Republic of the Philippines
Philippine Statistics Authority

The Philippine Experience on Ecosystem Accounting

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Outline of Presentation

- Past NCA Initiatives
- Phil-WAVES Initiative
- Southern Palawan Ecosystem Accounting
- Way Forward

Past Natural Capital Accounting Initiatives

1. Environmental and Natural Resources Accounting Project (ENRAP)

- Led by the DENR, funded by USAID, focusing on data use for public policy.
- Conducted special studies and policy simulations in addition to the construction of natural capital accounts (i.e. forests, fisheries, minerals, soils, air & water pollution, environmental damages, direct nature services)
- Developed series of economic instruments including an exemption from forest charges of community-based forest management agreements

2. Philippine Economic-Environmental and Natural Resources Accounting (PEENRA)

- Focused on data production and the development of environmental accounts and less on policy applications, used the SEEA Framework for NCA, funded by the UN
- Generated national asset accounts (i.e., fishery, forest, minerals, land, and water) in physical and monetary terms, flow accounts of emissions for 14 subsectors (i.e., agriculture, fishery & forestry sector, manufacturing, mining, electricity generation, and land transport services)

The WAVES Initiative

The Partnership on Wealth Accounting and Valuation of Ecosystem Services (WAVES) aims to promote sustainable development worldwide through the implementation of wealth accounting that focuses on the value of natural capital and on integrating Natural Capital Accounting (NCA) in development planning and policy analysis.

In particular, WAVES will:

(i) implement NCA based on the UN's 2012 System of Environmental and Economic Accounts (SEEA) in 6-10 developing and developed countries;

(ii) incorporate natural capital accounts in development planning and policy analysis;

(iii) develop internationally accepted, standardized guidelines for ecosystem accounting; and

(iv) establish a partnership to promote widespread adoption of NCA beyond the pilot countries (Source: http://www.wavespartnership.org/en).

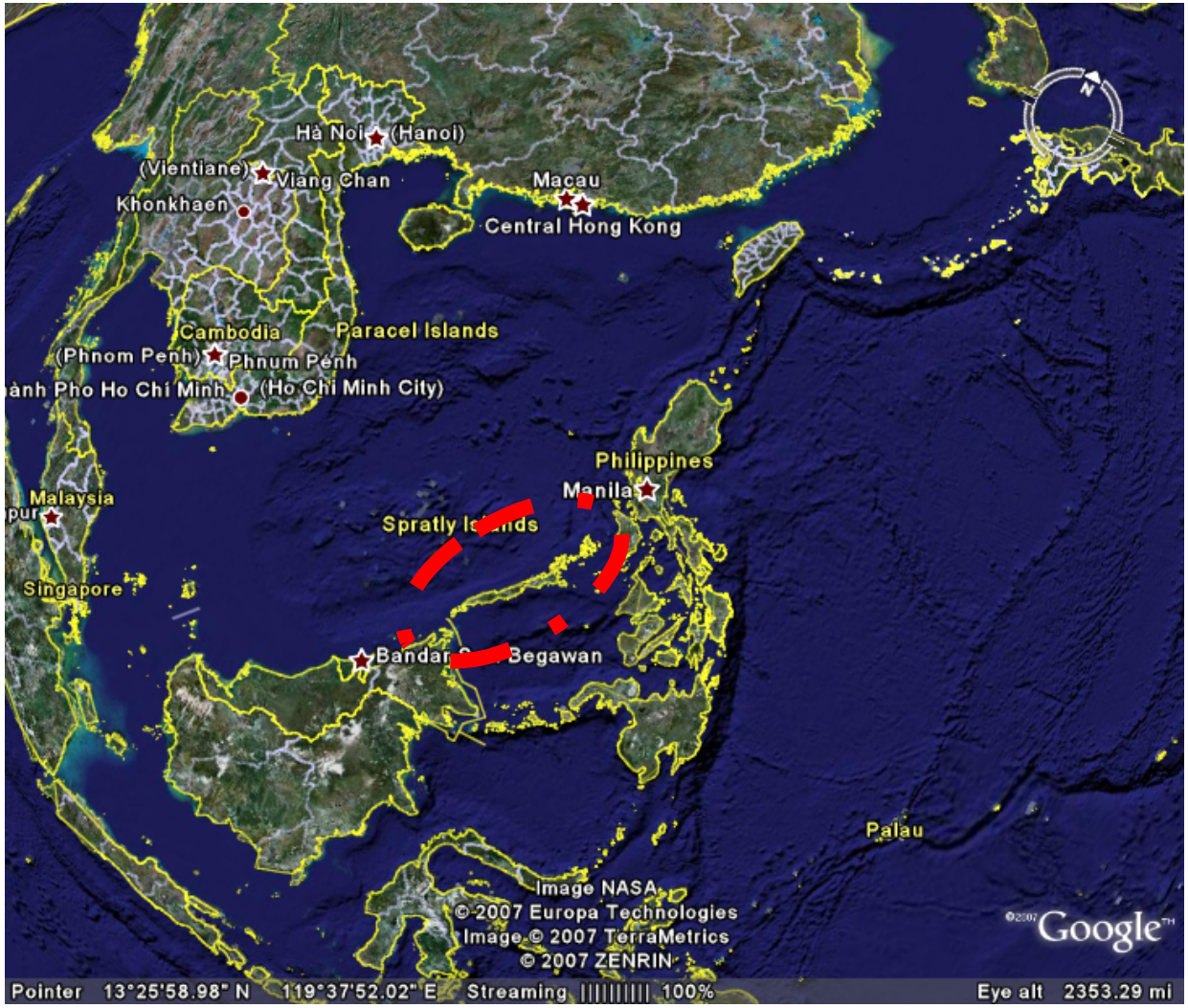
Phil-WAVES Components vis Outputs

Component	Expected Output
1. Macroeconomic indicators	Enhanced macroeconomic indicators such as adjusted net savings (ANS), adjusted net national income (ANNI), produced capital (PC), and comprehensive wealth (CW)
2. National satellite account for priority sectors	National Asset Accounts for Minerals (physical and monetary)
3. Ecosystem Accounts	Sub-national Asset Accounts for Southern Palawan and Laguna Lake ecosystems (physical and monetary)
4. Capacity Building	Technical trainings for each component
5. Communications	National communication materials for the Phil-WAVES program in the country and four subprograms

Phil-WAVES Accounts and Policy Questions

- **National asset account for minerals** (ongoing)
  - Key policy issue: revenue and benefit sharing
- **Ecosystem Account for the Laguna Lake basin** (ongoing)
  - Key policy issues: water pollution & siltation/sedimentation
- **Ecosystem Account for Southern Palawan** (ongoing)
  - Key policy issue: land use conflicts
- **National asset account for mangroves** (planned for 3rd year of implementation)
  - Key policy issue: coastal zone protection & CCA/DRR measure

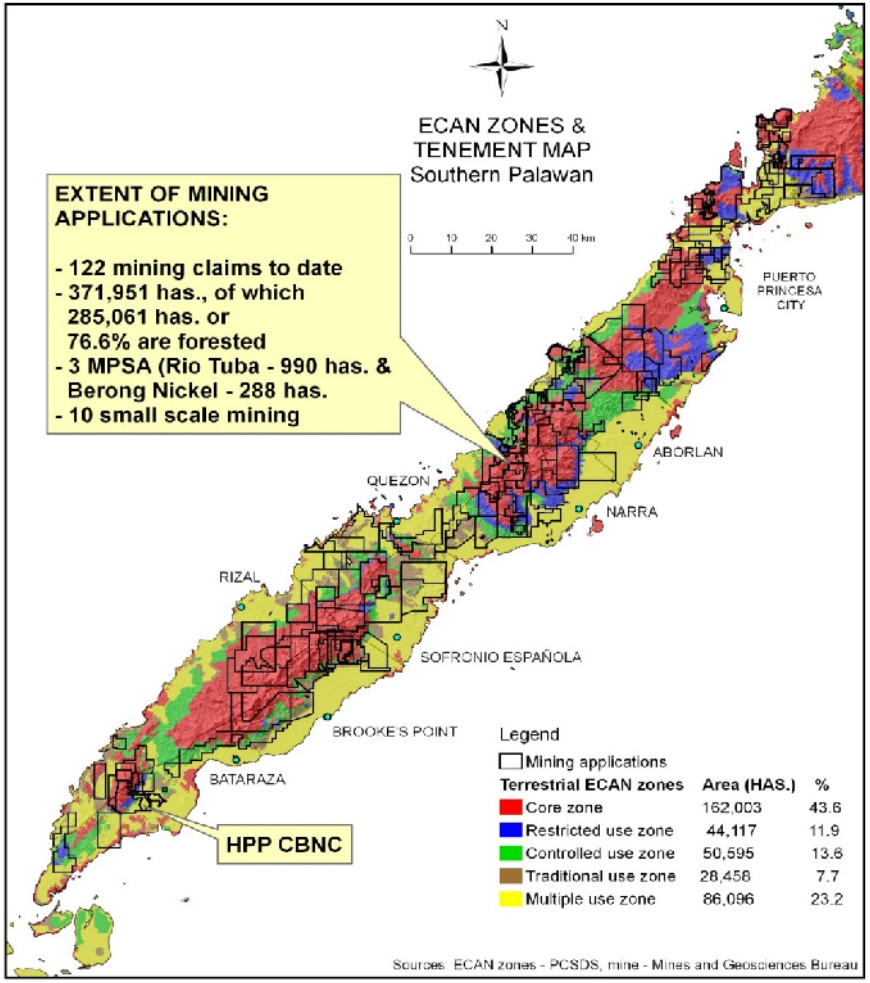
Why Southern Palawan?



Why Southern Palawan?

- **Mineral and Energy Development**
- **Agriculture**
- **Tourism**
- **Indigenous People**

Issue: Land Use



SOUTHERN PALAWAN ECOSYSTEM ACCOUNTS

LAND USE ACCOUNT

UPLAND

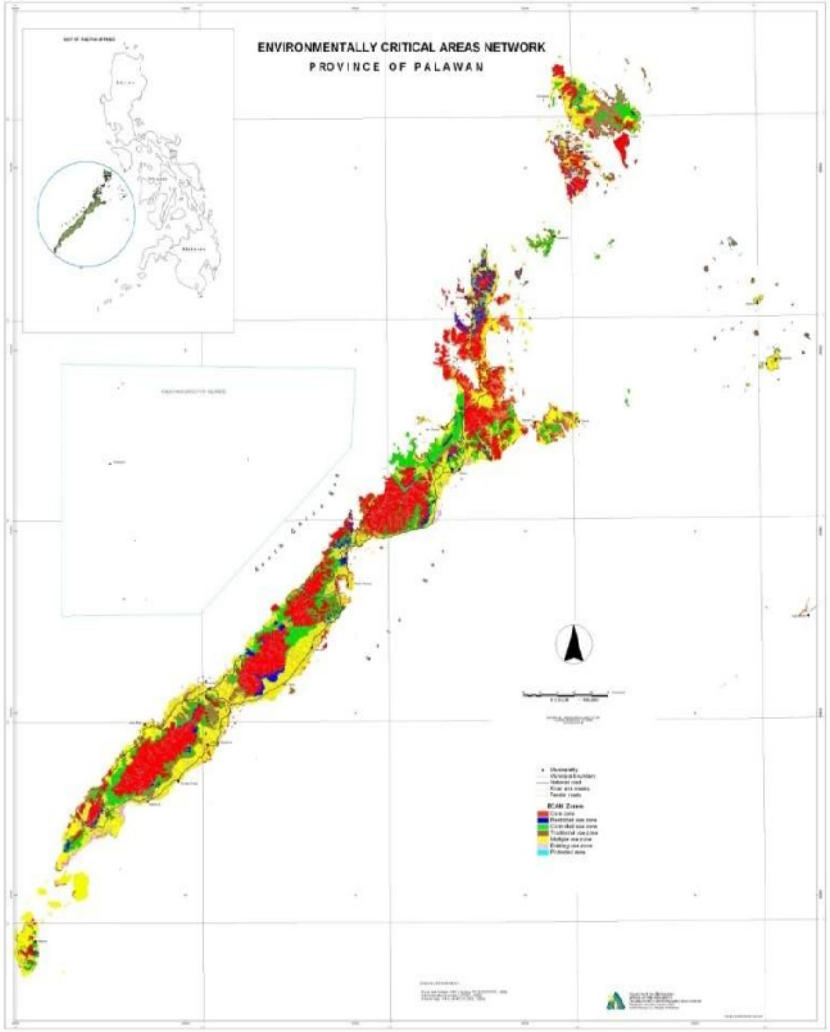
- Timber (Materials provisioning service)
- Carbon (Regulating service)
- Water (Regulating service)
- Soil erosion/sedimentation control (Regulating service)

LOWLAND

- Rice, Oil palm, Coconut (Food provisioning service)

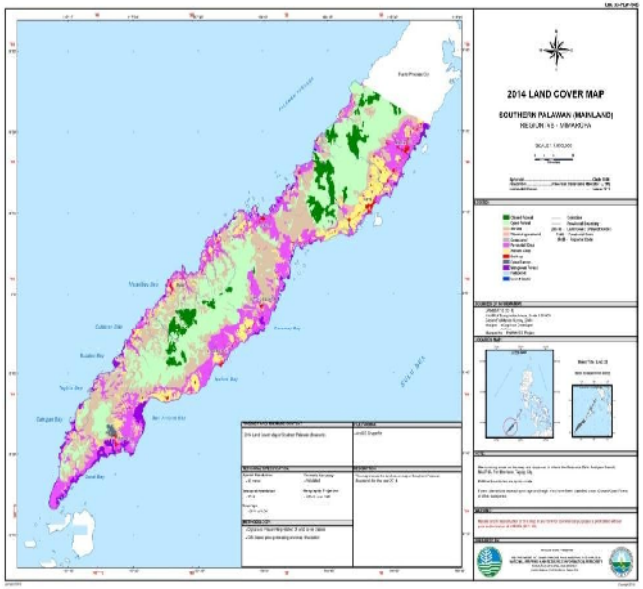
COASTAL

- Fish production (Food provisioning service)
- Coral Reefs, Seagrass beds, Mangrove Forests (Ecosystem extent and condition)



Land Cover Accounts

SOUTHERN PALAWAN (Mainland)				
	2010	2014	DIFFERENCE	PERCENT CHANGE %
FOREST/LAND COVER	AREA (Has.)	AREA (Has.)	AREA (Has.)	
Closed Forest	28,025	33,206	5,181	18%
Open Forest	184,235	181,486	(2,749)	-1%
Mangrove Forest	17,020	17,054	34	0%
Fallow	-	-	-	-
Shrubs	146,194	137,003	(9,191)	-6%
Wooded grassland	3,403	2,507	(896)	-26%
Grassland	881	1,821	940	107%
Annual Crop	47,950	50,340	2,390	5%
Perennial Crop	113,735	115,845	2,109	2%
Open/Barren	961	1,761	800	83%
Built-up	6,966	7,425	459	7%
Marshland/Swamp	-	-	-	-
Fishpond	1,440	1,407	(33)	-2%
Inland Water	2,696	3,653	957	36%
GRAND TOTAL	**553,508**	**553,508**	-	-



Physical Account for Carbon

LAND COVER		YEAR					
		2003		2010		2014	
A.Physical Account		TOTAL	PER HA	TOTAL	PER HA	TOTAL	PER HA
	AREA						
	(in hectares or ha)						
	Closed Forest	129,879		28,025		33,205	
	Open Forest	86,585		184,235		181,485	
	Mangrove Forest	15,962		17,020		17,054	
	Total:	***232,426***		***229,280***		***231,744***	
	CARBON STORAGE						
	(in tons Carbon or t C)						
	Closed Forest	8,701,681	67	1,877,631	67	2,107,672	63
	Open Forest	3,230,936	37	6,874,751	37	7,335,682	40
	Mangrove Forest	514,521	32	548,641	32	550,954	32
	Total:	***12,447,138***	***54***	***9,301,024***	***41***	***9,994,309***	***43***
	CARBON SEQUESTRATION						
	(in t C per year)						
	Closed Forest	672,084	5	145,021	5	171,826	5
	Open Forest	776,624	9	1,652,492	9	1,627,826	9
	Total:	***1,448,708***	***8***	***1,797,513***	***8***	***1,799,652***	***8***
B. Monetary Account							
	Net Present Value (NPV)						
	(in Pesos)						
	Closed Forest	2,608,407,212	20,083	564,213,524	20,133	668,499,913	20,133
	Open Forest	3,014,134,148	34,811	6,429,128,380	34,896	6,333,163,428	34,896
	Total:	***5,622,541,360***	***25,974***	***6,993,341,904***	***32,947***	***7,001,663,341***	***32,613***

Mapping ecosystem assets by management boundaries

Figure 1. Asset extent by barangay

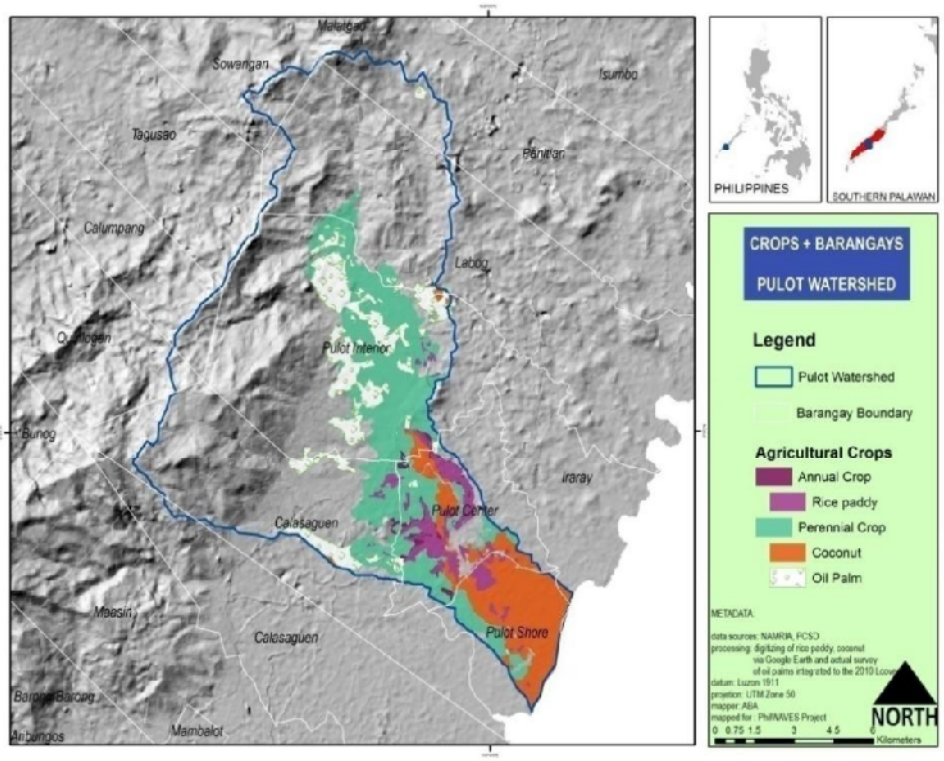
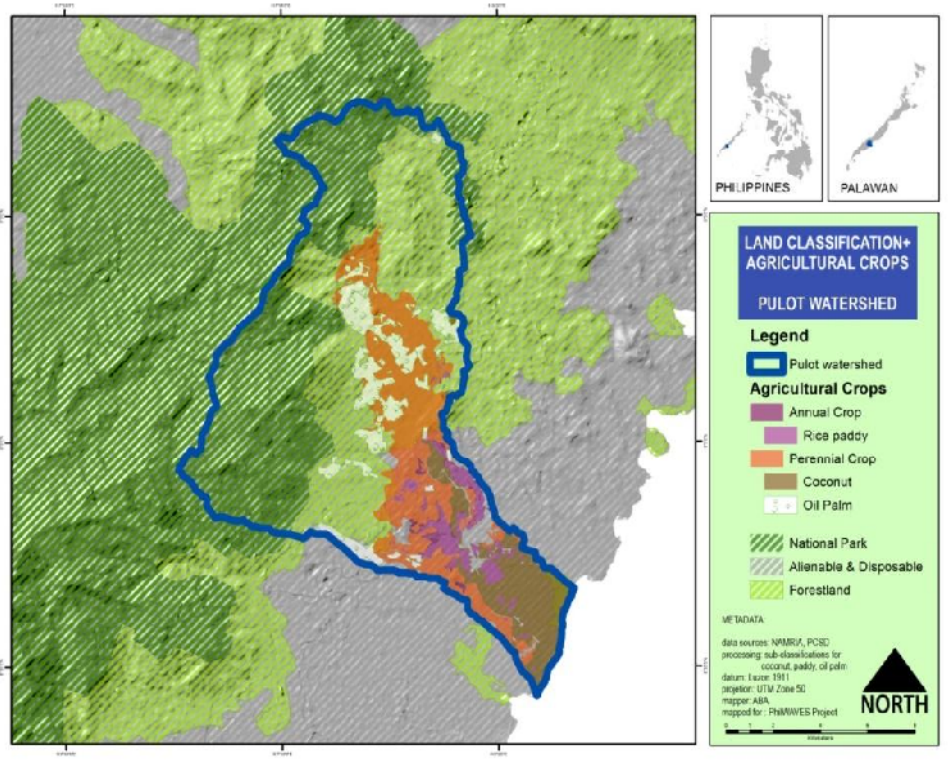


Figure 2. Asset extent by Land Classification



Mapping ecosystem assets by management boundaries

Figure 3. Asset extent by ECAN Zones

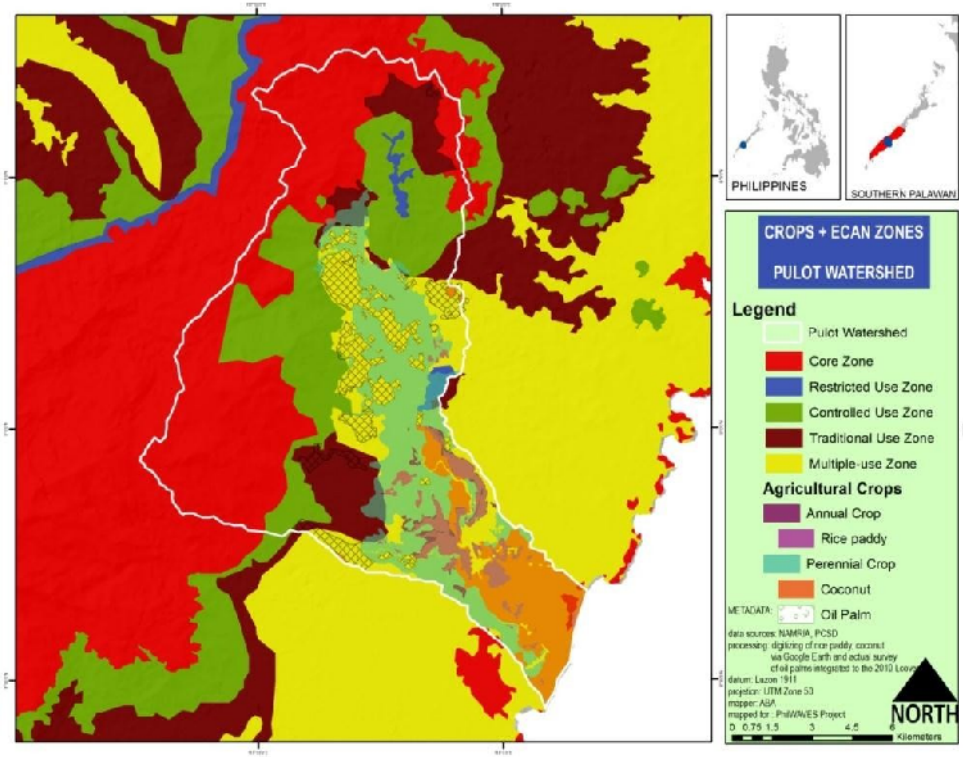
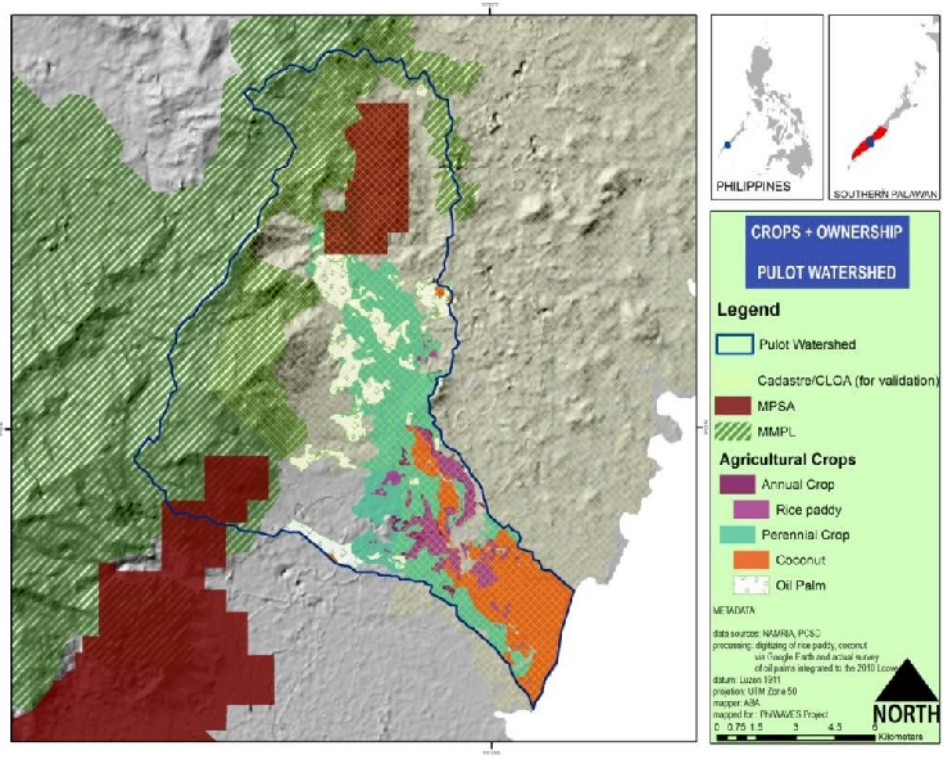


Figure 4. Asset extent by Tenurial Instrument



Ecosystem Asset Account

Physical Asset Account for Oil Palm, Rice and Coconut ecosystem for 2010 and 2014.

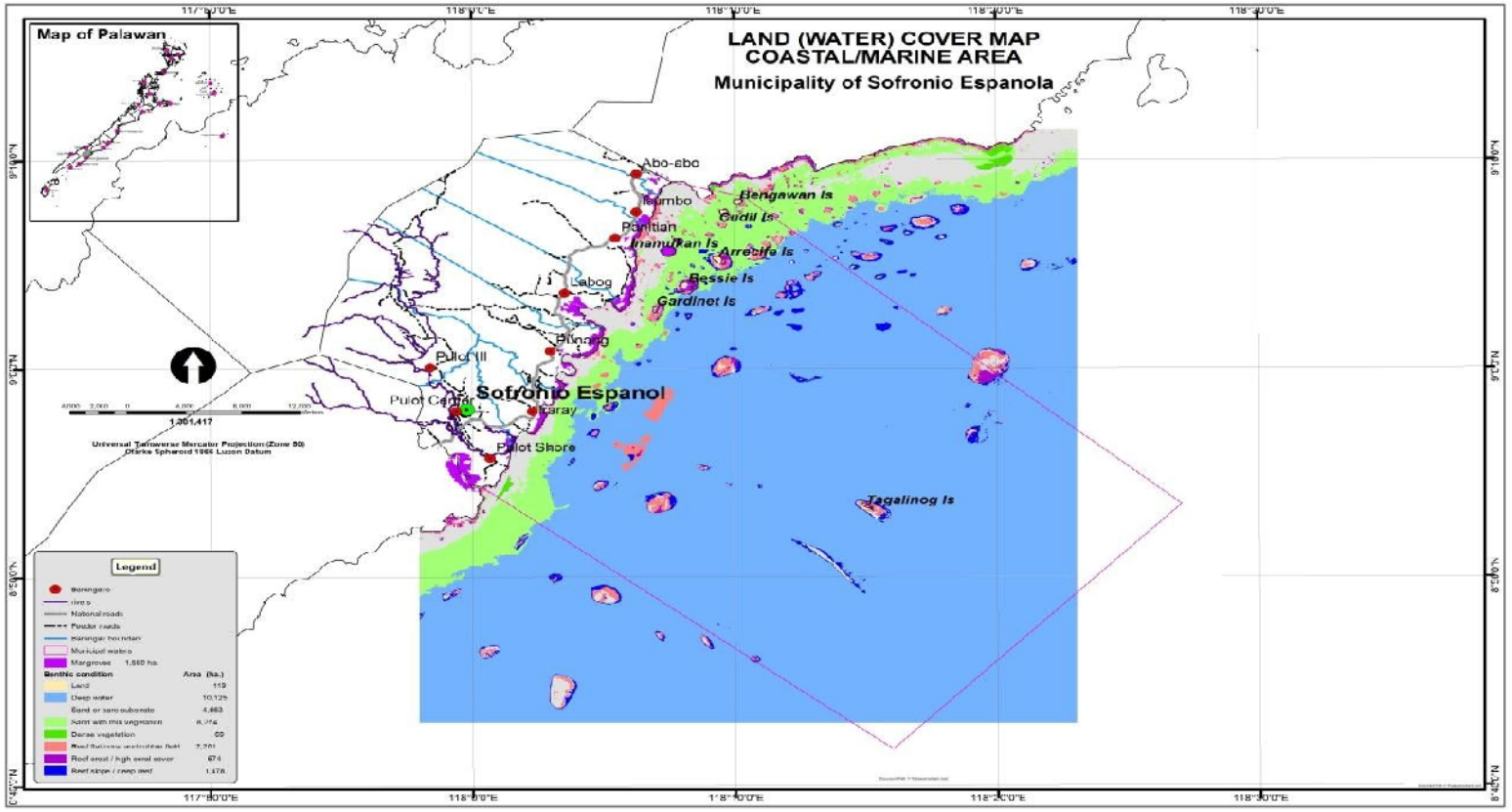
ACCOUNT TYPE	Land Cover			
	Rice	Coconut	Oil Palm	Total
Opening (2010)				
Area (in hectares)	562	1,455	1,013	3,333
Addition to stocks	3.9		302.7	306.6
Reductions in stocks		0.6		0.6
Revaluations				
Closing stocks Area (2014)*	565.9	1,454.4	1,315.7	3,309

Ecosystem Production Monetary Account

Value of the provisioning service (crop production) provided by Pulot Watershed

Ecosystem Service (Crop Production)	Economic Value (PhP), 2013	Net Value (PhP), 2013
- Rice	6.13 M	4.2 M
- Coconut	20.47 M	5.18 M
- Oil Palm	52.29 M	?
Total value of the selected service	78.89 M	?

LAND/WATER COVER ECOSYSTEM ACCOUNTING UNIT



Coastal-Marine Land/Water Ecosystem Account, Sofronio Espanola, Palawan, Philippines, August 2014
Source: European Satellite Agency, August 2014

	Area, Ha	Percentage
Total Coastal Ecosystem Accounting Unit	**29,063**	**100.00%**
Coastal/Marine deep waters	10,125	34.84%
Land/Island	119	0.41%
Sand or Bare Substrate	4,663	16.04%
Seagrass beds and Macroalgae	8,323	28.64%
Thin vegetation	8,254	28.40%
Dense vegetation	69	0.24%
Coral Reefs	4,253	14.63%
Reef flat/coral and rubble field	2,201	7.57%
Reef crest/high coral cover	574	1.98%
Reef slope/deep reef	1,478	5.09%
Mangrove Forest	1,580	5.44%

Way Forward

- Refinement of data and methodologies
- Preparation of Ecosystem Condition Accounts
- Ecosystem Service Flow Monetary Accounts
- Updating of all the accounts using the 2014 Land Cover Map of NAMRIA (National Mapping and Resource Information Authority)
- Stakeholders consultation
- Policy analysis/scenario building

Maraming Salamat Po!