

# **Sustainable Land Management: Priority Problems & Priority Interventions**

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**The Economic and Social Costs of Desertification**

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# Outline

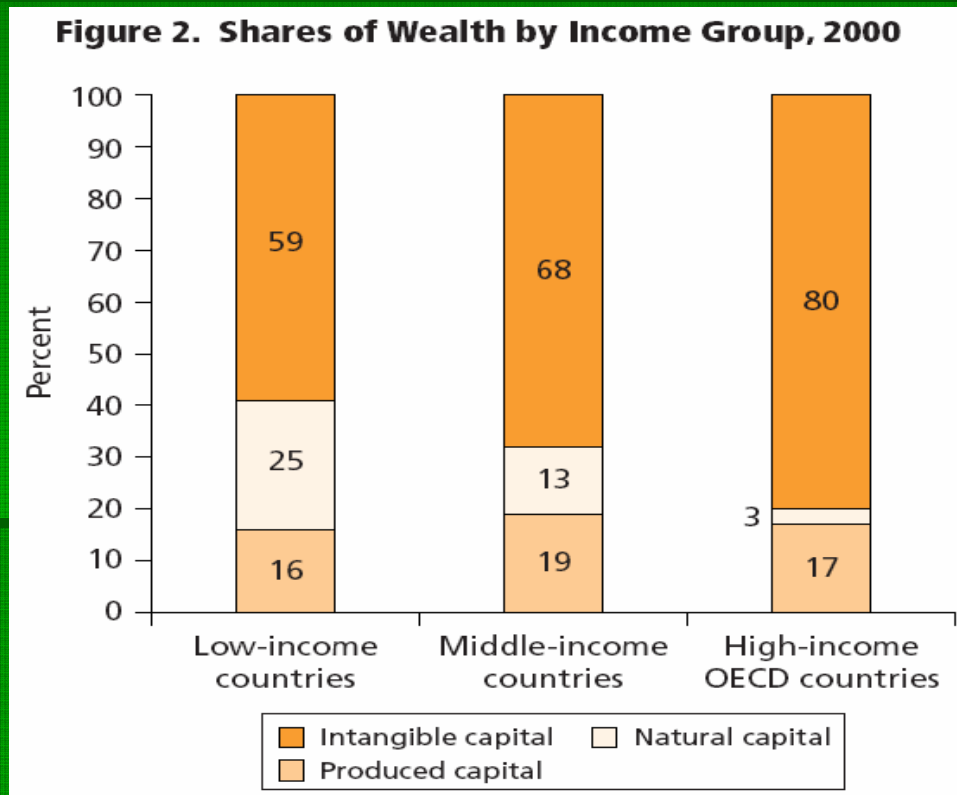
1. Natural capital & the wealth of nations
2. Land degradation – a priority problem?
3. From priority problem to priority interventions

# 1. Natural Capital & the Wealth of Nations

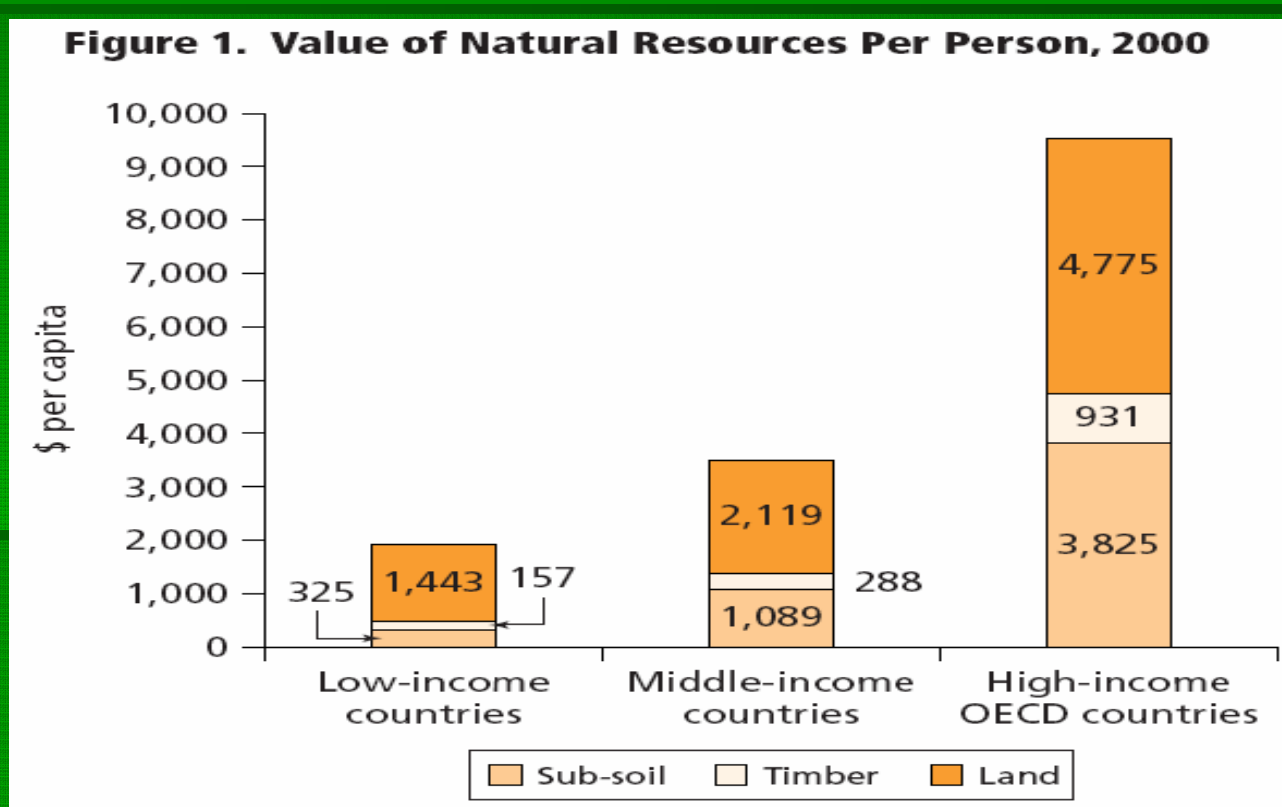
Portfolio approach to wealth:

- Produced capital
- Natural resources (land, minerals, forests)
- Intangible capital
  - Human capital
  - Institutions / governance

# Where is the Wealth of Nations?



# Natural Capital Only: The Per Capita Perspective



## 2. Land Degradation – Priority Problem?

Tackling conceptual confusion:

- Immediate productivity loss relates to ag. GDP
- Soil capital loss relates to national income accounting
- Cumulative productivity loss relates to mitigation cost

Derivation in Bojö (1996)

# The Micro Perspective

Comprehensive field-level studies review:  
(179 studies, 37 countries, den Biggelaar et al, 2004)

Average erosion productivity decline 0.3%  
per year, globally, 6 major crops

Considerable variation across soils, crops  
Basis for diverging extrapolations!

# The Macro Perspective

Scherr (2003) review > 80 studies:

- “Soil degradation does not significantly threaten global agricultural commodity supplies”
- “Soil degradation does pose a major economic threat in many sub-regions”



### **3. From Priority Problem to Priority Interventions**

“OK, it’s a problem in some areas, but what should be done?”

# Taking a Holistic Approach

- Poverty reduction the goal, not soil retention
- Address market failures:
  - Information
  - Tenure
  - Credit
  - Input/output markets
  - Off-site impacts

# Building on Success

- We have success stories: China Loess Plateau “...one of the largest and most successful erosion control program in the world...” (World Bank, 2003)
- But, “... it is striking how often claims of success are not underpinned by hard data.” (Reij & Steeds, 2003)

# M&E: “The Proof of the Pudding...”

- Quality M&E crucial to move from awareness to action
- It can be done: Karnataka Watershed Management Project
  - < \$1 m (< 1% of project cost)
  - Comprehensive measurement ecological, economic & social indicators

# Plots vs. Sector Analysis

Plot studies valuable to isolate farm-level impacts...

...but extrapolations to landscapes dangerous!

National crop production studies give more complete picture...

...but averages over diversity!

# Off-site Impacts

Major rationale for public intervention, but neglected

WB review (2006) of 24 watershed projects:

- 7 valued environmental benefits
- 1 valued off-site benefits

# **TerrAfrica Support to Priority Interventions (1)**

- Multi-stakeholder partnership aiming at scaling-up SLM in SSA by providing a common strategic framework
  - Aligning methodologies
  - Strengthening knowledge sharing
  - Generation of best practice
  - Integrating economics of LD in country-dialogue

# TerrAfrica: Activity Example

Cost-Benefit Framework to support pro-SLM Decision-making:

- Objective: provide guidance for policy & investment
- What's new? (1) incorporate the *off-site* impacts of LD; (2) integrated in policy dialogue
- Ethiopia & Ghana pilots



# Investment Resources for SLM?

- On-site: primarily farmer labor
- Off-site: primarily public resources
- GEF: \$250 m. SLM program
- PES: > \$200 m. & growing
- Carbon markets: \$30 m. by 2007 & growing fast!

# Concluding Points (1)

- Natural capital key asset in poor countries
- Estimates of degradation costs can identify *priority problems* — precision modest
- Address market failures
- Marginal CBA can identify *priority interventions*

# Concluding Points (2)

- Tell better stories: M&E
- Research at different scales for different target audiences
- Take on off-site impacts
- Tap public funding sources creatively

# References

- Bojö, J. (1996) The costs of land degradation in Sub-Saharan Africa, pp. 161-173, Ecological Economics. Vol. 16, No. 2. Elsevier.
- Den Biggelaar, C., r. Lal, K. Wiebe, H. Eswaran, V. Breneman, P. Reich (2004) The Global Impacts of Soil Erosion on Productivity II: Effects on Crop Yields and Production over Time, pp. 49-95 in Advances in Agronomy 81.
- Ranganath, B.K. (2006) Application of Remote Sensing and GIS to Watershed Planning and M&E: The Experience of the Karnataka Watershed Development Project in India. Presentation to the World Bank, Nov. 16, 2006.
- Reij C. & D. Steeds (2003) Success Stories in Africa's Drylands: Supporting Advocates and Answering Skeptics. CIS, Amsterdam. Draft (processed).
- Scherr (2003) Productivity-Related Economic Impacts of Soil Degradation in Developing Countries: An Evaluation of Regional Experience, pp. 223-261 in Wiebe, K. (ed.) Land Quality, Agricultural Productivity, and food Security. Edward Elgar. Cheltenham, UK.
- World Bank (2003) Implementation Completion Report, Loess Plateau Project. East Asia and Pacific Region. Washington, DC.
- World Bank (2006a) Watershed Management Approaches, Policies and Operations: Lessons for Scaling-Up. Draft, October 10. Washington, DC. Draft (processed)
- World Bank (2006b) Where is the Wealth of Nations? Measuring Capital for the 21<sup>st</sup> Century. Washington, DC.