



# The Concept of Public Goods Provided Through Agriculture in the EU

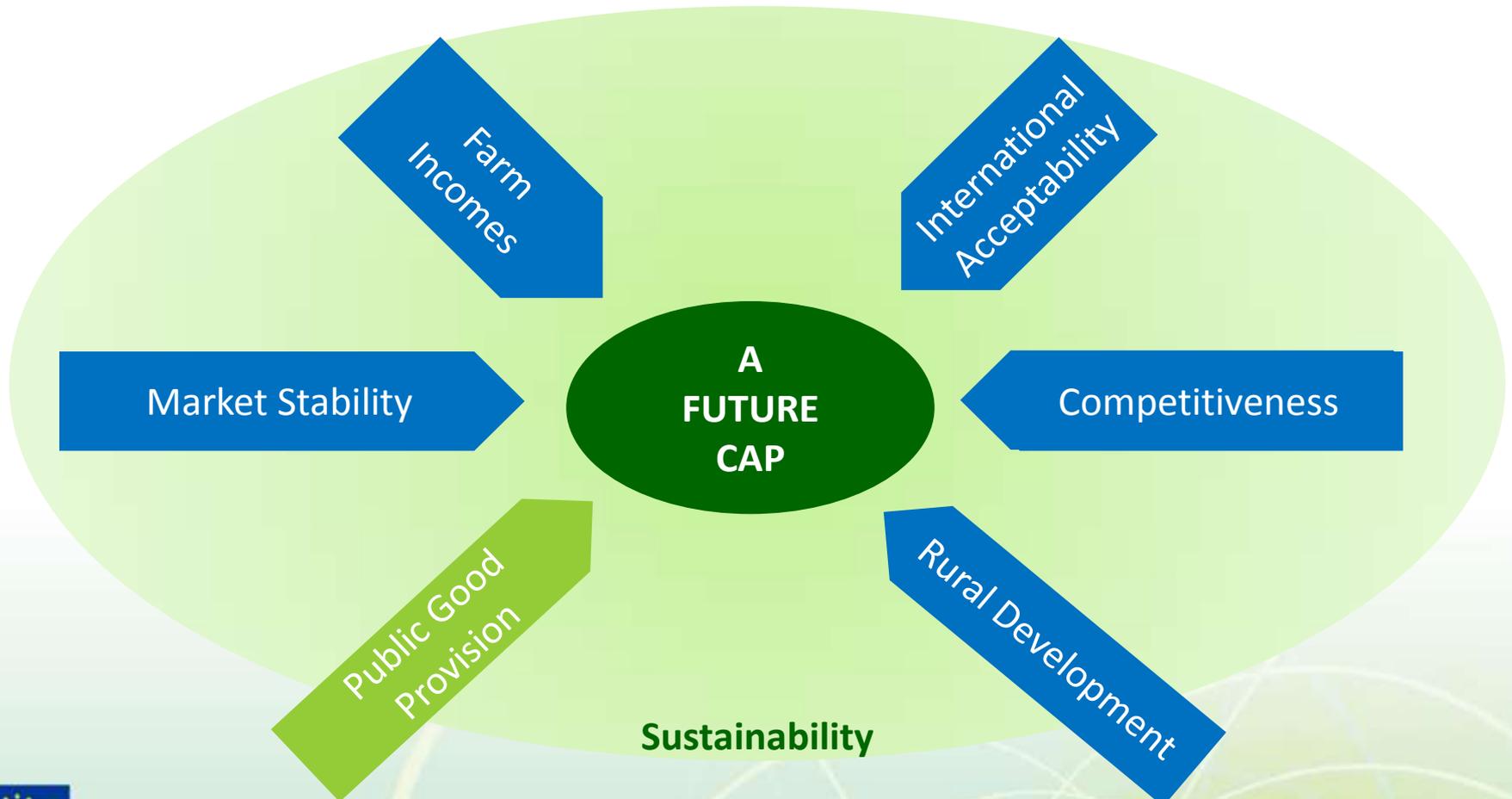
“Public Goods and Public Intervention in Agriculture”  
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## What do we want from an agricultural policy?





## Key Questions: Agriculture and the supply of Public Goods

- How do we define Public Goods in this context?
- How is supply and demand to be coordinated?
- What is the rationale for public intervention?
- How are public goods provided through agriculture in Europe?
- How do we apply the approach to agricultural policy?



## Defining Public Goods (1 of 2)

Pure public goods display the following characteristics:

- **Non-excludable** – if the good is provided to one person, others cannot be excluded from the benefits that it confers.
- **Non-rival** – if the good is consumed by one person, it does not prevent it from being consumed by others, nor reduce the amount available to others.

## Defining Public Goods (2 of 2)

- In practice, pure public goods are extremely rare.
- For any given good, the characteristics of non-rivalry and non-excludability are not either 'present' or 'not present'.
- They may be present to almost any degree which means that goods can be placed along a "**spectrum of public-ness**".



# A Private Good





## A Public Good



## Coordinating Supply and Demand - Markets

- The 'degree of publicness' of a good determines the most appropriate allocation mechanism to coordinate supply and demand.
- Private goods are secured through the market, with supply and demand coordinated via pricing mechanisms.
- The efficient functioning of this mechanism is based on the ability of consumers to articulate demand, and for farmers to organise their factors of production in a way which allows them to respond.

# Market mechanisms do not function for the provision of pure public goods

- A market cannot function as an allocation mechanism where:
  - consumers cannot be easily identified; and
  - consumers cannot be excluded from consuming the good, irrespective of whether they have articulated a preference for it or paid to ensure its supply.
- This leads to free-rider behaviour.
- On the supply side, farmers have little incentive to provide public goods because they are not being paid to do so.



## The Role of Public Intervention

- For public goods characterised by a high degree of public-ness, the level of demand for these goods can only be defined through a process of negotiation between the interested parties to achieve a joint articulation of demand.
- This is then translated into a request to economic actors to ensure their supply:
  - This occurs through the political process between the State – acting on behalf of society – and potentially numerous land owners and managers.
  - Following a political decision about the desirable quantity of a public good (set through political targets), the mechanisms stimulating supply can be modelled after market mechanisms (e.g. procurement procedures, auctions etc).

## Identifying the Rationale for Public Intervention

- The universe of public benefits provided through agriculture in Europe is large – they are the by-products of different types of agricultural production.
- These benefits may be physical **entities** – e.g. habitats - or **services** – e.g. water regulation.
- Some of these are produced incidentally or ‘for free’.
- Changes in frame conditions, for example as a result of policy changes or changes in commodity prices, can lead to an increase in the opportunity costs of providing these benefits, which in turn lead to a contraction in supply and the potential for increased scarcity in the future

## When is Public Intervention Needed?

- In the context of limited public finances, it is not necessary to intervene to secure the provision of public benefits that are provided incidentally.
- Intervention is needed where public demand is greater than the current or prospective level of provision, where it is in decline/scarce, or required in a particular place, quantity or condition.
- The attributes of 'public-ness' and undersupply trigger the need for action to ensure the supply of **public goods**.
- This underlines the need for an allocation mechanism that allows an economic transaction to ensure their supply, and which typically involves an economic incentive to farmers.

## Environmental Public Goods from Agriculture



- Farmland biodiversity
- Agricultural landscapes
- High quality water, air and soils
- Climate stability – carbon sequestration and greenhouse gas emissions
- Resilience to fire and flooding

## Other Public Goods Associated with Agriculture



- Rural vitality
  - Viability of rural populations and communities
- Farm animal welfare
- Food security
  - Retaining the capacity of the land, other resources and skills to produce food into the future.

## Scale of the Environmental Challenge

- Pan-EU indicators and state of the environment assessments measure the quality of environmental media and agriculture's impact.
- Widespread evidence of deterioration in environmental state over time, although some improvements in air quality, regional improvements in soil quality and reductions in GHG emissions.
- The scale of this challenge is likely to be exacerbated by climate change.
- The losses to global welfare from the loss of biodiversity from terrestrial ecosystems are estimated to be:
  - Approximately €50 billion per year - just under 1% of global GDP

## Drivers of Undersupply

Changes in agricultural land use and management alter the pattern of public good provision.

For example:

- **Intensification** – driven by market forces and commodity prices, new technologies etc.
- **Larger scale** – larger fields, heavier machinery, concentrated buildings.
- **Land use conversions** (biomass)
- **Marginalisation / Abandonment**
  - Economic viability of extensive systems and those in naturally disadvantaged areas is in decline.
  - Support for these systems will be a critical part of the new policy setting.



## Agriculture has a central role to play in responding to the environmental challenge...

- The degree and range of environmental public goods provided varies according to farming systems and practices, and is influenced by locational factors, farm structures etc.
- The most beneficial farming systems for environmental public goods are:
  - Extensive livestock and mixed systems
  - More traditional permanent crops
  - Organic systems
- Potential for highly productive farming systems to adopt environmentally beneficial production methods / practices driven in part by new technologies.



## ... which in turn contributes to rural vitality

- Increased opportunities for **tourism** to the local area/region
- Changes in **employment** opportunities both on and off the farm
- Opportunities for **adding value to food/other products**
- The maintenance of traditional agricultural skills or the development of new **skills**
- **Investment** being attracted to the local area, providing increased employment opportunities for local people;
- **Impacts on population levels** in rural areas - slowing down outmigration
- Benefits for **cultural heritage**



## Extensive Livestock – Moieciu de Sus, Romania

### Clean, Sustainable Water Supply

- No use of irrigation
- No pesticides or herbicides used
- Manure dressing on meadows and pastures is light.

### Flood Control, Erosion Control

- Permanent pasture on slopes – soil not exposed to erosion agents
- Livestock housed in winter avoiding danger of poaching.

### Cultural Landscape

- Walls, hedges, farm buildings
- Historic field patterns, over 450 fields in one valley.



### Biodiversity

- Vegetation mostly permanent grassland managed as meadows and pastures, including 3 habitats of Community Interest and supporting at least 46 species of butterfly, 3 on the Romanian Red List and a further 5 on the European Red List
- No herbicides used.

### GHG Emissions

- Dung applied mostly by hand as farmyard manure; de-nitrification unlikely to be an issue
- Very efficient in terms of energy use – little or no use of fuel, nitrates or concentrates.

## Extensive Unirrigated Olives – Sierra de Gata, Spain

### Fire Control

- Provide low fuels element in landscape which can act as fire break.

### Clean, Sustainable Water Supply

- No use of irrigation
- No fertilisers applied
- No pesticides or herbicides used.

### Cultural Landscape

- Walls and terraces
- Historic land use mosaic.



### Biodiversity

- Small patches with long ecotones with surrounding SNV
- Semi-natural ground layer; no herbicides
- Terraces provide habitat for invertebrates and reptiles
- Old trees themselves an important habitat
- No pesticides or herbicides used.

### Erosion Control

- No interference with natural watercourses
- Ground layer and terraces minimise slope erosion
- Ground layer prevents wind erosion.

# Intensive Arable – Kraichgau, Baden-Württemberg, Germany

## Biodiversity

Hedgerows and lines of trees provide habitats for:

- Birds [Lanius collurio – Red-backed shrike], [Emberiza citrinella - Yellowhammer] ,
- Insects,
- Mammals (hedgehogs),
- Toads

## Water Quality

-Improvements in groundwater quality can be achieved through lower inputs

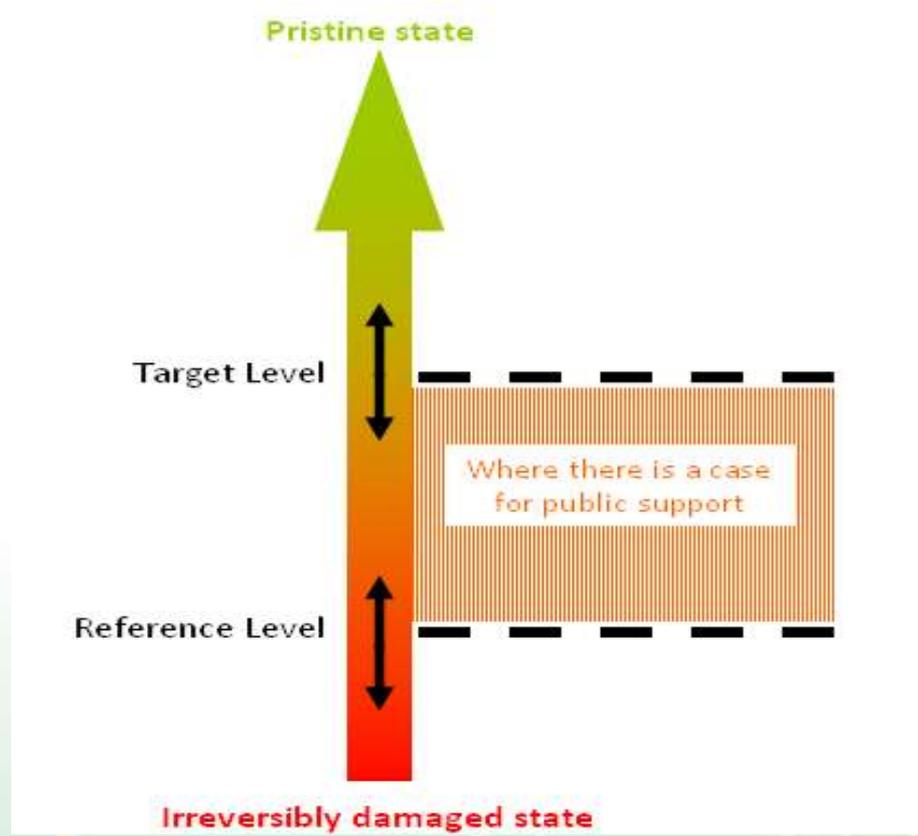
## Cultural Landscape

- Open Structure
- Hedgerows
- Single trees





# The Case for Public Support



## Measures pursuing the provision of Public Goods through agriculture in Europe

- Direct payments in combination with cross-compliance contribute to the provision of basic public goods
- Targeted rural development measures incentivise farmers to provide specific public goods
- Investments (mainly non-remunerative) are often needed to underpin the provision of specific public goods
- Training, knowledge transfer, and capacity building represent the very basis for rural viability.

## Six Challenges for a Future CAP

- Consistent policy framework - integration of environmental objectives at heart of future policy.
- Establishing SMART targets.
- Enhancing the effectiveness and efficiency of measures.
- Improving implementation.
- Effective monitoring and evaluation.
- Securing sufficient budgetary resources.





**Thank you for your attention**

