Production, Supply, and Natural Resource Management Policies

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Food Production: Meeting Food Needs and Wants

- Management of natural resources
- Input use
- Technology
- Production structure

Policies to Change:

- Producer behavior
- Socio-economic and political environment within which the producer operates
**Producer Goals Underlying Behavior**

- Increased incomes and family well-being
- Reduced risks
- Sustainable use of natural resources

**Natural Resources**

- Soil
- Water
- Air
- Biodiversity
- Forest stock
- Marine fishery stock

**Inputs**

- Fertilizers: soil mining, overuse
- Labor: organic, agro-ecological production
- Pesticides: alternatives, health and ecology
- Water: Shortage, water logging, salination
- Technology: Replacing Nat. resources
- Knowledge: Sustainable productivity
Goals and Behavior

- Stakeholders
- Growth/sustainability trade-offs
- Poverty reduction/sustainability trade-offs
- Sustainability goals as a function of income
- The u-shaped function
- Reversibility

Human-Made Resources (Capital)

- Physical
- Financial
- Human
- Social

Interaction Between Natural and Human-Made Capital

- Competition
- Complementarities
- Substitution
- Reversible or irreversible changes
- Intrinsic values
**Farmer Behavior**
- Short versus long-term effects
- Discount rate
- Risk taking and consequences
- Degradation and productivity effects
- Clearing of forests
- Public versus private costs and benefits
- Internalizing environmental costs

**Soil Degradation**
- Restoration costs
- Salination, water logging
- Desertification, erosion
- Soil mining
- Deforestation

**Water Management Issues**
- Global availability and local access
- Seasonal and regional shortages
- Surface and ground water
- Low use efficiency
- Agriculture is major user (80%)
- Competition, conflict
- Water contamination, health issues
- Effects of climate change
## Marine Fisheries Stock

- Overexploitation, depletion, collapse
- Open access
  - Tragedy of the commons
- Over investment in technology
- Substitution: Aquaculture

## Types of Government Intervention

- Regulations
- Incentives
- Knowledge

## Policy Issues - Soils

- Clear property rights
- Collective action
- Access to credit
- Infrastructure and markets
- Improved technology
- Information
- Public or private goods?
**Policy Issues - Water**

- Incentives and regulation to improve efficiency
- Technology to reduce losses and increase efficiency
- Clarify water rights and allocation
- Water user associations
- Water pricing
- Risk management policies
- Rainwater catchments

**Marine Fisheries - Policies**

- International agreements, codes, regulations
- Clear property rights
- Replenishment
- Public or private goods?
- Regulations of aquaculture
- Price policies

**Producer Response to:**

- Output price policies
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- Quantity policies

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- Input price and availability policies

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- Input price and availability policies
- Income policies
- Natural resource policies
- Technology policies and availability

Public or Private Investment in Research and Technology
- Is it a public or private good?
- Do social benefits exceed private benefits?
- Relative cost
- Inability to pay
- Perceived size of market
Producer Response to:

- Changing consumer demand
- New demands
- Food safety and quality policies
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- Changing consumer demand
- New demands
- Food safety and quality policies
- Biosafety policies

Changing the Socio-Economic and Policy Environment

- Land, water, labor, capital markets and policies
- Credit policies
- Output markets, domestic and international trade
- Research and technology
- Infrastructure
- Market information

Roles of Public and Private Sectors

- Social versus private costs
- Market failures
- Externalities
- Economies of scale
- The future of the small farm