Please note that this presentation was given during the United Nations Climate Change Conference (COP-15) in Copenhagen, December 7-18, 2009 for more information please visit http://www.cop15.state.gov/ .

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International Capacity Building Training Program: Planning for Climate Change in the Coastal and Marine Environment

Russell Jackson

NOAA Coastal Services Center

December 9, 2009

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Developed through a partnership between:

NOAA Office of National Marine Sanctuaries
International MPA Capacity Building, Management Planning

NOAA Coastal Services Center
Hazard Mitigation Planning, Coastal Community Resilience

University of Rhode Island, Coastal Resources Center
Coastal Zone Management, Adaptation Planning

State of California, San Francisco Bay Conservation and Development Commission
Sea Level Rise Modeling, Climate Change Outreach

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Purpose and need for trainings

“Climate Change Capacity Building”

Target audience: MPA managers, coastal managers, planners, key decision-makers

A Coastal/MPA Management Perspective

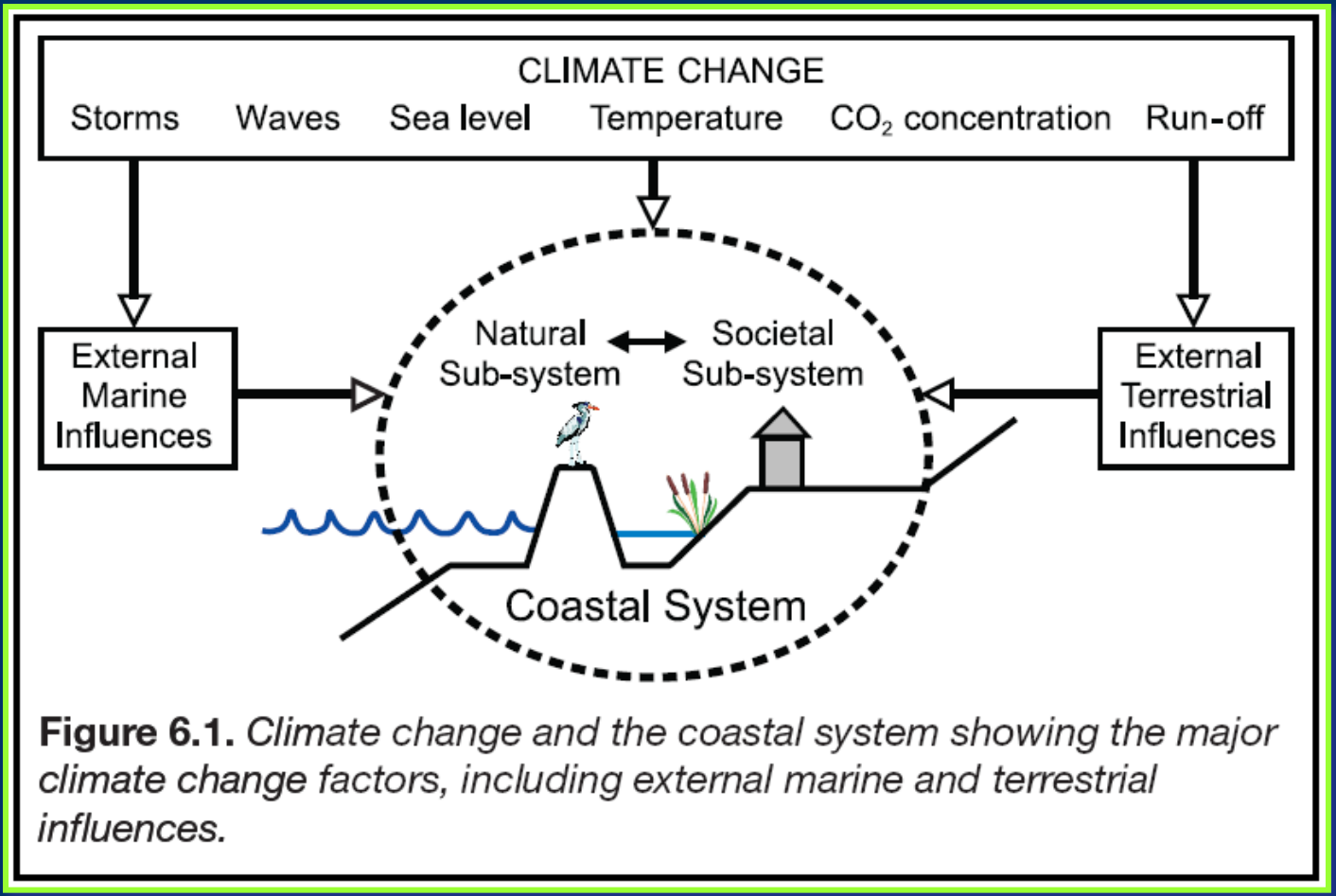
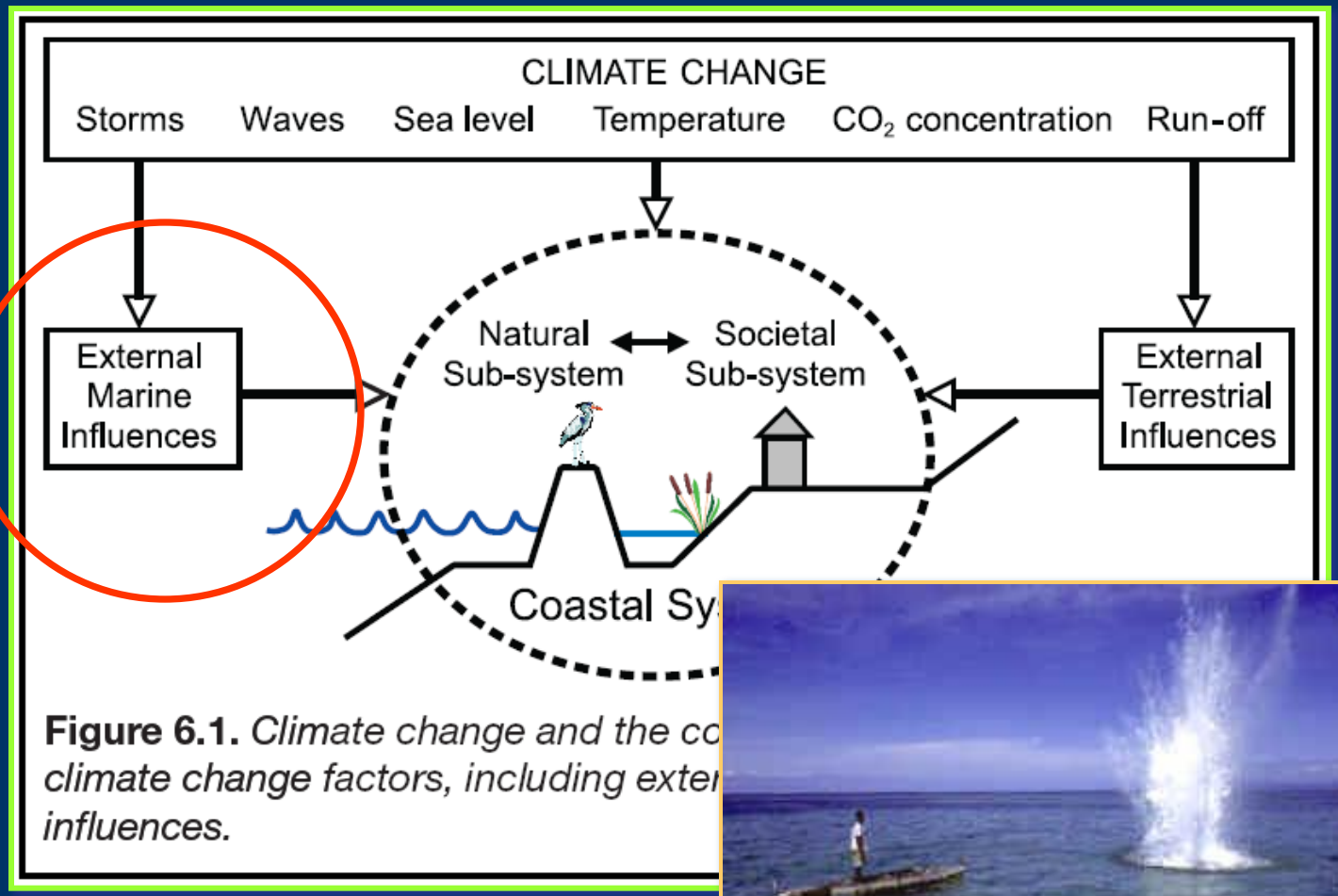


Figure 6.1. *Climate change and the coastal system showing the major climate change factors, including external marine and terrestrial influences.*

Source: Coastal systems and Low-lying Areas, WGII, FAR, 2007. Ch. 6, pg. 318.

A Coastal/MPA Management Perspective

- over-fishing
- illegal fishing practices
- gear impacts
- vessel spills
- tourism impacts



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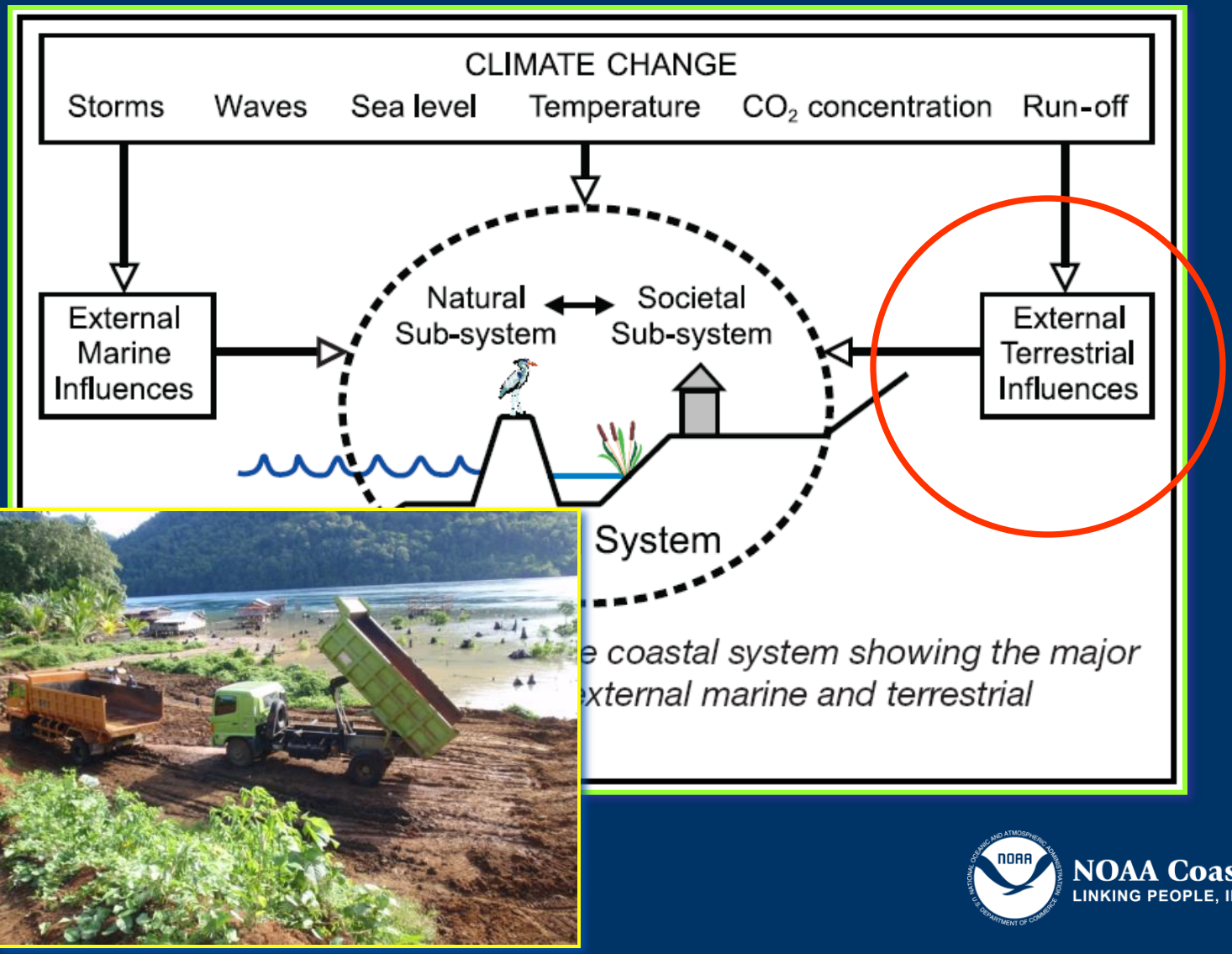
A Coastal/ MPA Management Perspective



- non-point source pollution
- coastal development
- sediment loads
- upland logging
- tourism impacts

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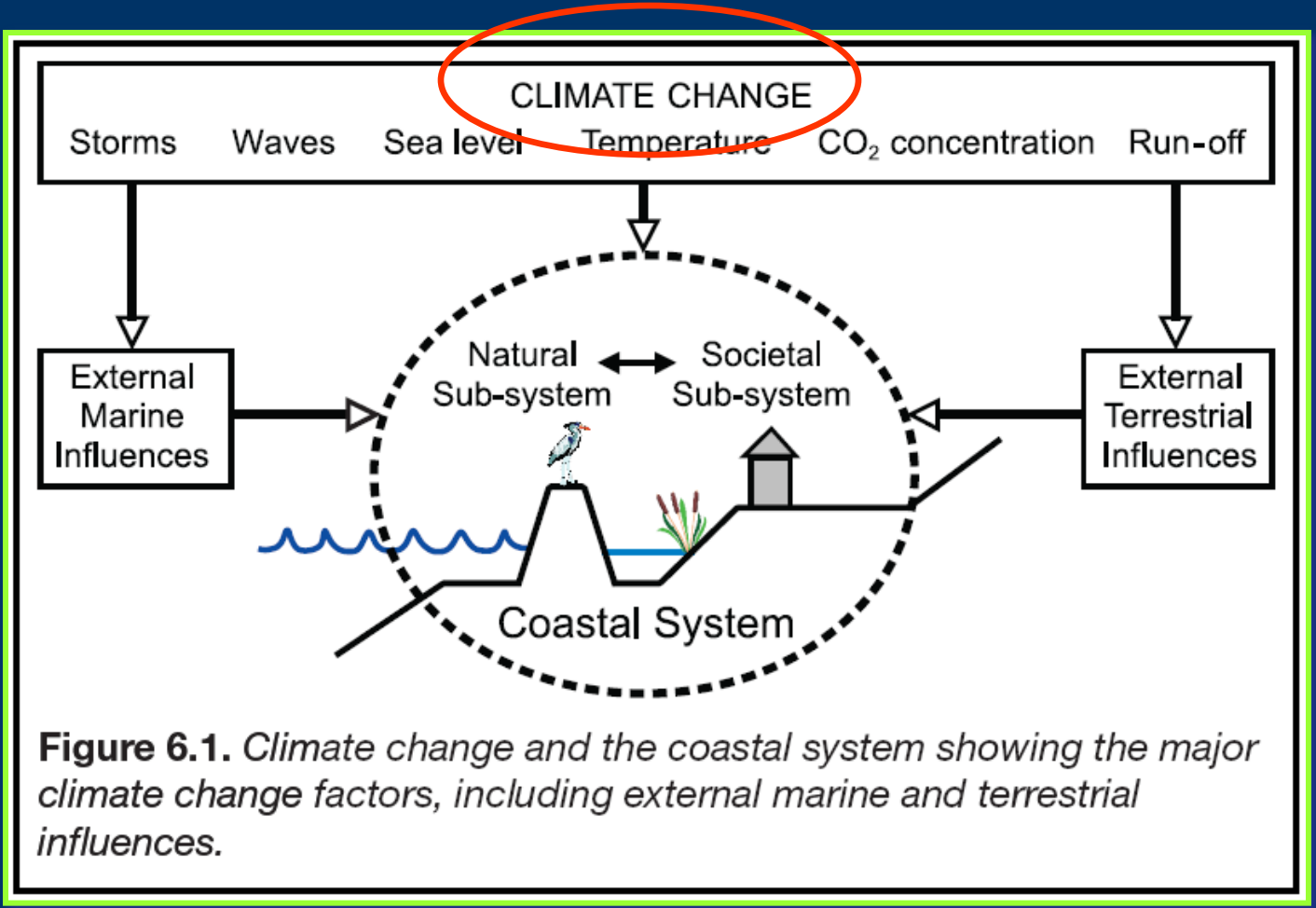
A Coastal/ MPA Management Perspective



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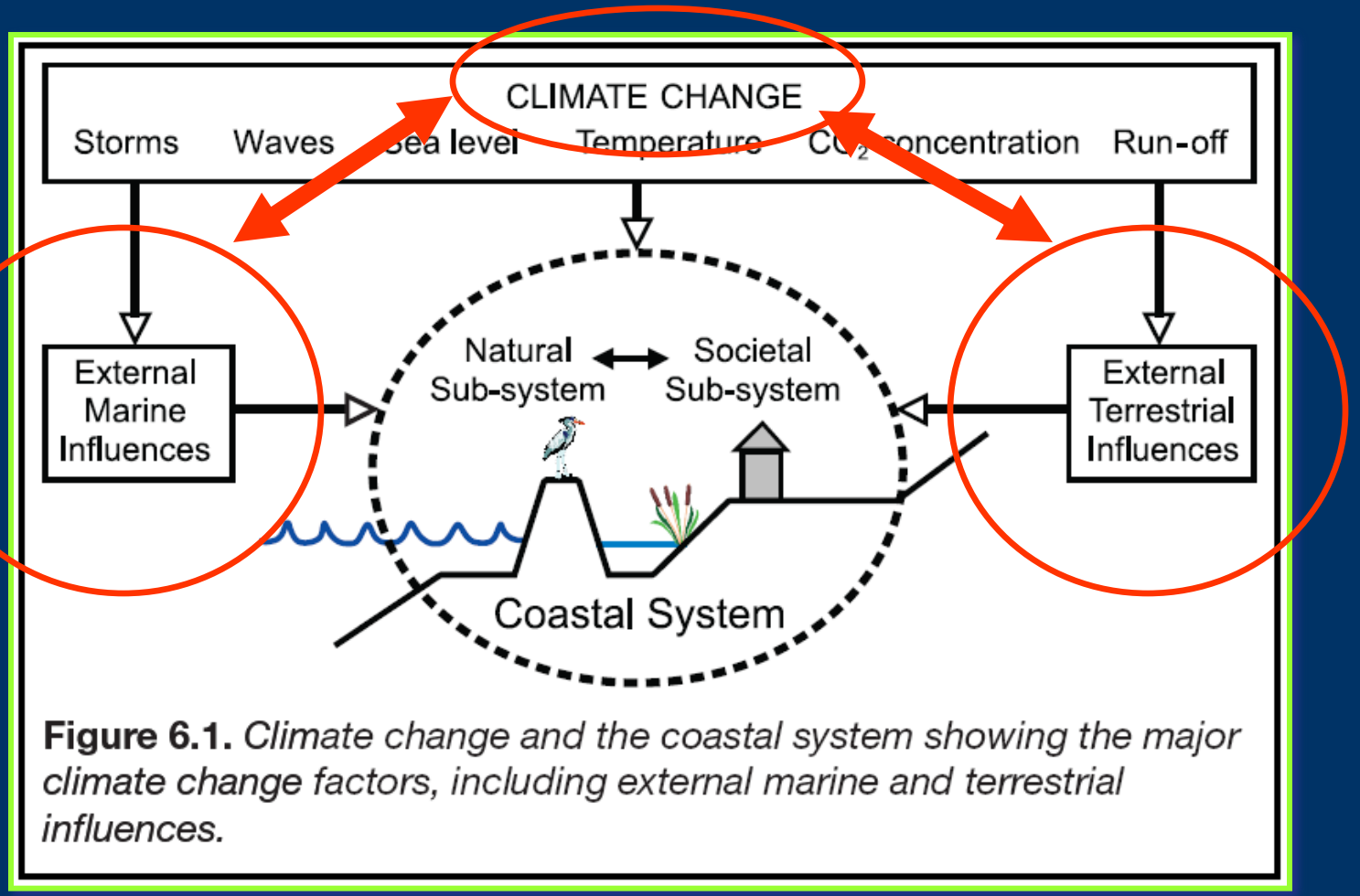
A Coastal/ MPA Management Perspective



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IMPORTANCE OF PLANNING FOR CLIMATE CHANGE

Management Approaches – Risks and Opportunities

Conserving biodiversity and human communities will require implementing a two-pronged approach:

1. **MITIGATION**: Reducing green house gas emissions significantly to slow the rate and extent of global climate change.

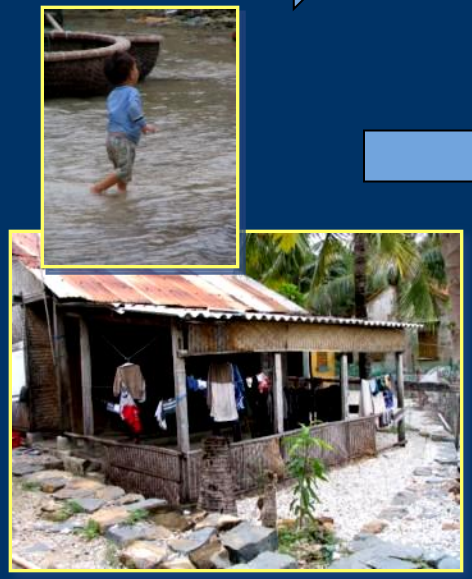
2. **ADAPTATION**: Responding swiftly to changes already inherent in the system to buy some time for ecosystems (as emissions are reduced).

Photo by Fenners (Wikipedia)

IMPORTANCE OF PLANNING FOR CLIMATE CHANGE

Build local capacity to develop strategies that effectively reduce risk from climate change:

- mainstream into development planning
- multi-sectoral integration
- Invest in ecosystem management



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WWF
climate WITNESS
USAID
FROM THE AMERICAN PEOPLE
ADAPTING TO COASTAL CLIMATE CHANGE
A GUIDEBOOK FOR DEVELOPMENT PLANNERS
MAY 2009

PLANNING FOR CLIMATE CHANGE IN THE COASTAL & MARINE ENVIRONMENT

MODULE 1:
Understanding Climate Change

MODULE 2:
Impacts on the Coastal and Marine Environment from Climate Change

MODULE 3:
Overview of the Process Model for Planning for Climate Change

MODULE 4:
Human and Natural Resource Coastal Community Resiliency

MODULE 5:
From High Tech to Low Tech:
The Role of Information in Predicting and Managing Impacts from Climate Change

MODULE 6:
Gathering Information from Local Communities on Resiliency (Prep and Field Trip)

MODULE 7:
Moving From Resiliency Analysis to Building Adaptation Strategies

MODULE 8:
Selecting and Evaluating Adaptation and Resiliency Strategies

MODULE 9:
Measuring Success (Prep and Field Trip)

MODULE 10:
Communication and Awareness Building

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Conceptual Framework for Adaptation Planning

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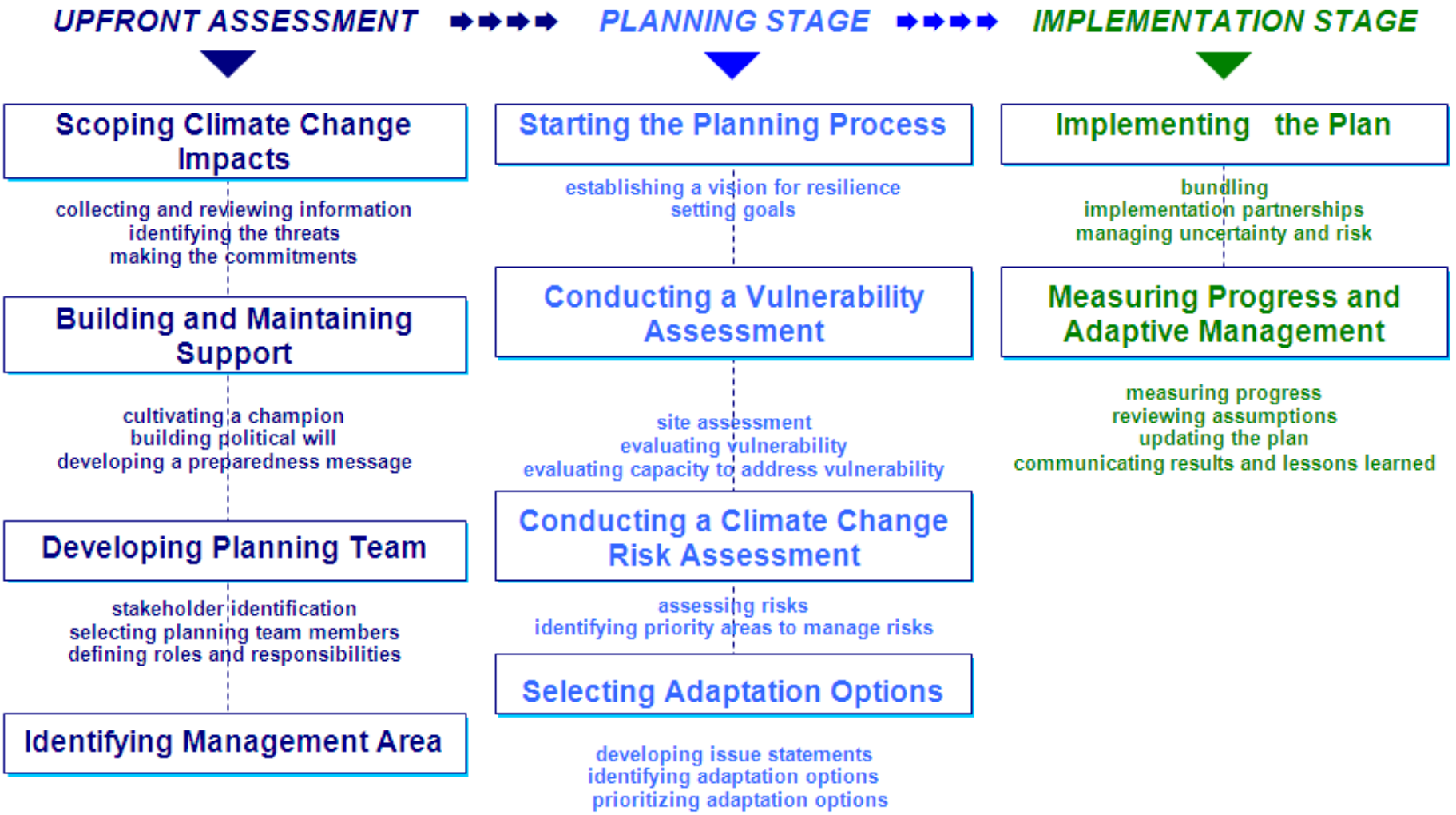
Climate Change Planning Model



IMPORTANCE OF PLANNING FOR CLIMATE CHANGE

10 STEPS

to the coastal climate change adaptation planning process.

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STEP ONE: SCOPING THE CLIMATE CHANGE IMPACT TO THE COASTAL AND MARINE ENVIRONMENT IN YOUR AREA

1. Collecting and Reviewing Information

Projected Impacts of Climate Change in Your Region

2. Define the Planning Boundaries

- **Identification of management area is a critical step**
- **Identifying species of concern**
- **Identifying human communities of concern**

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STEP TWO: BUILDING AND MAINTAINING SUPPORT TO PREPARE FOR CLIMATE CHANGE

1. Building and maintaining support for preparedness planning

- engage their local community
- identify a climate change “champion”
- build political will
- develop a preparedness message
- spread the preparedness message

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STEP THREE: BUILDING YOUR CLIMATE CHANGE PLANNING TEAM

Build Your Climate Change Planning Team

- Recruit a cross-section of representatives
- Include key stakeholders
- Pick a team scaled to your geographic area and complexity of climate change impacts

STEP FIVE: STARTING THE PLANNING PROCESS

Establishing a vision and guiding principles for a climate resilient community

A CLIMATE RESILIENT COMMUNITY is one that takes proactive steps to prepare for (i.e., reduce the vulnerabilities and risks associated with) projected climate change impacts.

- What is the ideal future condition of your community
- What is the ideal future condition of your natural and cultural resources
- What is the ideal economic condition of your community

STEP SIX: CONDUCTING A CLIMATE CHANGE VULNERABILITY ASSESSMENT

Evaluating vulnerability

a. A sensitivity analysis for the systems associated with the planning areas

b. An evaluation of the adaptive capacity of the systems associated with each of these planning areas

c. An assessment of how vulnerable the systems in your planning areas are to the effects of climate change

STEP SEVEN: CONDUCTING A CLIMATE CHANGE RISK ASSESSMENT

Evaluating risk

a. Assessing risks for the systems associated with the planning areas

b. Identifying priority areas to manage risks

STEP EIGHT: BUILDING MANAGEMENT ACTIONS

Developing issue statements

Identifying adaptation options

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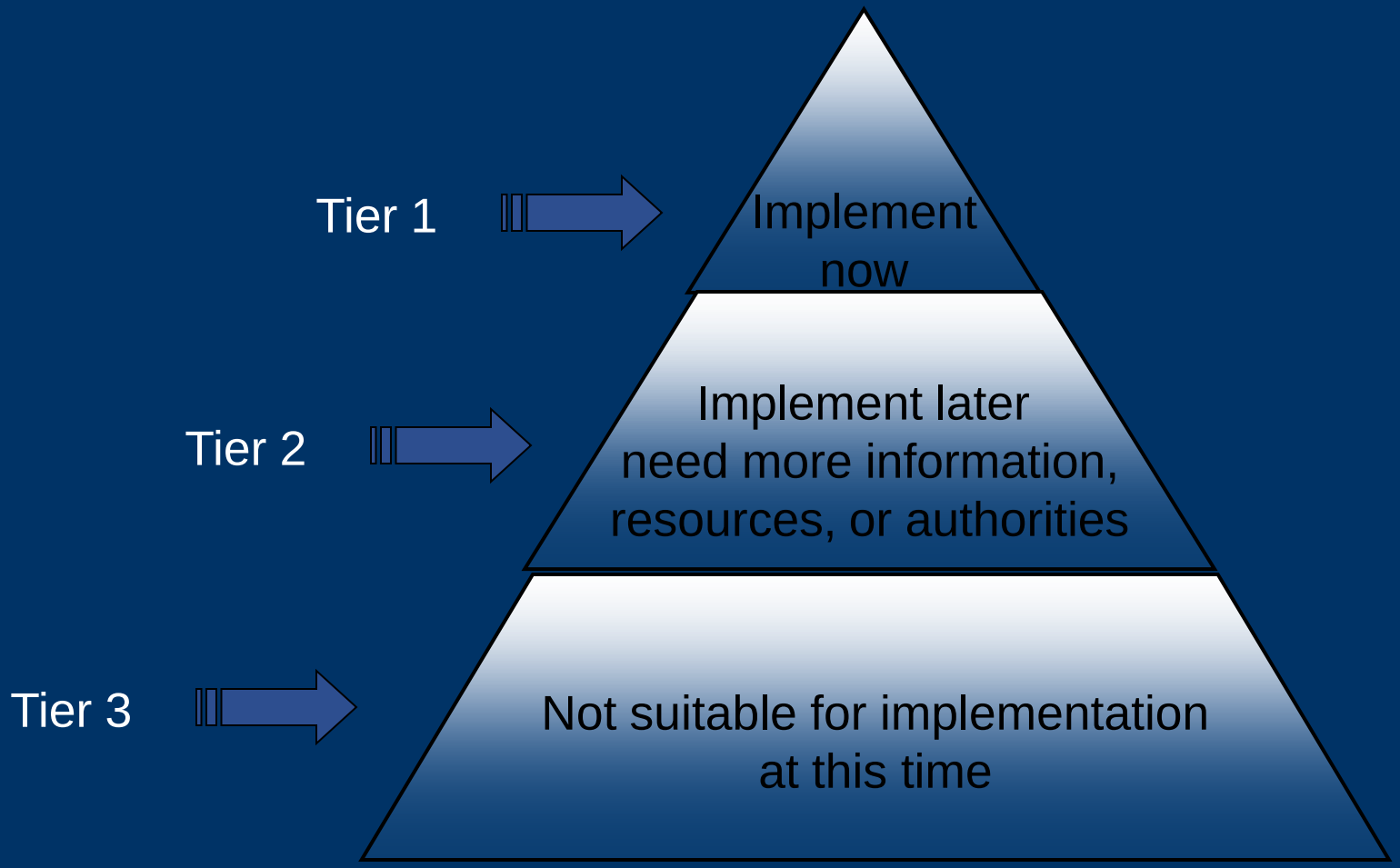
STEP EIGHT: BUILDING MANAGEMENT ACTIONS

Prioritizing adaptation options



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STEP NINE: IMPLEMETING THE PLAN

Implementing your preparedness plan

- bundling adaptation options
- building and maintaining political will
- identifying champions
- make long-term commitment

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STEP TEN: MEASURING PROGRESS AND ADAPTIVE MANAGEMENT

Steps to ensure preparedness plan and actions are working:

Update climate change preparedness plans and actions regularly, based on the information collected from measuring progress and reviewing assumptions.

Communicate results. Look beyond preparedness plans for opportunities to share climate change information.

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Testing the model.


Greenland
CANADA
U.S.
UNITED STATES
RUSSIA
KAZAKHSTAN
MONGOLIA
CHINA
IRAN
ALGERIA
LIBYA
EGYPT
SAUDI ARABIA
INDIA
MYANMAR
MALI
NIGER
CHAD
SUDAN
ETHIOPIA
SOMALIA
KENYA
TANZANIA
ANGOLA
NAMIBIA
BOTSWANA
SOUTH AFRICA
MADAGASCAR
MEXICO
VENEZUELA
COLOMBIA
PERU
BOLIVIA
BRAZIL
PARAGUAY
URUGUAY
CHILE
ARGENTINA
NORTH ATLANTIC OCEAN
SOUTH ATLANTIC OCEAN
INDIAN OCEAN
AUSTRALIA
INDONESIA
PHILIPPINES
TURKEY
SOUTHERN OCEAN
SOUTHERN OCEAN
SOUTHERN OCEAN

First Pilot:

HUE, VIETNAM

December 2008

- **funded by Denmark (DANIDA) and WWF**
- **36 trainees**

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First Pilot Site: Hue, Vietnam

- 10-day training
- MPA managers, Ministry level officials, researchers
- coordinated with Institute of Hydrology & Meteorology
- focused on lagoon system

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First Pilot Site: Hue, Vietnam

What we learned:

- highly altered environment is more vulnerable to impacts of climate change leaving few "soft" adaptation options
- community has become resilient on its own terms
- after examining all other options, sometimes the best solution is relocation (this option was determined by Vietnamese government officials)

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Hue, Vietnam – stakeholder engagement


Phá Tam Giang
An Xuân

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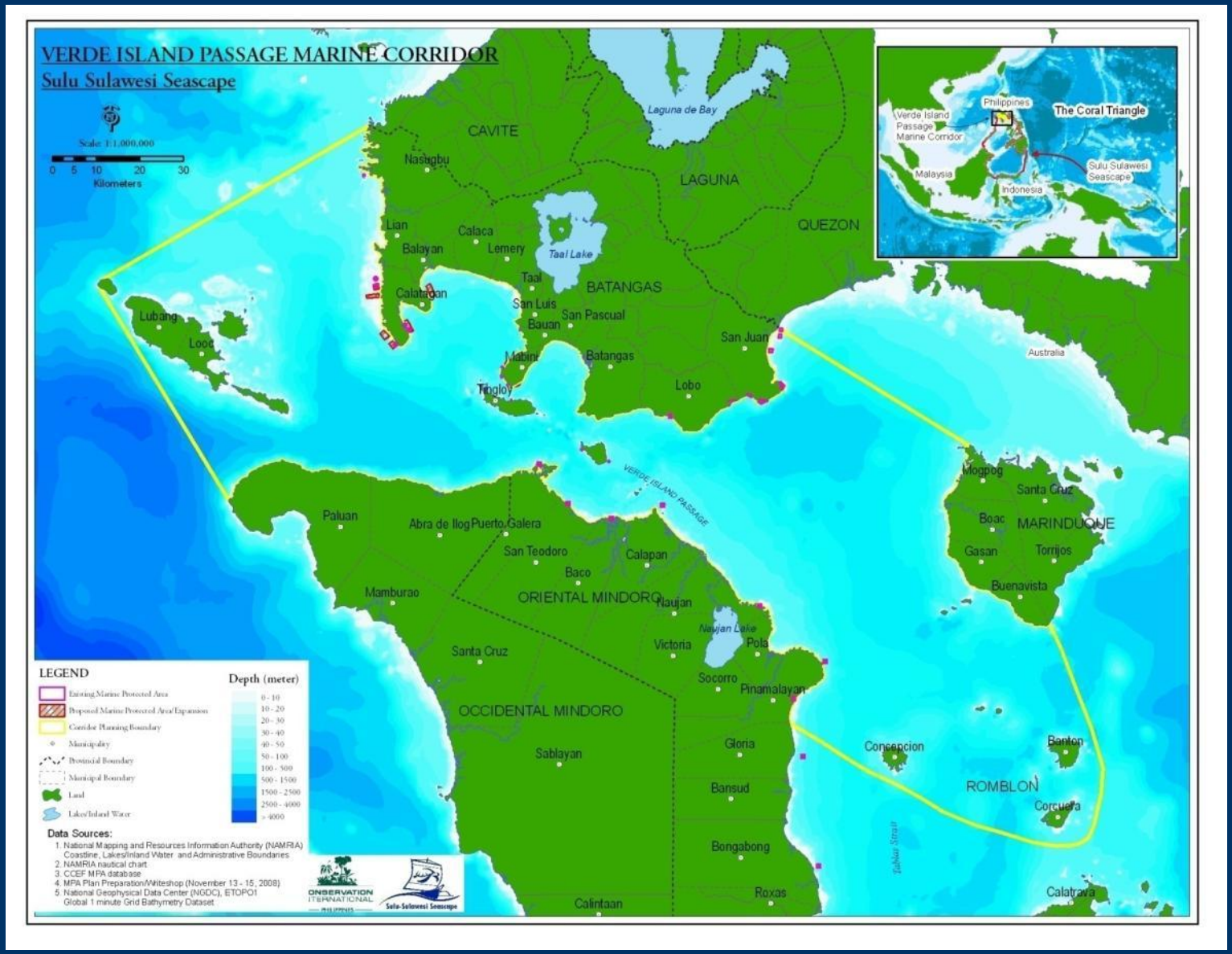
NHÓM SAO BIỂN
Lúa gạo
Bão tố
Lúa gãy, hỏng
Thóc
giải pháp
Niềm Vui của Người dân
Người dân buồn


GIẢI PHÁP 1
THAY ĐỔI KHẨU ĐỘ CỐNG XẢ LŨ
GIẢI PHÁP 2
NÂNG CAO Ý THỨC CỦA CỘNG ĐỒNG TRƯỚC THIÊN TAI (Bão, lũ, lụt, nước biển dâng...
GIẢI PHÁP 3
DI DÂN RA KHỎI VÙNG NGUY HIỂM
Rộng hẻm
Cứu !!!

Second Pilot: VERDE PASSAGE, PHILIPPINES
March 2009

- funded by Conservation International
- 40 trainees



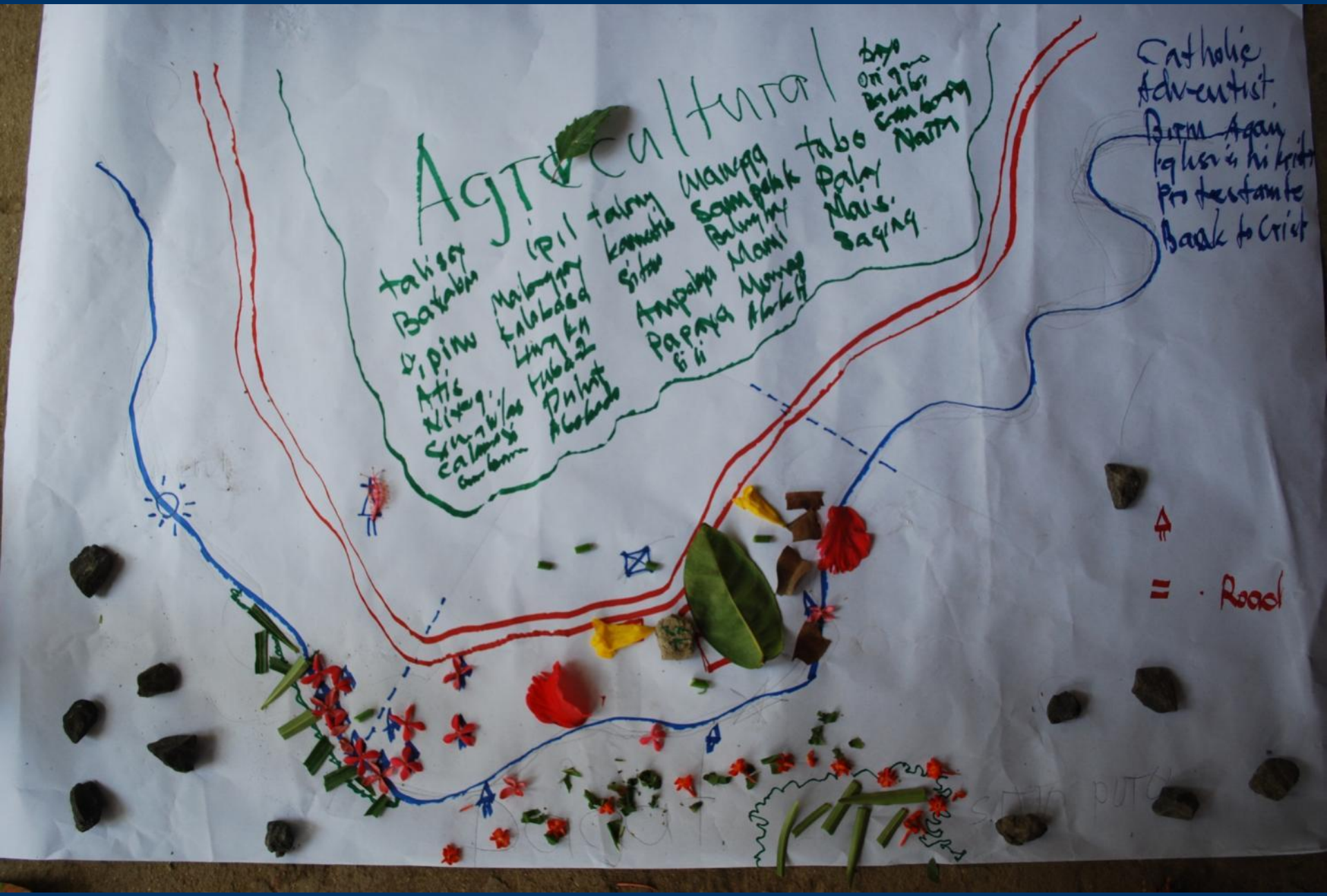
Second Pilot Site: Calatagan, Philippines

- 13-day training (combined with management planning)
- focused on 7 MPAs from Verde Passage Seascape
- coordinated with scientifically-based vulnerability assessment

Verde Island Passage, Calatagan, Batangas, Philippines

Center
HNOLOGY


TREAS.
MARICEL ALMANZOR
SECRETARY
MARISSA ALMANZOR


Agricultural
Catholic
Adventist
Born Again
Road

Second Pilot Site: Calatagan, Philippines

What we learned:

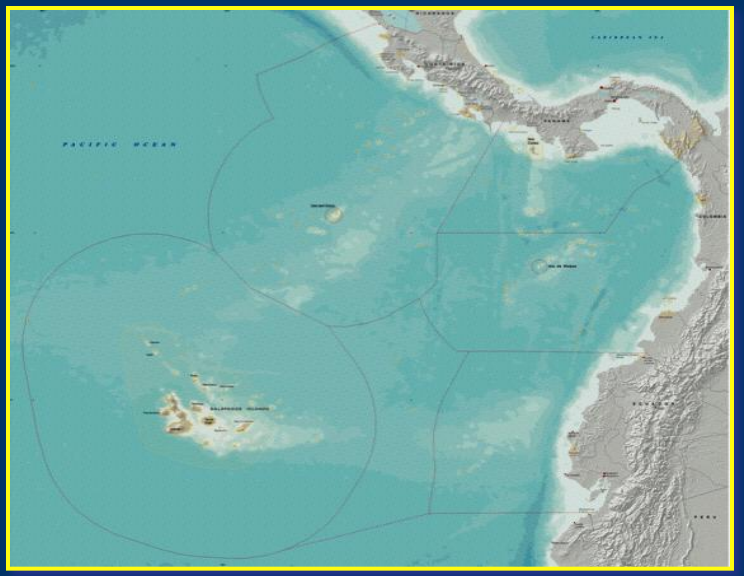
- **Worked well to combine climate change with site and regional level management planning**
- **Planning capacity high**
- **Extensive experience working with the community, already had a lot of input**

Third Pilot:

Eastern Tropical Pacific Seascape

April 2009

- **Funded by Conservation International**
- **32 participants**



Third Pilot Site: Galapagos, Ecuador

- included MPAs from 4 Eastern Tropical Pacific Seascape countries (Costa Rica, Panama, Colombia, Ecuador)
- 8-day training
- held in conjunction with scientifically-based vulnerability study
- Galapagos National Park as field study site
- community already engaged in climate change

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Third Pilot Site: Galapagos, Ecuador

What we learned:

- Data rich area contributing to vulnerability assessment
- Community already well engaged in planning processes
- High awareness level of climate change due to extreme ENSO events

Fourth Site:

Bali, Indonesia

October 2009

- Part of the Coral Triangle Initiative
- 35 Participants

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Fourth Pilot Site: Bali, Indonesia

- 5-day training
- CZM managers, Ministry level officials, University researchers, NGOs
- focused on small island impacts – Nusa Penida

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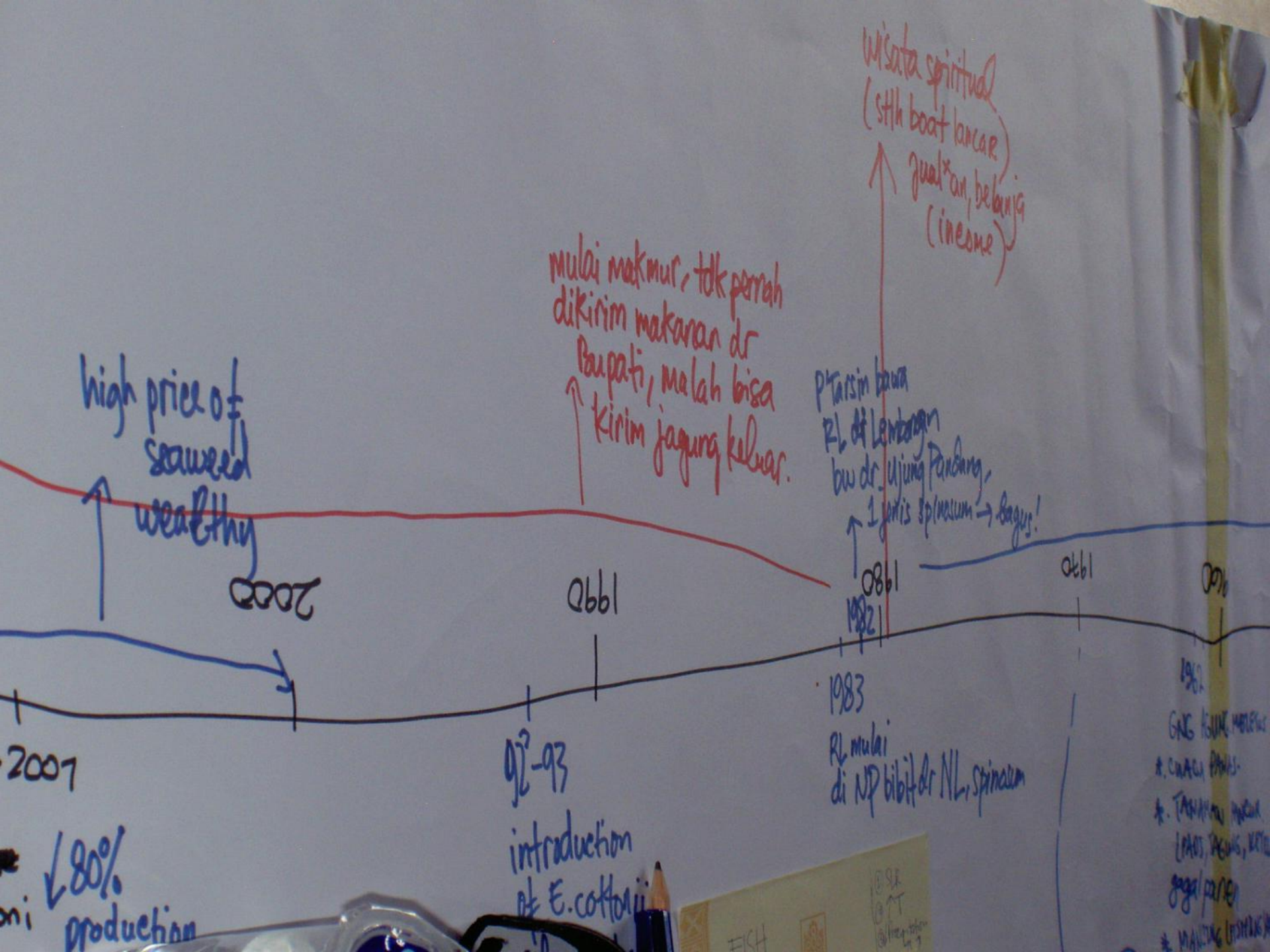
Coca-Cola
Coca-Cola
Coca-Cola


wisata spiritual
(sthl boat lancar)
jual*an, belanja
(income)
mulai makmur, tdk pernah
dikirim makanan dr
Bupati, malah bisa
kirim jagung keluar.
high price of
seaweed
wealthy
2007
1991
1983
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di NP bibit dr NL. spinosum
92-93
introduction
of E. cottonii
2007
80%
production

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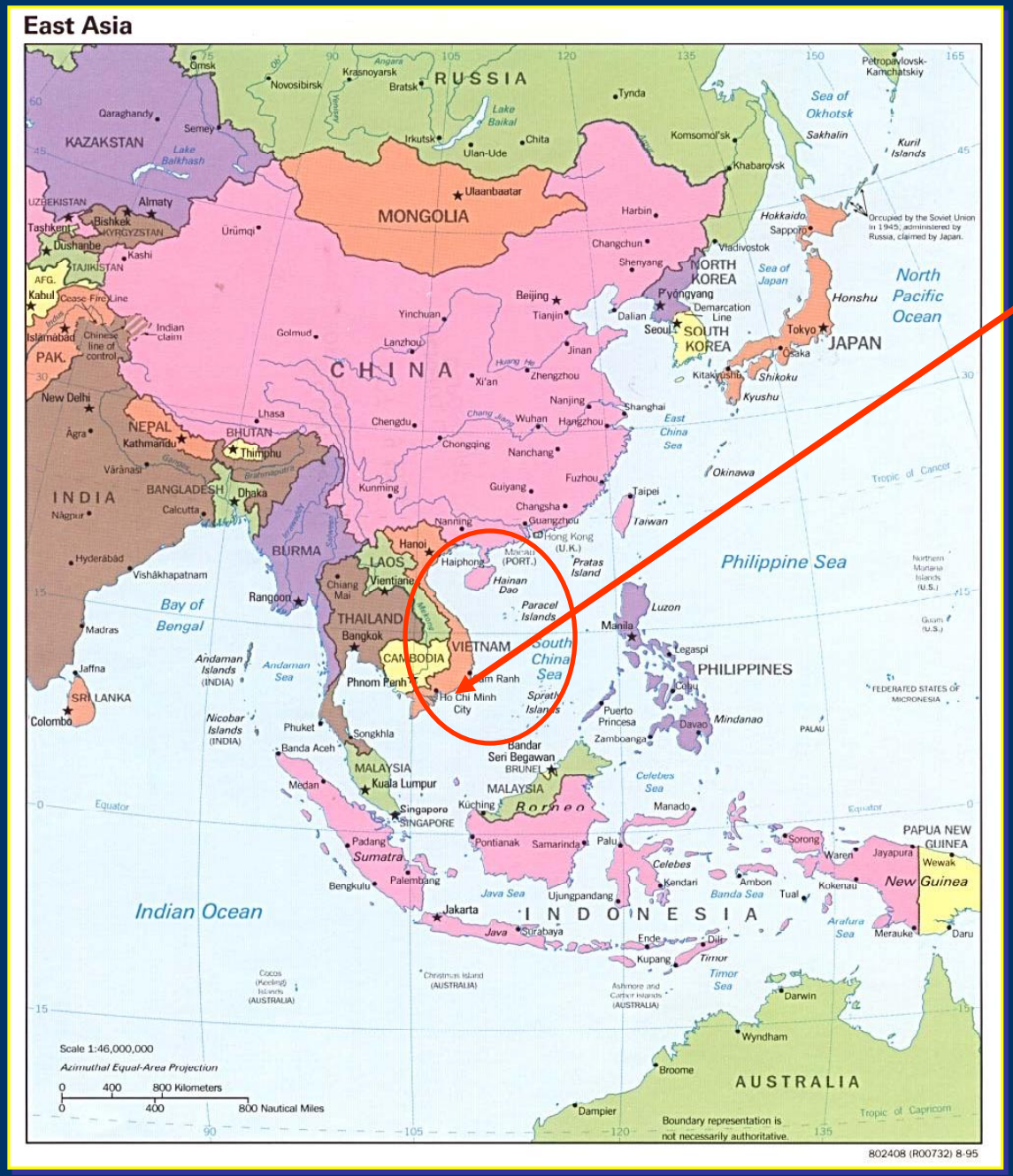
AND TECHNOLOGY

Fourth Pilot Site: Bali, Indonesia

What we learned:

- Limited data for contributing to vulnerability assessment
- NGOs already well engaged in community planning processes
- Low community awareness level of climate change
- Areas already experiencing climate change impacts



Fifth Site:

Mekong Delta, VIETNAM

November 2009

- funded by Denmark (DANIDA) and WWF
- 41 trainees

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Fifth Pilot Site: Mekong Delta, Vietnam

- 10-day training
- MPA managers, Ministry level officials, University researchers
- coordinated with the DRAGON Institute

- focused on delta and wetlands
- rural agricultural systems

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Fifth Pilot Site: Mekong Delta, Vietnam

What we learned:

- extremely vulnerable area
- data-rich with local down-scaled projection models developed by local University and DRAGON Institute
- community has already demonstrated high adaptive capacity
- limited adaptation options
- built capacity of mentors

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What we learned from the pilot projects as a whole.

Lessons Learned

- no similar planning models as reference
- science is changing very quickly
- takes a strong planning background
- offers a new opportunity for CZM implementation
- current predictions at a scale mismatched with local ability to address climate change
- ability to implement adaptation options is often limited and needs to be coordinated with other management priorities

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Future Plans

- South Africa – April 2010
- Indonesia – August 2010
- India – 2010
- Maldives – 2010?

Future Plans - Domestically

- **Working with additional partners to develop a U.S. version of the training**
  - Utilizing lessons learned from international experience
- **Test run portion of training in Hawaii in January**
- **San Francisco Bay Area – February 2010**
  - 5 day training
- **American Samoa – February or March 2010**
  - 5 day training

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Thank You

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