

# Key Challenges and Best Practices in Climate Change Adaptation in Watersheds in Zamboanga Peninsula Region



# Situationer

- ✓ Agriculture plays a vital role to region's economy
  - employs **56%** of the total labor force and contributes **50%** of value added to the economy
- ✓ **65% or 3.08M** region's total population is dependent on agriculture
- ✓ **About 88% or 348,582 has.** for agricultural land is utilized for crop production
- ✓ **10,000 has.** of swamps and mangroves are utilized for brackish water fishponds, **20,200 has.** of coastal water are used for seaweeds farming
- ✓ Of 365,573 families belonging to the poverty threshold, **310,949 families** or **83% were from the rural areas**

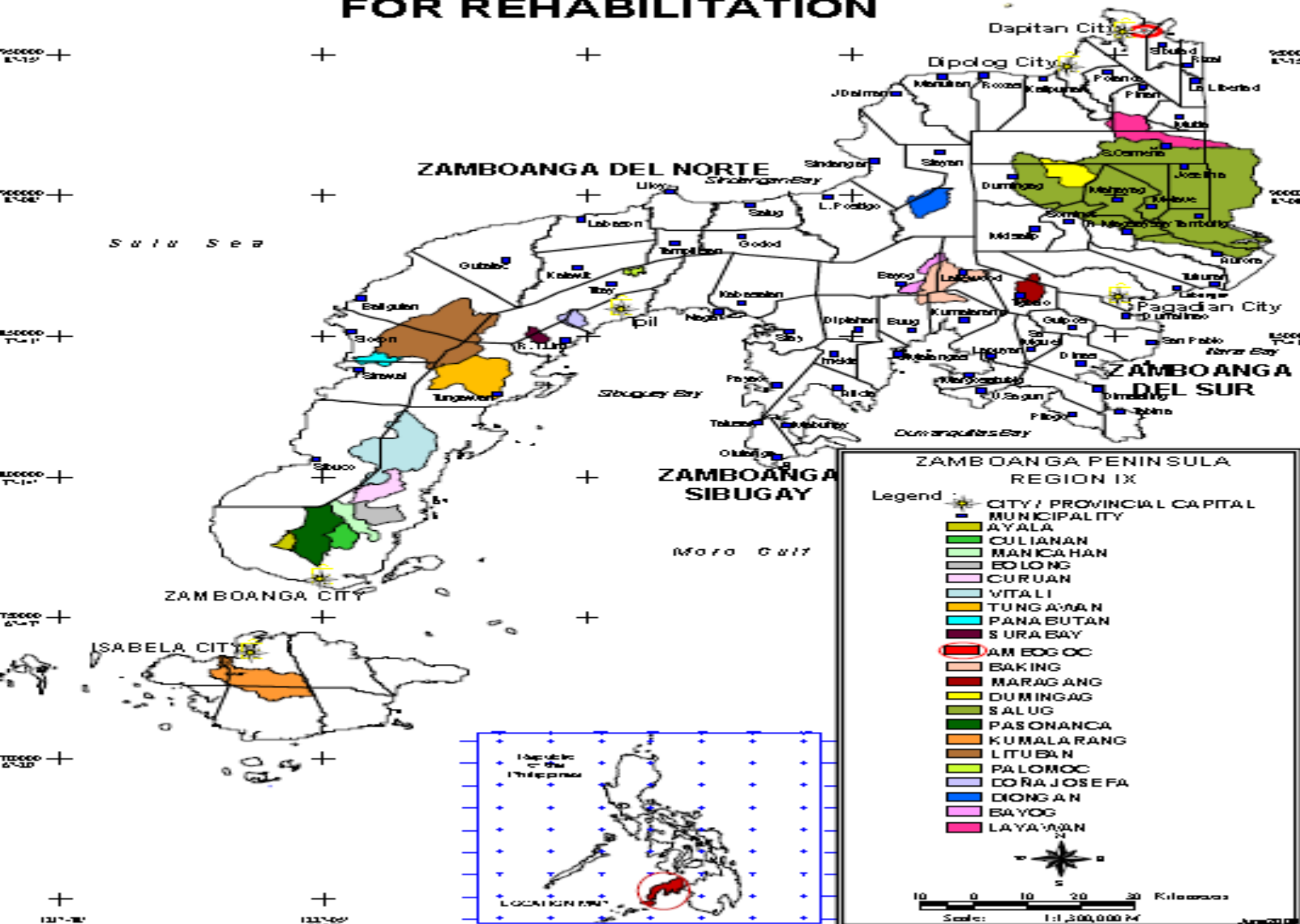


# Watershed Situationer

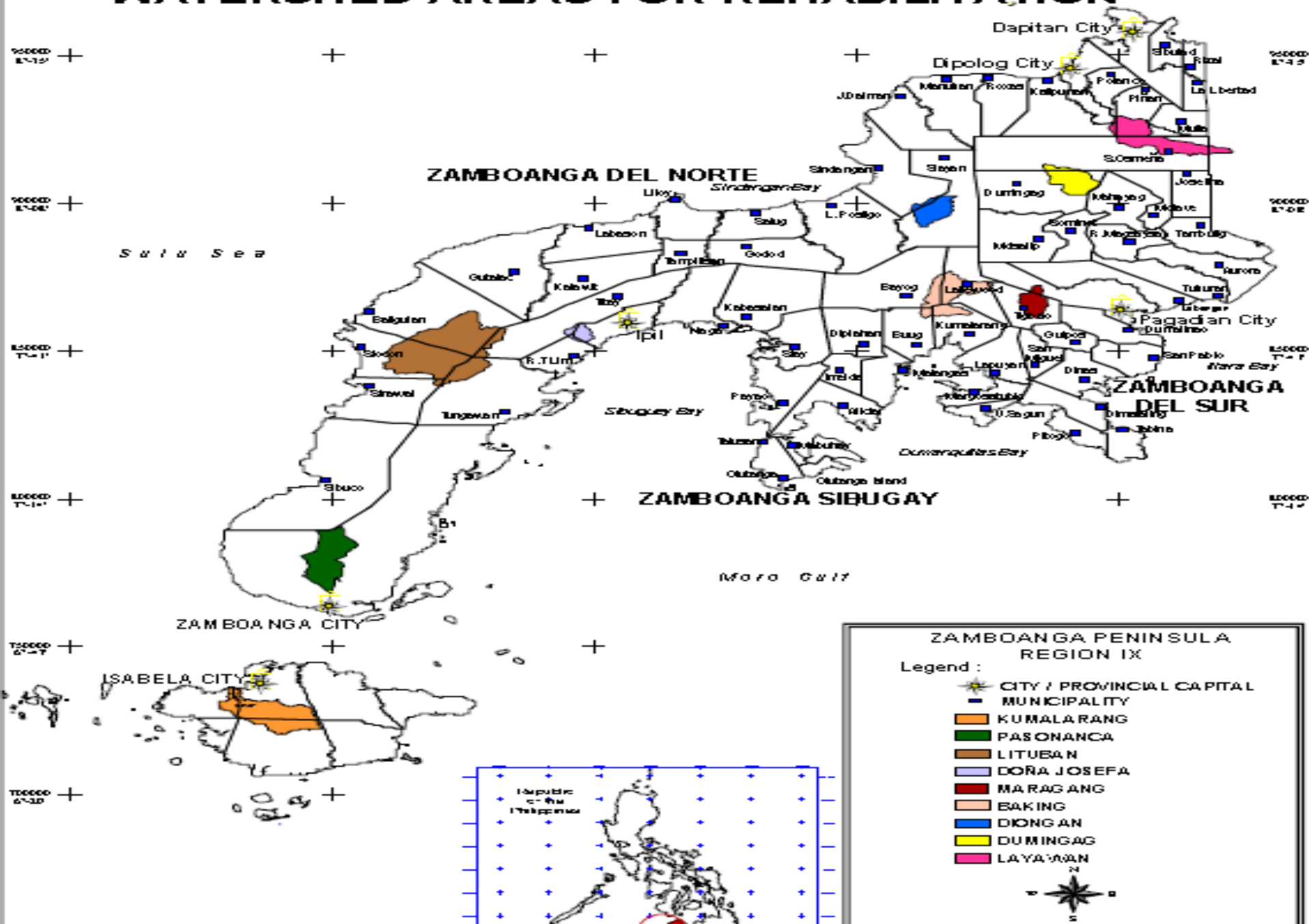
- ✓ Estimate made in 2003 revealed that a little over a tenth (12.89%) of the region remains forested
- ✓ 26,541 hectares (ha) of critical watersheds have degraded forests in 20 watersheds across the region
- ✓ 69.86 percent of the 548,038 households still relied on biofuel for cooking
- ✓ Growing landlessness typically occurs among upland dwellers most of whom are indigenous people (IP) and some poor lowland dwellers



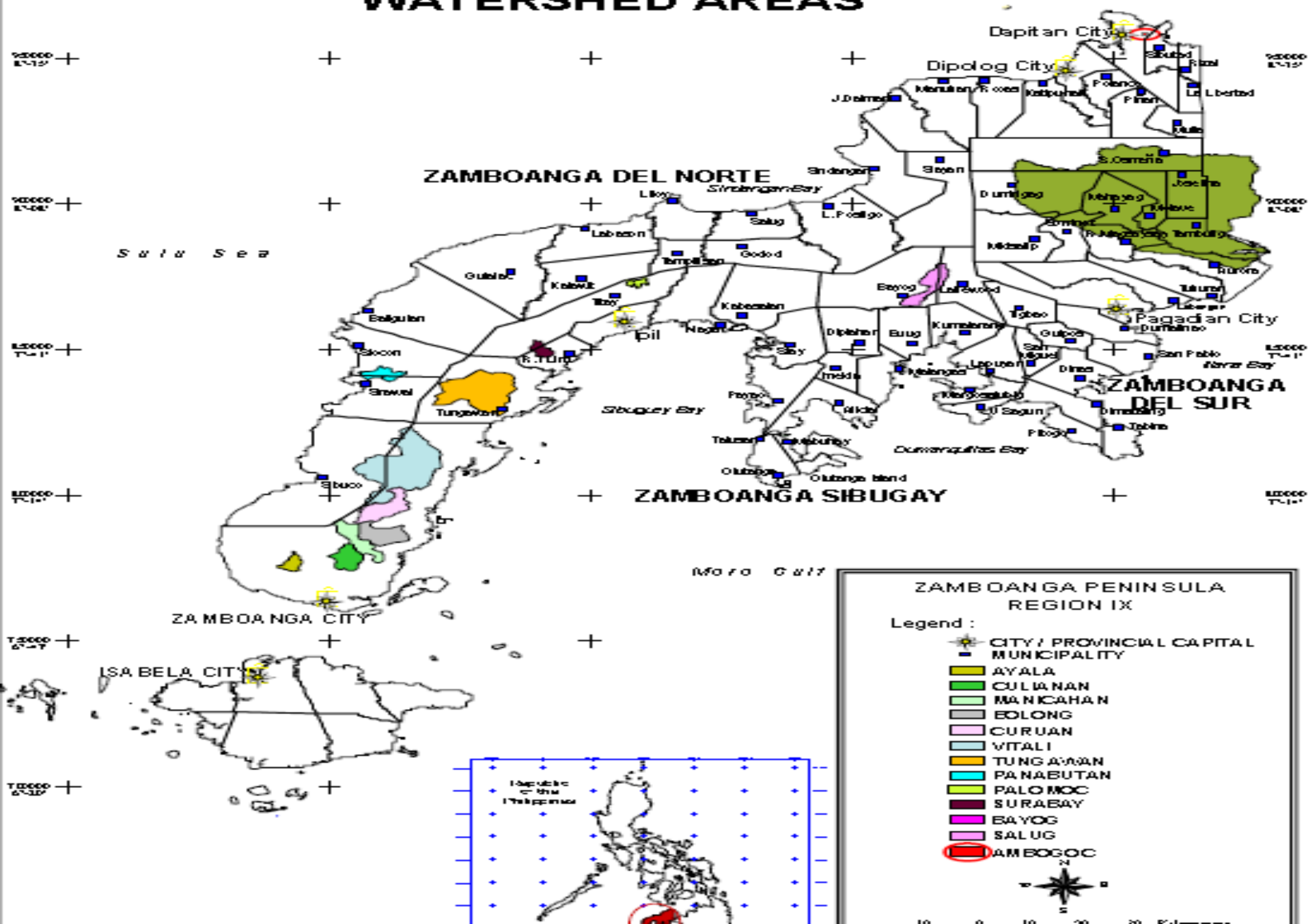
## MAP OF PRIORITY WATERSHED AREAS FOR REHABILITATION



# MAP OF DENR IDENTIFIED PRIORITY WATERSHED AREAS FOR REHABILITATION



CA



# Action Programs

1. Climate Information System for Agriculture and Fisheries

2. Research and Development for Adaptive tools,  
technologies and practices

3. Repair and improvement of irrigation systems and  
establishment of SWIPS and SFRs

# Action Programs

4. Climate resilient - other agriculture and fishery infrastructures

5. Windows for financing and instruments for risk transfer

6. Regulations to ensure effectiveness and safety

7. Fully engaged extension system

# Timelines

| 2011                                                                                                                                                                                                                            | 2012-2016                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <p>Climate Information System for Agriculture and Fisheries</p> <p><i>Implementation of UEGIS project to overlay Vulnerability Maps on SAFDZs &amp; Establishment of Agromet Stations in Highly Vulnerable Areas (BSWM)</i></p> |                                                                                |
| <p>Inventory of available tools, technologies and practices for climate change adaptation and mitigation of agriculture and fisheries</p> <p>Implementation of Philippine Climate Change Adaptation Project (PHILCCAP I)</p>    | <p>Research and development for adaptive tools, technologies and practices</p> |
|                                                                                                                                                                                                                                 | <p>Repair and improve irrigation systems and establish SWIPS &amp; SFRs</p>    |
|                                                                                                                                                                                                                                 | <p>Climate resilient other agriculture and fishery infrastructures</p>         |
|                                                                                                                                                                                                                                 | <p>Windows for financing and instruments for risk transfer</p>                 |
|                                                                                                                                                                                                                                 | <p>Regulations to ensure effectiveness and safety</p>                          |
|                                                                                                                                                                                                                                 | <p>Fully engaged extension system</p>                                          |

# Action points

Approved the  
***Department's  
Climate Change  
Policy Thrusts  
and Proposed  
Action Program***

1

Created the  
***Climate Change  
Program Office***  
for policy  
oversight,  
coordination and  
monitoring

2

***Mainstreaming  
Climate Change***  
in 2013 budget

3

# Action points

Create & immediately **activate the PMO for the Unified and Enterprise Geospatial Information System (UEGIS)** for Agriculture

Engage a competent technical expert in RS/GIS.

4

Implementation of **PhilCCAP I** to provide the models for climate change resilient irrigation system and infra, weather-based insurance/risk-transfer mechanism, and extension systems

5

BSWM to **optimize the usefulness of the approved project** –

Establishment of Agromet Stations in Highly Vulnerable Areas

- Include fishery climate info
- Generate & analyse local weather data for EWS
- Explore PPP
- Include formal Agromet education

6

# Action points

NIA and BSWM to jointly **assess the existing irrigation systems**

vis-à-vis the vulnerability maps to determine the most appropriate water delivery system

7

BAR to conduct **inventory of tools, technologies and practices** for CC adaptation and mitigation **ready for adoption**

**BAR to fully engage the science and technology sector** in the development of tools, technologies and innovations consistent with researchable areas identified in the DA Climate Change program.

8

ACPC to look **for sources and develop innovative financing schemes** for wider adoption of adaptation measures,

PCIC to **develop a weather-based insurance system** and expand its protection to the country's agricultural and fishery producers

9

ATI **to fully engage the extension system** of RFUs, RIARCs, SUCs, LGUs and private sector to maximize IEC on climate change

10

# Vision

A climate risk-  
resilient  
Philippine  
Agriculture and  
Fisheries

with healthy, safe,  
prosperous and  
self-reliant farming  
and fishing  
communities,

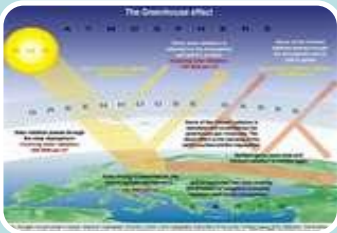
and thriving and  
productive  
ecosystems



# Goals



To build the adaptive capacity of farming and fishing communities



Increase the resilience of natural ecosystems to climate change, and



Optimize adaptation with mitigation opportunities towards sustainable and equitable development.

## Farming System Stage

## Farmers Adaptation Strategies

### CROPS

#### 1. Land Preparation

|                   |                                                      |
|-------------------|------------------------------------------------------|
| <i>Late onset</i> | Switch to short duration varieties                   |
| <i>Floods</i>     | Construction of gutters/runaways. Contour ploughing. |
|                   | Application of organic fertilizer                    |
|                   | Repair of dikes                                      |
|                   | Planting of lodge resistant crop varieties           |

#### 2. Planting Practices

|                          |                                                                                               |
|--------------------------|-----------------------------------------------------------------------------------------------|
| <i>Uncertain onset</i>   | Plant early maturing variety                                                                  |
|                          | Synchronize growing with water availability                                                   |
| <i>Early onset</i>       | Practice direct seeding                                                                       |
|                          | Plant lodge resistant crop varieties                                                          |
| <i>Late onset</i>        | Plant early maturing varieties                                                                |
|                          | Apply organic fertilizer and practice mulching to high value crops to maintain soil fertility |
| <i>Dry spells</i>        | Replanting or re-filling of empty stands                                                      |
| <i>Floods</i>            | Seeds are nursed and transplanted.                                                            |
|                          | Plant lodge resistant crop varieties                                                          |
|                          | Timing of planting                                                                            |
| <i>High temperatures</i> | Replanting or re-filling of empty stands                                                      |

| Farming System Stage                 |  | Farmers Adaptation Strategies                                                   |
|--------------------------------------|--|---------------------------------------------------------------------------------|
| <b>3. Crop Nutrition and Weeding</b> |  |                                                                                 |
| <i>Dry spells</i>                    |  | Practice basal fertilization                                                    |
|                                      |  | Application of organic fertilizer                                               |
|                                      |  | Agronomic measures such mulching in dry land areas                              |
| <i>Floods</i>                        |  | Application of foliar fertilizer                                                |
| <i>High temperatures</i>             |  | Farmers avoid use of urea                                                       |
| <i>High winds/ storms</i>            |  | Adoption of lodge-resistant crop varieties                                      |
|                                      |  | Replanting and readjust planting distance                                       |
|                                      |  | Conduct pruning of trucks and apply with fungicides to avoid infection          |
| <b>4. Crop Protection</b>            |  |                                                                                 |
| <i>Late onset</i>                    |  | Practice Integrated Pest and Management                                         |
|                                      |  | Increase use of biological and organic pesticides and insecticides              |
|                                      |  | Corn detasseling                                                                |
| <b>5. Harvesting practices</b>       |  |                                                                                 |
| <i>Abrupt end of rains</i>           |  | Risk early planting                                                             |
|                                      |  | Observed watering schedule                                                      |
|                                      |  | Use water recycling from households to water crops                              |
| <i>Extended period of rains</i>      |  | Crops are harvested hurriedly and heaped, awaiting labor for processing         |
|                                      |  | Crops are harvested quickly and dry air dry immediately                         |
| <i>Early onset</i>                   |  | Farmers plant as late as possible, or plant varieties with resistant to lodging |
| <i>High temperatures</i>             |  | Early planting and early harvest                                                |

| Farming System Stage                           | Farmers Adaptation Strategies                                           |
|------------------------------------------------|-------------------------------------------------------------------------|
| 5. Harvesting practices                        |                                                                         |
| Floods                                         | Allow substantial time for drying                                       |
|                                                | Allow early harvest                                                     |
| Wind storms                                    | Adoption of lodge-resistant crop varieties                              |
| 6. Post Harvest Practices                      |                                                                         |
| Extended rains                                 | Allow early harvest when crops reached 85% ripening.                    |
|                                                | Practice air drying to dry grains during extended rains                 |
| Low temperatures                               | Possible piecemeal drying around kitchen fire.                          |
| LIVESTOCK                                      |                                                                         |
| 7. Grazing practices                           |                                                                         |
| Early onset                                    | Cattle is herded, carabao and goats tethered and fed with tree pruning. |
| Dry season without the intermittent rains      | Free grazing at very far-off lands                                      |
| 8. Stall feeding fodder supply                 |                                                                         |
| Early onset                                    | Cut grass and tree pruning are used                                     |
| 9. Watering practices                          |                                                                         |
| Dry season                                     | Livestock herded to far-off large reservoirs for watering               |
| 10. Animal Health                              |                                                                         |
| Mostly dry season without the occasional rains | Reliance on extension agent support                                     |
|                                                | Collection of water from the rivers/streams                             |

# Key Challenges



- Lack or total absence of horizontal linkages among sectoral concerns



- Weak plan – to – budget linkage

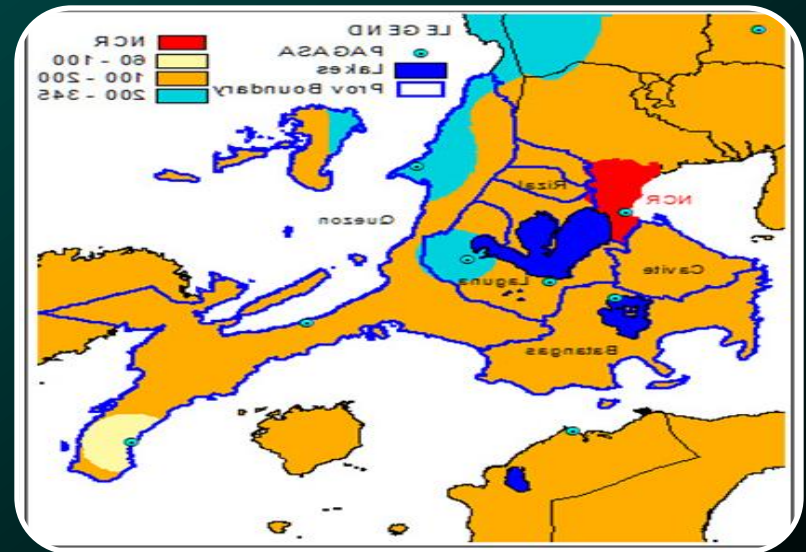
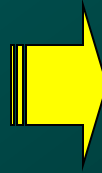


# Key Challenges



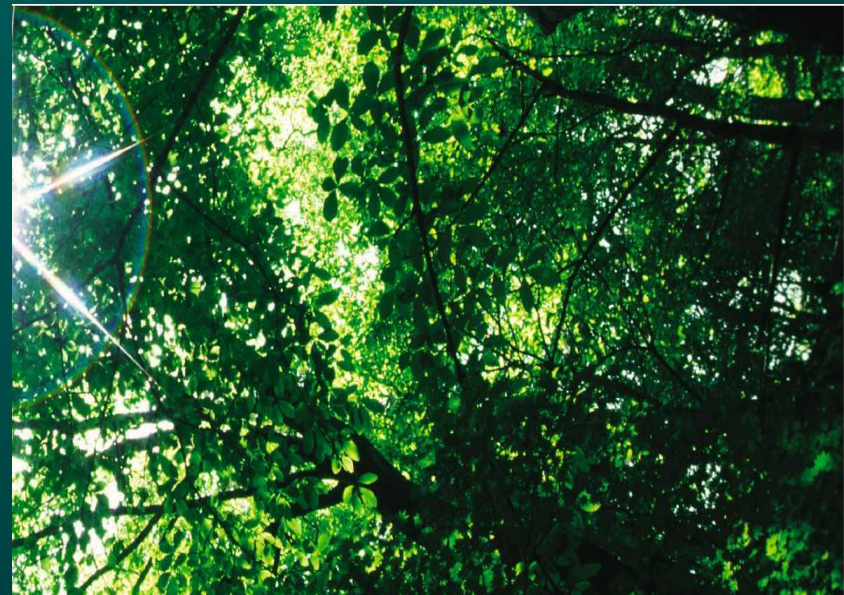
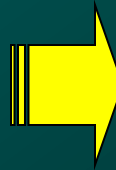
✓ Poor Access to Gov't Programs

# Key Challenges



✓ Natural Hazards

# Key Challenges



✓ **Pressure on Upland Resources**

Thank you..