

Sustainability of biomass in the biobased economy:

- Numerical harmonization of sustainability certification schemes
- Dispute settlement Facility for sustainability conflicts of biomass



Numerical harmonization of sustainability certification schemes

To develop a single index for measuring sustainability of commodities based on Total Factor Productivity (TFP)



INTRODUCTION

Problems

- ❖ Lack of harmonization of sustainability criteria and standards
- ❖ Lack of mutual recognition reducing transparency and increasing confusion to producers and consumers
- ❖ Certification is increasingly being seen as market-access requirements set by private sectors
- ❖ Waste of resources

Therefore...

- ❖ Need of harmonization of sustainability measures by developing a sustainability measure politically accepted and scientifically validated



RESEARCH OBJECTIVES

- ❖ To develop a generic framework for measuring sustainability of agri-food supply chains
- ❖ To develop a single index of sustainability based on price-related productivity measures
- ❖ To develop a single index of sustainability based on distance-function productivity measures
- ❖ To compare both indexes of sustainability with conventional productivity measures



Generic framework to measure sustainability of commodities (1)

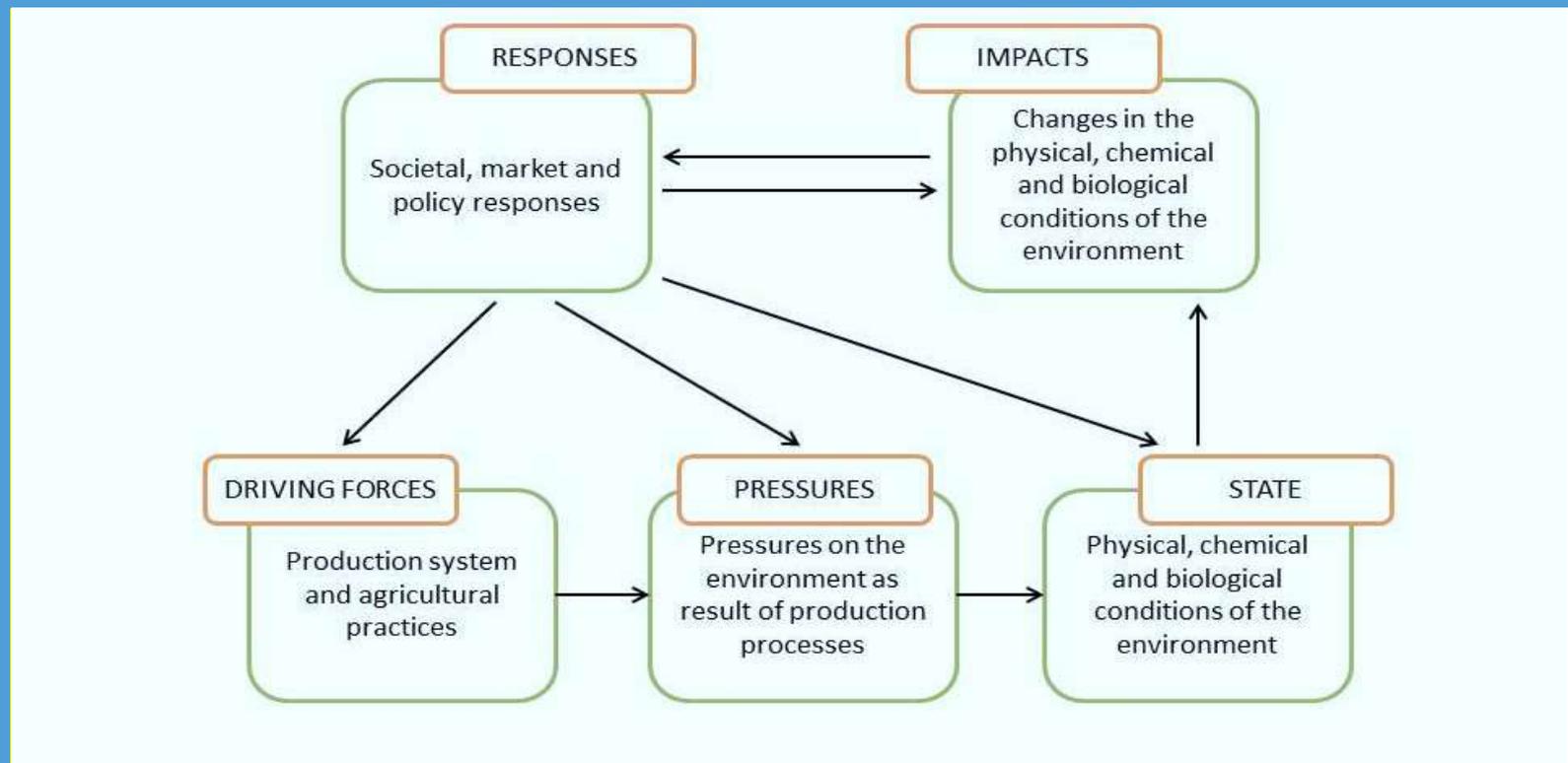
Steps required to measure sustainability of commodities set on trade flows of agricultural commodities and based on Total Factor Productivity measures

- ❖ Definition of sustainability
- ❖ Review shortcomings of existing conceptual frameworks
- ❖ List of sustainability criteria, indicators and variables (selected from authoritative organizations and scientific literature)



Generic framework to measure sustainability of commodities (2)

- ❖ Sustainability criteria and indicators will be framed according to the DPSIR approach: useful to shed light on the dynamics between food supply chain and environment



Index based on distance-function productivity measures (1)

Malmquist-Luenberger productivity index:

- ❖ Relies on output-oriented directional distance functions
- ❖ Increase the good outputs (production of commodities) while simultaneously reducing the bad outputs (pollution, eutrophication, loss of biodiversity, etc.)

Construction of the Malmquist-Luenberger indicator will be done by linear programming (Data Envelopment Analysis): construction of a production possibilities frontier



Index based on distance-function productivity measures (2)

❖ The index will be adjusted to incorporate sustainability criteria

As sustainability criteria are an aggregation of single indicators, e.g. the following steps will be undertaken to develop a common metric:

1. Normalization: Adjustment of indicators measured on different scales to a common scale
2. Weighting: Different weighing methods (expert opinion, equal weighting, statistical data, cost to policy target)

Environmental, social and economic sustainability criteria will be also weighted to determine their relative importance for sustainability.



Index based on distance-function productivity measures (3)

Advantages

- ❖ Does not require information of prices of all inputs and outputs
- ❖ Allows to explicitly evaluate sustainability criteria and productivity growth: the quantity of good and bad outputs and other social outputs can be changed according to institutional regulations, targets or sustainable use levels (direction vector)

Disadvantages:

- ❖ Require extensive data
- ❖ The determination of the weights is problematic and has a high degree of subjectivity



Index based on distance-function productivity measures (4)

Case of study of farms in the European context: Review of existing databases at the farm level to select a major agricultural commodity. Given that data for some indicators will not be available (mainly for environmental indicators), a proxy measure will be derived from data collected (inputs and outputs) and literature review.



Comparison of adjusted and conventional indexes of productivity growth

- ❖ An assessment of both the adjusted Malmquist-Luenberger index and the adjusted Fisher index will be carried out based on accuracy and data requirements.
- ❖ Afterwards, both indexes will be compared against a conventional index of productivity: Malmquist index of productivity.
- ❖ It will shed light on the role of the incorporated sustainability criteria in the measurement of productivity growth

Are we overestimating agricultural productivity growth?



The current research will allow developing a single index of sustainability of commodities.

Once the index is accepted and applied, trade for sustainable commodities will be facilitated. Therefore, sustainable production of biomass will be boosted and better social, environmental and economic practices across the chain will be enhanced.



Dispute settlement Facility for sustainability conflicts of biomass



Governing sustainable wood pellets

- Ensuring optimal sustainability regulation, both soft and hard law
- A dynamic (legal) playing field
- Experiences in other sustainable biomass fields
- Anticipating disputes and preparing dispute resolution mechanisms



Future

- More competing claims and disputes expected
- Actors involved: companies, countries, NGO's, communities, round tables
- Topics as land use, human rights, food security, biodiversity, and access to raw materials.



Business interests in dispute resolution

- Prevent reputation damage
- Level playing field, clear procedures
- Strengthen sustainability as the key driver of the wood pellet market
- Maintain relations with policy makers and civil society/NGO's.



Overcoming the shortcomings of present-day dispute settlement

- Adequate solutions to disputes in the interest of the majority of stakeholders
- Shortcomings of (ad-) judiciary mechanisms
- Challenges for voluntary standards' own dispute resolution mechanisms



Advantages of mediation

- (1) Searching for common goals and more flexibility, package deals
- (2) Early start and a fast procedure with a high degree of acceptability of outcomes
- (3) Confidentiality of procedure and said outcomes
- (4) Avoiding costs, time and reputation damage judicial procedures



Aim of the BDSF

- Neutrality and specific expertise in one
- Fast procedure with a high degree of acceptability of outcomes
- Control over external communication about both procedure and outcome
- Knowledge center

