



**CORAL TRIANGLE  
INITIATIVE**  
ON CORAL REEFS, FISHERIES AND FOOD SECURITY



# **Ecosystem-Based Climate Adaptation: the Approach as Applied in Timor-Leste under the Coral Triangle Support Partnership**



**June 2013**

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Front cover photo: © Donald Bason / CTSP



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# What is Ecosystem Based Climate Change Adaptation Planning?

**Climate Change Adaptation is commonly recognised as a process whereby the likely or potential effects of climate change are identified, and appropriate actions are taken to either prevent or minimise damage, or to seize emerging opportunities. Frequently, the analysis and resultant actions focus on built environments (eg. water infrastructure, sea walls) or socio-economic interventions (eg. livelihood diversification).**

Ecosystem-Based (EbA) Climate Change Adaptation includes a focus on the services that ecosystems provide to people, and seeks to also put in place adaptation measures to preserve those services. It is defined within the Convention for Biological Diversity (CBD) as: “Adaptation that integrates the use of biodiversity and ecosystem services into an overall strategy to help people adapt to the adverse impacts of climate change” (CBD, 2009). That is, EbA recognises the interdependencies between social, built and environmental systems and seeks to apply a range of actions that help increase the resilience of ecosystems to climactic pressures, and thereby secure the services they provide to communities.

For Timor-Leste, EbA is particularly important. It is estimated that 90% of Timorese people have a direct reliance on natural resources for their livelihoods, food security and general well-being<sup>1</sup>. However, these natural resources, the ecosystems they are a part of, and the services they provide are at threat from a range of pressures. Climate change impacts will compound these pressures and therein reduce the reliability of these services.


Climate change projections for Timor-Leste predict that, over the next century, the country is likely to experience<sup>2</sup>:

- Increases to air and sea surface temperature.
- Wet season rainfall to increase and dry season rainfall to decrease.
- Intensity and frequency of days of extreme heat will increase.
- Intensity and frequency of days of extreme rainfall will increase.
- Tropical cyclone numbers are expected to decline.
- Ocean acidification and mean sea levels will continue to rise.

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<sup>1</sup> Timor Leste Directorate for Environmental Services, National Capacity Self Assessment Report, GEF/UNDP, 2007, p.v

<sup>2</sup> Australian Government Pacific Climate Change Science Program 2011



Given this, and taking into account Timor-Leste's topography, natural resource reliance and deforestation rates, significant impacts are likely to be experienced by way of: sedimentation of waterways, increased risk of landslides, reduced reliability of water supply, reduced fisheries and agricultural productivity and coastal inundation.

EbA can assist in responding to these events. EbA interventions can both build the resilience of ecosystems to withstand new climactic pressures (eg. reduction of pressures on coral reefs, such as overfishing or destructive fishing, allows them to regenerate and build their natural resilience to climate pressures), and help minimise the impact of climactic changes on communities (eg. reforestation in water catchments to improve water quality, reduce disaster risk and increase soil productivity).

# How did the Coral Triangle Support Partnership Apply Ecosystem Based Adaptation?

The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF), is a multilateral partnership of six countries (Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands and Timor-Leste) formed in 2007 to address the urgent threats facing the coastal and marine resources of one of the most biologically diverse and ecologically rich regions on earth. Under the CTI-CFF there exists a Regional Plan of Action (RPOA) which sets forth five long-term goals:


1. Priority Seascapes Designated and Effectively Managed;
2. Ecosystem Approach to Management of Fisheries (EAFM) and Other Marine Resources Fully Applied;
3. Marine Protected Areas (MPAs) Established and Effectively Managed;
- 4. Climate Change Adaptation Measures Achieved;**
5. Threatened Species Status Improving.

Through USAID's US-CTI Support Program, and applying an EbA approach, the CTI-CFF *Region-wide Early Action Plan for Climate Change Adaptation (REAP-CCA) for Near shore Marine and Coastal Environment and Small Island Ecosystems* was developed. It was seen as an important first step in catalyzing early actions to achieve the CTI-CFF climate change goals. The REAP-CCA prioritizes early actions that governments and communities can implement to reduce the impacts of climate change to marine and coastal ecosystems, and to improve the resilience of the Coral Triangle's coastal and marine resources.

To translate the regional-scale work to a local level, a *Guide for Vulnerability Assessment and Local Early Action Planning* was also developed (VA-LEAP). The VA-LEAP includes a set of scientific and social tools which can be used to develop qualitative climate change vulnerability assessments and site-specific EbA plans. It uses a series of steps and worksheets to:

1. Identify priority social and natural resources;
2. Identify threats;
3. Characterize the vulnerability of priority resources to climate change impacts;
4. Identify potential solutions to address threats and to reduce vulnerability to climate change impacts;
5. Identify desired results and measurable objectives; and
6. Develop an action plan to achieve those results.





Under USAID’s Coral Triangle Support Partnership (CTSP), the information and some of the VA-LEAP tools<sup>3</sup> were used with coastal communities in the Nino Konis National Park. The results of the process have been integrated into community natural resource management plans and Suco Regulations.

This publication documents the case study from the CTSP project, as an example of EbA for Timor-Leste.

Copies of the REAP-CCA and VA-LEAP are available from: [www.uscti.org](http://www.uscti.org) or via the CTI-CFF Secretariat: [www.coraltriangleinitiative.org](http://www.coraltriangleinitiative.org)

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<sup>3</sup> The VA-LEAP tool was developed as part of the CTSP project, released in May 2013, and thus wasn’t available for use in its entirety during the project implementation phase. Timor-Leste’s use of the tools, information and methodologies contributed to the development of the final VA-LEAP toolkit.

# Case Study of Ecosystem Based Adaptation from CTSP Timor-Leste

The coastal communities of Com, Tutuala and Lore have a combined population of more than 4,500 people. These populations are highly—in some cases entirely—reliant on the goods and services of their nearby ecosystems. The majority of the population<sup>4</sup> earns a living and sources their food through either artisanal fisheries supplemented with home gardens, or small scale agriculture and grazing in the upland areas. Some households also rely on income sourced through nature-based tourism ventures.

Communities reported heaviest reliance on:

- Coral reef fish.
- Pelagic fish (seasonal only).
- Productive land.
- Reliable water supply via rain, springs and creeks (plus some limited access to groundwater via taps).
- Economically important species—sea cucumber, trochus and sea turtles.

In conducting participatory research with communities, concerns were raised about the increasing occurrences of drought, and decline in fish stocks and target species over recent years.

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<sup>4</sup> Lore's population is heavily reliant on support received through war pensions because of the significant sacrifices made by the people in this area during the Indonesian occupation. This income supplements household needs and comparatively reduces direct reliance on ecosystem goods and services. They remain equally vulnerable to fluctuations in natural resource availability, as positive and negative conditions shape the market prices of goods available for purchase.



**Figure 1.**

Community members work together with CTSP to map sea level rise projections.

© Rui Pinto/CTSP

The following threats and pressures were identified, with respect to marine and coastal environments:

### Climate Threats

- **Rising sea levels** = reduced turtle nesting grounds and reduced access to intertidal environments.
- **Increasing ocean acidification & sea temperatures** = potential coral bleaching and reduced productivity of marine ecosystems, and reduced reproductive capacity of trochus.
- **Increased drying trends, with heavy rainfall in short bursts** = reduced productivity of small scale agriculture and grazing.<sup>5</sup>
- **Increased severe weather events** = damage to coral reef ecosystems and reduced productivity of turtle breeding.

### Non-Climate Threats

- **Destructive fishing practices (blast fishing, coral mining, anchoring, iron bars, derris root poison)** = damage to coral reef ecosystems and decline in fish stocks.
- **Illegal fishing and overfishing (additional fishing pressures experienced when upland communities have crop failure)** = Decline in fish stocks.
- **Turtle poaching and egg harvesting** = Decline in sea turtle populations.
- **Run-off & waste from coastal development (roads, construction, population)** = damage to, and reduced productivity of, coral reef ecosystems.

Climate threats are caused by global carbon emissions and thus extremely difficult to address at a local scale. Non-climate threats however, can be addressed more directly. By reducing the non-climate threats, the health of ecosystems improves. Healthy ecosystems have a greater natural resiliency and adaptive capacity to cope with the threats which are more difficult to mitigate or remove. They are therefore given their 'best chance' to remain healthy and productive in the face of climate change.

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<sup>5</sup> Increased heavy rainfalls are usually associated with increased sedimentation of coral reef ecosystems. The NKS National Park is predominantly made up of limestone karst, so this does not present as significant an issue.

Communities identified a range of early actions which could be taken to address their non-climate pressures. These actions were either addressed immediately through the CTSP project, or embedded into the relevant Suco Development Plan if CTSP resources and timeframes could not support immediate action.

The early actions identified were:

**Table 1.**  
The Early Actions Identified

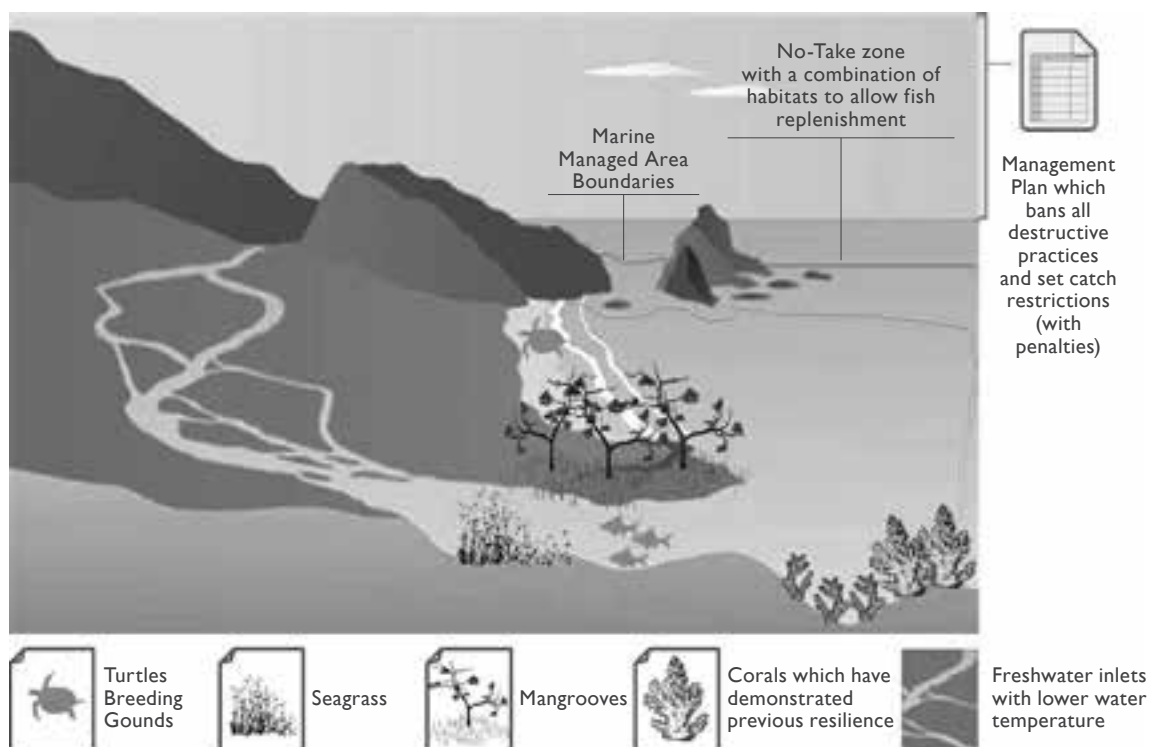
<b>Destructive Fishing Practices</b>	Establish community managed marine areas (MMAs)	Completed under CTSP - ongoing management by community
<b>Illegal Fishing</b>	Establish community managed marine areas (MMAs)	Completed under CTSP - ongoing management by community
	Advocate to government for greater enforcement against illegal foreign fishing vessels	Community action ongoing
<b>Overfishing</b>	Establish community managed marine areas (MMAs)	Completed under CTSP - ongoing management by community
	Reduce fishing pressure from both coastal and uphill communities through diversified livelihoods	Embedded into Suco Development Plan/s as a priority
<b>Turtle Poaching and Egg Harvesting</b>	Establish community managed marine areas (MMAs)	Completed under CTSP - ongoing management by community
	Establish community-based awareness raising campaign	Commenced under CTSP - further support required
	Establish and strengthen community patrolling and monitoring	Completed under CTSP - ongoing activity by community
<b>Reduced Availability of Freshwater</b>	Protection and restoration of springs and waterways	Embedded into Suco Development Plan/s as an environmental consideration
	Exploration of the potential for small-scale water catchment and storage systems	
<b>Run-off and Waste from Coastal Development</b>	Monitor impacts of run-off and coastal development to inform future decision-making about priorities	Embedded into Suco Development Plan/s as an environmental consideration

# Marine Managed Areas as a Tool for Ecosystem Based Adaptation

**Under CTSP, marine managed areas were established as an integrated approach to addressing four out of six of the identified non-climate threats.**

Marine managed areas are the end product of a process by which a community comes together to improve management of a designated area of natural resources. Typically, it involves mapping the resources, identifying the threats to them, and delineating a geographical area which is considered most important/productive and therefore a priority for improved management efforts. Collectively, community members and leaders will then set rules about actions that are and aren't allowed in designated parts of the managed areas, so as to address threats (eg. fishing, anchoring, intertidal gleaning), and improve ecosystem health and productivity. The concept of marine managed areas can equally be applied to terrestrial environments. They serve as an important tool for ecosystem based adaptation efforts.

The diagram below is a conceptual model of how marine managed areas can be designed to address non-climate threats, and thereby improve ecosystem health and build resilience to climate change.



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Pajina ne'e ami husik mamuk

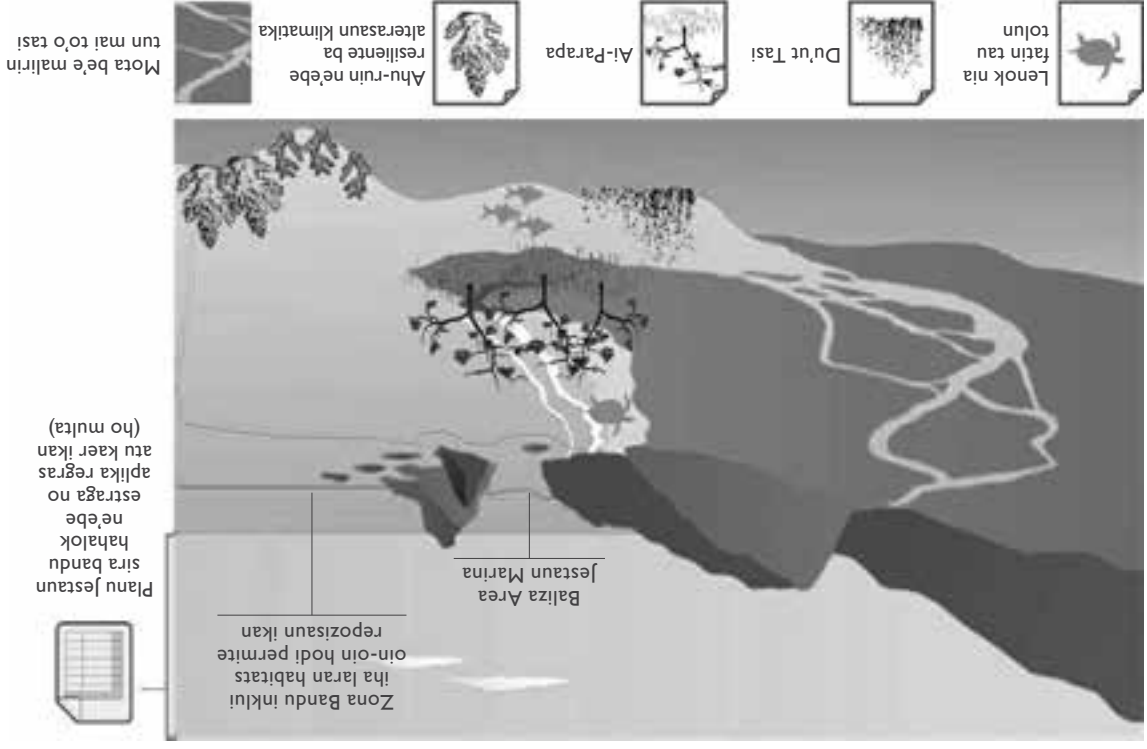


# Área Jestaun Marítima nudar feramenta ba Adaptasaun Bazeia ba Ekosistema

## CTSP harii área jestaun marítima nudar abordajen integradu hodi haree ba ameasa 4 husi 6 ne'ebé identifika.

Área jestaun marítima hanesan rezultadu husi prosesu liu husi ne'ebé komunidadade tuir hamutuk hodi hadia jestaun husi área rekursu natural ne'ebé define. Bain bain, ne'e inklui halo mapeamentu ba rekursu sira, identifikasoun ba ameasa ne'ebé iha, no define zona jeográfika ne'ebé konsidera nudar importante liu ka produktivu liu nunee hanesan prioridade ba esforsu jestaun. Hamutuk membru sira husi komunidadade no lider sira define regra sira kona ba asoun sira ne'ebé bele no labele halo iha parte ne'ebé define iha área jestaun, hodi haree ba ameasa sira (eg. peska, tau ankora, hili sasan iha tasi maran), no hadi'a saude no produktividade husi ekosistema. Konseitu husi área jestaun marímu bele mos aplikika ba ambiente rai laran. Sira sai feramenta ne'ebé importante ba esforsu adaptasaun ne'ebé bazeia ba ekosistema.

Diagrama iha okus hanesan modelu konseitu kona ba nusa área jestaun marímu bele define hodi haree ba ameasa la'os husi klima hodi nunee bele hadia saude husi ekosistema no aumanta reziliénsia ba mudansa klima.



Komunidadade sira identifiika konjuntu husi asaan uluk sira ne'ebé bele hola hodi haree ba presaan ne'ebé la'os husi klima. Asaan sira ne'e hahu kedas liu husi projeitu CTSP ka hatama iha Planu Dezenvolvimentu Suco karik rekursu no kalendariu husi CTSP la fo dalan hodi apoiu kedas ba asaan sira ne'e.

Asaan uluk ne'ebé identifiika mak:

**Table 1.**

Asaan Uluk Ne'ebé Identifiika Mak

<b>Pratika Peska ne'ebé Destrutivu</b>	Harii área maritima ho jestaan husi komunidadade (MMAs)	Kompleta ona ho CTSP - jestaan husi komunidadade sei kontinua nafatin
<b>Peska ilegal</b>	Harii área maritima ho jestaan husi komunidadade (MMAs)	Kompleta ona ho CTSP - jestaan husi komunidadade sei kontinua nafatin
	Halo advokasia ba governu hodi kontrola makaas liu ro peska ilegal ne'ebé mai husi rai liur.	Asaan husi komunidadade kontinua nafatin
<b>Peska Demais</b>	Harii área maritima ho jestaan husi komunidadade (MMAs)	Kompleta ona ho CTSP - jestaan husi komunidadade sei kontinua nafatin
	Hamenus presaan peska husi komunidadade tasi ibun no foho liu husi diversifikasun ba rendimentu	Hatama iha Planu Dezenvolvimentu Suco nudar prioridade
<b>Kasa Lenok no Hillii Lenok nia Tolun</b>	Harii área maritima ho jestaan husi komunidadade (MMAs)	Kompleta ona ho CTSP - jestaan husi komunidadade sei kontinua nafatin
	Harii kampaña sensibilizasaan bazeia ba komunidadade	CTSP hahu - preziza apoiu tan
	Harii no hametin patrulla no monitorizasaan husi komunidadade	Kompleta ona ho CTSP - atividade sira husi komunidadade sei kontinua nafatin
<b>Diminuisaun Husi Bee ne'ebé Disponivel</b>	Fo protesaan no hadia bee matan no bee dalan	Hatama iha Planu Dezenvolvimentu Suco nudar konsiderasaan ambiental
	Explorasaan husi potencial husi kapasun bee no armazenamentu	
<b>Estraga &amp; no Restu Husi Dezenvolvimentu Tasi Ninin</b>	Halo monitorizasaan ba impaktu husi estraga no dezenvolvimentu tasi nian hodi sai informasaan hodi hola desizaun kona ba prioridade sira aban bain rua	Hatama iha Planu Dezenvolvimentu Suco nudar konsiderasaan ambiental

<sup>5</sup> Aumentu husi udan asosiadu ho aumentu husi sedimentasau husi ekosistema resife koral. Parke Nasional NKS halo husi kalkariu, nune'e, ida ne'e ladun signifikativu.

Ameasa klimatika kausa husi emisaun karbono no, tan ne'e, susar liu atu hasoru amesa ne'e iha eskala lokal. Maibe, amesa la-klimatika bele hasoru direta liu. Se ita hamenus amesa la-klimatika, ekosistemas nia kondisaun mos sai diak. Ekosistemas ho kondisaun ne'ebe diak bele iha resiliensia natural no kapasidade adapta hodi hasoru amesa sira ne'ebe mak susar liu atu mitiga ka hasai. Tamba ekosistemas nia kondisaun diak no produktivu, sira iha 'oportunidade diak-liu' atu hasoru alterasun klimatika.

- **Pratika peska ne'ebe destrutivu (peska dinamite, hili koral, tau ankora, ai besi, almoruk haat)** = Estraga ekosistema resife koral no hamenus kuantidade ikan.
- **Peska ilegal no peska demais (aumentu husi presau peska bainhira komunidadade la iha kolleita)** = Hamenus kuantidade ikan.
- **Kasa lenok no tolun** = Hamenus kuantidade lenok.
- **Estraga & no restu husi dezentvolvimentu tasi ninin (estrada, konstrusau, populasau)** = estraga no hamenus produktividade husi ekosistema resife koral.

### Ameasa La'ós Husi Klima

- **Aumenta tasi nia nivel** = hamenus fatin ba lenok hodi tolun no hamenus asesu ba ambiente entre mare sira.
- **Aumenta asidifikasau no temperatura tasin nian** = brankeamentu husi koral no diminuisau husi produktividade husi ekosistema tasi no diminuisau husi kapasidade reproduसान husi trochus.
- **Aumenta tendensia maran, ho be makas mibe lalais** = hamenus produktividade husi agrikultura eskala kiik no hilli.<sup>5</sup>
- **Aumenta eventu husi tempestade** = estraga ekosistema resife koral no hamenus produktividade husi reproduसान husi lenok.

### Ameasa Klima

Identifika ona amesa no presau sira ne'ebe tuir mai, kona ba ambiente maritimu no tasi ninin:

Figure 1. Membros komunidadade servisu hamutuk ho CTSP hodi halo mapa ba projesaun nivel tasi sae. © Rui Pinto/CTSP



# Estudo Kazu Husi Adaptasun Bazeia Ba Ekosistema Husi CTSP Iha Timor-Leste

Komunidade sira iha tasi ibun iha Com, Tutuala no Lore hamtuk ema na'in liu 4,500. Populasun sira ne'e depende makaas-dalan balu dependensia tomak-ba bein no servisu sira ne'ebé mai husi ekosistema sira ne'ebé besik. Maioria husi populasun<sup>4</sup> hetan rendimentu no sira nia hahan mai husi sira nia peska artezanal hamtuk ho toos kiik besik uma ka agrikultura uitoan no hiiii sasan iha fofo. Uma kain balu depende moos ba rendimentu ne'ebé mai husi turizmu bazeia ba natureza.

Komunidade sira depende barak liu ba:

- Ikan husi resife koral.
- Ikan Pelajiku (iha sira nia tempu det).
- Rai produtivu.
- Fornesimentu bee liu husi udan, bee matan (no asesu limitadu be bee iha rai okos liu husi torneira).
- Espesie ne'ebé iha importansia ekonomiku-pepinu tasi, trochus no lenok tasi.

Bainhira halao peskiza ho partispasun husi komunidade mosu preokupasun kona ba aumentu husi tempu maran no hamenus kuantidade ikan iha tasi no espesie balu ne'ebé iha menus tinan ba tinan.

<sup>4</sup> Populasun husi Lore depende liu ba apoiu ne'ebé simu husi pensun ba veteranu sira tamba sakrifisiu makaas ne'ebé sira halo iha área ne'e iha okupasun Indonezia nia laran. Rendimentu ne'e uza ba nesesidade sira husi uma laran no hamenus dependensia husi bein no servisu sira husi ekosistema. Sira sei nafatin vulneravel ba flutuasun sira iha disponibilidade husi rekursu naturál sira, tamba kondisun negativu no pozitivu iha impaktu ba beins nia folin.

<sup>3</sup> Ferramenta VA-LEAP desenvolve nudar parte ida husi projetu CTSP no fo sai de'it iha Maiu 2013, tan ne'e la biban atu uza kompletu durante fase implementasaun projetu nian. Tamba Timor-Leste uza duni ferramenta, informasaun no metodolojia sira, kontruibui mak'as ba desenvolvimento ferramenta final 'VA-LEAP toolkit';

Tuir Parseria Apoiu ba Triangulu Korál (CTSP) husi USAID, informasaun no ferramenta<sup>3</sup> VA-LEAP bali uza iha komunidadade tasi ibun iha Parke Nasional Nino Konis Santana. Rezultadu sira husi prosesu ne'e hatama iha planu j'estaun husi komunidadade kona ba rekursu natural sira no Regulasaun sira husi Suco. Publikasaun ida ne'e haree ba estudu kazu husi projetu CTSP, nudar ezemplu husi EBA ba Timor-Leste. Bele hetan kópia husi REAP-CCA no VA-LEAP iha: [www.uscti.org](http://www.uscti.org) ka husi Sekretariadu husi CTI-CFF: [www.coraltriangleinitiative.org](http://www.coraltriangleinitiative.org)

# Nusa Parseria Apoiu Ba Triangulu Korál Apliká Adaptasaun Bazeia Ba Ekosistem?

Inisiatibe Triangulu Korál kna ba Resite Korál, Peska no Seguransa Hahan (CTI-CFF), mak parseria multilateral husi país neen (Indonézia, Malazia, Papua Guine Foun, Filipinas, Ila Salomann no Timor-Leste) ne'ebé hahu iha 2007 hodi haree kona ba ameasa urjente ba rekursu tasi no tasi ibun nia husi rejiaun ne'ebé iha diversidade biolojika no rikeza ekolojika ne'ebé boot liu iha mundu. Tuir CTI-CFF iha Planu Asaun Rejionál (RPOA) ne'ebé define meta ba tempu naruk lima ne'ebé tuir mai:

1. Define no halo jestaun efetivu ba Paizajen Maritima prioritária ne'ebé define;
2. Aplika hotu Abordajen ekosistema ba Jestaun Peskas (EAFM) no Rekursu Maritimu seluk;
3. Harii no halo jestaun efetivu ba Area Protesaun Maritima (MPAs);
4. **Haktuir Medida sira j+kona ba adaptasaun ba Mudansa Klima;**
5. Hadia situasaun husi espesie sira ne'ebé hetan ameasa.

Liu husi Programa Apoiu US-CTI husi USAID, no liu husi aplikasaun ba abordajen EBA, halo dezentvolvimentu ba Planu Rejional Asaun Lalais ba Adaptasaun ba Mudansa Klima (REAP-CCA) ba *ambiente Tasi besik rai no tasi ninin no Ekosistema husi Ila Kiiik*. Ida ne'e haree nudar pasu primieiru ne'ebé importante hodi fo impulsu ba asaun uluk ne'ebé governu no komunidadade sira bele implementa hodi haktuir meta mudansa klima husi CTI-CFF. REAP-CCA fo prioridade ba asaun uluk ba ekosistema tasi no tasi ibun, no hodi hadia reziliénsia husi rekursu tasi no tasi ibun husi Triangulu Korál.

Hodi tradus servisu iha eskala rejionál ba nivel lokal, halo dezentvolvimentu moos ba *Gia ba Andilize Vulnerabilidade no Planeamentu ba Asaun Uluk Lokál (VA-LEAP)*. VA-LEAP inklui konjuntu ida husi feramenta sientifika no sosial ne'ebé bele uza hodi halo dezentvolvimentu ba análise kualitativa husi vulnerabilidade ba mudansa klima no planu EBA espesifiku ba fatin. Ida ne'e uza konjuntu husi etapa no surat servisu hodi:

1. Identifika rekursu sosial no natural ne'ebé prioridade;
2. Identifika ameasa sira;
3. Karakterizasau ba vulnerabilidade husi rekursu prioritáriu ba impaktu mudansa klima;
4. Identifika solusau potensál hodi haree ba ameasa sira no hodi redus vulnerabilidade ba impaktu mudansa klima;
5. Identifika rezultadu ne'ebé hakarak no objetivu ne'ebé bele sukat; no
6. Dezentolve planu asaun hodi hetan rezultadu sira ne'e.

Nune'e, tamba no haree ba topografia, reziliensia rekursus no nivel deflorestasun husi Timor-Leste, sei iha possibilidade mosu impaktu liu husi: sedimentasun husi bee dalan, aumenta risku rai monu, hamenus disponibilidade be, hamenus peska no produsun agrikultura no be sai iha tasi ninin.

EbA bele ajuda haree ba eventus sira ne'e. Intervensun husi EbA bele harii reziliensia husi ekosistema hodi reziste ba presun klima (eg. redusun husi presun ba resife korál, hanesan beska demais ka peska ne'ebé destrutu, fo dalan ba sira hodi hadia han no harii sira nia reziliensia natural ba presun klima), no ajuda hodi hamenus impaktu husi mudansa klima ba komunidadade (eg. reforestasun iha bee dalan hodi hadia kualidade be, hamenus risku dezastre no aumenta produtividade husi rai).



# Saida Mak Planeamentu Ba Adaptasaun Ba Mudansa Klima Ne'ebé Bazeia Ba Ekosistema?

**Adaptasaun ba Mudansa Klima hanesan prosesu ne'ebé identifika efektu potensial ka posivel no hola asaun ne'ebé apropiadu hodi prevene ka hamenus efektu la di'ak ka hodi haktuir oportunidade sira ne'ebé mosu. Bain bain, analize no asaun ne'ebé tuir foka ba harii ambiente (eg. infraestrutur ba, parede tasi) ka intervensaun sósia ekonómika (eg. diversifikasaun ba rendimentu).**

Adaptasaun ba Mudansa Klima Bazeia ba Ekosistema (EBA) inklui fokus ba servisu sira ne'ebé ekosistema fo ba ema. Iha Konvensaun ba Diversidade Biolojika (CBD) define nudar: "Adaptasaun ne'ebé halo integrasaun ba uzu husi biodiversidade no servisu ekosistema iha estratejia global hodi fo ajuda ba ema hodi halo adaptasaun ba impaktu la diak husi mudansa klima" (CBD, 2009). Nune'e, EBA rekohese katak iha inter dependensia entre sistema sira ne'ebé sosial, sira ne'ebé harii and sira ne'ebé mai husi ambiente, no buka hodi aplica asaun oin oin ne'ebé ajuda hodi aumenta reziliensia husi ekosistema kona ba presaan klima, no garante servisu sira ne'ebé ekosistema sira fo ba komunidadade.

EBA importante duni ba Timor-Leste. Estima katak 90% husi Timor oan depende ba rekursu natural hodi hetan rendimentu, seguransa hahan no bein estar'. Maski nune'e, rekursu natural sira ne'e, sira nia ekosistema sira, no servisu sira ne'ebé sira fo hetan ameasa husi presaan oin oin. Impaktu husi mudansa klima sei aumenta presaan sira ne'e no hamenus disponibilidade husi servisu sira ne'e.

Projesaun husi mudansa klima ba Timor-Leste prevee katak, iha tinan atus ida oin mai, pais sei hetan<sup>2</sup>:

- Aumenta husi temperatura husi tempu no tasi leten.
- Aumenta hudan iha tempu udan no hamenus udan iha tempu maran.
- Aumenta intensidade no frekuensia husi loran ne'ebé manas liu.
- Aumenta intensidade no frekuensia husi loran ne'ebé udan boot liu.
- Hamenus siklone tropikal.
- Aumenta asidifikasaun tasi no nivel mediu tasi.

<sup>1</sup> Direasaun ba Servisu Ambiente husi Timor Leste, Relatoriu Auto Avaliasaun husi Kapasidade Nasional, GEF/UNDP, 2007, p.v

<sup>2</sup> Programa Siensia Mudansa Klima iha Pasifiku husi Australia 2011

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# Adaptasun ba Klima bazeia ba Ekosistema: Abordajen ne'ebé tuir iha Timor-Leste tur Parseria Apoiu ba Triangulu Korál

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# Adaptasau ba Klima bazeia ba Ekosistema: Abordajen ne'ebé tur iha Timor-Leste tur Parseria Apoi ba Trianguku Korál



Juñu 2013

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