



Institute for European  
Environmental Policy

# The Provision of Public Goods through Agriculture in Europe

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15 October 2009

# Presentation Structure



- Which public goods are associated with agriculture?
- Do all types of agriculture provide public goods in a uniform way?
- Why does the provision of public goods change over time?
- How to match supply with society's demand? – the case for public intervention
- How may the provision of public goods change in the future?

# Farmland Biodiversity



- Long history of agriculture in Europe has led to the co-evolution and adaptation of species to semi-natural, farmed habitats.
- Species richness is enhanced through more extensive forms of land management which create optimal levels of disturbance.
- Complementary relationship with food production at certain land use intensities.

# Valued Agricultural Landscapes



- Over several millennia, agriculture has transformed a largely wooded climax vegetation to open landscapes.
- Livestock grazing, orchards, vineyards, field boundaries, farm buildings, changing field colours etc, all contribute to a landscape's ecological, aesthetic, and cultural quality.
- These cultivated landscapes are valued in their own right, and certain open landscapes provide resilience to fire

# High Quality Water and Soils



- Agriculture impacts on a large share of Europe's soil and water resource, and the type of land management also influences the scale of carbon storage and of greenhouse gas emissions.
- Given our need for food, some level of degradation is acceptable, but where management minimises these impacts the benefits to society are recognised.



# Social Benefits



- In certain parts of Europe, agriculture plays an important role in maintaining rural vitality.
- In certain farming systems, the social matrix is important in underpinning the delivery of a wide range of environmental Public Goods.
- Public Goods also generate a range of second order socio-economic benefits – enhanced employment, opportunities for tourism, recreation, businesses etc.



# The Provision of Public Goods through Agriculture



- The provision of public goods is not uniform across all types of agriculture in the EU:
  - In terms of the type, range, scale of provision, and the condition of the public goods.



# Differences in the Provision of Public Goods



- A range of factors explain differences in the provision of Public Goods :
  - Type of land use and intensity of land management
  - Structure of farm, including field size, scale of operation, influencing production logic as well as landscape structure
  - Locational factors – farm location in relation to watershed, combustible forest, and within a coherent landscape
  - Historical factors – relic landscape elements, archaeological features
  - Socio-economic structures – e.g. semi-subsistence farming.





# Changes in the Provision of Public Goods Over Time



# Threats to the Provision of Public Goods



- Intensification
- Abandonment
- Conversion to alternative land uses
- Whether or not the loss of a Public Good is irreversible depends on a number of factors, although even when possible, restoration often takes a long time.
- In the case of a loss of agriculture, certain Public Goods may be supplied through alternative forms of land use or by other rural actors.



# Declines in the Provision of Public Goods



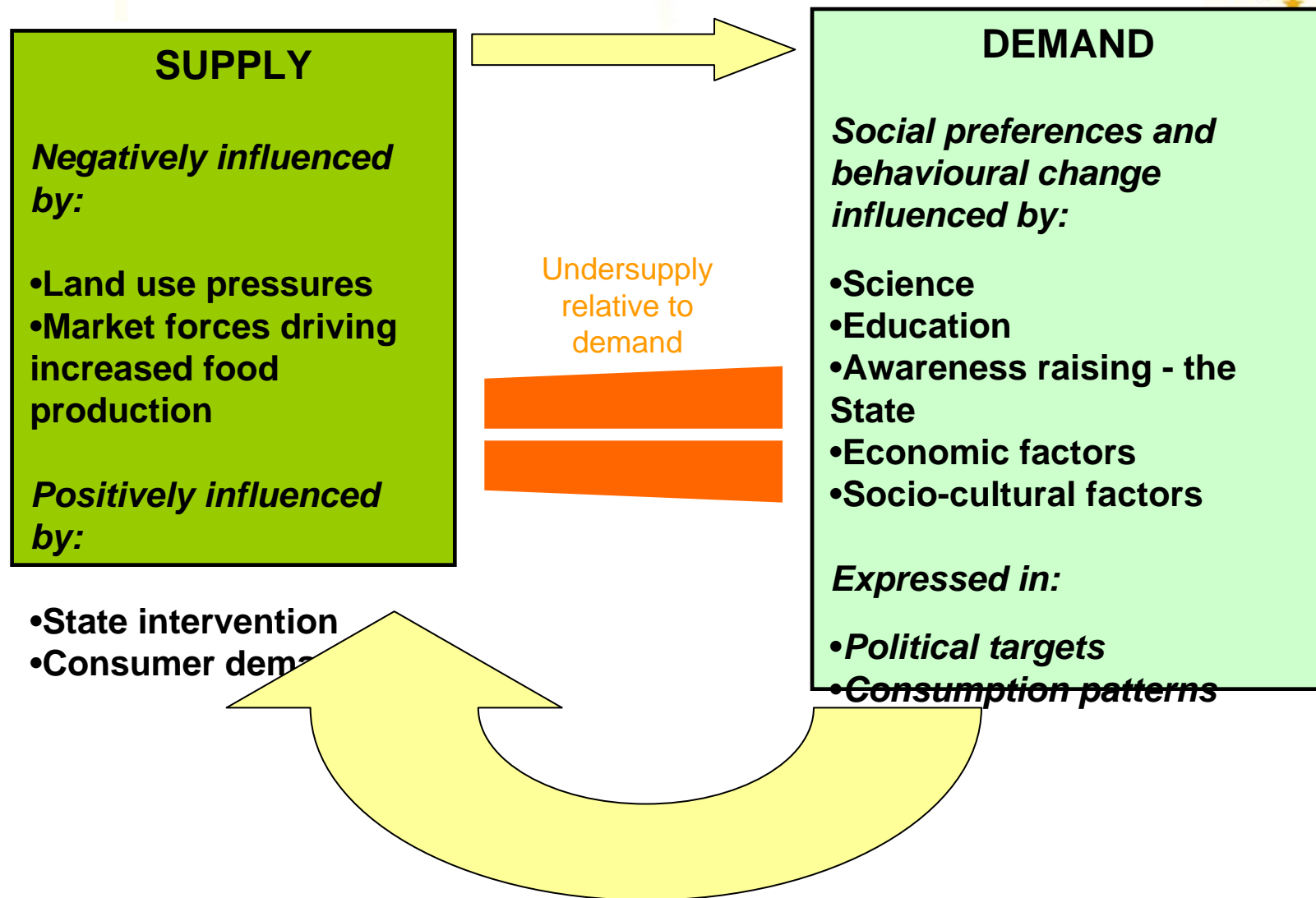
- ‘State of the Environment’ indicators point to:
  - Continuing declines in farmland birds
  - The poor conservation status of a majority of Natura 2000 sites
  - Declines in landscape character
  - Continuing problems with diffuse pollution
  - The poor ‘ecological status’ of many water bodies
  - Unsustainable levels of water abstraction particularly in water stressed areas
  - High rates of soil erosion by water and wind, and a decline in soil organic matter.

# Growth in Public Demand



- At the same time as declines in provision, social preferences for environmental public goods continue to grow.
- As expressed through:
  - Visitor numbers to national parks, membership of eNGOs, volunteer numbers
  - Changing behaviour – e.g. in response to climate change.
- As measured by:
  - Attitudinal surveys
  - Contingent valuation techniques.

# Undersupply of PG Relative to Demand



# The Case for Intervention



- Undersupply in the provision of Public Goods – or the threat of undersupply in the future relative to the scale of public demand – triggers the need for collective action.
- What is the nature of that collective action?



# The Case for Intervention – Matching Supply to Demand



# The Characteristics of Public Goods



- In addition to their biophysical characteristics, Public Goods display two defining characteristics:
  - ***Non-rival*** – if the good is consumed by one person it does not reduce the amount available to others.
  - ***Non-excludable*** – if the good is available to one person, others cannot be excluded from the benefits it confers.



# Private Goods: Supply and Demand



- Consumers articulate demand through the purchase of private goods.
- Producers are motivated to respond to this demand – and to organise their factors of production accordingly – because they are able to command a price for their product.

Market efficiency exists:

- Defined property rights
- Low transaction costs
- Complete information



# Public Goods: Supply and Demand



- A demand exists for public goods. However, because of their defining characteristics, markets do not function in the coordination of supply and demand.
  - It is difficult to **exclude** people from consuming the Public Good, and therefore there is no incentive to pay for them, leading to over-exploitation.
  - The characteristic of **non-rivalry** means that the public good lacks an appropriate price.
- Therefore, farmers have no incentive to provide socially optimal levels of public goods because they are not being paid to do so, leading to under-provision.



# The Case for State Intervention



- There is a role for government to intervene to secure society's optimal provision of public goods:
  - To articulate demand on behalf of society as a whole (both present and future generations)
  - To codify demand in political targets
  - To encourage farmers to reallocate privately owned factors of production towards the delivery of desirable environmental outcomes, through a financial incentive.
- Therefore the provision of Public Goods through agriculture requires a public spending programme.

# Drivers of PG Provision in the Future



- Further market integration and high commodity prices
- Rising farm costs and production costs
- Accelerated agricultural restructuring in the new Member States – intensification or agricultural abandonment and loss of social capital
- Increased pressure on agricultural land
- Climate change
- Causality is complex – the impacts of these drivers is likely to differ across the EU.



# The Future Provision of Public Goods



# The Future Provision of Public Goods



- Ongoing declines in the provision of Public Goods are expected without appropriate action.
- The opportunity costs of providing Public Goods are likely to rise.
- Possible trade-offs between
  - Different Public Goods
  - Food and/or environment
  - Europe and our global footprint.

# Final Thoughts



- But why ongoing environmental degradation?
  - Are political targets matched by budgetary commitments?
  - Inadequate policy response?
- Policy and Budgetary Challenge:
  - Need to develop tools to marshal political pressure to bring about the scale of political response needed and to inform judgements about appropriate budgetary allocations relative to other areas of public policy (e.g. education, health etc).
  - We do have the components of a policy with the potential to support the provision of PG, although a future CAP needs clear objectives, improved measure design and targeting, and to be adequately funded.



The study on 'The Provision of Public Goods through Agriculture in the EU' is due for publication in early 2010, and will be available on the web-sites of DG Agriculture and IEEP.