Climate-Smart Agriculture Enhancing Food Security While Facing Climate Change

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Uruguay: An Example also for Europe

Intensification at a Stunning Pace

Number of People Fed By Uruguay’s Agro-Food Exports

[million people at world average calorie intake]

Source: MGAP OPYP based on FAO & Trademap
Challenge 1: UY’s Economy Depends on Agriculture

Agricultural resilience is a key determinant of overall economic resilience.
Challenge 2: Agricultural Growth Puts Pressure on Natural Resources

Production intensifies as consequence of increasing product and land prices.
Challenge 3: UY is Increasingly Vulnerable to Climate Change

The country faces an unprecedented number of adverse weather events

**Precipitation Record**
[2000-2012]

Source: RENARE, 2013

**Storm Damage to (New) Grain Storage Facility** [Dolores, 2013]

Source: Bank team, 2013
Understanding the challenge posed by climate change

Source: Baetgen, IRI
UY’s emissions mix dominated by agriculture

Uruguay GHG Emissions Inventory in MtCO₂ e by sector
Livestock: Baseline vs. Mitigated Emissions

![Graph showing Livestock Baseline Emissions vs. Mitigated, 2005-2035]
Local Solutions
The Case of Uruguay
Solution 1
Focus on Quality & Conservation Agriculture
Solution 2

Soil-Use Planning

Example of Soil Quality Mapping

Source: RENARE, 2014
Solution 3

Refining the Agricultural Information System

- **Identification of vulnerabilities and opportunities**
  - Which (sub)sectors, systems, components?

- **Understand, quantify and reduce uncertainties**
  - Understand the Past; Monitor the Present; Provide information for the Future

- **Identify technologies that reduce vulnerability**
  - Diversification; irrigation, storage and efficiency enhancement in water use; genetics; etc.

- **Identify institutional rules and interventions through policies that reduce/transfer risks**
  - Early Warning and Early Response Systems
  - Insurance (incl. Index-based); financing mechanism
  - Institutional framework and policies

Source: FAO, 2013
Example: Better decision making in Climate-adapted Policy and Enterprise Decisions

Climate Modeling from leading research universities

Water Monitoring

Grasslands Monitoring

Early Warning on drought, production

Family farmers

Risk Mapping

Livestock registration system (SNIG)
Example: Better decision making in Water Resource Protection
Example: Better decision making in Resources Protection and Traceability
Solution 4
A Strategy for Low Carbon Growth
Solution 4

A Strategy for Low Carbon Growth

Figure 7: Baseline Beef Cattle Inventory and Productivity, 2004-2035

Figure 9: Baseline GHG Emissions and Emissions Intensity for Beef Cattle, 2005-2035
Global Solutions
The Approach of the World Bank

1
CLIENT COUNTRY ENGAGEMENT
Advising clients and designing projects to increase productivity, build resilience and reduce emissions.

2
MAINSTREAMING
Applying a ‘Climate Lens’ to our work across sectors, both from adaptation and emission reduction perspectives.

3
METRICS & TARGETS
Of the current World Bank agriculture portfolio:
- 75% of projects improve productivity.
- 31% build resilience.
- 20% reduce emissions.
- 12% are fully climate-smart, working towards all three goals.