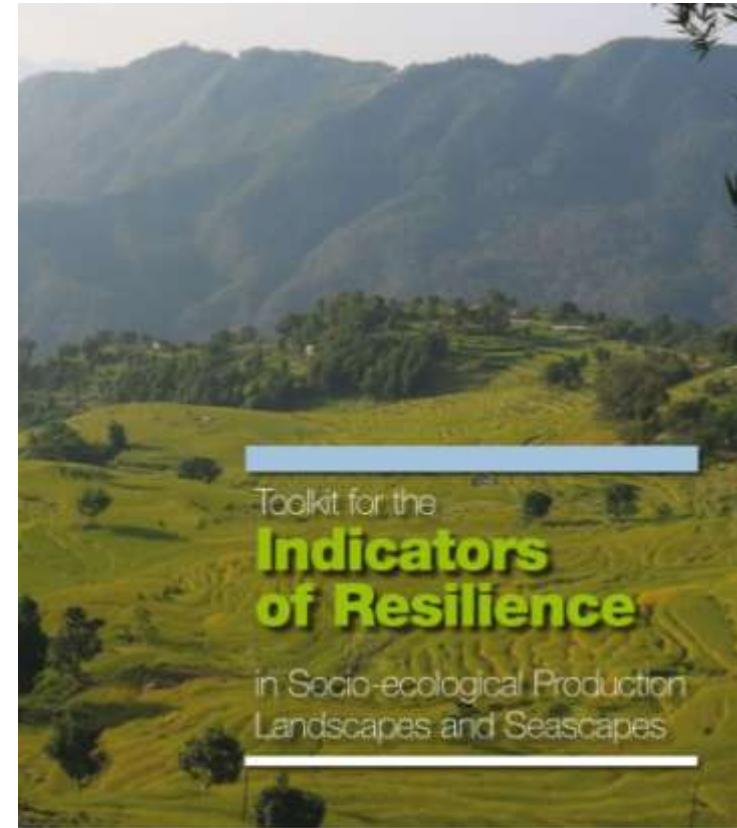
# The Toolkit

**Chapter 3:** practical tips for organizers and facilitators of workshops to assess resilience.



# The Toolkit

## Chapter 4: examples from the field.



# The case of Fiji

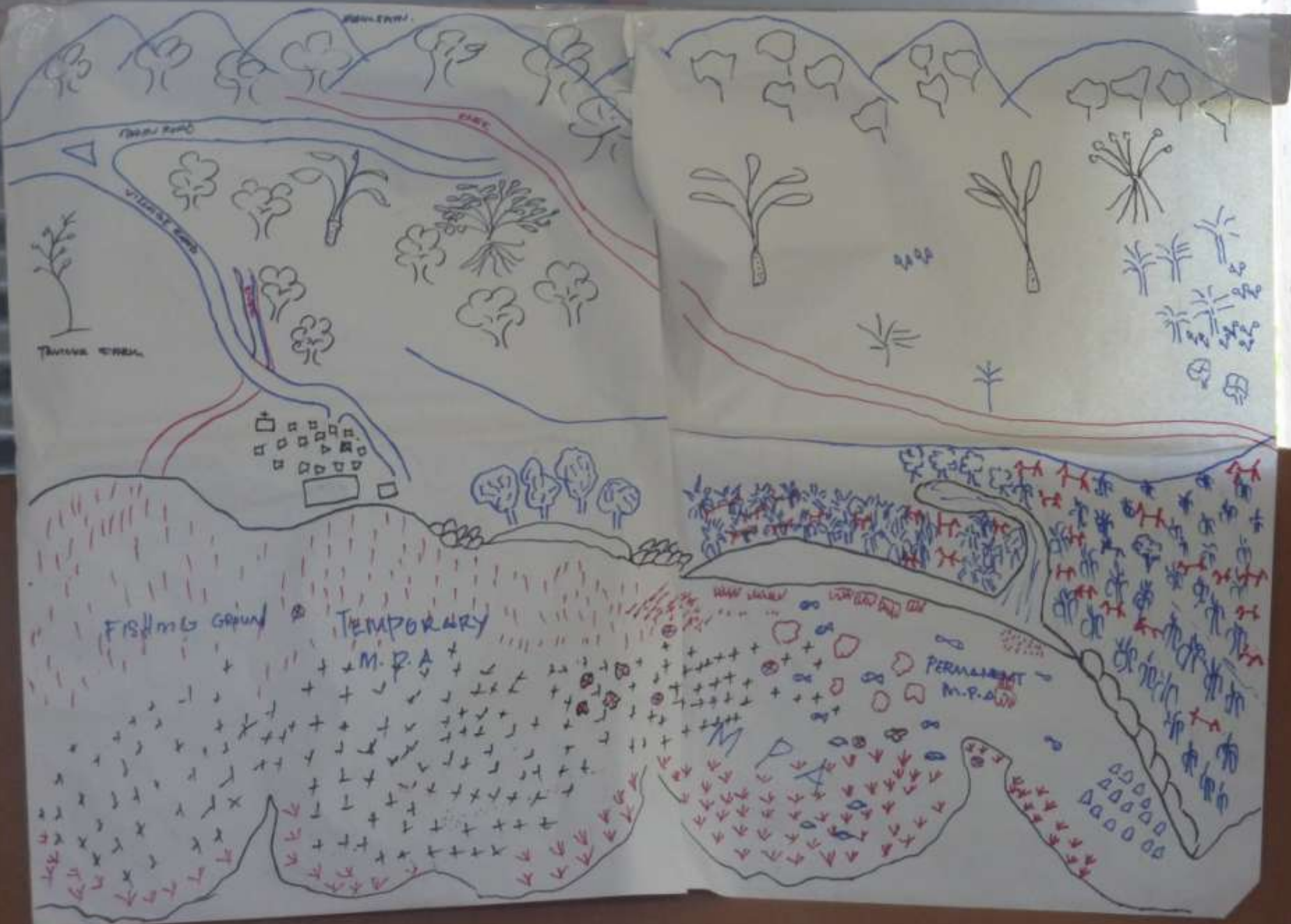
Community-based resource management of ridge to reef area





- KEY**
- ☐ - CHURCH
  - △ - OLO
  - ▭ - SCHOOL
  - ▭ (with dots) - FARMLAND
  - ⊕ - COCONUT
  - - LAKE
  - ⋈ - MOUNTAINS
  - ⊕ - WATERFALLS
  - - - BLUE LINE
  - ~~~~~ FOREST
  - ~~~~~ MOUNTAIN WIND KEY
  - ~~~~~ CAKALI
  - ~~~~~ CURACURU
  - (with dot) - VATU
  - (with dot) - LAZE
  - ~~~~~ NIKAU
  - ==== MAIN ROAD
  - - - TRACK
  - ~~~~~ WAI
  - (with dot) - VALE
  - △ - LODGE
  - - RARA
  - (with dot) - TABU





THREE CANALS

ROAD

ROAD

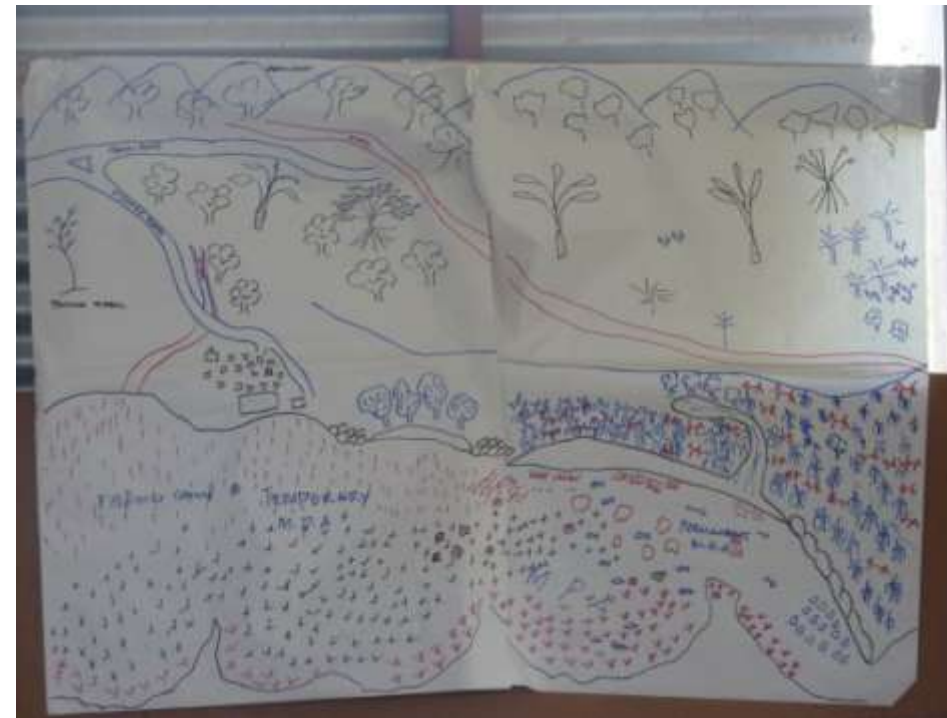
FISHING Ground

TEMPORARY  
M.P.A

PERMANENT  
M.P.A

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# Participatory mapping exercise



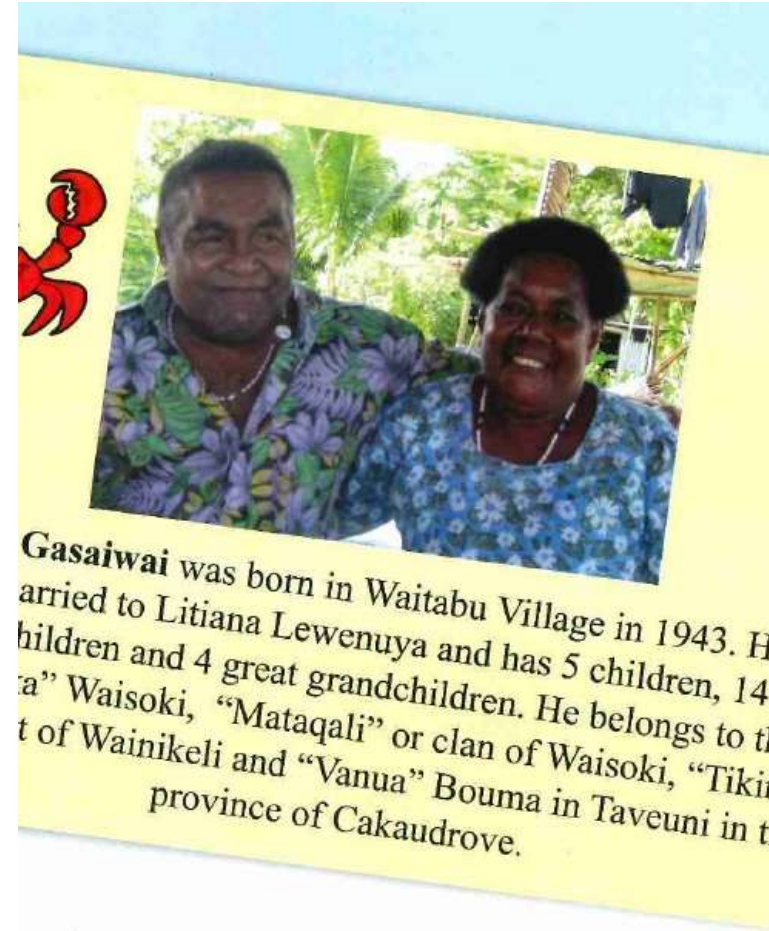
# The story of the marine tabu of Waitabu

Elia remembers the “good old fishing days” in Waitabu.

Moving from group fishing to individual fishing after the introduction of new fishing gear.: the fishing line.

Moving from subsistence fishing to commercial.

15 years ago the elders of the village declare a ‘Tabu’ for Waitabu.





# What we learned from the workshops

## The use of the indicators' framework

Increases the understanding of socio-ecological production landscapes and seascapes (SEPLS) among and beyond community members.

Helps identify priority issues and actions for sustaining SEPLS that benefit livelihoods and well-being.

Creates a common language between 'traditional', 'governmental' and 'scientific' communities which values the complexity of human-environment interactions.



# Thank you

Toolkit can be downloaded from:

<http://bit.ly/wskSgu>

[www.biodiversityinternational.org](http://www.biodiversityinternational.org)

