



SUSTAINABLE LAND MANAGEMENT IN THE PHILIPPINES

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OUTLINE OF PRESENTATION

- INTRODUCTION
- LAND DEGRADATION ASSESSMENT
- THE PHILIPPINE LAND USE SYSTEM MAP
- LAND DEGRADATION ISSUES AND TRENDS
- COMMON PRINCIPLES TO SLM
- BEST PRACTICES / CASE STUDIES OF SLM
- CHALLENGES AND KEYS TO SUCCESS



INTRODUCTION

- Sustainable land management (SLM) refers to a type of land management that does not damage the ecological processes and functions nor impacts negatively the environment by diminishing the biodiversity but rather enhances natural capital (the soil, water, and air) and contributes to the health and prosperity of the communities.



INTRODUCTION

- Agriculture on the other hand, is exploitative and nutrient mining in nature.
- SLM is a strategic component of the national agriculture program expressed in the Philippine Development Plan 2011-2016. It addresses both processes of agricultural resource degradation and the underlying causes of unsustainability, recommending courses of actions.



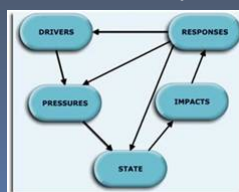
INTRODUCTION

- SLM is a national concern and undertaking and this presentation covers only the agricultural component. The forestry, fisheries, biodiversity, and environmental sub-components of SLM are coordinated by different government agencies.
- The Philippines is Party to the United Nations Convention to Combat Desertification (UNCCD) with the National Action Plan as its main instrument. BSWM is the Focal Point.
- BSWM is a member of the Asia Soil Conservation Network (ASOCON) and the World Conservation Approaches and Technologies (WOCAT).



LAND DEGRADATION ASSESSMENT

- Within the context of UNCCD, assessment of the complexity of land degradation is based on DPSIR analysis – Driving Forces, Pressures, State, Impacts, and Responses.
- Land use is considered the major driving force of land degradation as this is focused on interventions on the land which directly affect the status and impacts on goods and services.





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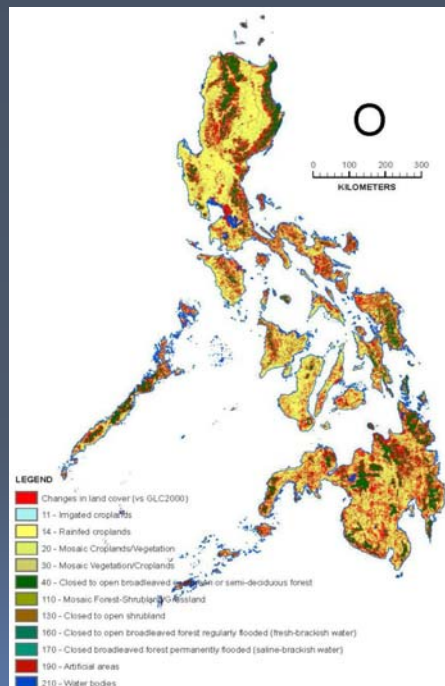
- Based on 2003 Land Cover Map by *NAMRIA*, the Philippine national mapping agency.
- The processing is based on the Land Degradation Assessment (LADA) Manual.
- This is an on-going BSWM-FAO Technical Cooperation Project. We are still in the process of analyzing the data.



Land Use System	Area (2003) hectares	Literatures (hectares)
Agricultural land, irrigated: Irrigated rice	1,272,283.18	
Agricultural land, rainfed	10,006,542.25	
Sub-total for agricultural areas	11,278,825.43	9,670,793 (BAS, 2002) 11,664,600 (BAS, 1998)
Forest, plantations	1,045,681.18	
Forest, protected	6,286,312.17	
Sub-total for forest areas	7,331,993.35	7,162,000 (NAMRIA, 2003) 6,400,000 (FMB, 1988) 10,600,000 (FMB, 1969)
Grasslands, unmanaged	3,164,905.32	
Grasslands, with low livestock density	1,526,856.43	
Grasslands, with med-high livestock density	144,267.83	
Sub-total for grasslands	4,836,029.58	1,500,000 (DENR (2005))
Shrubs, unmanaged	5,009,810.86	(No available data)
Forest, mangroves	212,256.80	282,044 (PaWB, 2009) 256,185 (Giri, 2000) 120,500 (DENR, 1996) 428,382 (Villaluz, 1951)
Wetlands, unmanaged	154,405.32	452,015 (Various sources)
Open water, inland fisheries, brackish water	189,596.81	(No available data)
Open water, inland fisheries, fresh water	261,204.52	(No available data)
Bare areas, unmanaged	99,783.41	(No available data)
Urban lands	222,584.27	(No available data)
TOTAL AREA	29,596,493.35	

COMPARATIVE GC 2009/ GLC200

- Although the two images are not compatible and there are spectral limitations which makes cell-by-cell analysis coming out with unreasonable data, the overall map output is useful in terms of determining land use change.
- Most of the land use changes took place in forest edges.





LAND DEGRADATION ISSUES AND CONCERNS

▪ LAND USE POLICY

We have 15,182,432.93 hectares of lands with slope >18 percent. This is close to official estimates of 15.88 million hectares of forest, supposed to be non-alienable and non-disposable. The country's forest cover which stood at 21 million hectares in 1900 is about 7 million hectares by 2003.

Logging and slash-and-burn agriculture are contributors to resource degradation.



LAND DEGRADATION ISSUES AND CONCERNS

▪ LAND USE POLICY

At the lowlands, we have issues of agrarian reform lands being converted to non-agricultural uses. In the absence of clear and consistent land use policy, the sectors that demand land for housing, business, and other non-agricultural uses are favored. Various laws have been enacted for the reclassification of lands into other uses.

(PD399, RA 7279, RA 7916, RA 7160, RA 8370, RA 7942)

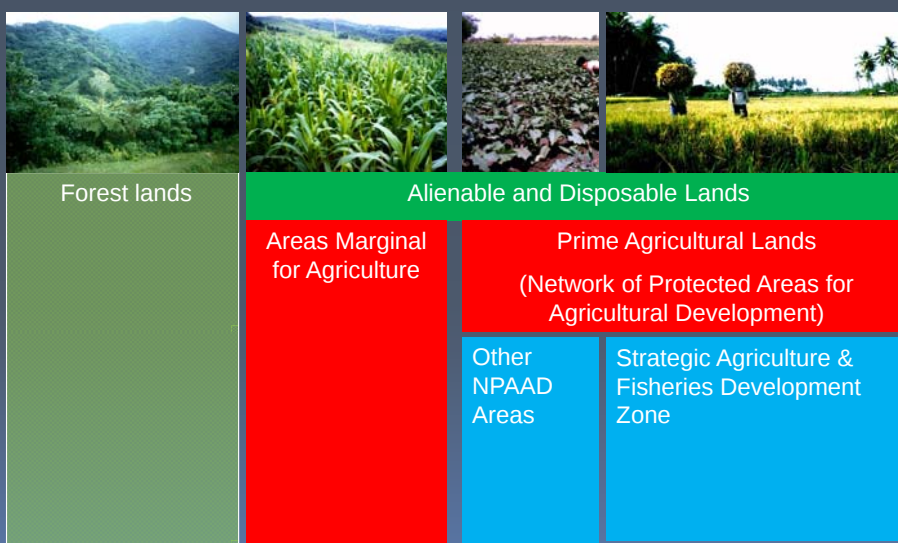


LAND DEGRADATION ISSUES AND CONCERNS

▪ LAND USE POLICY

RA 8435 (Agriculture and Fisheries Modernization Act, AFMA) identifies a network of Protected Areas for Agriculture and Agro-Industrial Development (NPAAAD). Within this network is the Strategic Agriculture and Fisheries Development Zones (SAFDZ) and required to be integrated into the Comprehensive Land Use Plan (CLUP). Zoning power is vested on the local government. Local government election is held every three years. In the review and evaluation of the implementation of AFMA, one conclusion is that the SAFDZ component was not implemented.

LAND DEGRADATION ISSUES AND CONCERNS





LAND DEGRADATION ISSUES AND CONCERNS

▪ SOIL FERTILITY DECLINE

Agricultural intensification through excessive use of fertilizers and pesticides lead to polluted waters and degraded soils. The indicators are declining soil organic matter, soil acidity, micronutrient deficiency, and general nutrient imbalance.

Through the decades, there is increasing fertilizer inputs for N, P, and K based on annual fertilizer consumption figures and trend of the laboratory analyses.



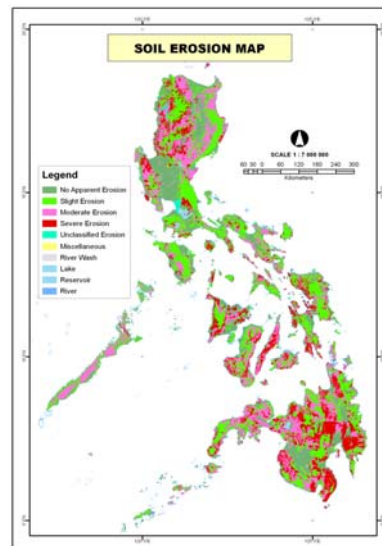
LAND DEGRADATION ISSUES AND CONCERNS

▪ SOIL FERTILITY DECLINE

In December 2005, then President Gloria Macapagal Arroyo issues Executive Order 481 to promote and develop organic agriculture. In 2010, the Philippine Congress enacted RA 10068 (Organic Agriculture Act) to emphasize that farming methods which neglect the ecology and nature damage the farming environment and inimical to our national interest.

LAND DEGRADATION ISSUES AND CONCERNS

SOIL LOSSES THROUGH EROSION

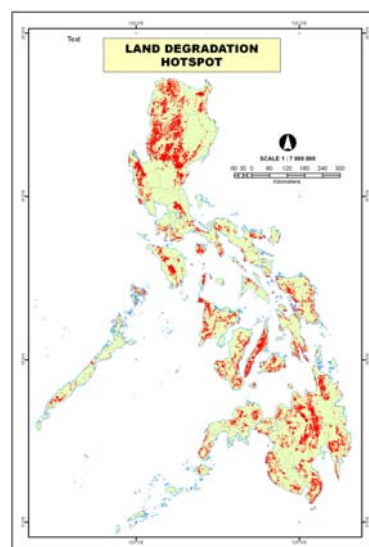


LAND DEGRADATION ISSUES AND CONCERNS

SOIL LOSSES THROUGH EROSION: THE HOT SPOTS

Region	Area (Ha)
ARMM	104,721.14
CAR	597,028.67
CARAGA	311,791.88
REGION I (ILOCOS REGION)	363,363.78
REGION II (CAGAYAN VALLEY)	538,458.07
REGION III (CENTRAL LUZON)	221,223.40
REGION IV-A (CALABARZON)	238,153.84
REGION IV-B (MIMAROPA)	350,052.45
REGION IX (ZAMBOANGA PENINSULA)	167,433.48
REGION V (BICOL REGION)	160,569.55
REGION VI (WESTERN VISAYAS)	383,826.29
REGION VII (CENTRAL VISAYAS)	446,037.73
REGION VIII (EASTERN VISAYAS)	362,123.02
REGION X (NORTHERN MINDANAO)	409,467.04
REGION XI (DAVAO REGION)	417,666.44
REGION XII (SOCCSKSARGEN)	295,130.22

Total 5,367,046.98





COMMON PRINCIPLES TO SLM

- Land use driven and participatory in approaches
- Integrated use of natural resources at ecosystem and at farming system levels.
- Multi-level and multi-stakeholder in involvement
- Targeted policy and institutional support, including development of incentive mechanisms for SLM adoption and income generation at the local level.



SAN ROQUE, SAN JOSE DEL MONTE SOIL CONSERVATION GUIDED FARM

- It was once a logged-over area on the footslopes of the Sierra Madre Mountain Range in Bulacan.
- But because the soil is classified as low fertility acid soil, it could not regenerate into secondary forest and the area remained grassland.



SOIL CONSERVATION GUIDED FARM



- By the time BSWM introduced the SLM Project in 2008, a community was already established.
- The farmer-beneficiaries were former insurgents who returned to the fold of the law.
- Loss of biodiversity, crop yield decline, disturbances in the water cycle with increasing seasonal aridity were observed.
- The farmers themselves initiated contacts with BSWM to introduce SLM



SOIL CONSERVATION GUIDED FARM: PROJECT COMPONENTS

- PARTICIPATORY RURAL APPRAISAL
- TOPOGRAPHIC MAPPING



SOIL CONSERVATION GUIDED FARM: PROJECT COMPONENTS



- LAND USE PLANNING
- CAPACITY BUILDING ON LAND USE PLANNING



SOIL CONSERVATION GUIDED FARM: PROJECT COMPONENTS



- IMPLEMENTATION OF THE FARM PLAN (BASICALLY FOR SOIL FERTILITY MANAGEMENT AND EROSION CONTROL)



SOIL CONSERVATION GUIDED FARM: PROJECT COMPONENTS



- The Local Government Unit provides the planting materials, BSWM provides the technical expertise
- Each farm plan is unique except for the soil conservation technologies and SLM principles espoused (zero or minimum tillage, vermiculture, natural vegetative strips, vetiver grass lines, check dams for gully control, multi-story cropping, crop rotation, crop diversification, shelter belts/windbreaks, mulching)



SOIL CONSERVATION GUIDED FARM: PROJECT COMPONENTS



WATER RESOURCES MANAGEMENT

The community members worked out with BSWM and the Local Government Unit for solar-powered small water impounding project and a hydraulic ram pump irrigation system.





CHALLENGES AND KEYS TO SUCCESS

- LOCAL COMMUNITY PARTICIPATION IN ALL ASPECTS OF THE PROGRAM; IN FACT, THE INFRASTRUCTURE COMPONENTS WERE LOCALLY INITIATED BASED ON THEIR FELT NEEDS.
- LOCAL GOVERNMENT UNIT SUPPORT IN THE SOIL AND WATER CONSERVATION AND PROMOTION OF SLM PRACTICES
- CAPACITY BUILDING BY BSWM ON LAND USE PLANNING AND PRINCIPLES OF SOIL CONSERVATION AND SLM



THANK YOU AND GOOD DAY!

