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BACK TO THE FUTURE:
CASE STUDIES OF SCENARIOS

WWF and Natural Capital Project, ACES Workshop

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SCENARIOS IN PRACTICE
Cases from Belize, Tanzania, and Cambodia

ONE EXAMPLE
DEVELOPING SCENARIOS FOR BELIZE

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Coastal management
Belize

OUR GOALS

- Understand and map current uses,
- Map and value coastal and marine ecosystem services now and in the future,
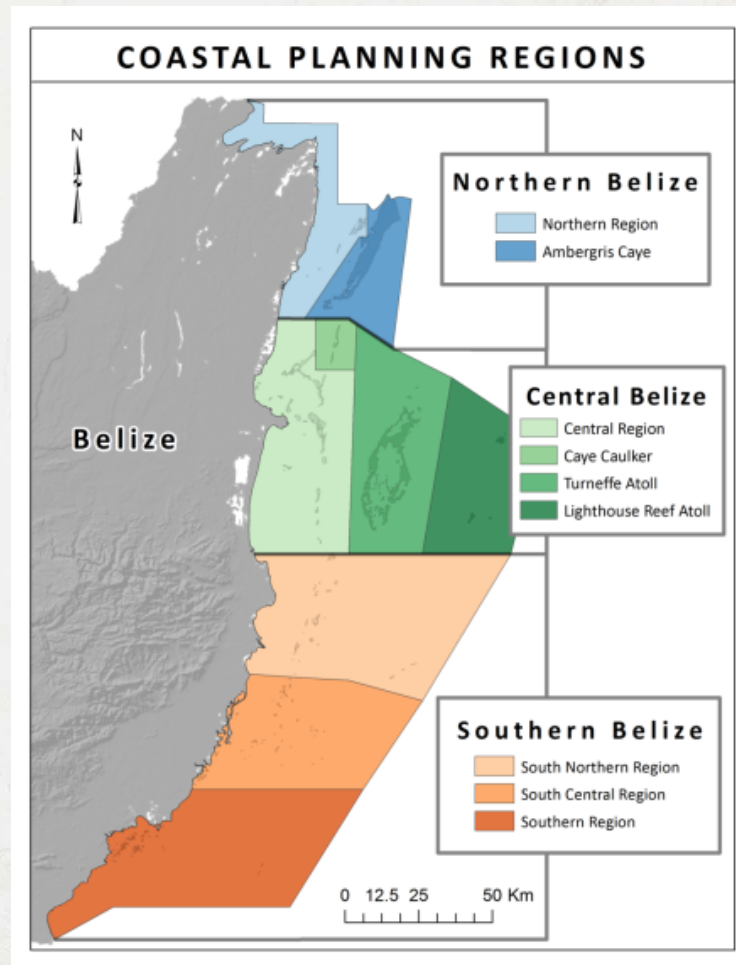- Create an ecosystem-based plan for multiple uses.

SCENARIO GOALS

FRAMING QUESTION: *How will alternative development and conservation strategies affect key ecosystem services for Belize?*

- **Understand** how human activities affect ecosystem services now and in the future.

- **Compare** alternative planning options and select one approach.

- **Engage stakeholders** to inform the planning process and learn from results.

- **Provide evidence** that sound management best achieves goals.

- Foster planning for **improved environmental** and **economic outcomes**.

- **Set a foundation** for future planning and monitoring changes.

SCIENTISTS
POLICYMAKERS
STAKEHOLDERS
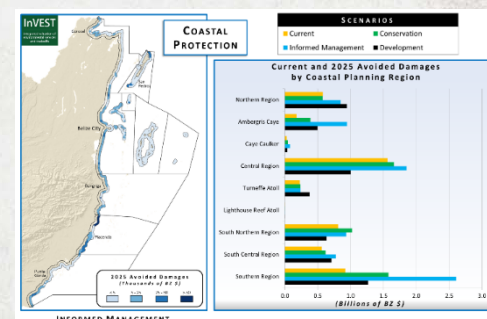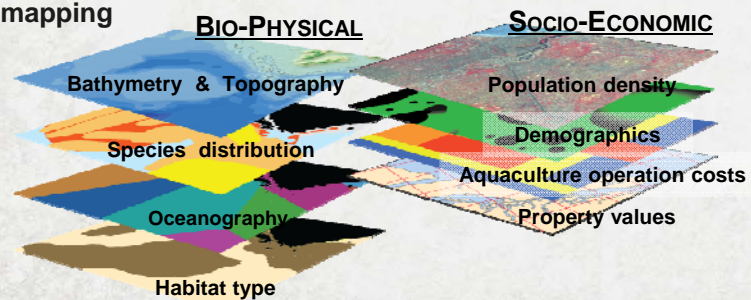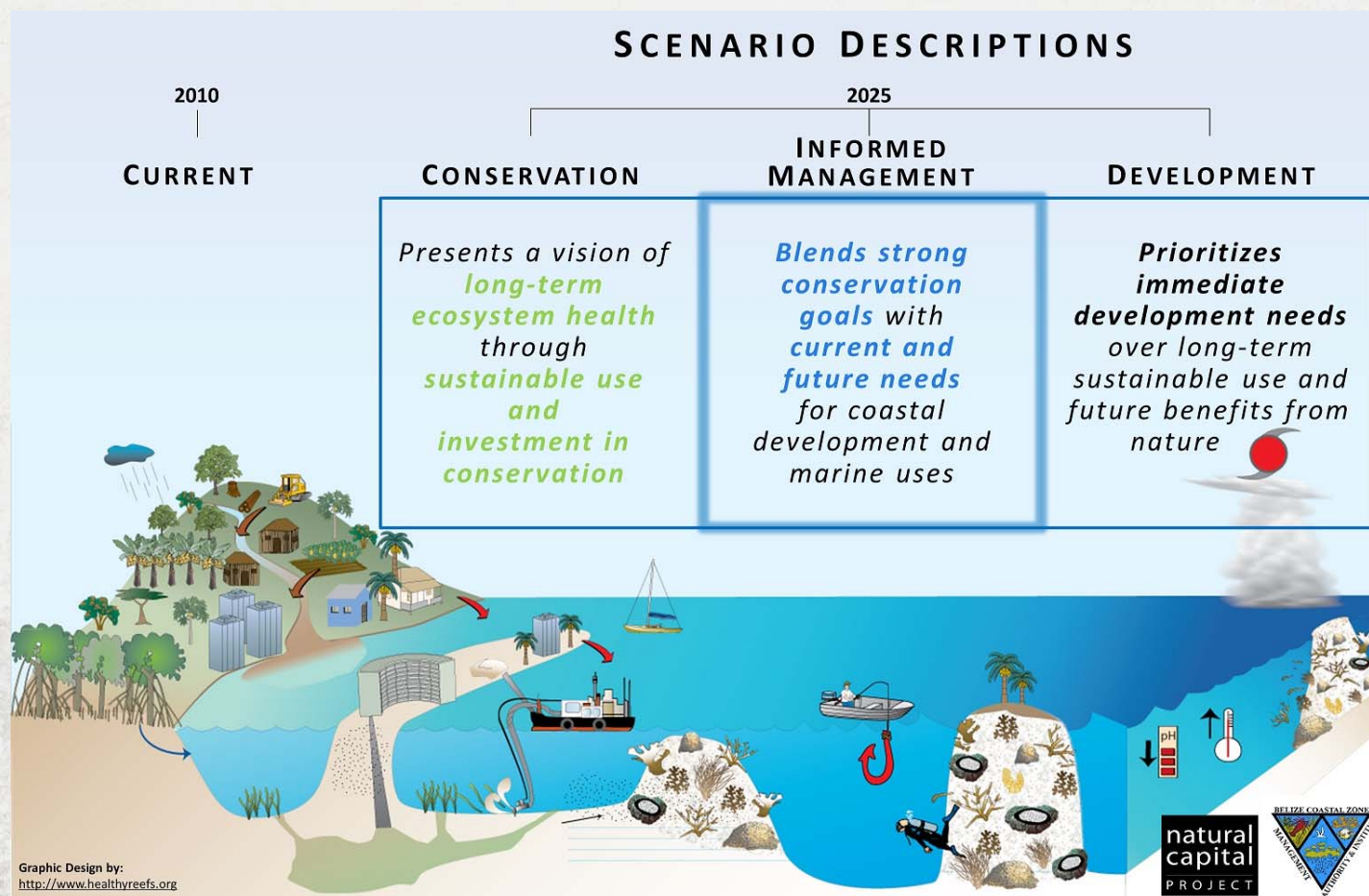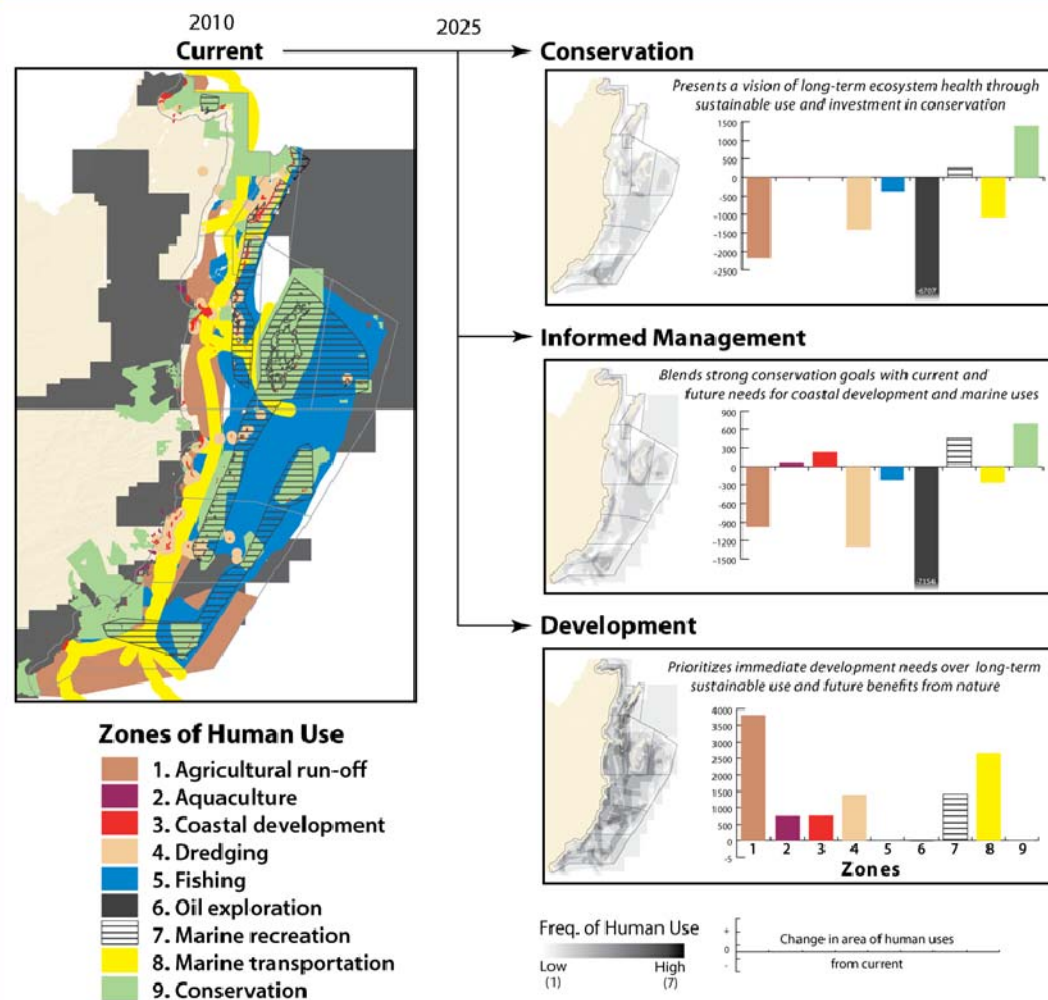
Stakeholder consultation
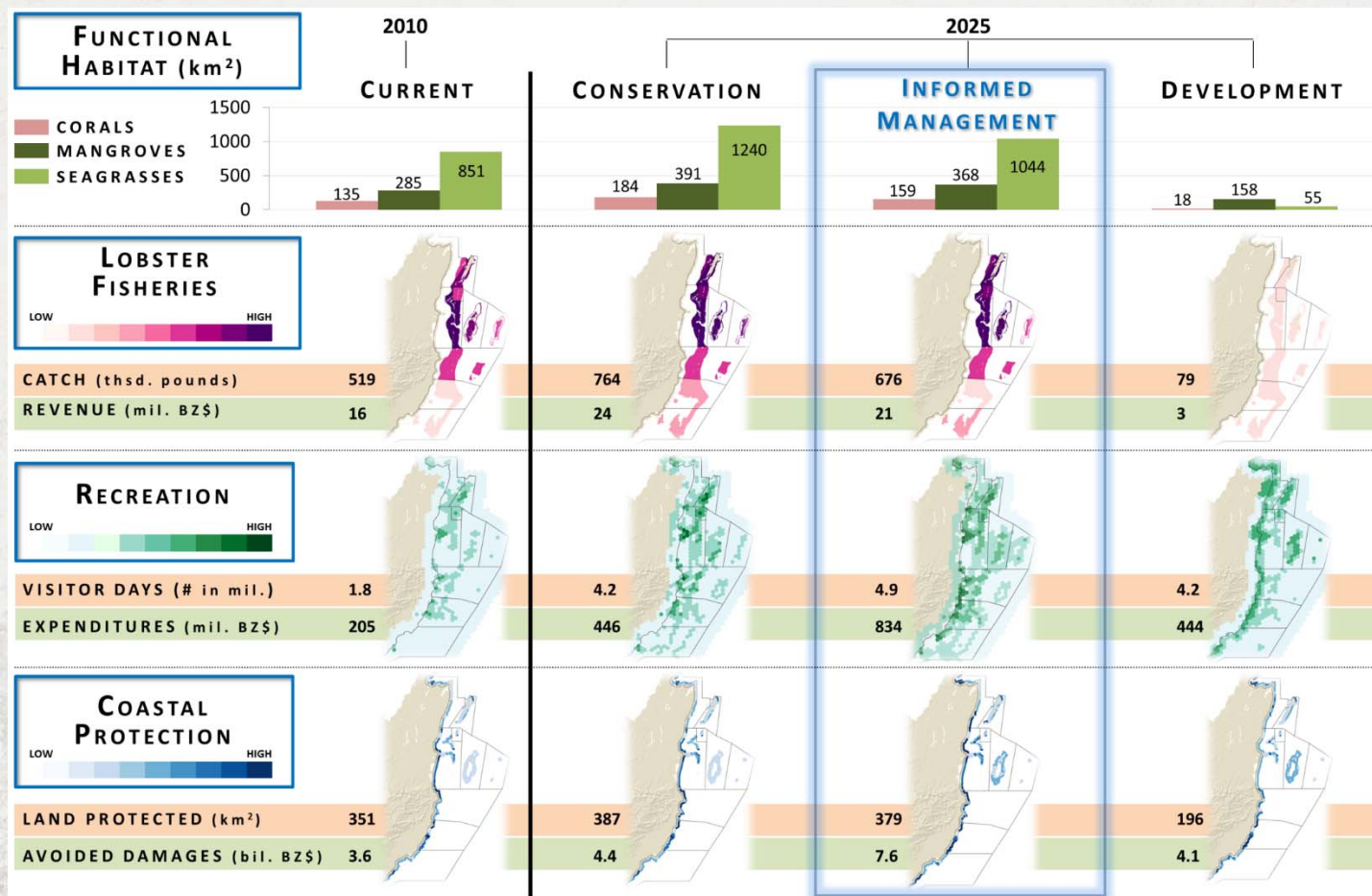
Ecosystem service modeling

Data gathering & mapping

BIO-PHYSICAL

Bathymetry & Topography

Species distribution

Oceanography

Habitat type

SOCIO-ECONOMIC

Population density

Demographics

Aquaculture operation costs

Property values

SCENARIO DESCRIPTIONS

2010

2025

CURRENT

CONSERVATION

INFORMED MANAGEMENT

DEVELOPMENT

Presents a vision of ***long-term ecosystem health*** *through* ***sustainable use and investment in conservation***

Blends strong conservation goals *with* ***current and future needs*** *for coastal development and marine uses*

Prioritizes immediate development needs *over long-term sustainable use and future benefits from nature*

Graphic Design by:
http://www.healthyreefs.org

Arkema et al.
in press

In Waite et al. 2014

ONE EXAMPLE
DEVELOPING SCENARIOS FOR TANZANIA

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P R O J E C T

REDD+ and Payments for Watershed Services Tanzania

OUR GOALS

- Advocate conservation by demonstrating nature's value
- Demonstrate need for REDD and PWS policies
- Suggest where REDD and PWS pilots feasible

SCENARIO GOALS

FRAMING QUESTION: *Where are REDD and PWS pilots most likely to be economically viable compared with other land-use choices?*
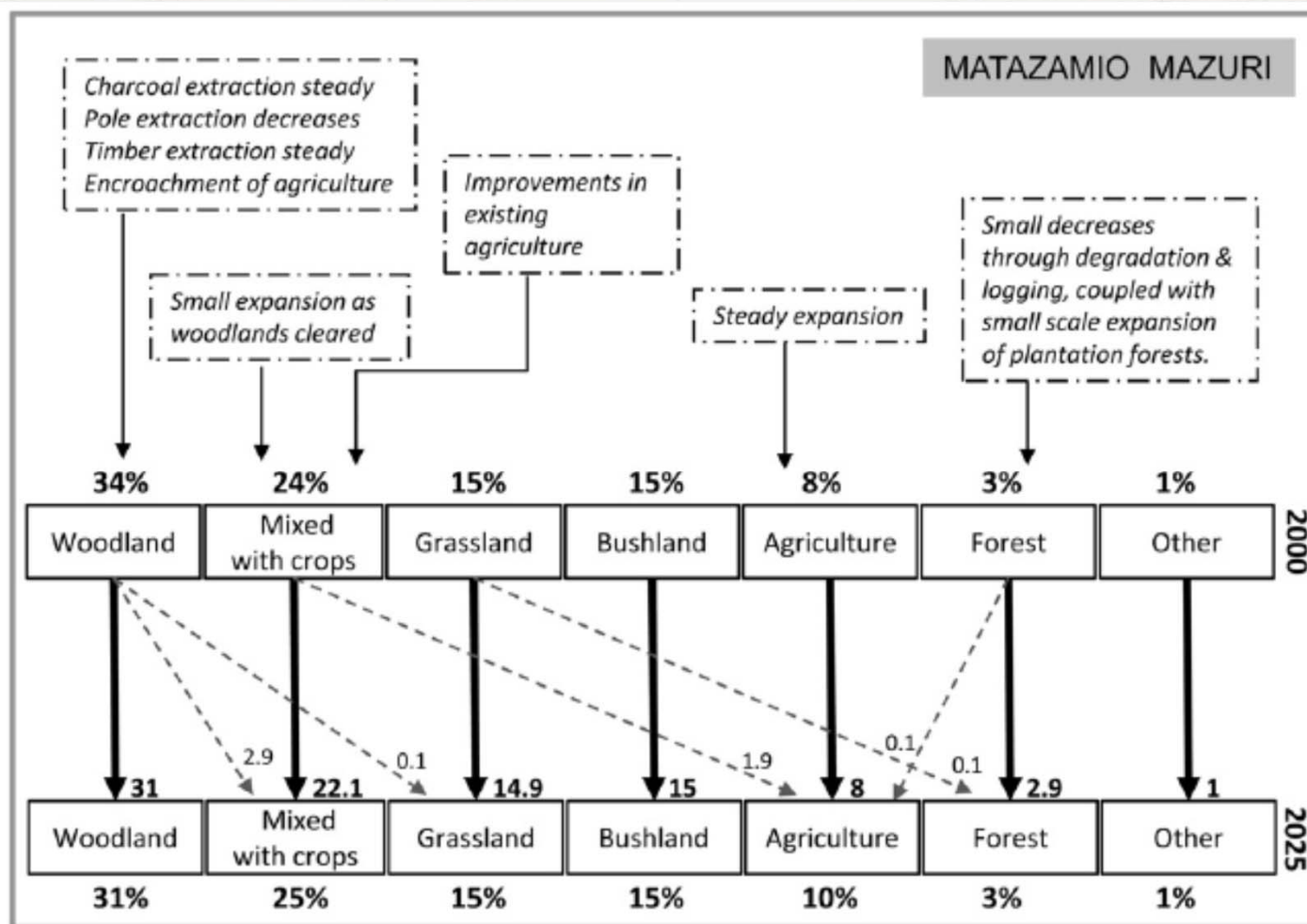
- **Explore** how relevant drivers might change in the future

- **Elucidate** how land-use changes affect ES delivery

- **Ground scenarios** in policy and practical realities

- **Engage stakeholders and experts** in process to build support and improve data

- **Demonstrate** the importance of ES and the power of ES maps

METHODS

- Reviewed sectoral & national policies

- Interviewed decision-makers & stakeholders

- Held many participatory workshop
  - To identify drivers, create storylines, develop rules
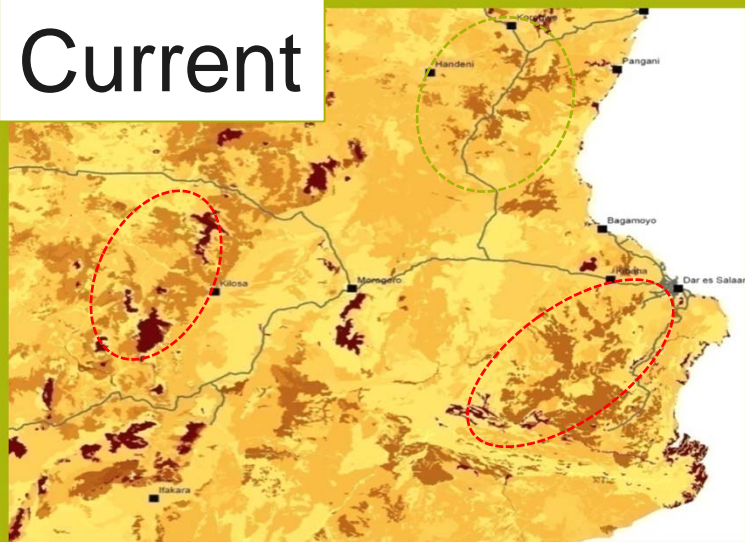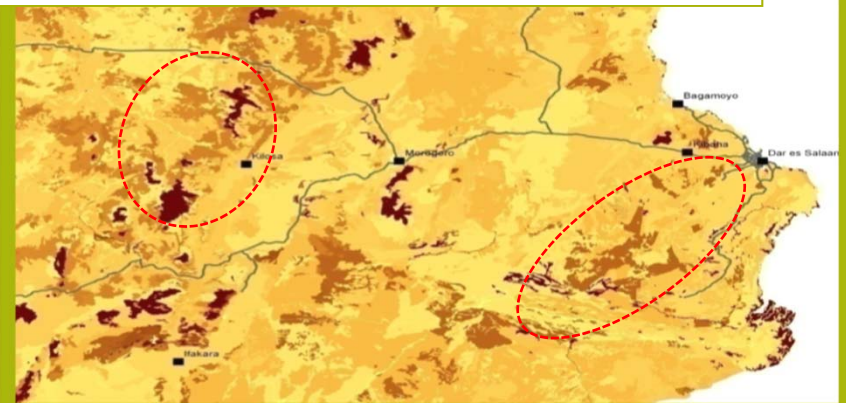
- Converted rules into maps with GIS

@ Taylor Ricketts

MATAZAMIO MAZURI

Charcoal extraction steady
Pole extraction decreases
Timber extraction steady
Encroachment of agriculture

Improvements in existing agriculture

Small decreases through degradation & logging, coupled with small scale expansion of plantation forests.

Small expansion as woodlands cleared

Steady expansion

34%	24%	15%	15%	8%	3%	1%	2000
Woodland	Mixed with crops	Grassland	Bushland	Agriculture	Forest	Other	

2.9   0.1   1.9   0.1   0.1

31	22.1	14.9	15	8	2.9	1	2025
Woodland	Mixed with crops	Grassland	Bushland	Agriculture	Forest	Other	
31%	25%	15%	15%	10%	3%	1%	

Swetnam et al. 2011

RESULTS INFORM REDD INVESTMENT

VALUING THE ARC

Current

Matazamio 2025

BAU 2025
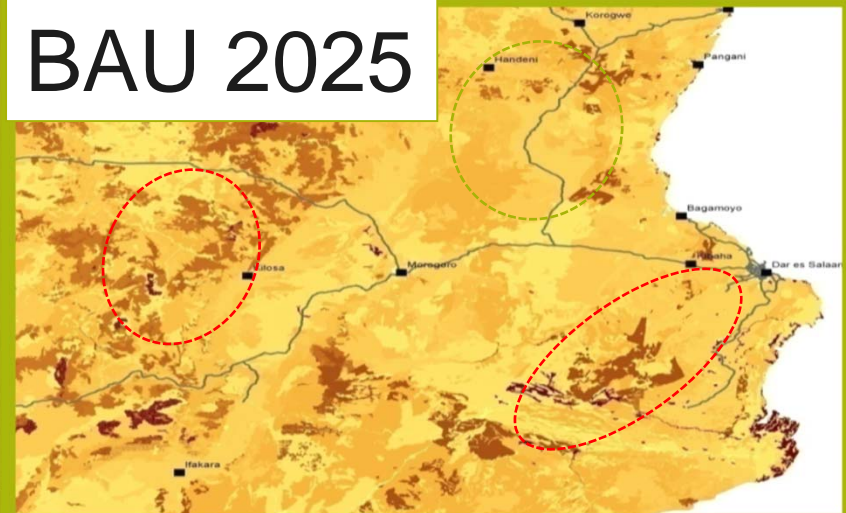
ONE EXAMPLE
DEVELOPING SCENARIOS FOR CAMBODIA

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Land use planning &
benefits sharing
Cambodia

OUR GOALS

- Advocate conservation by demonstrating nature's value
- Illustrate how ecosystem services affected by different policies
- Inform benefits-sharing mechanisms

SCENARIO GOALS

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FRAMING QUESTION: *How might forest ecosystem services and wildlife habitat change with different land uses, and what land-use plans could conserve forests?*

- **Explore** how the landscape might change in the future

- **Conduct a learning process** with stakeholders support land-use planning process

- **Understand** how land-use changes affect ES delivery

- **Consider** new planning options that provide multiple ecosystem services

METHODS

TWO STAKEHOLDER WORKSHOPS

FROM STORYLINES TO MAPS
IN 3 SCENARIOS

BASELINE
WHAT IS HAPPENING IN THE LANDSCAPE NOW?

Base

■	Bamboo Forest
■	DecidDipter Forest
■	Evergreen Forest
■	Non-Forest
■	Other Forest
■	Rubber Plantation
■	SemiEvergreen Forest
■	Woodland Dry
■	Woodland Wet
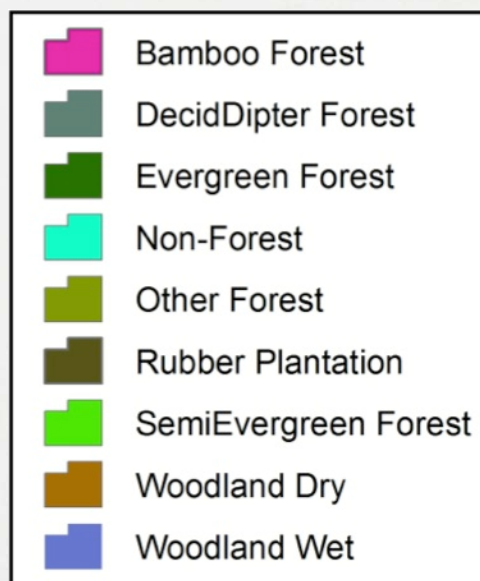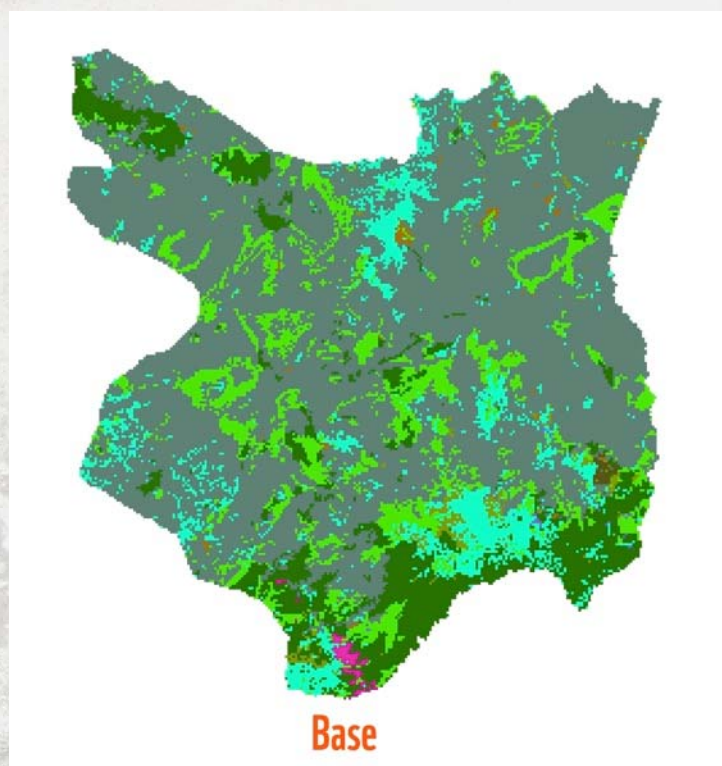
BUSINESS AS USUAL
WHAT IF WE CONTINUED CURRENT TREND?

Cover	Δ	Change to
BambooForest	0%	
DecidDipterForest	-1%	rubber plantation
EvergreenForest	0	
NonForest	1%	road, settlement
OtherForest		
RubberPlantation	3%	rubber plantation
SemiEvergreenForest	-2%	rubber plantation

GREEN ECONOMY
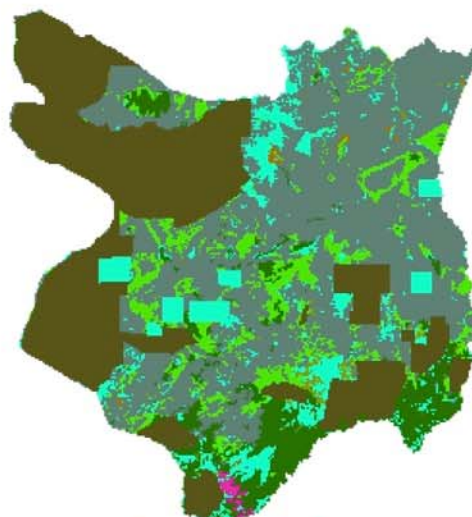## WHAT IF WE BALANCED CONS AND DEVELOPMENT?
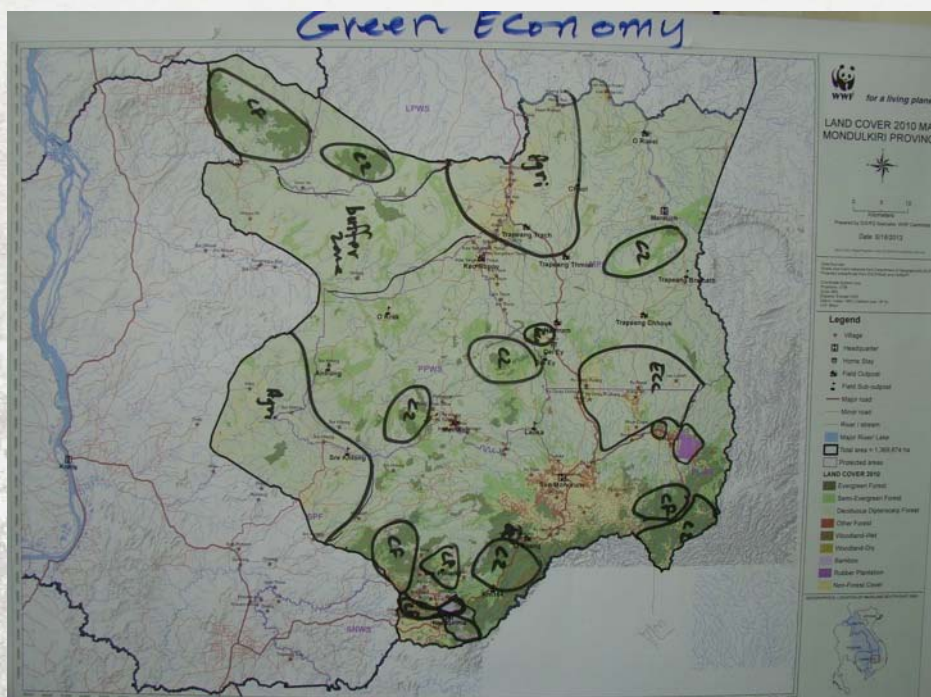
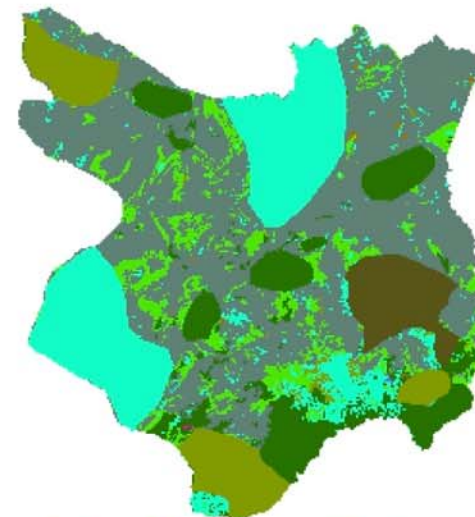| Cover	Δ	Change to
BambooForest	-20%	Settlement and farming
DecidDipterForest	-40%	Settlement, farming and plantation
EvergreenForest	-10%	Mono crop plantation and settlement

ALL TOGETHER

Cambodia - Eastern Plains Scenarios
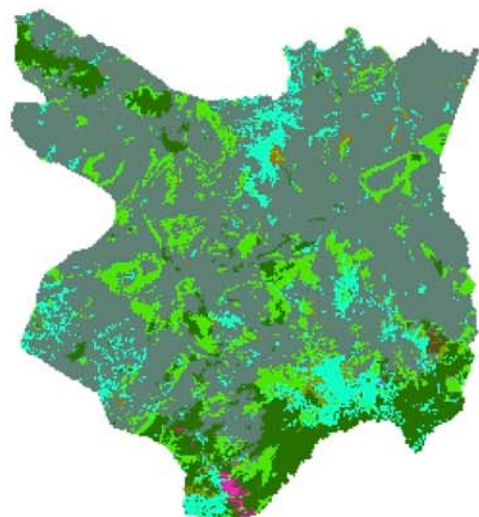
Base

Business as Usual

Balanced Conservation and Development

Bamboo Forest	Non-Forest	SemiEvergreen Forest
DecidDipter Forest	Other Forest	Woodland Dry
Evergreen Forest	Rubber Plantation	Woodland Wet
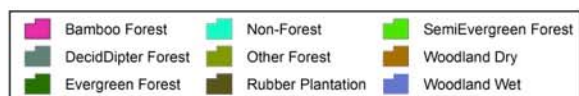
PANEL DISCUSSION

CASE METHODS
BELIZE, TANZANIA, CAMBODIA

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Stakeholders, GIS, ES modeling
Belize

Stakeholders, Scenario Generator
Cambodia

Stakeholders, GIS
Tanzania