ESRAM FIJI:

CHRIS HEIDER

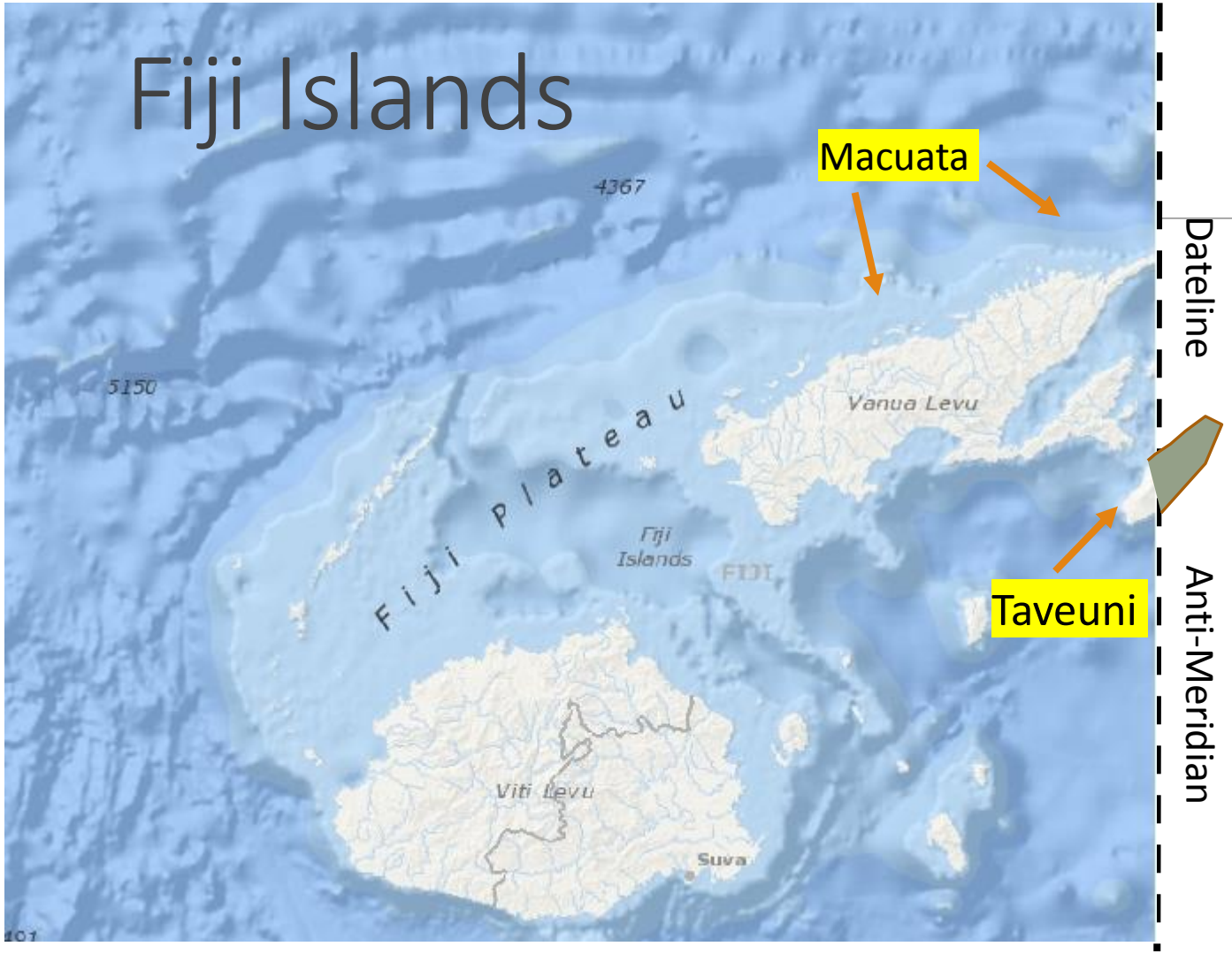
SPREP-PEBACC
BRISBANE, AUSTRALIA 21-22 NOVEMBER 2016

Outline

- Approach
- Methodology
- Work to Date
- Key EbA Issues
- Highlights & Challenges
- Process Issues Emerging
- Next Steps

Project Team

- **Project Management** – Chris Heider
- **Ecosystem Ecology** (terrestrial & coastal) – Chris Heider
- **Marine & Freshwater Ecology** – Rikki Dunsmore
- **Hydrology, Hydrogeology, Geomorpology** – Ed Salminen
- **Natural Resource Economics, Social Capital** – Mark Buckley
- **Traditional Culture & Heritage** – Simione Tuimalega
- *SPREP Country Lead – Herman Timmermans*
- *SPREP Project Officer, Logistics Officer, Communications Officer – Filomena, Roneel & Jilda*

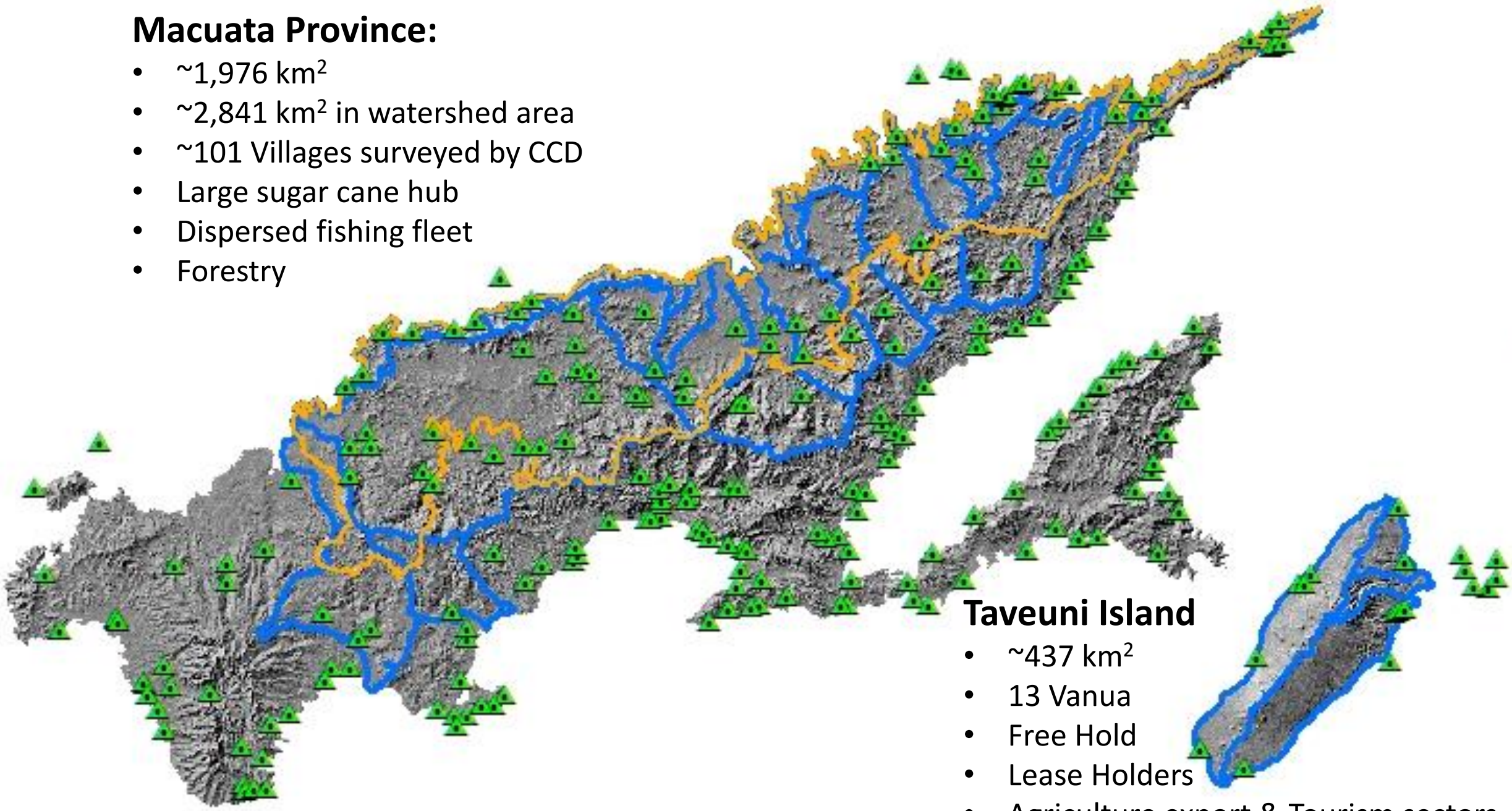


Mapping Mayhem & Fun Facts:

- The dateline crosses the two focal areas for the ESRAM
- Access to base maps is painful or non-existent (see example here)
- Queries for available data using online website creates a total mess, accessing all 360 degrees of the globe
- Have this “lucky challenge” only in:
  - **Our study area:** Macuata Province & Taveuni Island, as well as Rabi Island (Fiji)
  - **Chukokta** and **Wrangel Island** (Russia)
  - **Ross Dependency**, Antarctica (NZ)

Macuata Province:

- ~1,976 km^2
- ~2,841 km^2 in watershed area
- ~101 Villages surveyed by CCD
- Large sugar cane hub
- Dispersed fishing fleet
- Forestry



Taveuni Island

- ~437 km^2
- 13 Vanua
- Free Hold
- Lease Holders
- Agriculture export & Tourism sectors

Approach

- Focus on describing ecosystem functions through “lens” of what matters to people (e.g. scarcity of ecosystem goods & services)
- Identify *Limiting Factors* and *Forces of Change* that are both through management (behavior) and through climate (perceived and real)
- ESRAM document will cover all three scales in one document
- Executive Summaries will highlight factors at each scale to target audiences (National and Provincial Government, NGO/IGOs, Community Leaders).

Scope, Budget & Level of Effort

Island Scale Vulnerability:

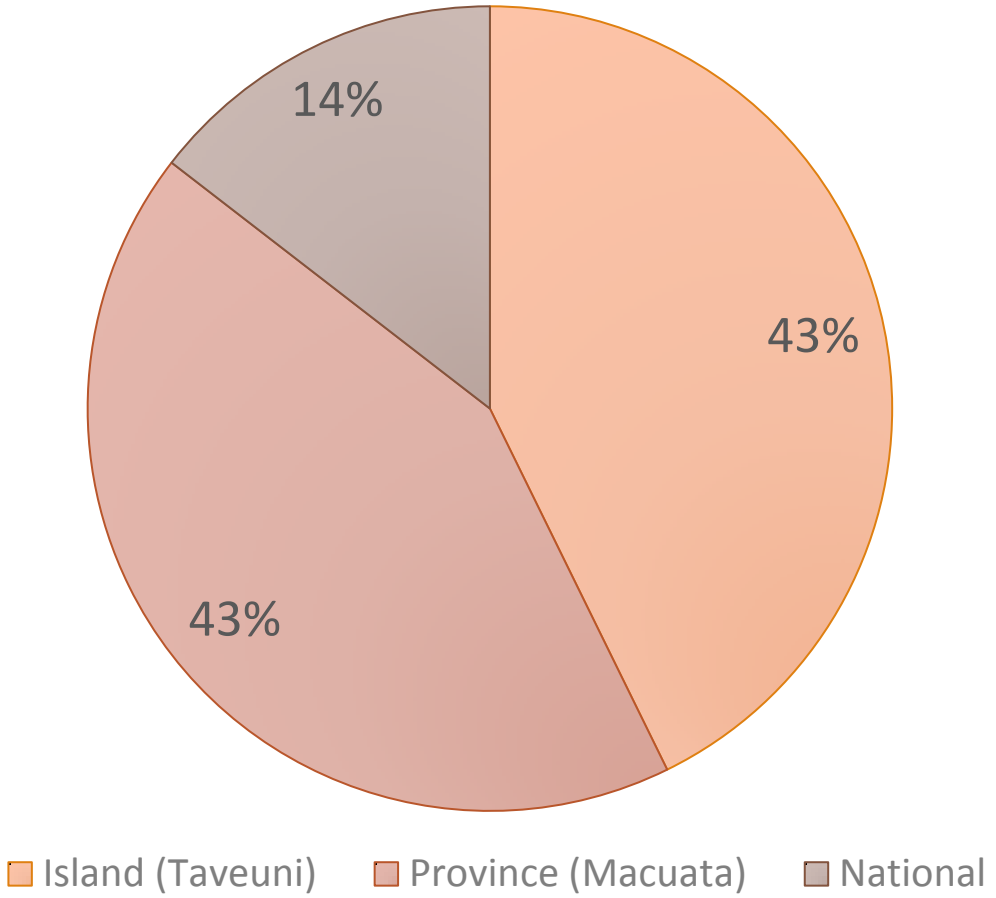
- Focus on lasting management framework (GIS)
- Work through traditional landowner structure
- Integrate Free-Hold Landowners & Limitations
- Identify policy-rooted synergies or obstacles (e.g. Leased land)

Province Scale Vulnerability:

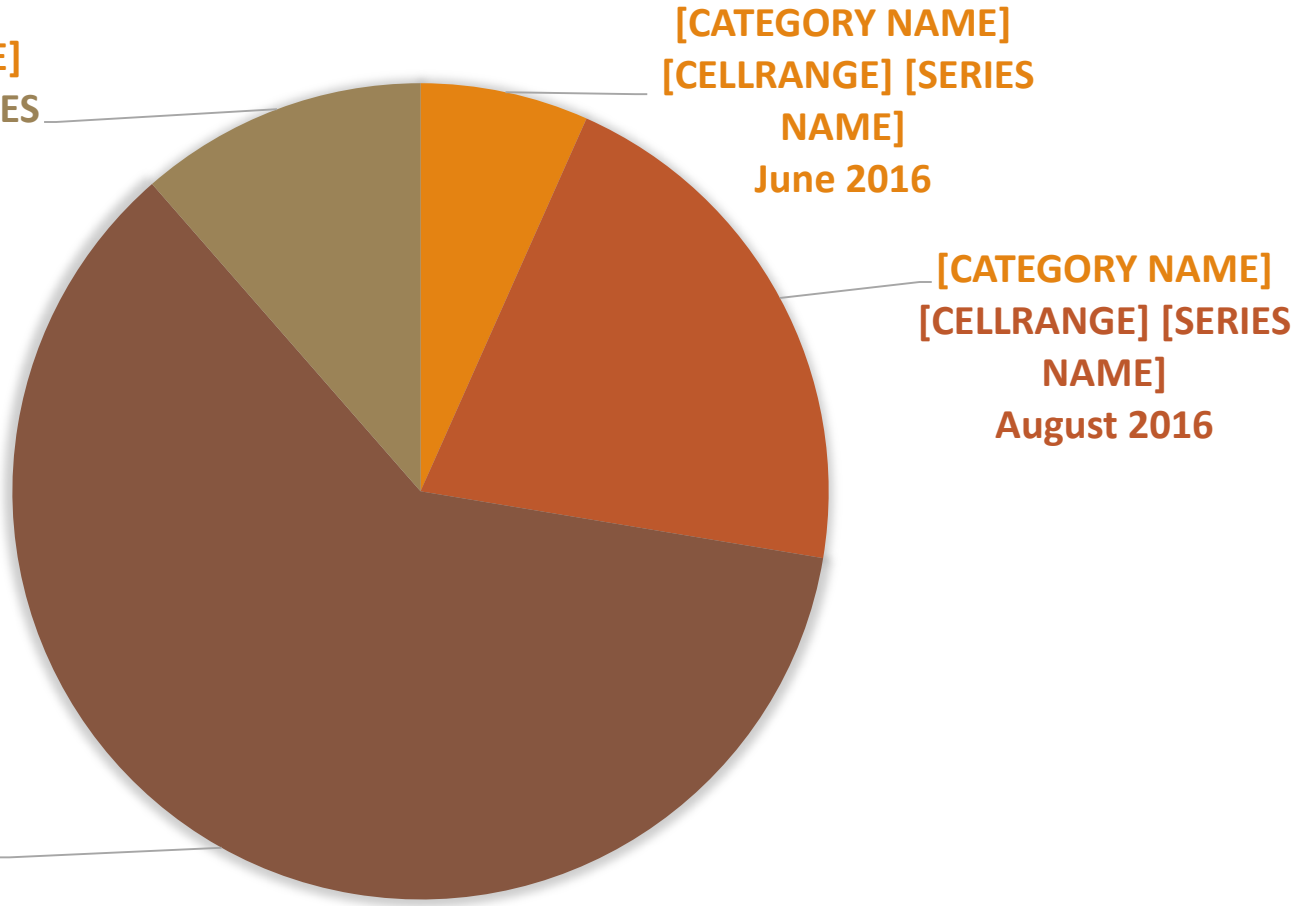
- Role of industry in national economy
- Community/ Village Vulnerabilities (perceived)
- Synthesis of GIS data to identify vulnerabilities (quantified)
- Review of ongoing efforts for EbA/ CBMA
- Cross linkages of Provincial & Government Policies
- Watershed management across boundaries

National Scale Vulnerability:

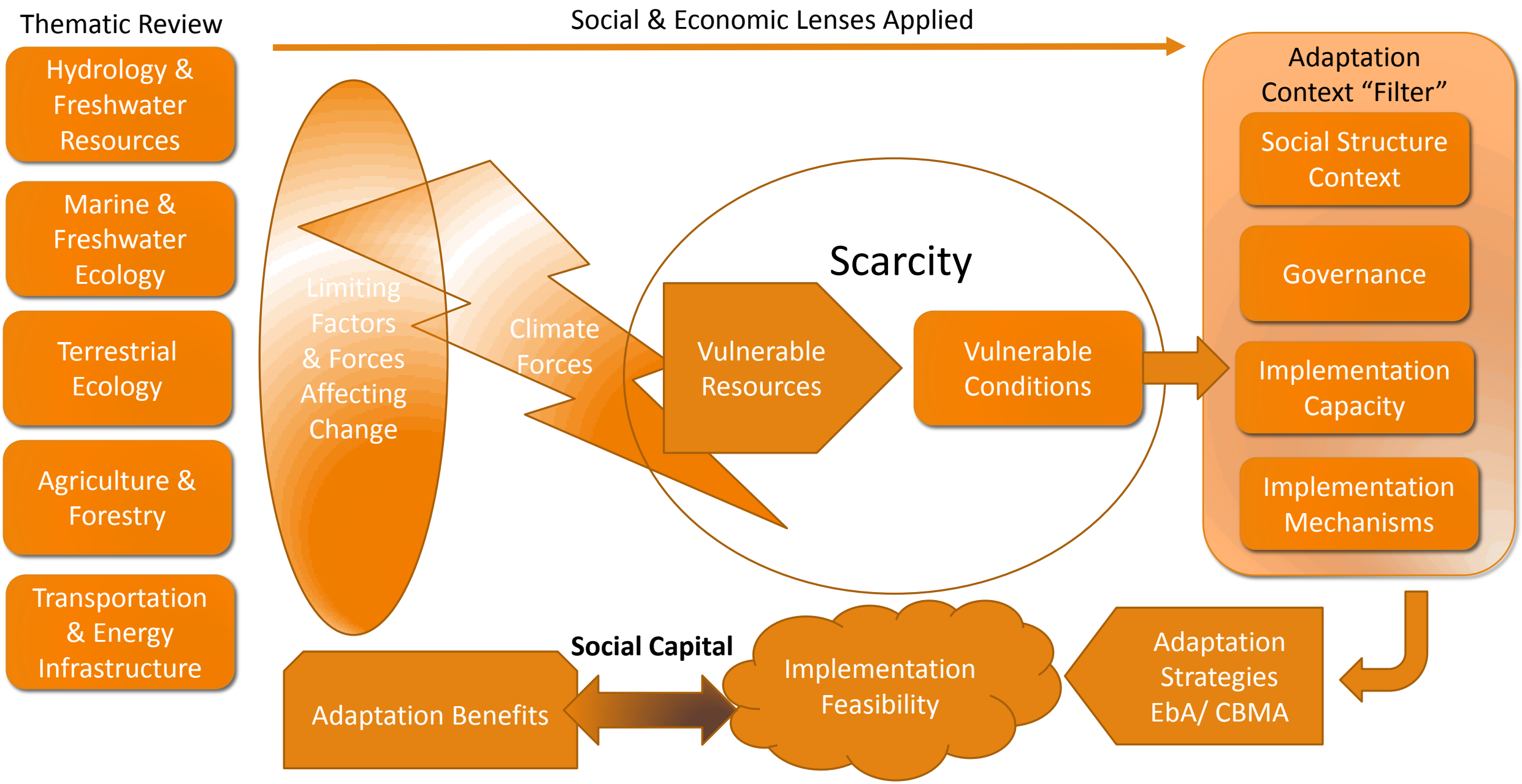
- Policy-related or goal activities and potential synergies/obstacles
- Pathways to sustainable management via Policy or Program initiative



Field Effort, Workshops & Meetings

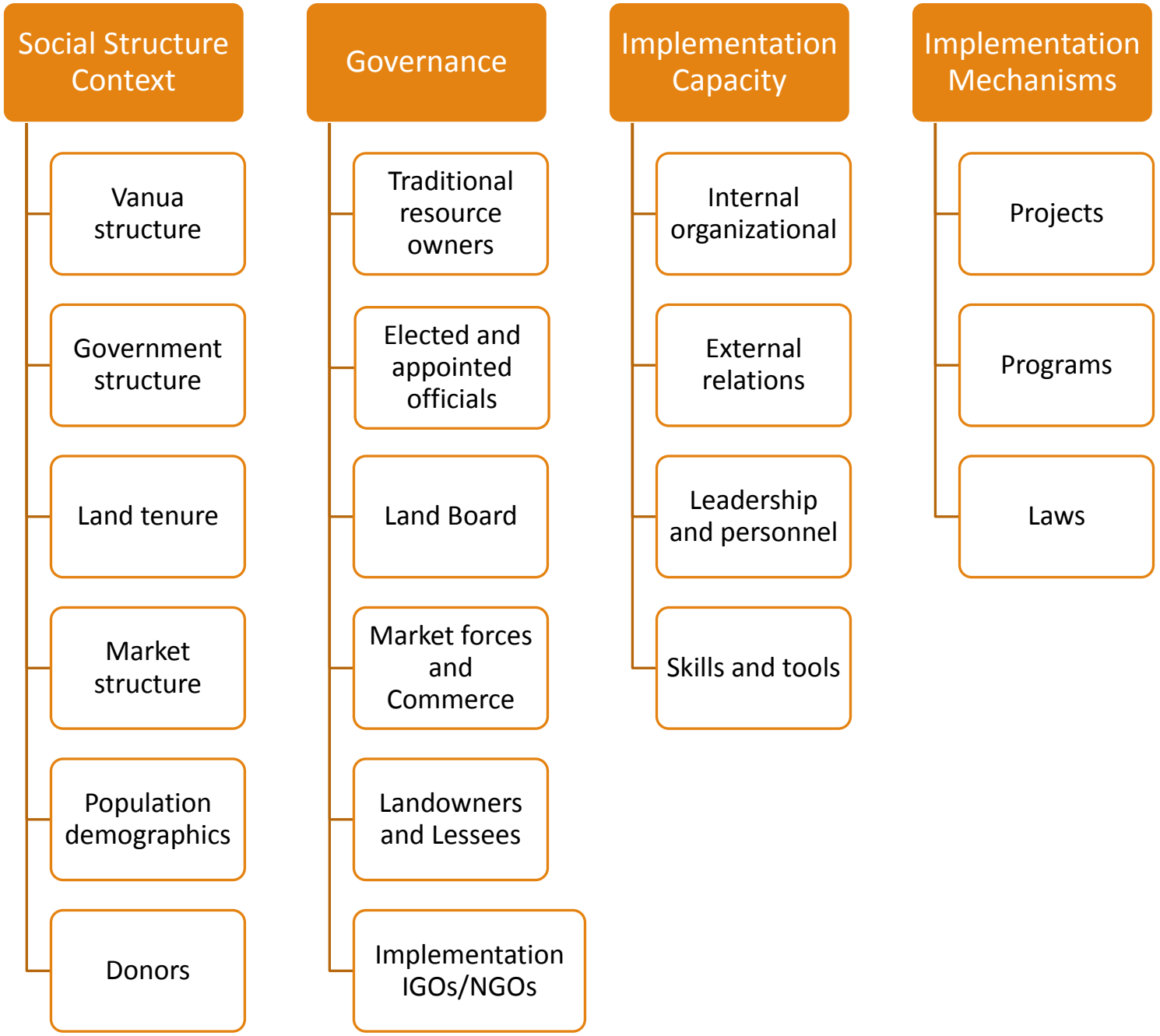


Total Trips: 4 Missions
International Person Trips: 8
Total People Days: 105


Thematic Review
Hydrology & Freshwater Resources
Marine & Freshwater Ecology
Terrestrial Ecology
Agriculture & Forestry
Transportation & Energy Infrastructure
Social & Economic Lenses Applied
Limiting Factors & Forces Affecting Change
Climate Forces
Scarcity
Vulnerable Resources
Vulnerable Conditions
Adaptation Context "Filter"
Social Structure Context
Governance
Implementation Capacity
Implementation Mechanisms
Social Capital
Adaptation Benefits
Implementation Feasibility
Adaptation Strategies EbA/ CBMA

Adaptation Context "Filter"

The human framework to design and conduct EbA/ CBMA



Key Considerations of Adaptation

- Is the change related to climate or behavior? Both?
- What is the threat or incentive to drive change in behavior towards adaptation?
- Who owns the land/ water resources affected?
- Who controls the resources?
- Can common stakeholder goals allow for successful adaptation to change?

Land Tenure Drives Land Stewardship

Who owns what?

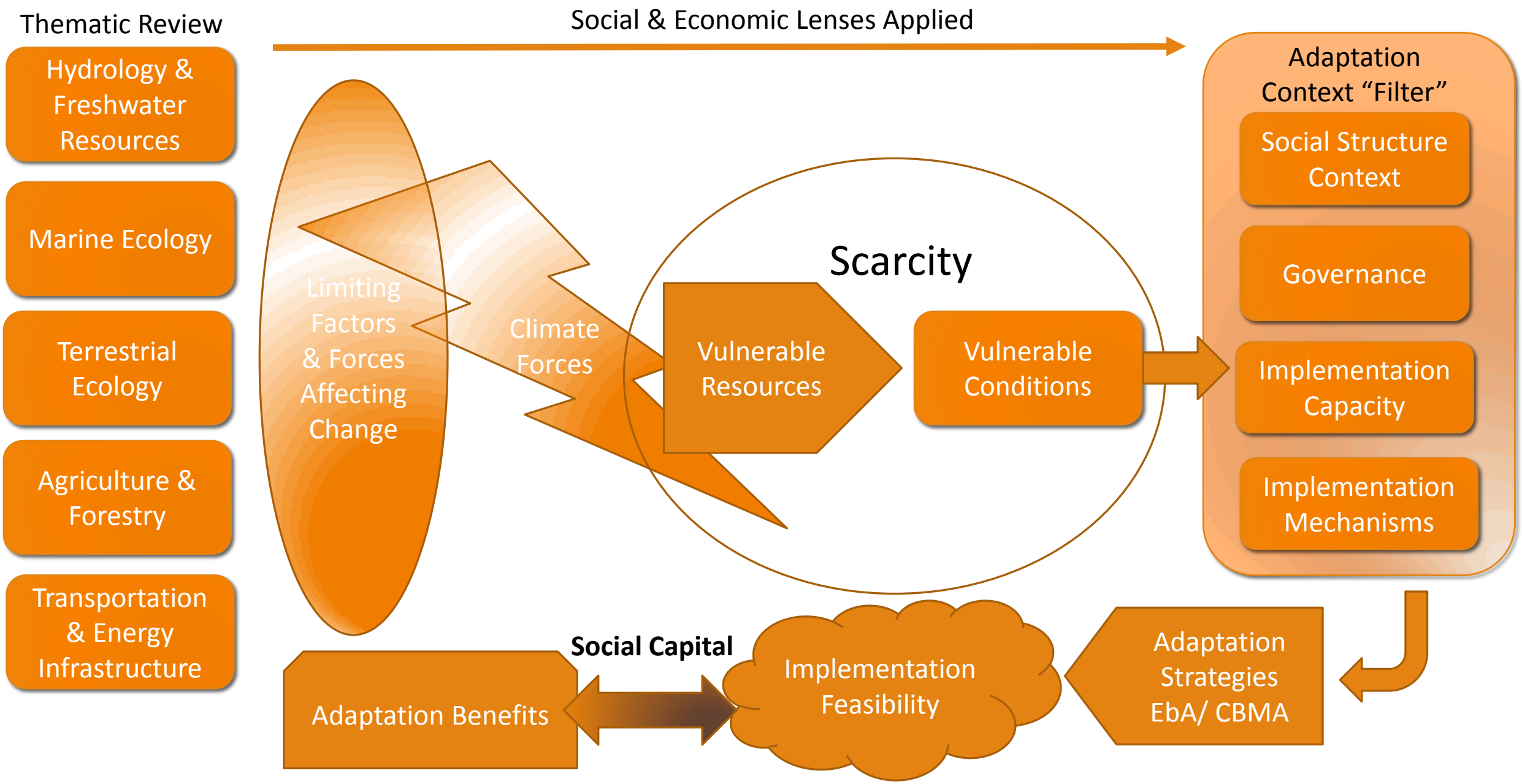
- **Traditional Lands** = Clans
- **Free-hold Lands** = Individuals or entities
- **Leased Lands** = Leased for short term, 30, 50 or 99 years.
- **Marine resources (aquaculture)** = Also owned and leased (no known freehold).
- Issues surrounding investment in resource health and sustainability when lands are not owned. ***Why invest in land when it's not yours?***

Development of Vulnerable Resources, Adaptation Options, Benefits

Examples of Vulnerability Analysis for

- Marine Ecosystems
- Freshwater Resources
- Agricultural Systems
- Terrestrial Ecosystems
- Transportation & Energy

See flowchart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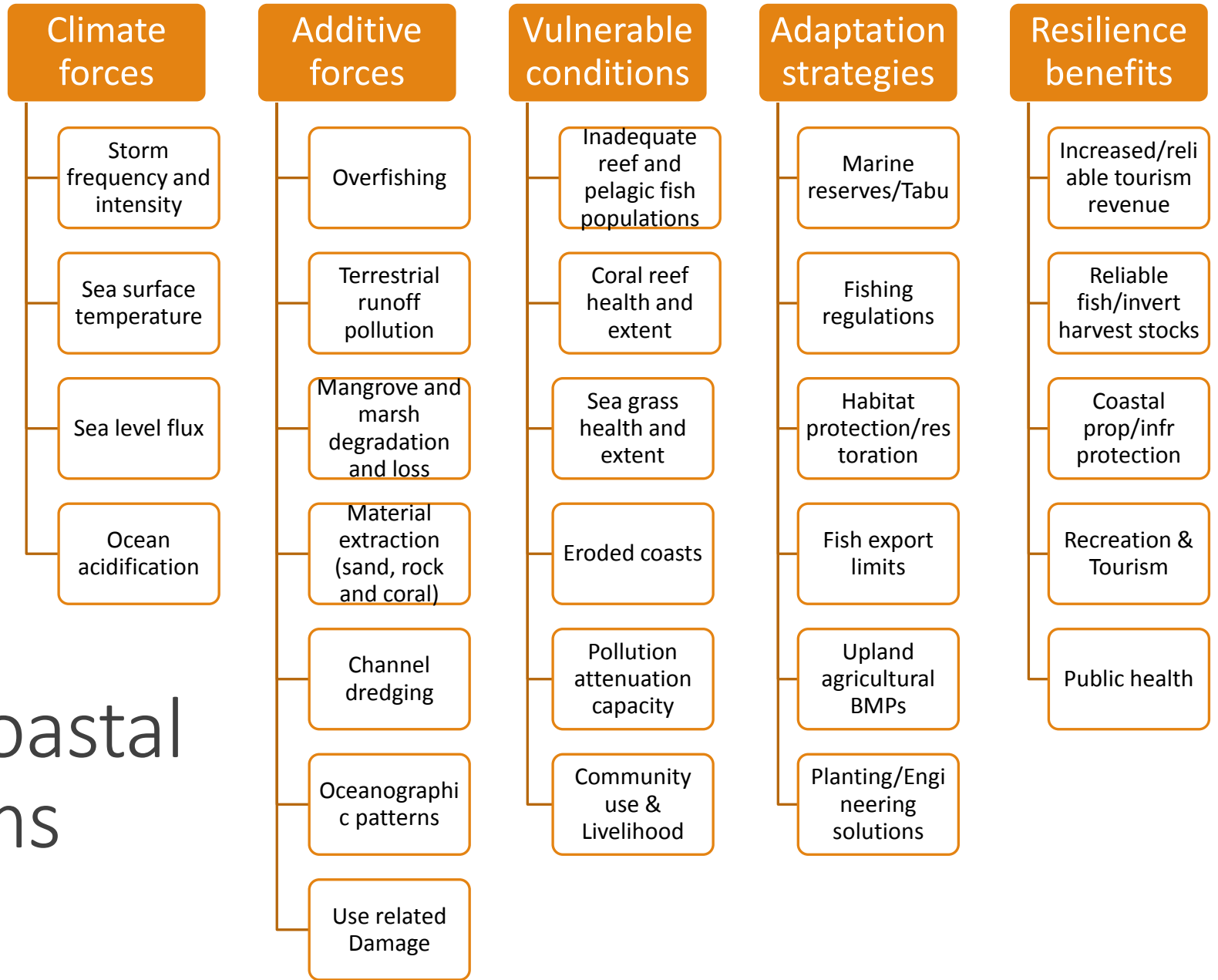
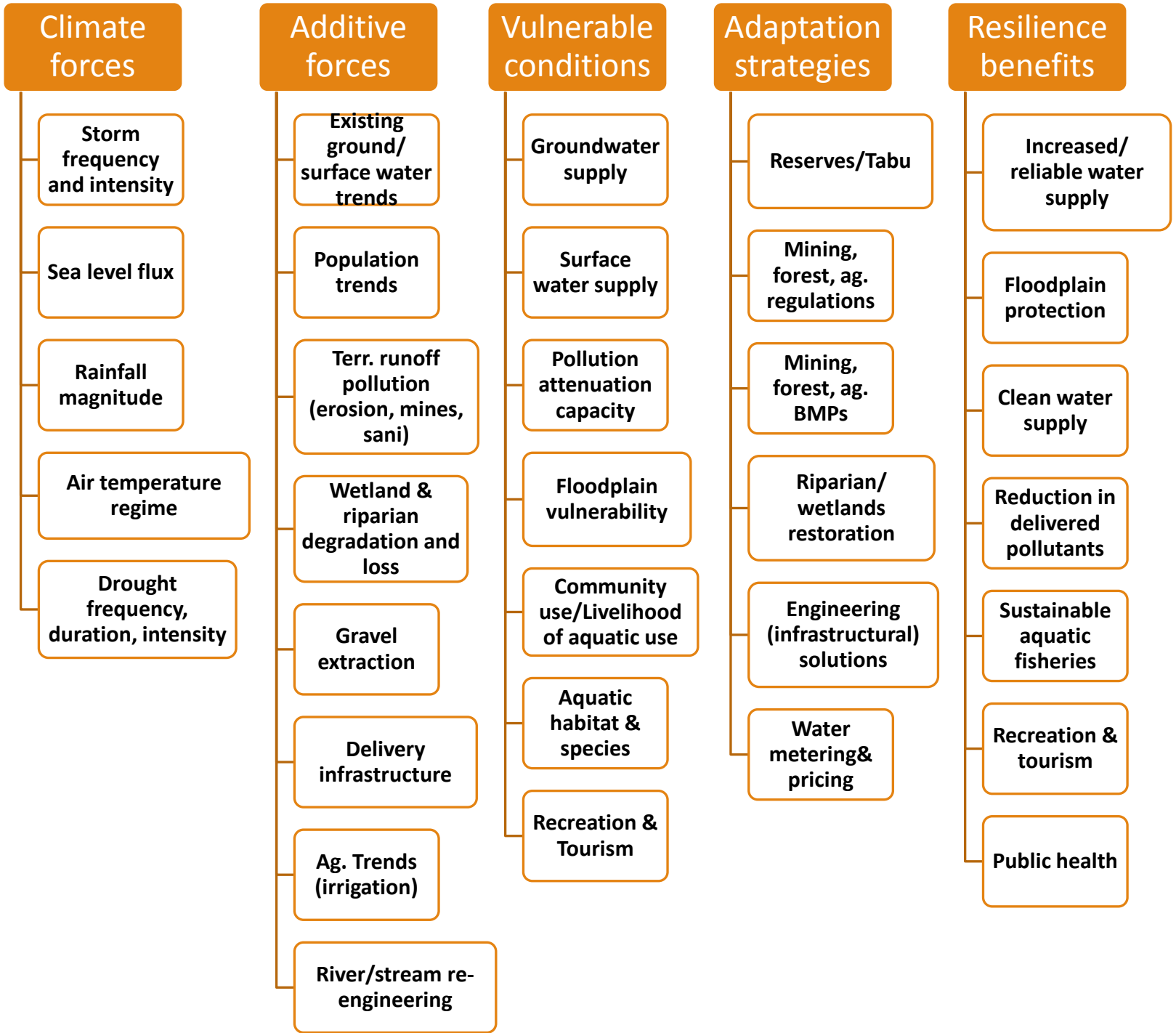
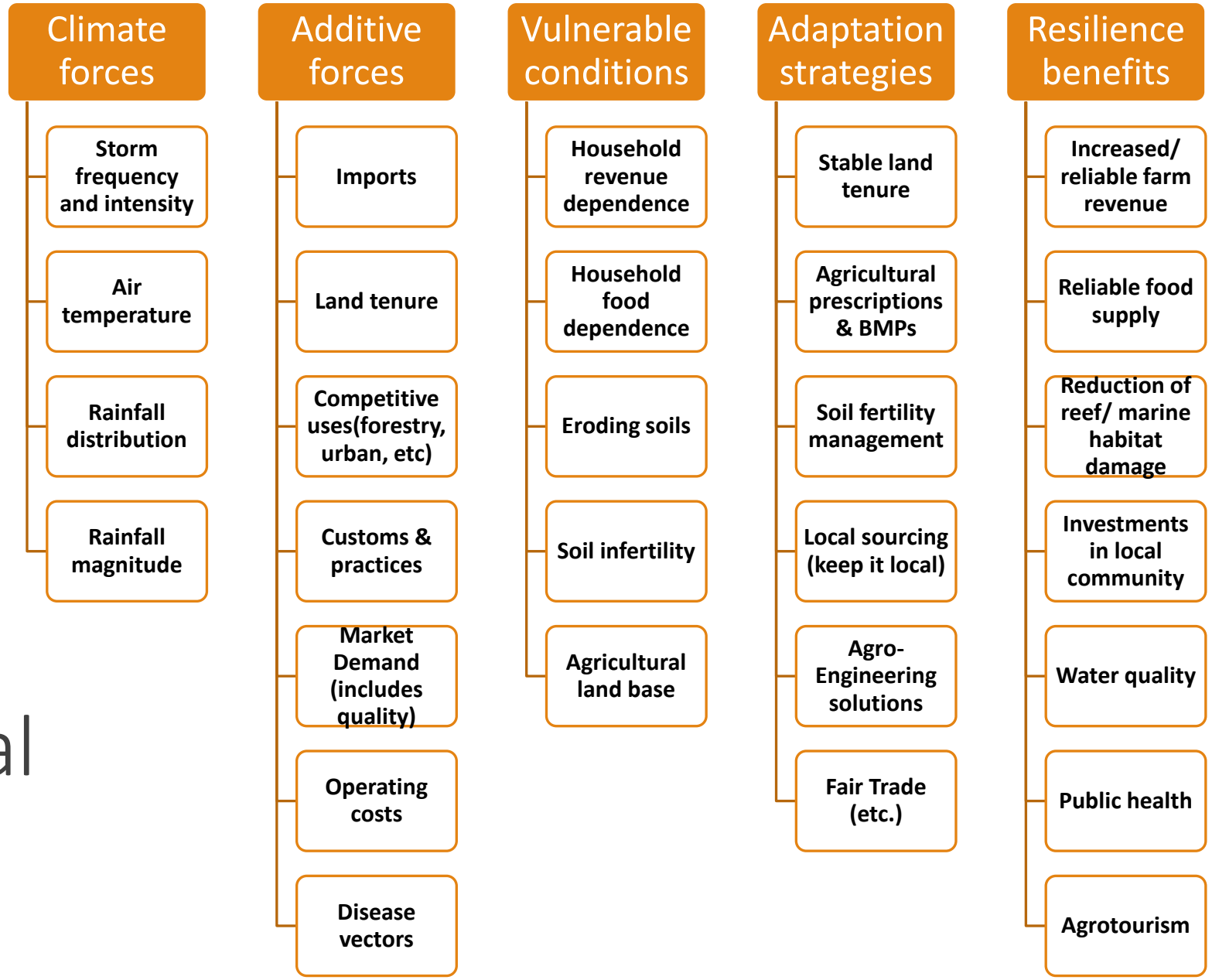
Marine/coastal ecosystems



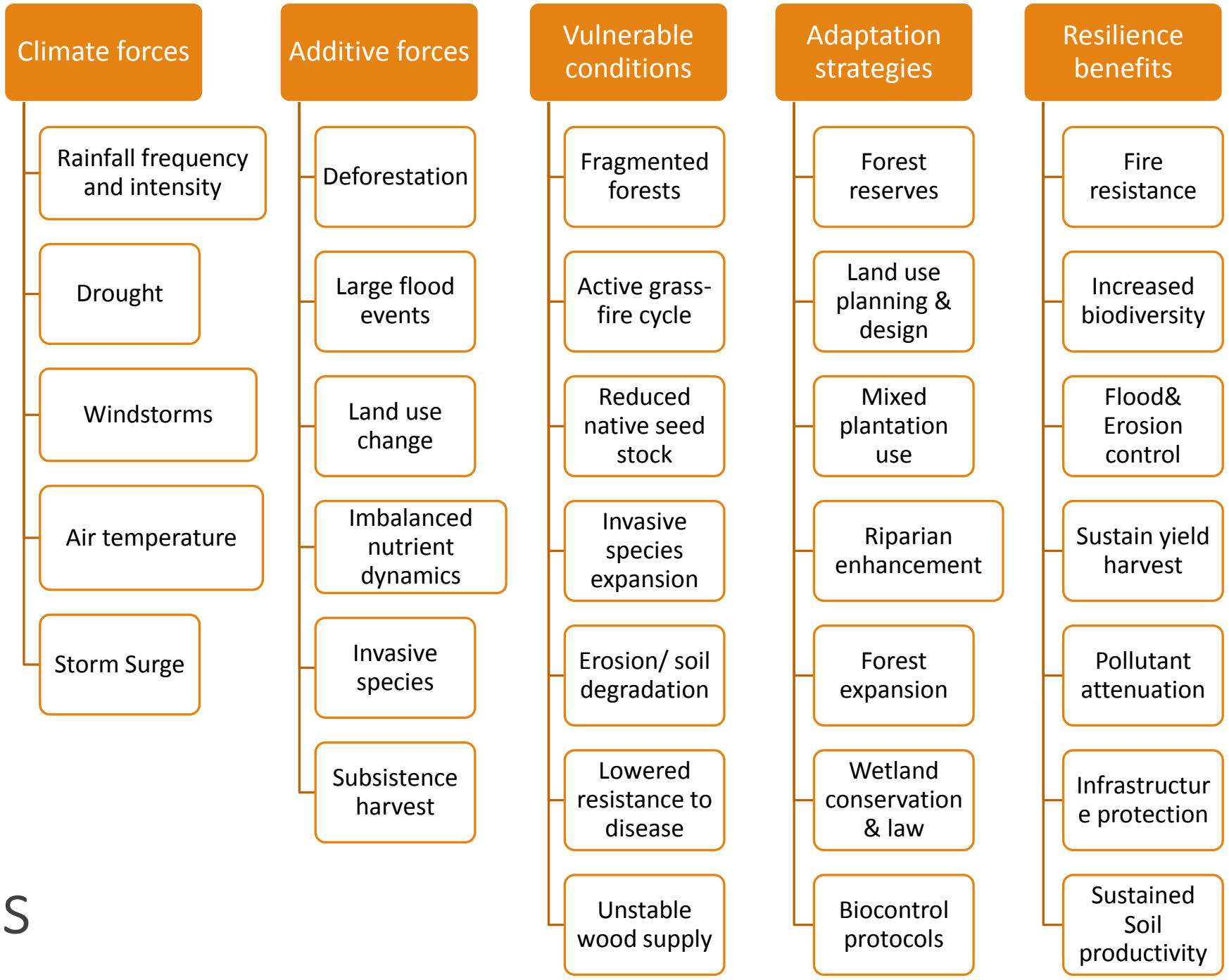
Freshwater resources



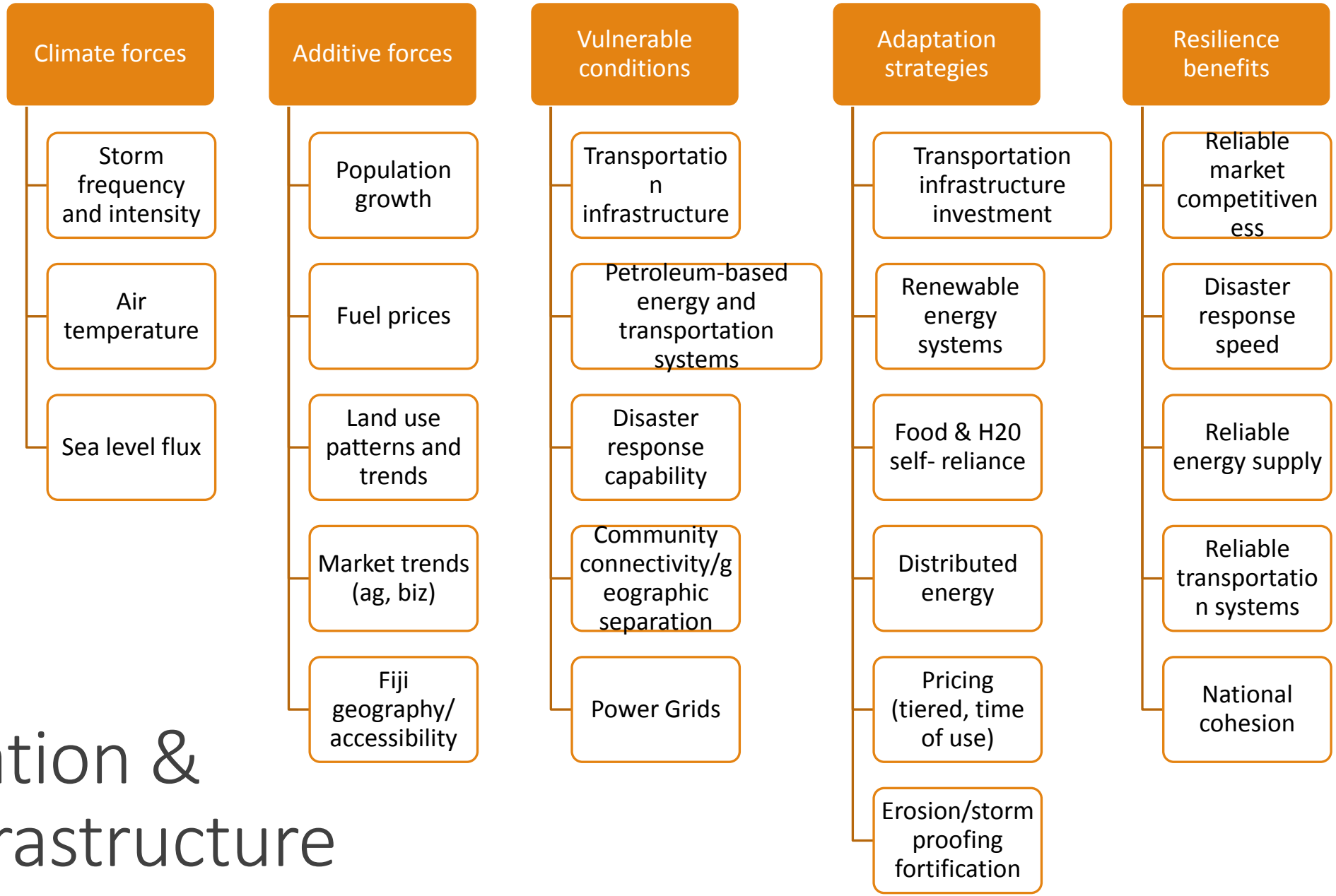
Agricultural systems



Terrestrial ecosystems



Transportation & Energy Infrastructure

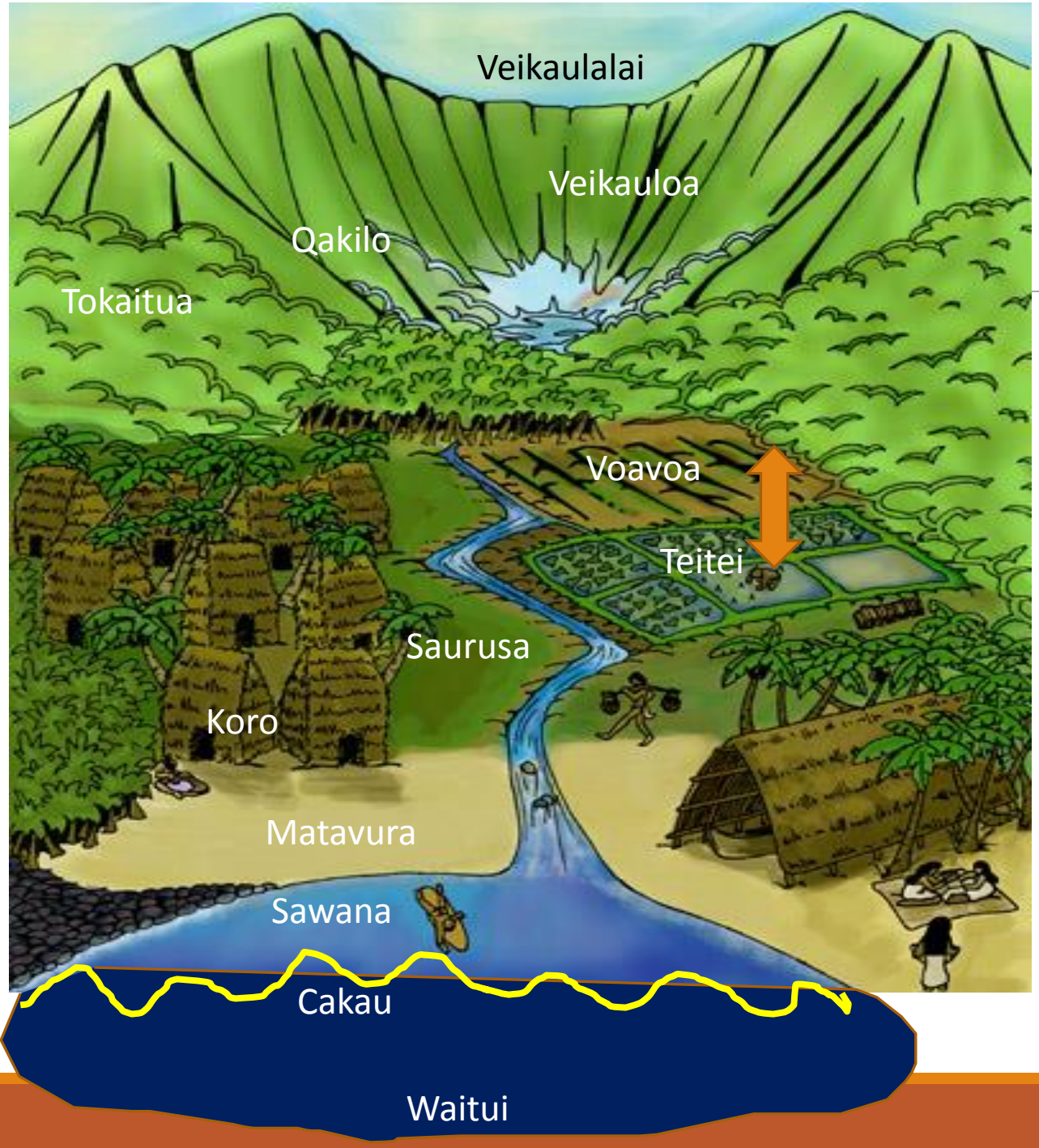


Other Key EbA/ CMBA Issues

- Gazetted regulated and enforced fishing rights while maintaining traditional ownership
- Agricultural Fertilization Premixes, Multi-tiered “agroecology” plots
- Fortify replanting efforts in Macuata (Dept. Forestry)
- Mangrove and coastal wetland management (policy)

Highlight: Traditional Owners Workshop

- Gathered traditional leaders of Taveuni Island from 3 Districts
- Focused on identifying Core of Traditional Structure first
- Leaders identified responsibilities (Tutu vaka vanua) to the landscape
- Unified vision of how landscape should be mapped (Tua)
- Identified activities to be conducted in each Tua for each District
- Created subcommittee to engage issues with other landowners
- Identified next steps for Vanua and other landowners



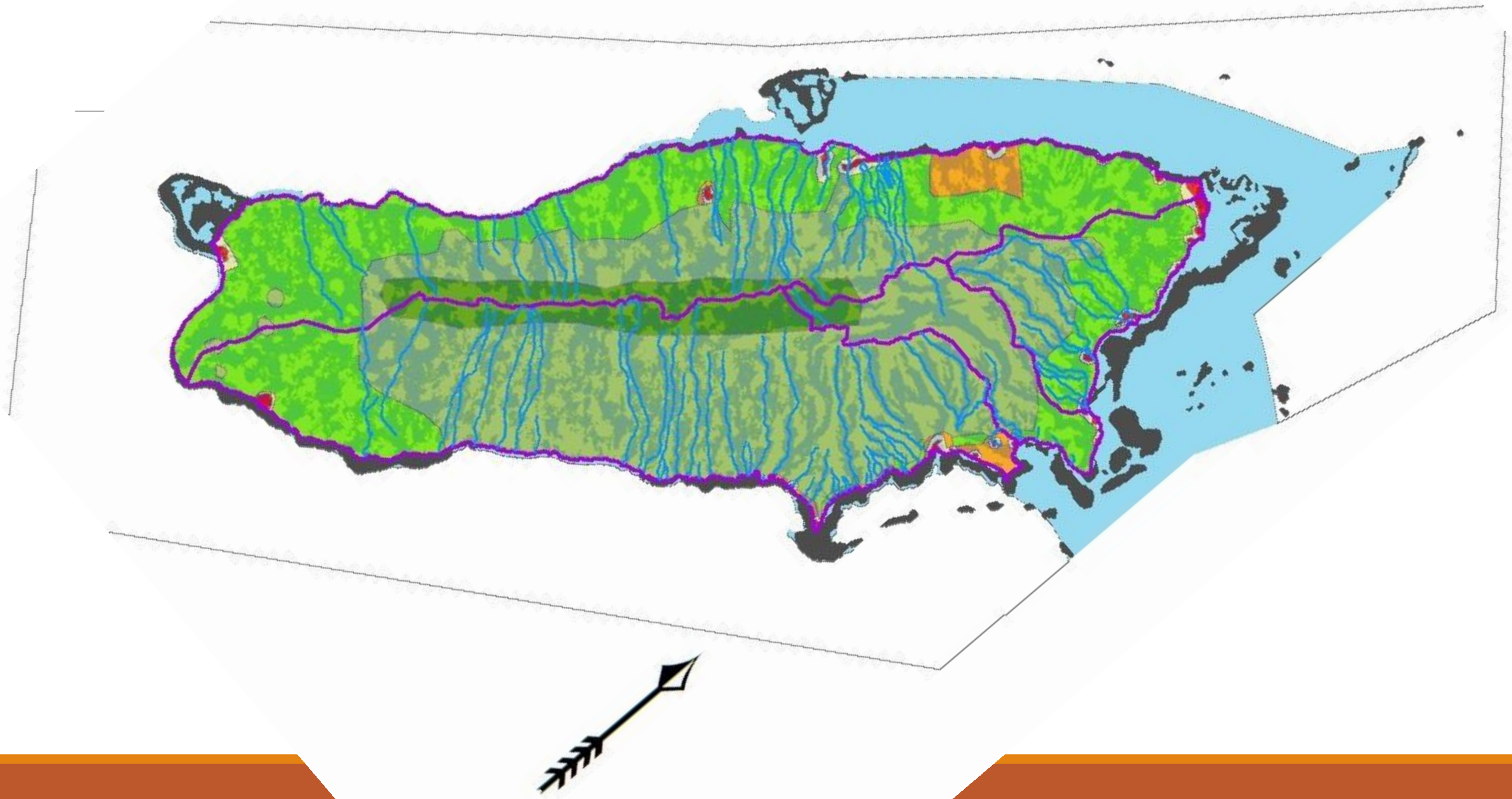
Mapping of Traditional Tua

- Workshop reaching core of responsibilities within vanua
- Identify set of rules and responsibilities for land and sea management
- Identified ranges of conditions for resources in each “Tua”

Traditional Mapping Structure

Tua	Description – what grows there, what is its purpose?	Importance – what is provided by this area?
Waitui	Deep sea	Food, income, air, wind, storms
Cakau	Reef	Food, fish, protection from storms, nursery area, tourism (diving) income,
Sawana	From reef to beach, intertidal area	Food, fishing grounds
Matavura	Coastal strand – where you moor your boats at night, mangroves	Protection, filtration (protects reef), buffers reef from runoff, access to the sea, gateway to the sea, tourism, family area
Koro	Above the wave zone, location of villages	House and home, dwellings, community, schools, church, commerce, rest and relaxation
Saurusa	Empty space between villages, garden, forest providing plants, villages may grow into these areas, expansion	Burial areas, expansion, food and nourishment, firewood, construction material, light timber production, material for thatching,
Voavoa	Formerly Teitei -- fallow areas, agricultural area, market, farms, rotational farming, can change position with Teitei	Needed to maintain the Teitei
Teitei	Organized farming, currently cultivated, can change position with Voavoa (rotating ~7-10 years)	Food for village and commerce, sustainability
Tokaitua	Intermediate ridge tops	Hunting (pigs, chickens)
Qakilo	Inter-valleys, side streams located within	Protection from landslides, wind, hunting, erosion protection, water infiltration, spring water
Veikauloa	Deep forest, mid-slope forest, can be rain-forest, big trees, water source	Rain interception, tourism (hiking, bird watching)
Veikaulalai	Cloud Forest – Ridgetop mist catcher	Cloud-water interception, source of water, chiefly location

Taveuni Resource Mapping Framework



Workshop Outcome: Activities

Number	Action
1	Reforestation – Replanting of trees and new trees suitable for Taveuni Climate
2	Replanting of coconut trees on the farming area
3	Encourage, introduce, and enforce organic farming on Taveuni land
4	Replanting of appropriate trees on river banks
5	Replanting of trees on shoreline
6	Be more vigilant of blue line on forest reserve and stop encroaching farming
7	Organize more workshops for youth participation
8	Formation of subcommittee representation from the three (3) districts to be the voice of this forum at other meetings
9	To approach estate owners, new immigrants, and resettled farmers, hoteliers, to be part of this conservation movement
10	Buffer zones on river banks
(11)	(Aquaculture and access to fisheries technology)

Other Key Outcomes: Macuata

- Analysis of all major villages in Macuata Province pertaining to vulnerability (ongoing)
- Strong GIS data library to analyze watershed functions
- Integration of sugar industry & energy plant operations for potential involvement
- Great support from Macuata High Chief to work on ways to develop fishing regulations that are documented by Government, with Enforcement
- Support from neighboring Cakadrove Province to approach regarding watershed management in connected landscapes (approximately 1/3 of watershed area is outside Macuata Province)

Other Implementation Options

- Strengthening communities in the role and function of the 7 Tutu vaka vanua for resource management (requested by Taveuni, direct relevance to Macuata fishing rules).

- Resource mapping using new image products to properly map and quantify land use/ land cover change from 2010 – 2016.

- Supporting on-going efforts within Macuata: Marine, forestry, river restoration/ function.

Issues & Challenges

- ESRAM is a very comprehensive assessment in a very short timeline. Consider it a “living document” to be updated or enhanced (and not cumbersome)

- How will approaches ensure project longevity? What makes this so different than any other planning document?

- NGOs were very willing to share information (where not restricted); Government was less willing. Information privacy issues were a constant issue.

Big Questions

- How to incentivize conducting activities to increase resilience in a way that is not just “another project” funded and implemented by external groups?
- What motivation is there to participate in EbA/ CBMA? What happens in 10 years?
- Who is buying in? Communities to SPREP project or SPREP project to communities? How to ensure longevity?
- Land Tenure is a key challenge for being vested in long-term sustainability; how are other countries managing this?

Next Steps

- Draft ESRAM Complete (2016)
- Field mission to communities (early 2017) to communicate findings and get feedback; further development of EbA specifics
- Phase 2 (TBD)