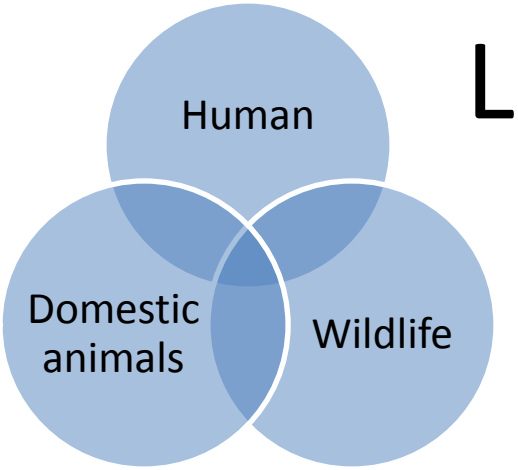
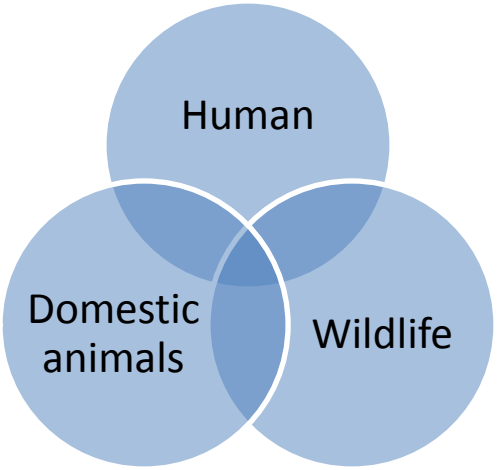


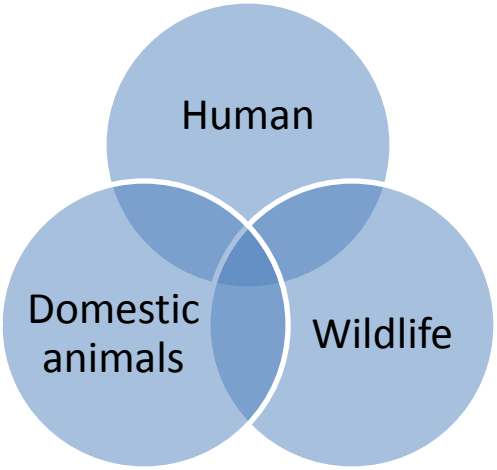
Livestock Sector Strategy and Actions

Cees de Haan
World Bank consultant
With inputs from Juan Pablo Ruiz (WB) and Muhammad Ibrahim (CATIE)



Outline of Presentation

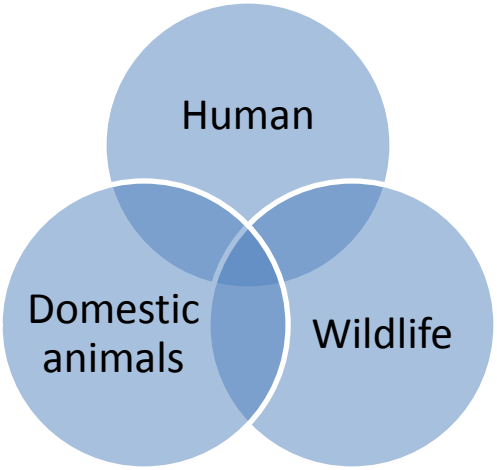
- Current strategic thinking on livestock development
  - The "Livestock Revolution" continues without public support, so why bother?
  - The strategic focus: three public goods, and the corresponding WB investments;
  - Potential areas of investment in GHG mitigation; and
- An action showcase for addressing one public good: PES and silvo-pastoral systems.



The Livestock Revolution

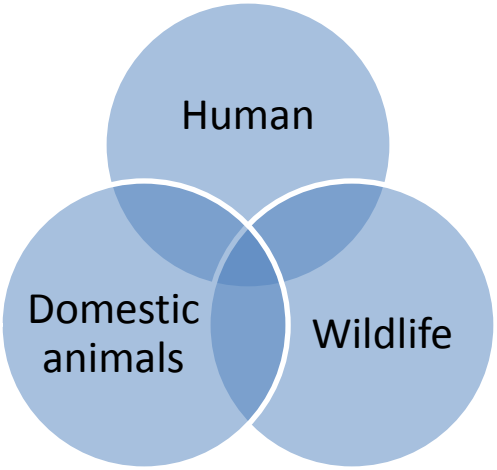
and the resulting attention
and investment void

The "Livestock Revolution"



Some key growth charateristics			
	1990	2000	2050
Global Meat production (million tons)	186	235	465
% in developing countries	40	55	71
Per cap. cons. developing kg/yr	18	27	44
Per cap.con. Industrial kg/yr	90	99	103
Deflated price (1992=100)		2000	2006
Pork		65	70
Poultry		74	90
Beef		80	99

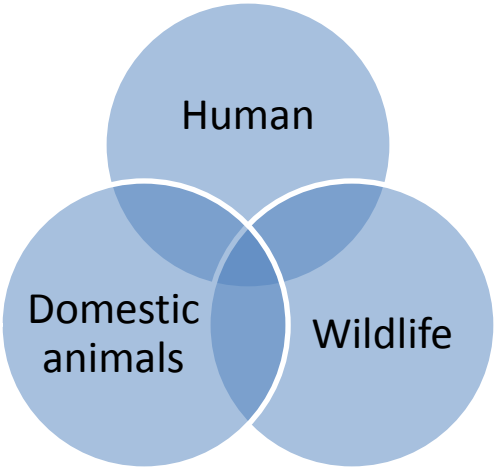
The "Livestock Revolution"



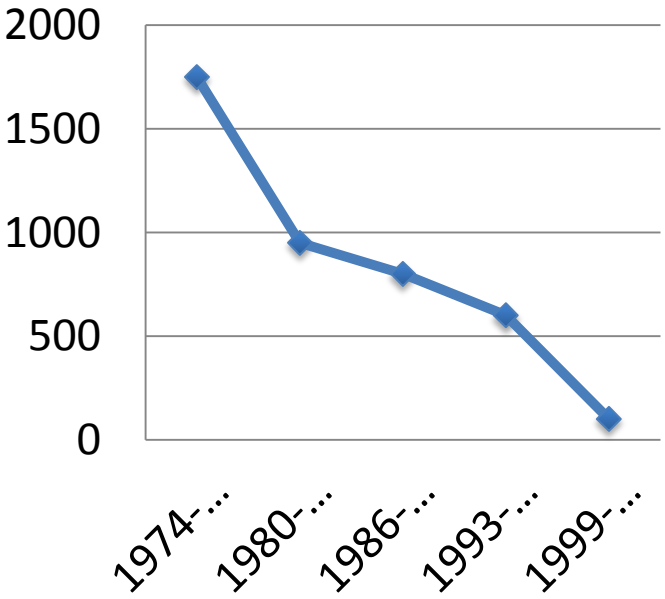
Some drivers: Technology and input prices

	Year	Unit	Year	Unit
Feed conversion broilers USA kg feed/kg gain	1960	1.92	2001	1.62
Milk production OECD countries (kg/cow/year)	1980	4226	2005	6350
Amazon Area:	**1985** Nw Brazil		**2003** Rondonia	
Fertility rate (%)		50-60		88
Calf mortality (%)		15-20		3
Daily gain (Kg/day)		0.30		0.45
Corn US $/bushel (deflated)	1972	5.5	2002	1.7

In summary, at little public cost



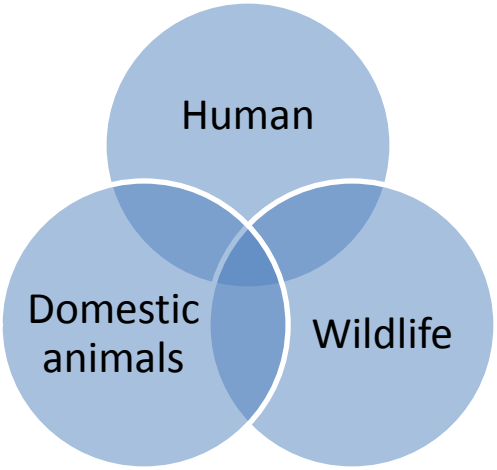
Annual Investment in the livestock sector by the Bank (US million, total costs, 1998 US $



There have been

- Major increase in production
- Major increase in efficiency
- Significant declines in price to the consumer
- Major increase in empoyment

- **So, why bother?**

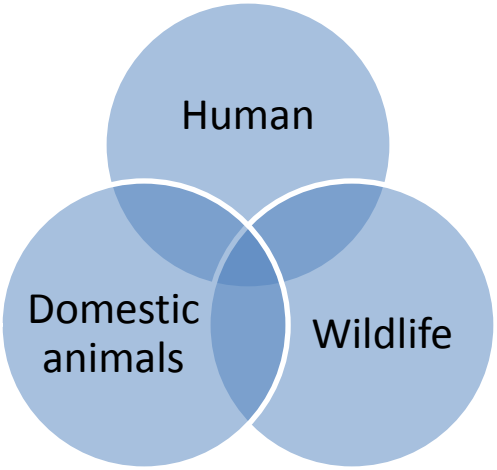


The strong private sector growth within a public sector void, has affected

- ***The equity position of the livestock farmers,***
- ***The global environment and***
- ***Global public health.***

Increased public sector attention and investments are needed to correct these negative externalities, and ensure that the sector

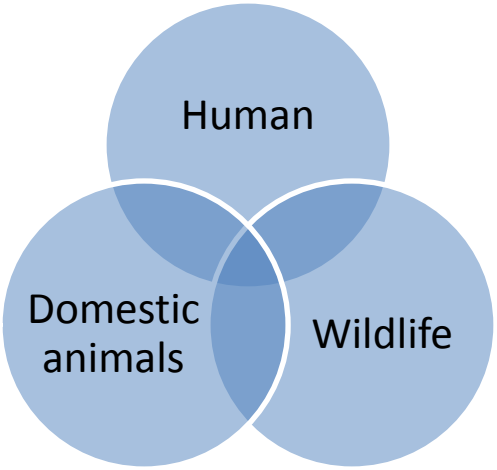
- ***Contributes to an equitable, sustainable and healthful development.***

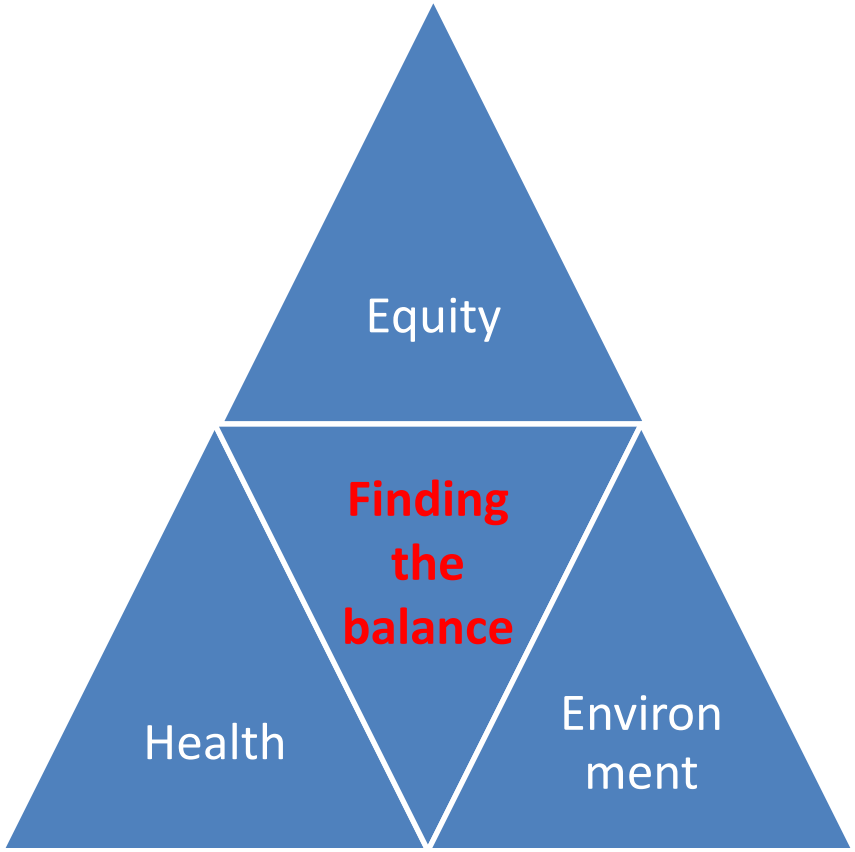


The Strategic Focus

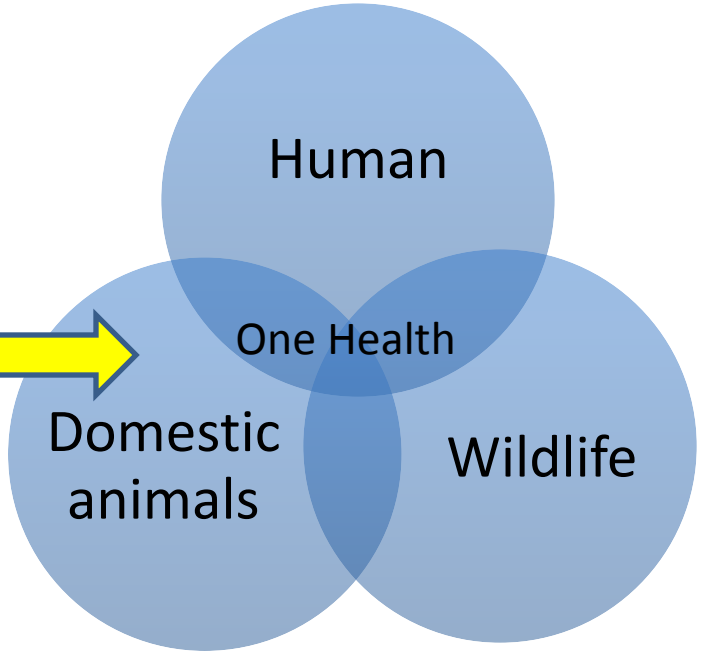
Public goods and World Bank investments

The Three Public Good Domains





Health: Preparing for the next emerging zoonisis: From veterinary health to "One Health"



World Bank's Global Involvement:

- **Support to control HPAI, now being restructured to general zoonotic disease control projects**

World Bank LAC involvement

- **HPAI projects in 8 countries, major H1N1 iprojects n Mexico and Argentina, FMD control in Uruguay**

Equity: Integrating smallholders in the value chain

World Bank's Global Involvement:

- Value chain in East Asia, major smallholder dairy projects in Bangladesh and India (Operation Flood 2)

World Bank LAC involvement

- Value chain, competitiveness and agricultural technology projects dealing with livestock in Colombia, Brazil, Uruquay, and Central America

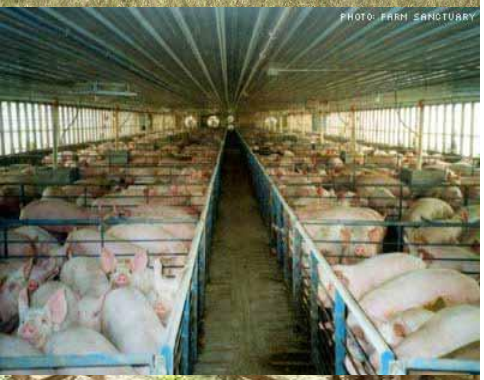
Environment: From mining to minding

World Bank's Global Involvement:

- Biogas and pollution control in East Asia and ECA, drought and range management in Arid Africa, Mongolia and China;

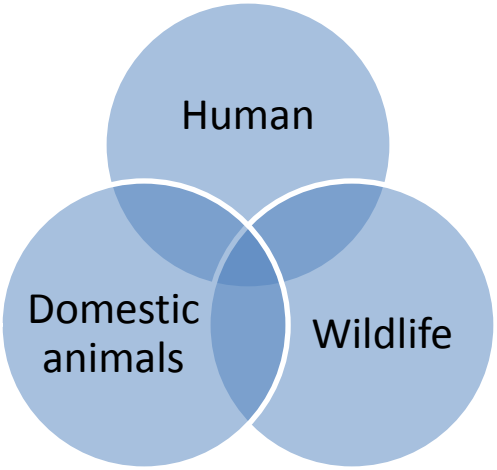
World Bank LAC involvement

- Biogas in Value Chain in Mexico, pollution in Brazil, payment for environmental services through rehabilitation of degraded pastures in Colombia (to follow).



Possible areas of investment in GHG mitigation

- Diet improvement:
  - Provide advisory,credit and input services for pasture improvement, fodder banks;
  - Support for equipment to better balance concentrates
- Genetic improvement
  - Greater efficiciency reduces GHG/Kg. Product
- Support matching species and environment
  - Promote move from beef to non-ruminant meat
- Manage manure
  - Improve regulations and subsidize treatment infrastructure



An Action Showcase

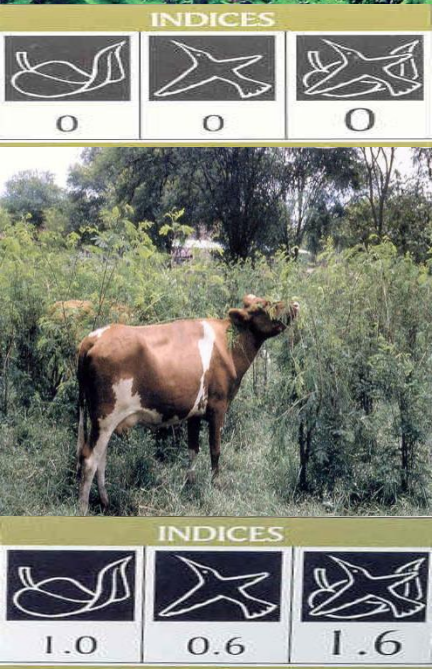
Silvo-pastoral systems and payment for environmental services

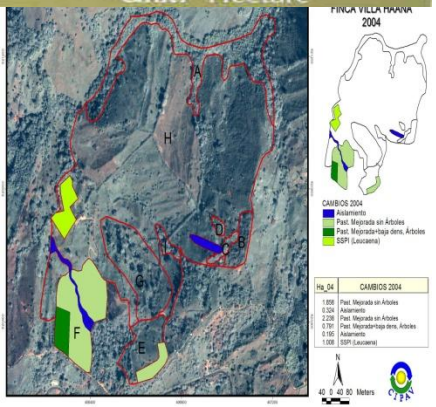
PES in Colombia, Costa Rica and Nicaragua

Low productivity cattle ranching systems

Conversion to

Land uses with high density vegetation

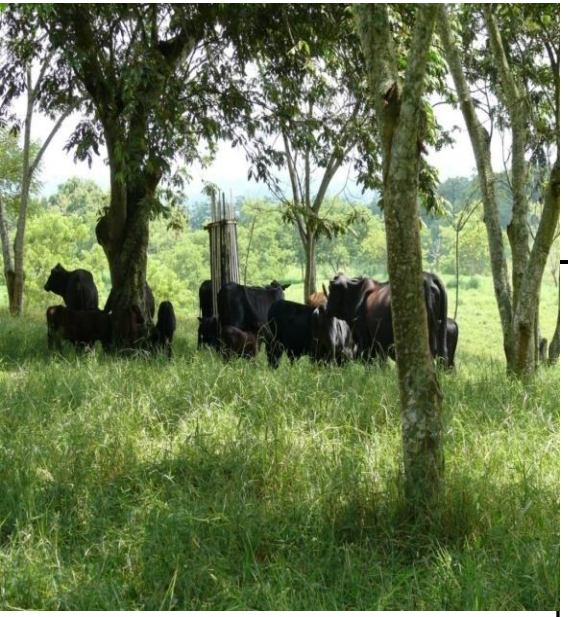


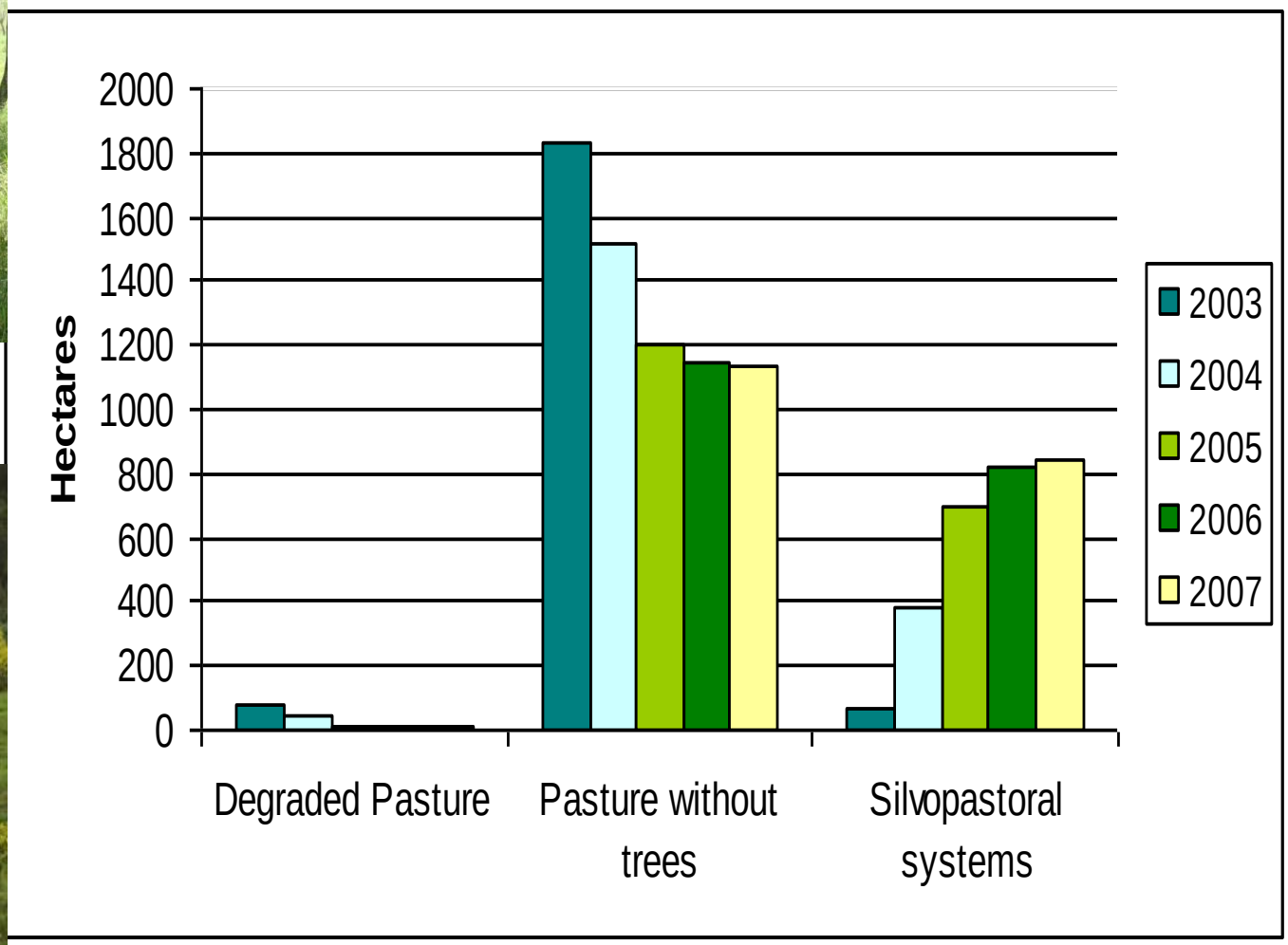


The first silvo-pastoral project

- Regional (Colombia, Costa Rica, Nigaragua) project (2002-2009);
- 265 farms, 12.000 ha;
- Payment of US $ 7.50/Ton CO2 eq.;
- Changes in land-use as proxy for level of carbon sequestration and bio-diversity;
- Use of GIS to measure landuse changes;
- Upper limits for payment levels; and
- Multiple partners.

Results: Changes in land-use in Colombia



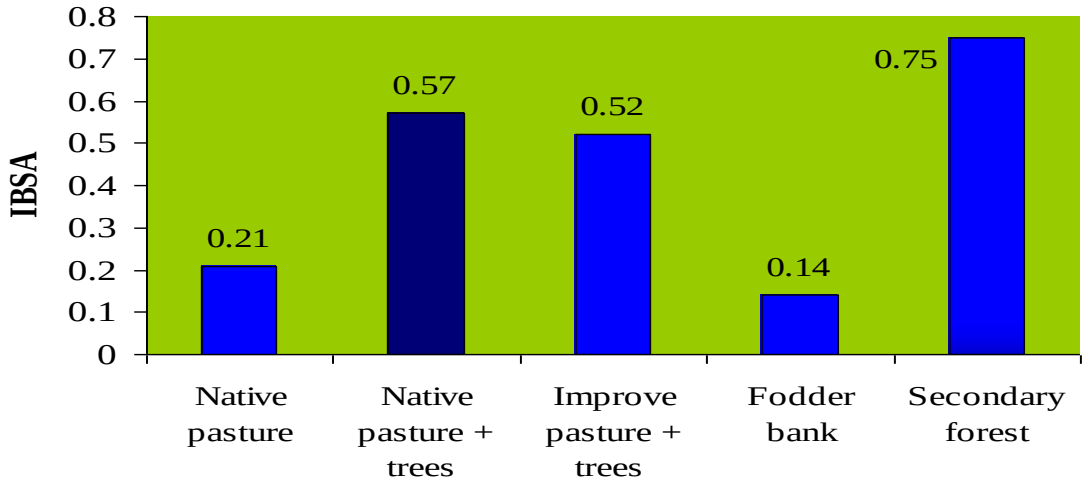


Results: Carbon sequestration and soil erosion

- GHG emission:
  - Incremental CO2 eq. fixed 2004-2007 19,558/ton/yr; and
  - in intensive silvo-pastoral systems: CH4 reduction 21% and N2O reduction< 36%
- Soil erosion
  - Reduction 45%
    - (80,9 tn/ha/year to 44,1 tn/ha/year)

Results: Bio-diversity

	2002(baseline)	2008
• Birds	140	197
• Butterflies	67	130
• Mollusks	35	81



Results: Water quality

Parameter	2002
BOD	11 ppm
Turbidity	> 40 UNT
% EPT	**5%**

Parameter	2007
BOD	**<1.2 ppm**
Turbidity	**9.2 UNT**
% EPT	**27%**

Results: Productivity increases

The adoption of SPS in cattle farms resulted in:

- Increased milk production: From **5,0 to 6,1 kg/cow/day**
- Increased beef production: From **450 to 800 kg/ha/year**
- Increased on-farm employment: **+ 30%**
- Improved carrying capacity: **From 1,8 a 2,5 TLU/ ha**
- Reduced pesticide use **From 13.913 to 7.899 lts**. for total project area

Results: Farmers income

	Base Line (2001)	2007
• Costa Rica	US$ 162	US$ 252
• Colombia **(iSPS)**	US$ 440	US$ 1.597
• Nicaragua	US$ 111	US$ 180

PES is an important incentive for farmers to adopt conservation practices and land valorization

Lessons learned

Three types of technologies

I: **Highly profitable:**

- **Need only TA and access to credit: Intensive silvo-pastoral systems**

II: Moderately profitable, but still important for bio-diversity and carbon sequestration:

- **Need PES for their implementation (multi species-live fences)**

III: Unprofitable, but providing strong environmental services:

- **Need long term PES: Biological corridors, fallowing hillsides**

The Follow-up Project: Colombia Sustainable Cattle Project

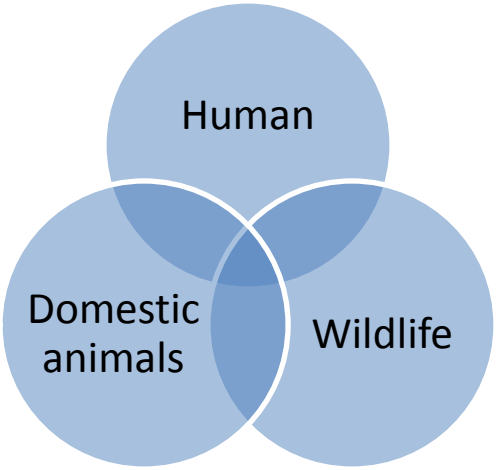
Proposed Instruments:

1. US $ 24 million in loans for the implementation of SPS
2. US $ 6 million for capacity building, including the farmers training, PES services and the development of green Markets for cattle ranching products and promotion of agro-ecotourism
3. US$ 7 million for PES for land uses that are biodiversity friendly, increase Climate Change adaptation and mitigation and promote water conservation
4. US $ 5 million farmers contribution

Regional Project 12.000 has

National Project 52.000 has

How to go for 10 million has ??
SPS as adaptation and mitigation
Strategy CC



The New York Times

Editorial: Meat and the Planet

…….. There are no easy trade-offs when it comes to global warming — such as cutting back on cattle to make room for cars. The human passion for meat is certainly not about to end anytime soon.
….our health and the health of the planet depend on pushing livestock production in more sustainable directions.

NYT, December 27, 2006

Thank you