# Community resilience planning through systems work

INTRODUCTION

Think about the atmosphere, the neurons in a brain, the microbes in soil, the diatoms making oxygen in the ocean. The earth is an incredibly complex, interlocking self-organising system of continual flow and change. All forms of life are continually relating, adapting and emerging moment-to-moment, including humanity.

All complex systems can be described as collections of nodes and links. Think about a fishing net: the knots are nodes, and the twine between the knots are links. Resilience is like a fishing net. Each knot in the net is a relationship between people and place. Together all the relationships form a net that holds everything together. The universe, earth ecosystems, communities, our human-made systems, the bodies and minds of all living things are complex systems made up of billions of knots and links. A complex system is strong when there is a diversity of knots and links in the net, with back-up and duplicate knots and links.

Resilience is actions taken to promote or protect diversity, duplication and continual adaptation in a complex system. *'Resilience should never be thought of as a "state of being" in the world, but rather a way of acting on the world.'*[1]

For example, if a farmer grows a diverse range of crops and integrates a diverse range of wild plants that attracts a diverse range of pollinators, then diversity improves the soil microbes, which improves the crops. If unexpected weather affects one type of crop, the farmer still has other crops. There is not too much pressure on individual knots and links. The system interacts to produce resilience. But if the farmer grows one single type of crop specifically to sell at a market, and the weather or pests affect this crop, the system can collapse and results in poor soil, poor yield, and no income for the farmer. The system has lost resilience.

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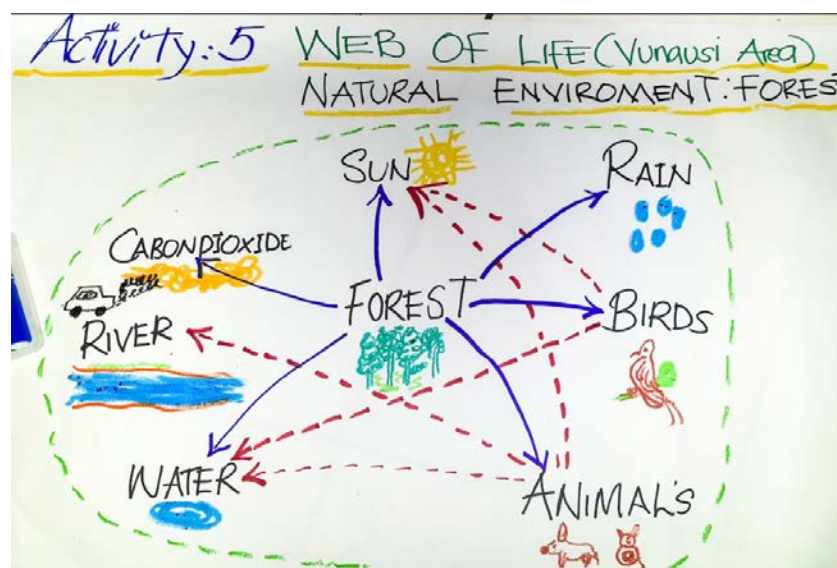
[1] *Jeremy Rifkin, The Age of Resilience, 2023*

CLIMATE RESILIENT ISLANDS PROGRAMME

When designing the Climate Resilient Islands (CRI) Programme Live & Learn wanted to develop a process communities could use to plan resilience actions that sat within the flow of complexity (without falling into the trap of trying to map everything!). The process developed by Live & Learn is innovative as it brings together a diversity of existing approaches and concepts, building a system or 'net' of knots and links through the activities that communities can use to explore ecosystem complexity and vulnerability in their context, and strengthen their resilience ability – especially in the context of adaptation to the increasing impacts of climate change.

The Climate Resilient Islands Programme commenced in 2021. It is supported by the New Zealand government and works with 65 rural communities in Fiji, Papua New Guinea, Solomon Islands, Tonga, Tuvalu and Vanuatu. Communities engaged in the programme work with Live & Learn to:

- explore interdependence of people and ecosystems (people are part of nature, not separate from it)
- explore ecosystem complexity, patterns and connections to place
- understand the impacts of climate change in their place (experienced and expected)
- identify short-term and long-term priorities for adaptation and resilience
- develop plans for adaptation
- learn about nature-based actions for restoration of elements of complex systems as part of adaptation and resilience actions.

The process is a set of 20 diverse activities that produce a **Community Resilience Profile**. These activities can be adjusted to context and focus. The Community Resilience Profile contains resilience indicators which are used to define a **Community Resilience Vision.**

The vision is a long-term view that guides the communities in developing a **Community Resilience Action Plan** (or pathways). Elements of this action plan are then implemented by the community themselves, with the support of government or other organisations, or by Live & Learn through a resilience granting mechanism. The Community Resilience Profile and Action Plan process is outlined in a facilitation guide that is available on the Live & Learn website

Community Risk Summary [4]

The trend for resilience is mixed. Technology has improved resilience for the community, in the areas of transport, communication, education, electricity and safe water. However, availability of mobile phone networks remains low, and climate variability is adversely affecting plantations and housing, especially regarding flooding susceptibility.

Overall resilience indicators:
1. Electricity, transport, communication, education
2. Housing copes with climate variability
3. Healthy plantations
4. Access to safe water
5. Government services

Risk a combination of three things – Vulnerability, Exposure and Weather/Climate Change.

The summary below shows the vulnerabilities reported by the Banikea community, the physical exposure to hazards they are experiencing, and the climate change impact they are already experiencing.

Vulnerability
- Housing can be damaged by flood
- Dependent on resources from plantations and forest
- Lack of government services
- Only one road for access
- Traditional knowledge only being partly passed on
- No disaster plans

Exposure
- Housing and buildings situated close to river
- Riverbanks eroding and loss of trees on riverbank
- Danger of river pollution
- Unfenced farms open to livestock and wild animal damage

Climate Change
- Increase in frequency and intensity of cyclones
- Increase in high rainfall events and flooding
- Changed rainfall patterns

Resilience Picture

Resilience is like a bouncing ball or a yoyo. The resilience of Banikea is dependent on the community's relationship to the natural resources around the community, such as the river which runs through the village. The river contains the local fish Rediogobius (dome), which is endangered and requires pristine waters for its survival.

Resilience Vision

The community wants to maintain indigenous knowledge, the clan system, religion and the tradition of working together to help everyone in the village. Resilience will come through managing time, increasing agriculture, restoring ecosystems, having good homes, roads and education, and being prepared for disasters.

As part of the profiling process, Live & Learn teams help communities participate in information gathering on community assets, values, livelihoods and challenges. Community members draw colourful maps of ecosystem zones, elements like water flow and soil types, and seasonal calendars. Crucially, they also record how they have noticed changes to these environments and calendars, due to shifts in climate. Communities also describe and draw connections within the complex networks important to them (such as food production and culture).

Based on the information communities provide in the profiles, communities envision what their 'best futures' look like and establish priorities, initiating a process of applying targeted strategies for resilience building of local resources and skills. This process is unique to each community, responding to their unique challenges and strengths, and driven by the community.
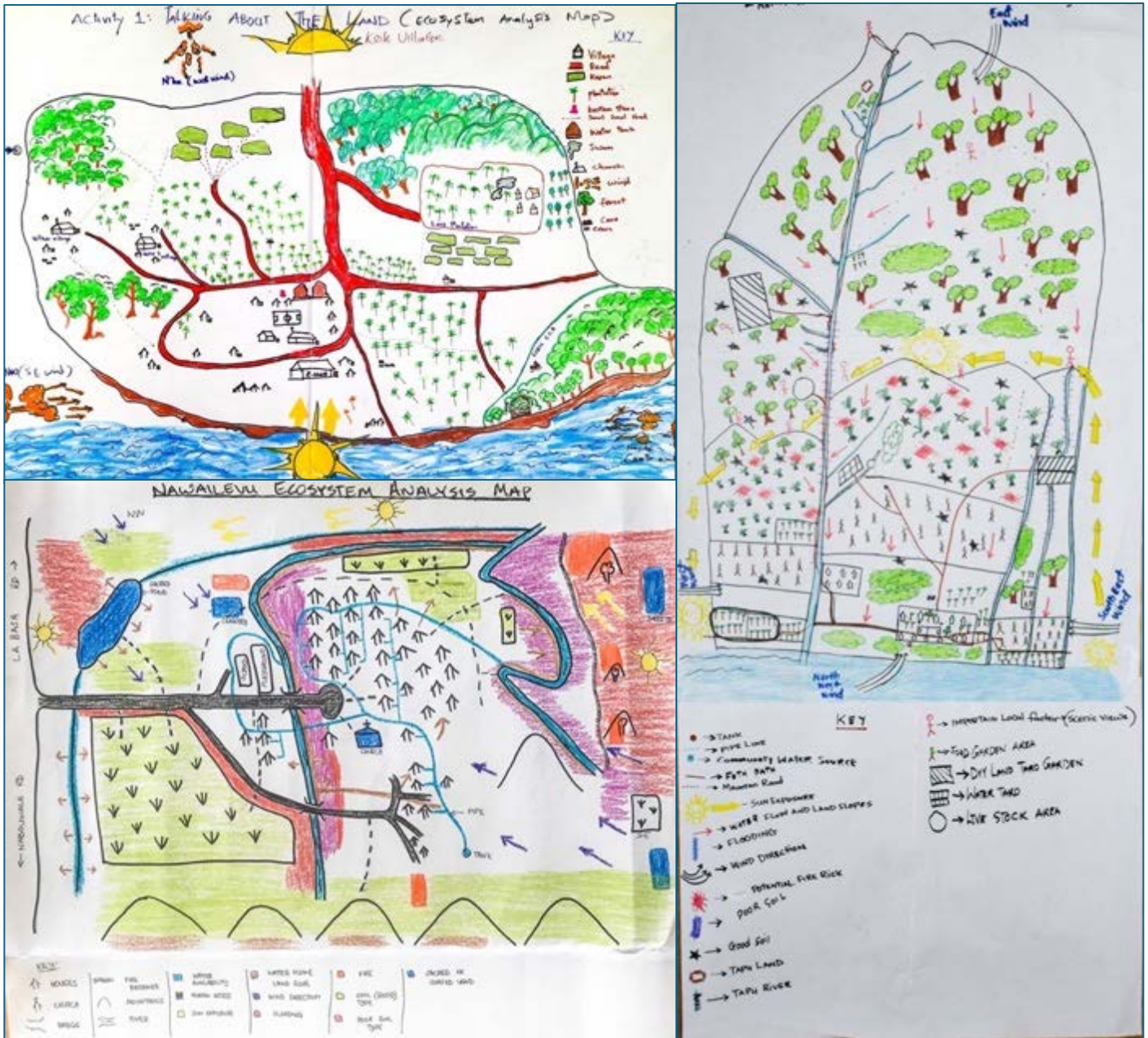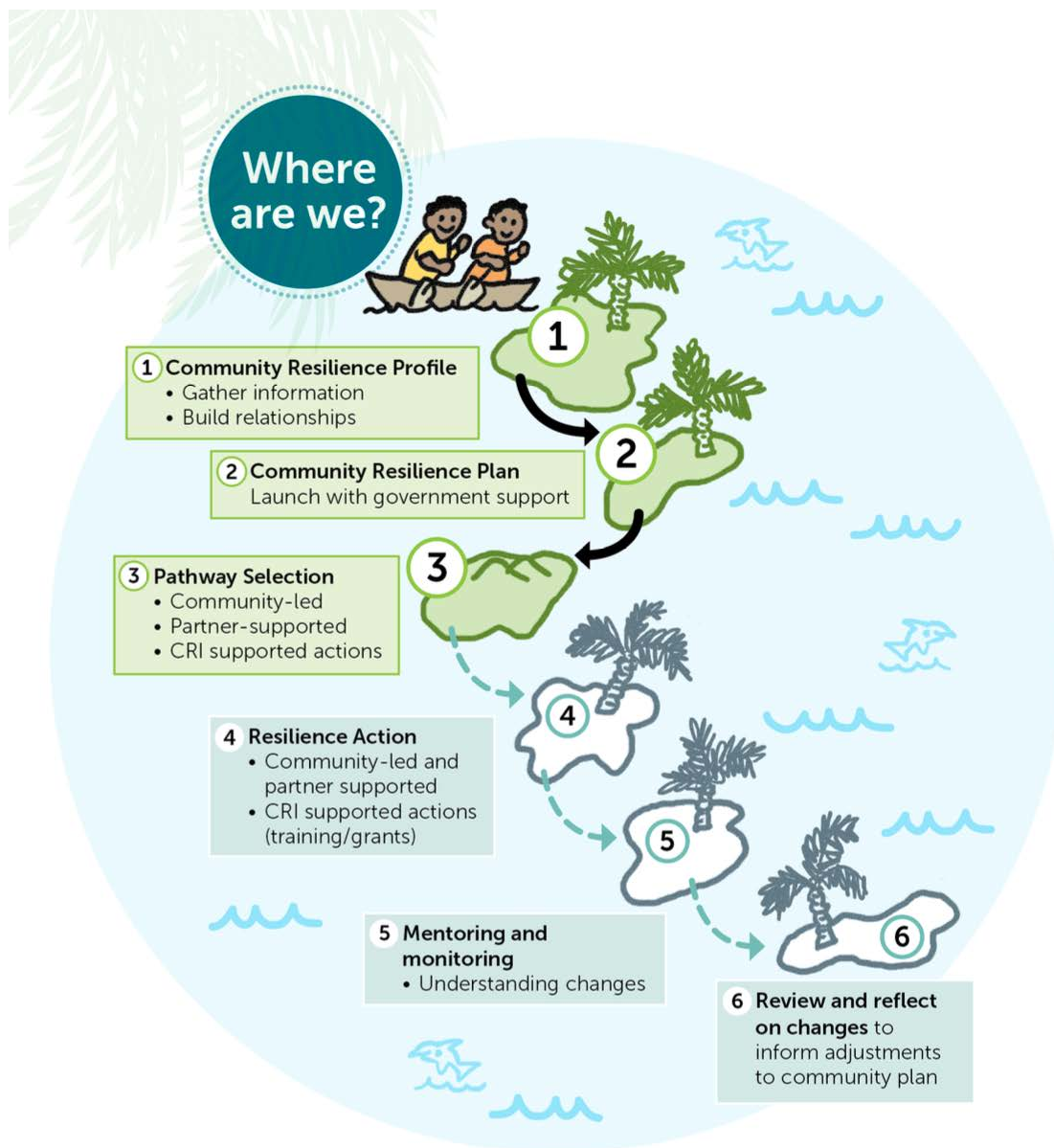
The Community Resilience Profiles and Plans belong to the communities, so:

- we don't publish them on our website
- we don't provide email copies to other organisations
- we do a small print run and give copies to the community to use for their further planning and advocacy with government
- they contain accessible language and imagery
- while currently the profiles are published in English, we plan to localise through translation as resilience profile writing capacity grows in the Live & Learn teams.

Key concepts included in the CRI resilience profile and planning process:

The Climate Resilient Islands Programme is described as a journey to a series of islands. The facilitation guide provides the map and instructions for the first two islands – the Community Resilience Profile and the Community Resilience Plan – as well as an overview of the third island.

Where are we?

1. **Community Resilience Profile**
   - Gather information
   - Build relationships

2. **Community Resilience Plan**
   Launch with government support

3. **Pathway Selection**
   - Community-led
   - Partner-supported
   - CRI supported actions

4. **Resilience Action**
   - Community-led and partner supported
   - CRI supported actions (training/grants)

5. **Mentoring and monitoring**
   - Understanding changes

6. **Review and reflect on changes** to inform adjustments to community plan

The design of the Climate Resilient Islands approach was informed by the Resilience, Adaptation Pathways and Transformation Approach (RAPTA) developed by CSIRO[2] for use in working towards resilience in rapidly changing environments. RAPTA is an integrated framework designed to help research, plan and implement activities to address complex sustainability issues. RAPTA is based on three modules:

1. People – discussion, values, and visions
2. Systems analysis
3. Development of options and pathways for action.

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[2] O'Connell, D, Maru, Y, Grigg, N, Walker, B, Abel, N, Wise, R, Cowie, A, Butler, J, Stone-Jovicich, S, Stafford-Smith, M, Ruhweza, A, Belay, M, Duron, G, Pearson, L, and Mehard, S 2019, *Resilience Adaptation Pathways and Transformation Approach. A guide for designing, implementing and assessing interventions for sustainable futures (version 2),* CSIRO

The following principles have been integrated into the facilitation of the community resilience profiles and plans. These principles and approaches are integrated in various ways throughout the approach. They are presented below in no specific order.

Connections and complexity

As discussed in the introduction, everything is connected in complex systems. CRI acknowledges complexity, so we don't try to know/map everything. In an Indigenous worldview everything is in relationship to everything else, so communities discuss the connections and relationships most important to them.

Adaptive and contextual

Each community knows their home and shouldn't have to explain details to outsiders. Every activity in the facilitation guide has been assessed by its benefit/usefulness to community discussion and planning, including how the technology and information used remains with the community. Indigenous knowledge is valued and included appropriately.

Strength-based

The community resilience profile and planning process engages peoples' emotions, inspires hope, and helps people imagine change and recognise roles they can play in shaping their future by outlining broad pathways of change to achieve goals and vision.

Analysing values and their impacts on vulnerability reveals:[3]
1. the ways in which people value certain things and why they value them in those ways
2. how this changes in different contexts, specifically between times of stability and times of disaster
3. value trade-offs made in times of stability that make us vulnerable to disaster.

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[3] O'Connell, D, Maru, Y, Grigg, N, Walker, B, Abel, N, Wise, R, Cowie, A, Butler, J, Stone-Jovicich, S, Stafford-Smith, M, Ruhweza, A, Belay, M, Duron, G, Pearson, L, and Mehard, S 2019, *Resilience Adaptation Pathways and Transformation Approach. A guide for designing, implementing and assessing interventions for sustainable futures (version 2),* CSIRO

Community-led curiosity and learning

- The community resilience profile facilitation activities foster curiosity in community participants and facilitators. 'Curiosity is recognising a gap in our knowledge about something that interests us – and becoming emotionally and cognitively invested in closing that gap through exploration and learning.'[4]
- Rather than thinking that Indigenous knowledge and 'science' are different types of knowledge, CRI works from the perspective that Indigenous knowledge itself includes knowledge that is scientific. The programme brings bodies of knowledge together and works within the space where they meet.
- The facilitation process maintains a gentle balance between community-led and nudging the boundaries of existing community knowledge through sparking curiosity. The learning needs that grow as a result are acted on by Live & Learn teams using the knowledge brokering approach developed by CSIRO.[5]
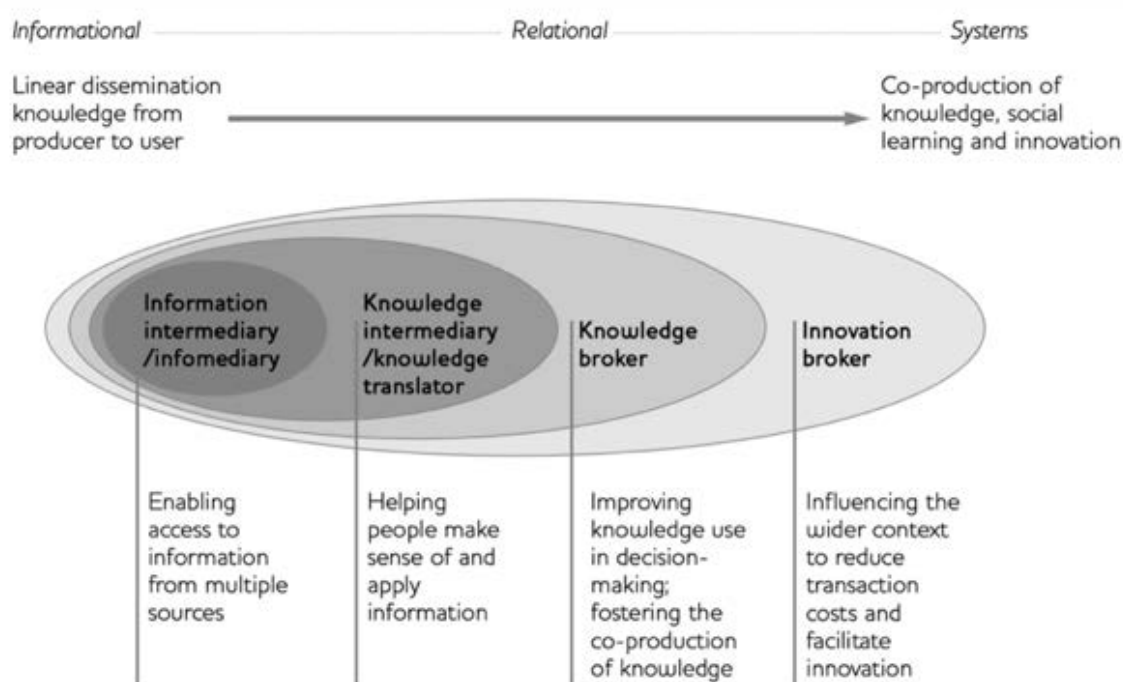
Prefiguring/visioning

Each community develops their own resilience picture (metaphor) and vision. This process is based on 'prefiguring/visioning' anchored in metaphor or stories. '*What we need right now is an ability to recognize future visions with transformative potential but that are still in seed form. The future we need could be sprouting all around us, unseen: we need to be able to spot the future we want in unassuming little slivers, experiments, prototypes, or what could be.*'[6]

Examples of prefigurative experiments:
- creating space for new possibilities from within existing structures
- collective approaches to resource-management
- cultivating intergenerational relationships that support system change.

Metaphor and story

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[4] Brene Brown, *Atlas of the Heart*
[5] https://research.csiro.au/integration/knowledge-brokering/ & https://research.csiro.au/pkb/knowledge-brokering-support-program/
[6] https://commonslibrary.org/prefigurative-politics-in-practice/ Jess Scully, Glimpses of Utopia, 2023

Indigenous knowledge is often expressed through story and metaphor. The community resilience profile process integrates story-work through the resilience picture, resilience vision and uses of different knowledge systems, such as the seasonal calendar. *'I think that we need to talk in metaphor. 'Cause our language is built like metaphor. One word is like a zip file that crunches all this information into it.'*[7]

CRI used metaphor and story to develop a framework for planning for climate resilience based on the following quote: *The ability of social-ecological systems to* **absorb** *and recover from climatic shocks and stresses, while positively* **adapting** *and* **transforming** *their structures and means for living in the face of long-term change and uncertainty*[8]*.*

Coconut palm - Absorb

When storms hit, coconut palms bend and lose fronds, absorbing shocks but not breaking. After a storm, their fronds grow back, healthy. Their fruits have layers of protection, allowing them to survive long journeys.

Communities that absorb are informed about risks, and have layers of cooperation, various ways of working together to protect livelihoods and surrounding ecosystems, embedded in tradition. When hardships strike, they can use their resources and collective knowledge, and bounce back, as healthy as ever.

Crab - Adapt

Crabs are adaptive creatures. They can survive and thrive at the bottom of the ocean, in rivers and mudflats, and in forests. They are resourceful at finding whatever food is nearby in these various environments.

Communities that adapt adjust their ways of living and working due to changing circumstances that threaten livelihoods and ecosystems. They have strong but flexible networks, using new ideas to adapt housing, livelihoods and disaster preparation to meet continual new challenges, and look to tradition to recover ways of adapting that their ancestors used.

Butterfly - Transform

The butterfly is a symbol of transformation because of its surprising change into what looks like a completely new creature. The caterpillar goes into a state that looks like death, but then it breaks out of the cocoon as something surprising and beautiful, able to fly. This transformation is not unprecedented, though – it is something butterflies have always done.

Communities that transform respond to a time of hardship, or the threat of hardship, by changing substantially rather than collapsing. This involves deep changes, at both individual and community levels, such as changing location, societal structures or ways of making a living, discarding ways of doing things that are not working, going back to traditional ways, to make a community completely different but better than what was before.

[7] Shawn Wilson, Research is Ceremony: Indigenous Research Methods

[8] Mitchell, A., 2013 Risk and Resilience: From Good Idea to Good Practice, OECD Development Co-operation Working Paper No 13