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Potential for Impact: Preparation and implementation of low carbon development strategies can

- reduce the magnitude of climate change impacts while
- contributing to social and economic development.

Careful assessment and comparison of mitigation opportunities provides decision makers with the information necessary to reduce emissions cost-effectively while generating additional environmental and social benefits.

1. Background

There has been considerable interest in cost-effective low-carbon development in recent years across many organizations and regions. The overall objective of this study is to support the Government of Uruguay in identifying low-cost strategies to reduce GHG emissions while contributing to Uruguay's short- and long-term social and economic development and increasing resilience to climate change.

Primary focus sectors include:

- ☐ Agriculture and forestry
 - ☐ Livestock production
 - ☐ Upland crop production
 - ☐ Rice cultivation
 - ☐ Forest management
 - ☐ Afforestation
- ☐ Energy
 - ☐ Electricity generation
 - ☐ Energy efficiency
- ☐ Transportation
 - ☐ Fuel efficiency
 - ☐ Traffic management
 - ☐ Vehicle technology
- ☐ Waste management
 - ☐ Municipal solid waste
 - ☐ Industrial solid waste
 - ☐ Wastewater

2. Study Goals

Major goals of this study include:

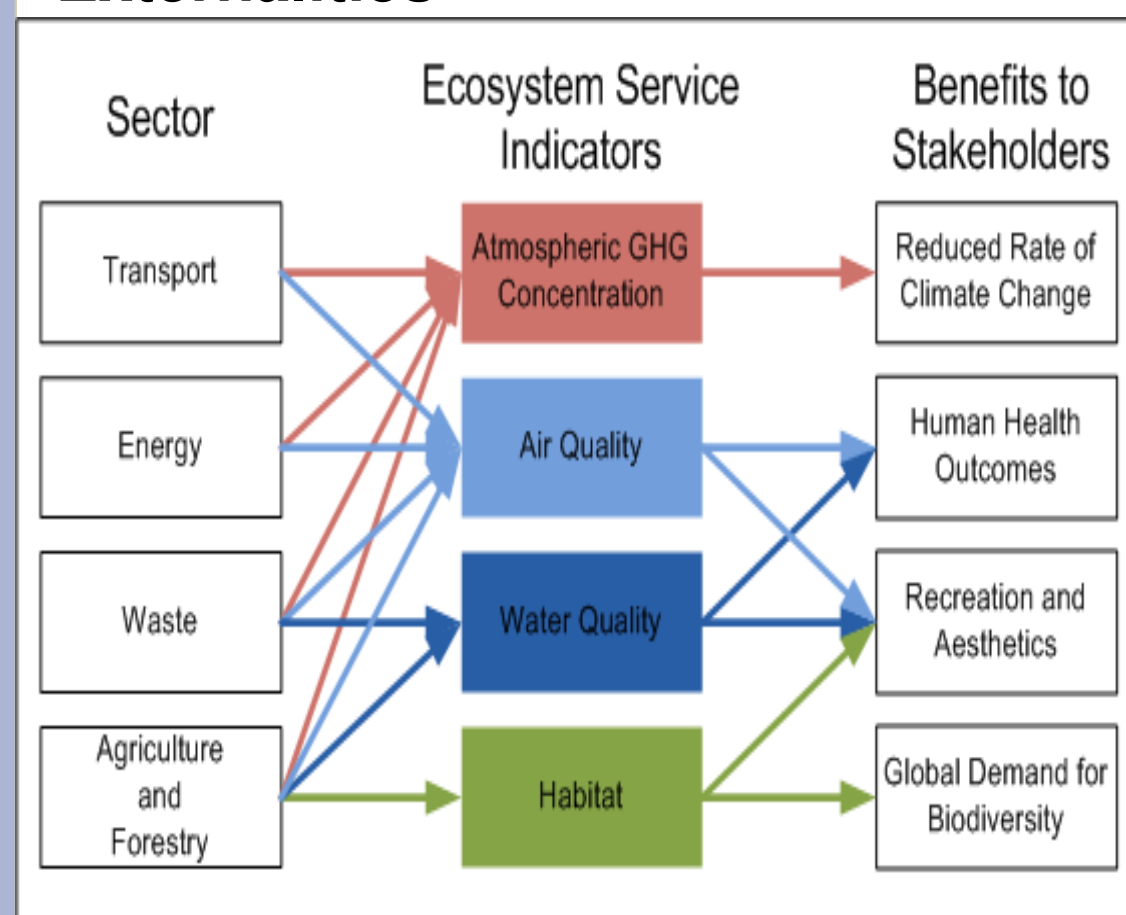
- ☐ Identifying and assessing promising and cost-effective low-carbon development strategies in key sectors
- ☐ Examining constraints and barriers to adoption and feasible timeline for implementation
- ☐ Quantifying economic impacts of alternative strategies
- ☐ Assessing social and environmental impacts as well as contributions to climate resilience
- ☐ Providing insights into the types of policies and instruments that would need to be developed to help achieve modeled outcomes
- ☐ Identifying investment opportunities that can attract financing

3. Approach

The general approach employed for this study is as follows:

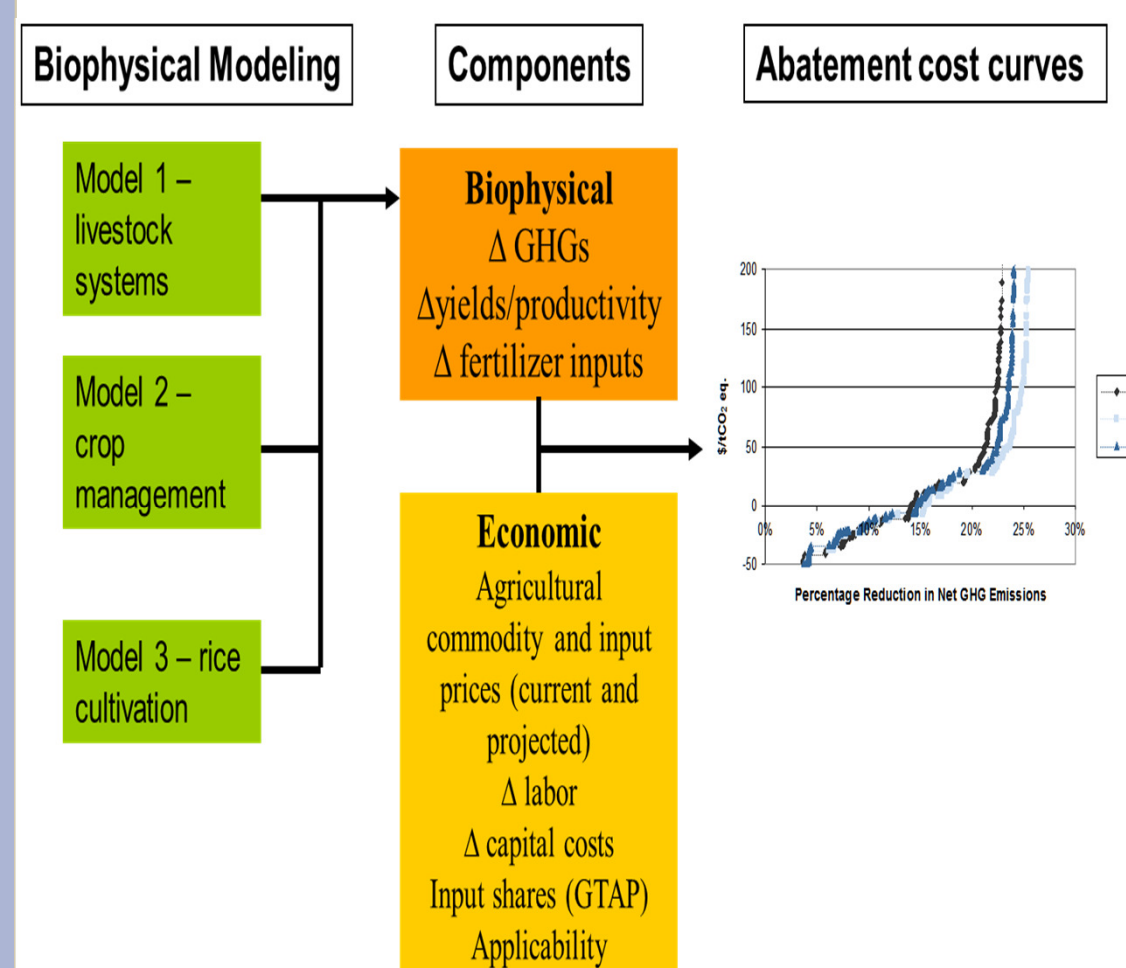
- ☐ Review existing information and select the most promising mitigation options for each sector of interest
 - ✓ Develop common framework for comparison
 - ✓ Absolute emissions reduction vs. emissions intensity
 - ✓ Consider cobenefits in option definition and selection
- ☐ Estimate projected baseline activity and emissions from each sector being considered
 - ✓ In order to quantify potential reductions in emissions, it is necessary to estimate what emissions would have been in the future without mitigation activities
- ☐ Estimate costs and benefits of key mitigation options
 - ✓ In addition to their private costs, many options increase productivity or generate valuable products (e.g., energy) that can increase revenue
 - ✓ In addition to private costs and benefits, there are often cobenefits to society such as rural development, environmental, or other social benefits

Figure 1. Conceptual Framework: Accounting for Environmental Externalities



- ✓ Barriers to adoption are also identified along with policies, investments, or other ways to overcome these barriers
- ☐ Combine individual mitigation options into marginal abatement cost curves (MACCs)
 - ✓ Combines information across multiple options and sectors to compare cost-effectiveness and assessment of total potential

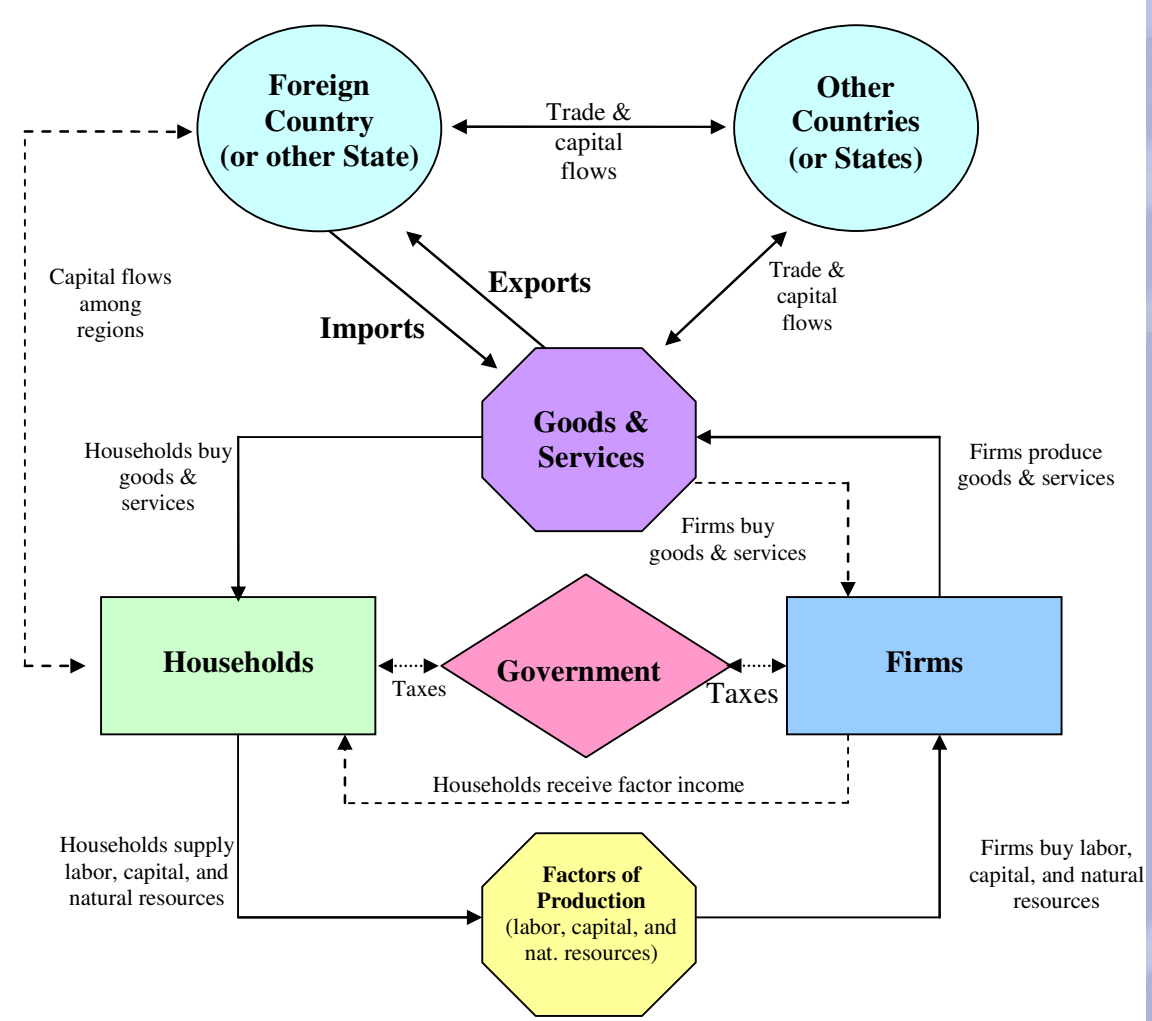
Figure 2. Development of MACCs: Conceptual Agricultural Example



3. Approach - continued

- ☐ Model future scenarios at the macroeconomic level
 - ✓ While MACCs provide useful information about mitigation costs and potential, they do not fully account for market responses or interactions between sectors

Figure 3. Economy-wide Modeling of Future Scenarios



4. Summary and Next Steps

Potential emissions reductions are being quantified for each mitigation option selected for the period 2005-2035, along with costs and benefits of each option. In addition to the private costs, we considered the cobenefits of each option and the effects of changes in practices on climate resiliency.

This study is ongoing, but based on findings to date, many of the mitigation options identified provide productivity gains or other cost savings or revenue benefits, potentially offering win-win solutions for economic development and the environment. We expect that the findings of this study will be used to inform the development of a combination of policy measures to achieve a low-carbon growth path for Uruguay.

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