

Making agriculture & environment work together

A policy perspective

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Conference on “Sustainability Science for Food, Forests, and Floods: Integrating Climate Adaptation and Pro-Poor Resource Management”.
Honolulu, Hawai‘i May 27-28, 2010

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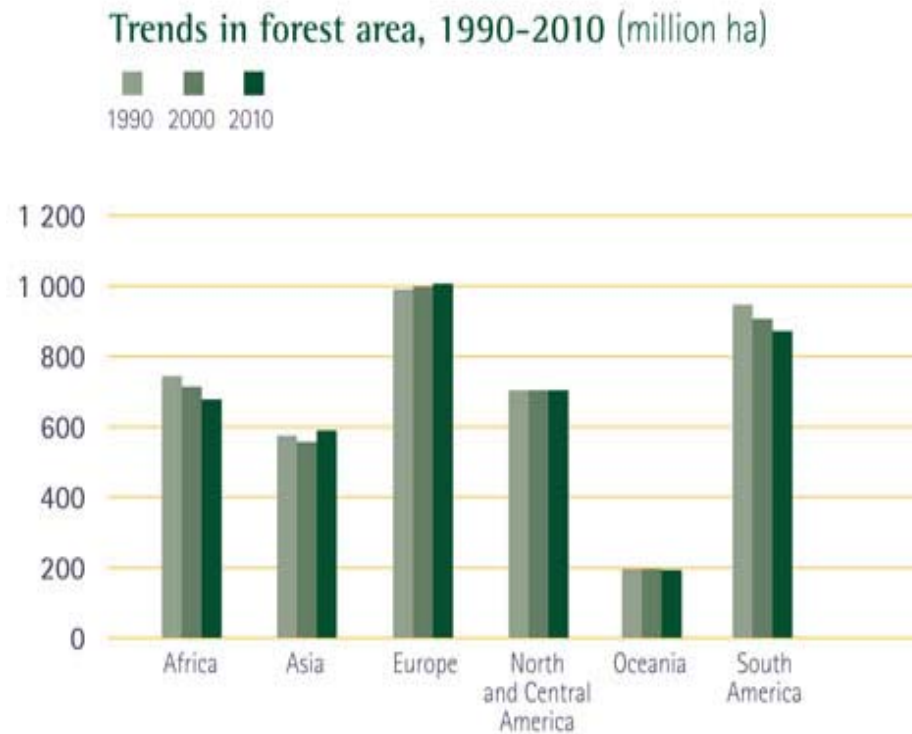
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Propositions on sustainable intensification of agricultural systems

- **Economic growth and the structural transformation of agriculture have had a net positive impact on the sustainability of agricultural landscapes.**
- **Future food requirements can be met by further intensification of existing land under cultivation rather than expanding cultivated area.**
- **Although (better) technologies and management practices are available, sustainable intensification has been constrained by a poor policy environment.**
- **Growing consumer preferences for food diversity, quality, and safety could drive the demand for more sustainable production practices.**
- **Actions needed for dealing with climate change are compatible with those needed for sustainable intensification of agriculture.**

Economic growth & structural transformation contribute to sustainable agricultural landscapes

- Declining share of agriculture in GDP;
- Re-orientation of agriculture landscapes – concentration of production on lands with high returns to intensification;
- Release of lands with intrinsically lower returns to intensification from agriculture production;
- Rising demand for non-agricultural uses of agricultural landscapes (Forest cover, biodiversity preserves, agro-tourism, etc)

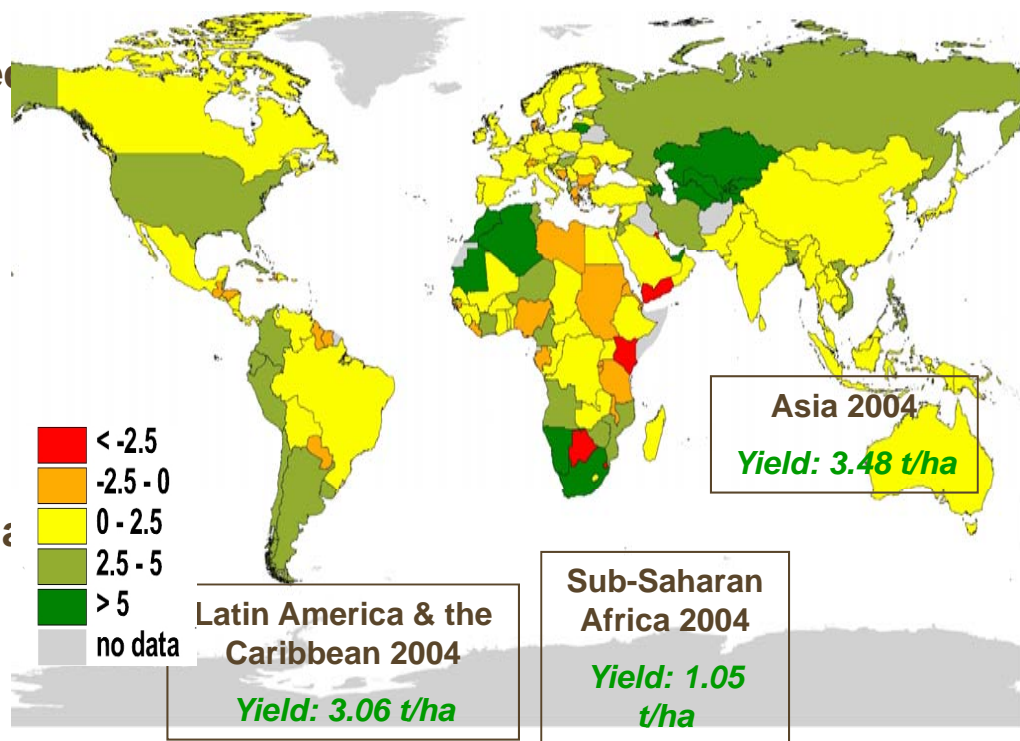


FAO Forest Assessment 2010

Future food needs can be met through intensification of currently cultivated land

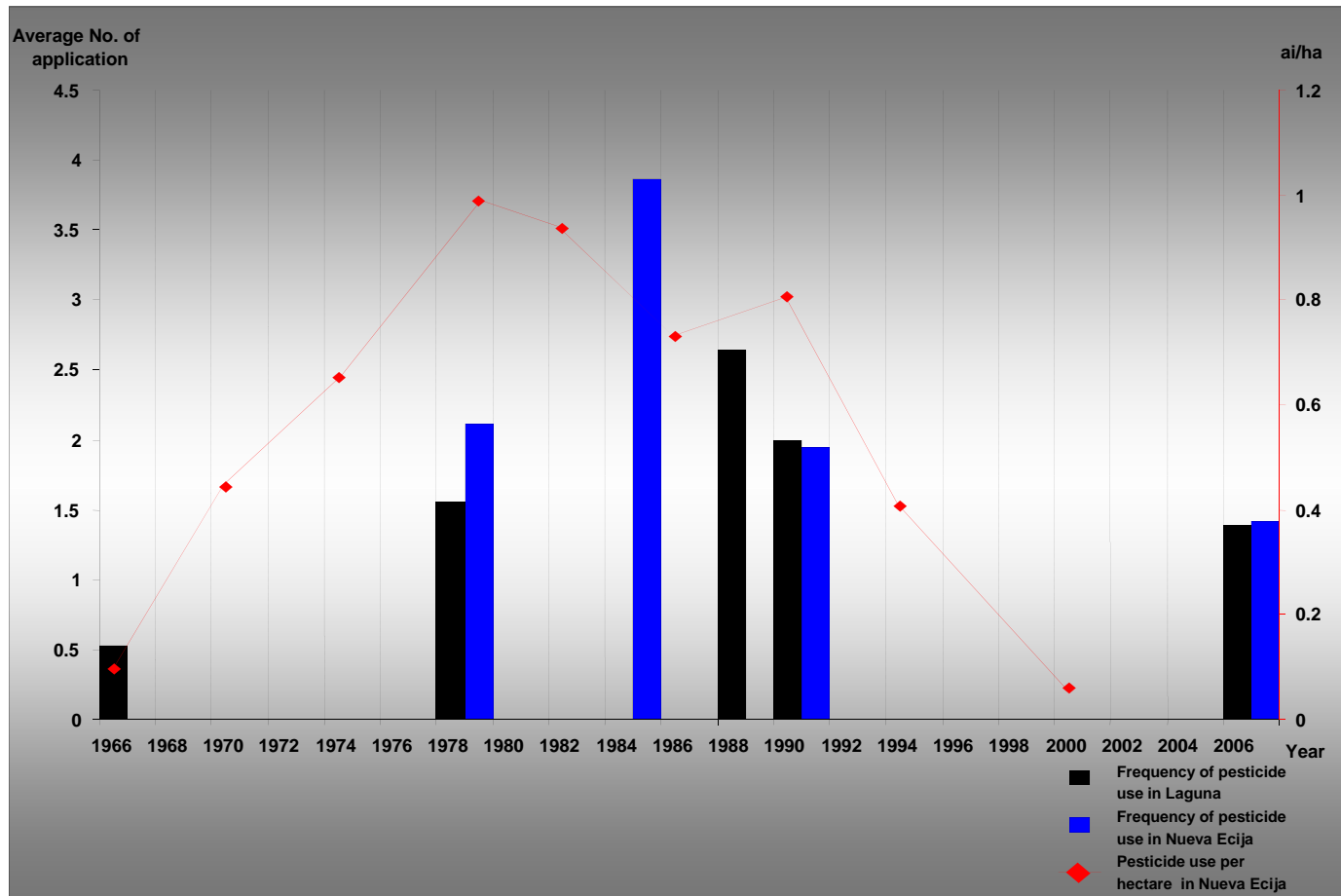
- Historically production growth was yield rather than area driven
- Current productivity gap can be bridged by investments in infrastructure and improved producer incentives.
- Breadbasket strategy for enhancing smallholder productivity in high potential environments is a proven mechanism for meeting food needs while reducing the pressure on marginal production environments.
- Getting trade policy right is an integral part of managing food security sustainably.

Cereal Crop Yield (tons/ha)



Sustainable intensification is possible when incentives are right

Insecticide use for rice dropped dramatically in the Philippines due to policy reform & IPM adoption



Source: Dawe 2006; Warburton, Palis and Pingali 1995; IRRI 2007

Sustainable intensification has been constrained by a poor policy environment

- Distorted incentives have constrained the adoption of efficiency-enhancing/resource conserving practices for fertilizer, water, and power use.
- Sustainable land use and land management have been constrained by a policy bias towards a few staple cereal crops.
- Property rights and tenancy laws that encourage land conservation investments are lacking.

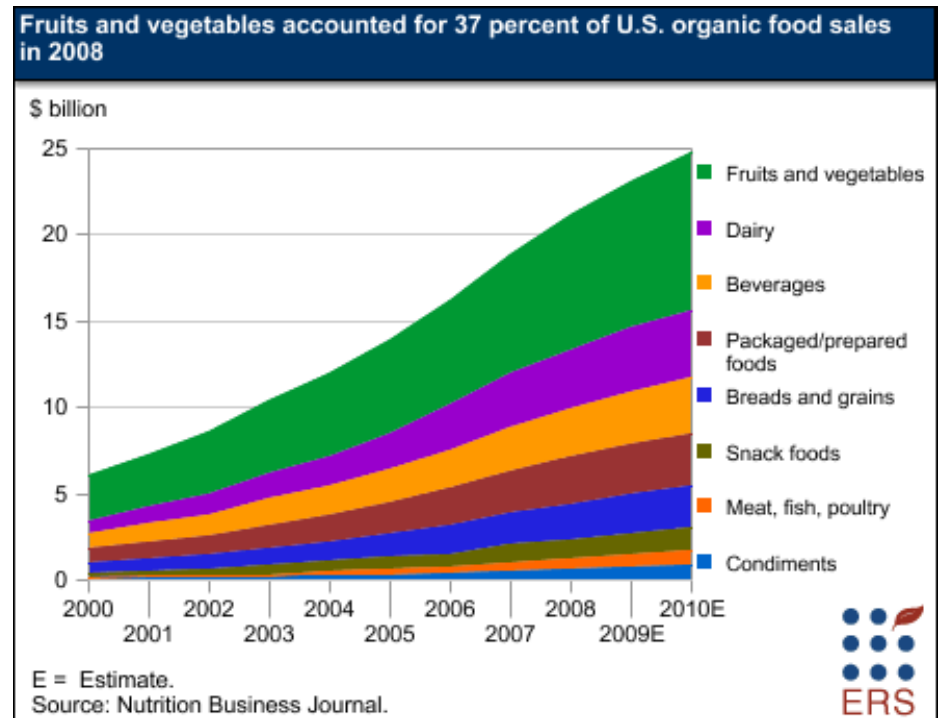
High subsidies on urea are leading to unbalanced use of N, P and K. For example, while the recommended ratio between N, P and K, is 4:2:1, the actual ratio in Punjab was 20:6:1 and in Haryana 30:9:1 in 2005-06, indicating a huge inefficiency in the use of fertilizers.

Ashok Gulati, 2008

Changing consumer preferences drive the adoption of sustainable production practices

- Rising demand for food diversity & quality
- Consumer value for sustainable production
- Move away from cereal mono-cropping
- Enforcement of quality & safety standards
- Branding & certifying products – Rainforest Alliance, Fair Trade, etc

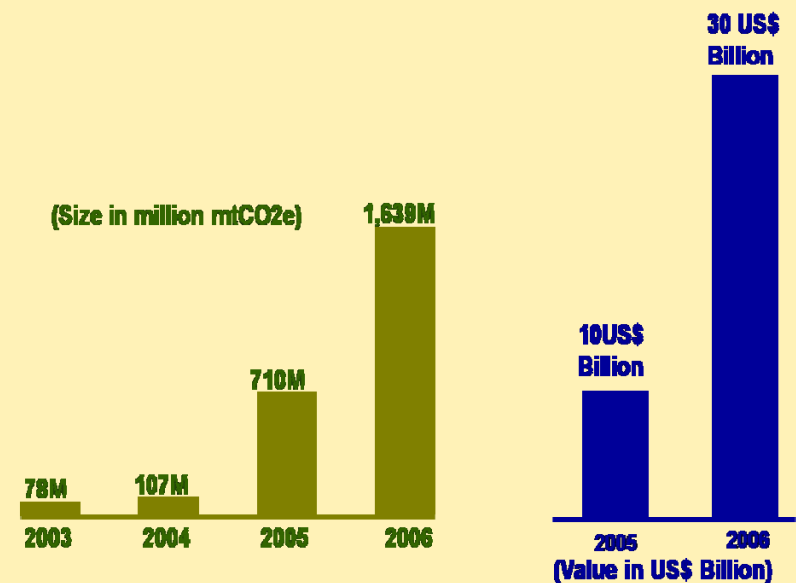
For example, the rising demand for organic food in the U.S.



Climate change adaptation & mitigation practices are compatible with sustainable intensification

- Conservation tillage systems
- Drought and water management practices
- Incentives for moving agriculture out of marginal areas
- Market mechanisms for carbon sequestration

Demand is growing for carbon credits but agriculture is only 3% of market share



Figures from the State and Trends of the Carbon Market, several issues World Bank

Agriculture development strategies by economic & agro-climatic potential

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Opportunity cost of LABOR</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Trade Integration</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Economic Growth ↑</p>			
	High	<ul style="list-style-type: none"> • production of a few specialized crops/livestock • ecosystem services payments for resource conservation 	<ul style="list-style-type: none"> • sustainable intensification of high value crops & horticulture • Intensive cereal systems
	Low	<ul style="list-style-type: none"> • moving out of agriculture • conservation areas • agro-tourism 	<ul style="list-style-type: none"> • Intensive cereal systems • organic farming of vegetables • ecosystem services payments for resource conservation
		Low	High
	Opportunity cost of LAND		
	Marginal		Favorable

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The way forward

- **Improve incentives for developing and adopting resource conservation practices**
- **Institutional reforms that promote farmer investments in land, water and forest resources**
- **Promote market mechanisms for climate mitigation, including carbon sequestration through conservation agriculture**
- **Invest in R&D for climate proofing agriculture, including breeding for drought tolerance**
- **Support public good investments in education and information access**
- **Empower rural communities to design and develop their own change pathways & coping strategies**

Thank You

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