



# THE ROLE OF GOVERNMENT IN DRIVING INNOVATION IN THE BIOECONOMY

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Bioeconomy in the forefront of national policies  
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## Food and agriculture require further innovation to meet challenges and opportunities

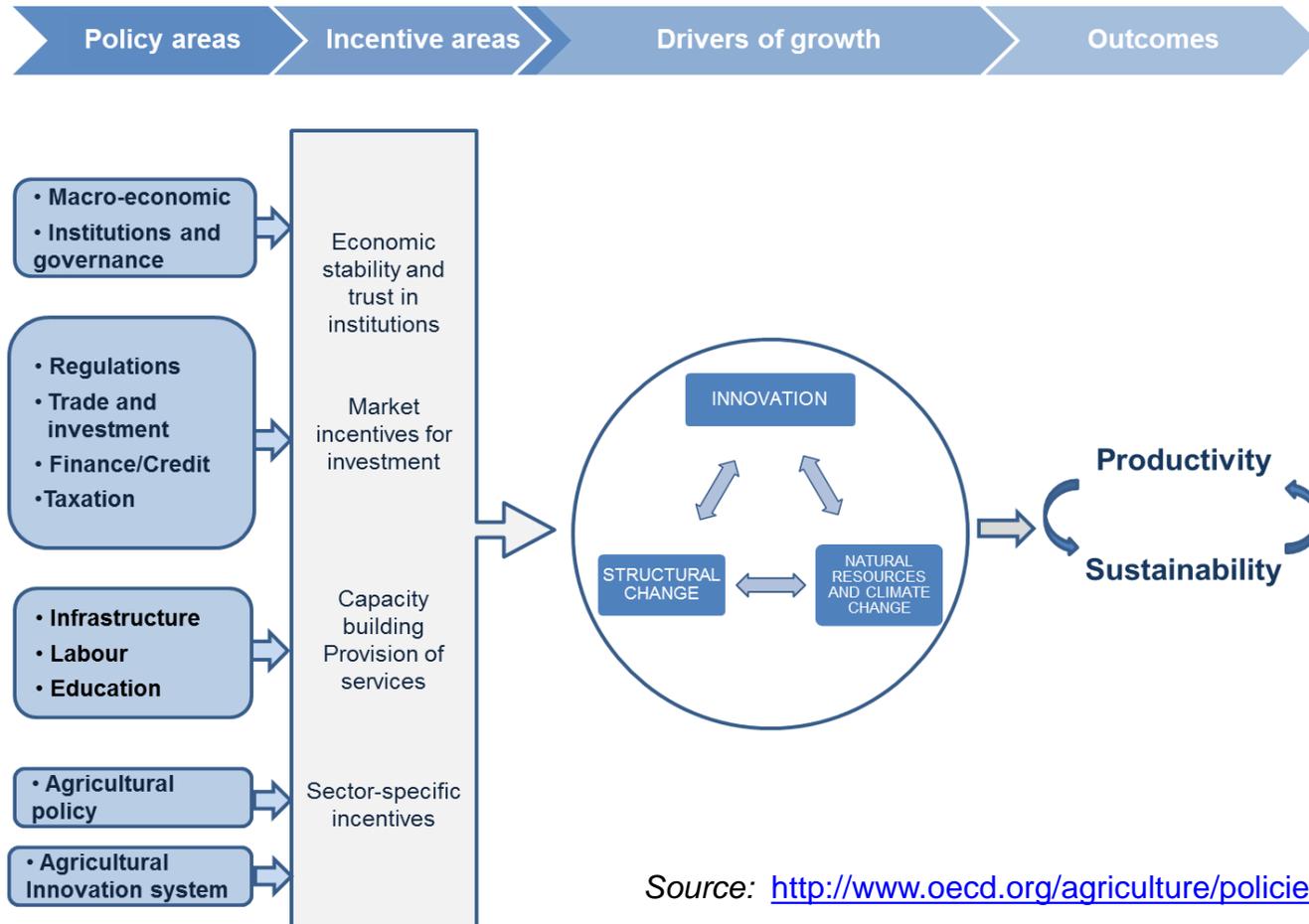
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- Responding to higher and more diverse global demand for food and bio-based products
- Requires further improvements in productivity and environmental sustainability in agriculture and along the value chain
- Innovation is needed to increase the resource base, sustainably, and develop new products and processes
- This presentation focuses on government role in enabling innovation in food and agriculture
- Innovation is more than new technologies



# A wide range of policies affect innovation in food and agriculture

General and sector-specific policies affect innovation, structural change, natural resource use and climate change, which drive productivity and sustainability.



Source: <http://www.oecd.org/agriculture/policies/innovation>



## General policy messages

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- Well-functioning markets guide and facilitate innovation
- Policy coherence needs to improve
- Policy strategies should cover the whole value chain
- Interventions should be adapted to the issue at stake (scope)
- The first step is to remove policy distortions
- Government action should focus on areas where markets fail to respond to private and social demand
- Better information and understanding of impacts is needed to guide investment decision and support the policy process



## Bio-economy strategies

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- The concept is evolving to encompass the production, processing or use of bio-resources from different sectors to enhance their value in a circular economy
- Agriculture plays a central role as a provider of biomass, but bio-economy is a multi-sector concept
- Ensuring policy coherence is all the more important
- Whole value chain approach
- High expectations in terms of value and job creation
- Sustainability is not intrinsic and trade-offs need to be made
- More information is needed to evaluate costs, benefits and risks, and guide public intervention and private investments



## Research and innovation are prominent in bio-economy strategies

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- Importance of inter-sectoral linkages, multi-disciplinary approaches
- Role of public-private partnerships (PPPs) for research and innovation: public role (longer-term, more risky, sustainability aspects)?
- Role of ICT and digital technology (reducing waste, precision agriculture, traceability).
- Lifting obstacles to adoption:
  - Raise awareness
  - Enhance skills and adapt education to future needs
  - Improve information
- General and sector-specific policy recommendations to enhance innovation, productivity and sustainability



# General policy environment

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- **Improving the policy and regulatory environment for business**
  - Further streamline and harmonise regulations within and across countries, anticipate regulatory needs, single desk for information
  - Trade facilitates access to new technology and innovation flows
  - Address market failure in input (financial) markets
- **Infrastructure improvement (and rural services)**
  - to reduce transport costs and facilitate the marketing of agricultural products, labour adjustment, more efficient use of natural resource
- **matching and adapting skills**
  - improve attractiveness of related education
  - attract labour with relevant skills in the sector
  - Anticipate skills demand, discuss with industry, market better agriculture-related education.
  - Life-long training. Include management and fund-raising skills



## Agriculture-specific policy

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- Invest in long-term improvements, e.g. general services to the sector
- **Agricultural policy** should:
  - target more directly innovation, adjustment, sustainable natural resource use, and climate change adaptation
  - Improve risk management tools
- To increase impact, **agricultural innovation systems** need to be:
  - more responsive to needs to facilitate adoption,
  - forward-looking and
  - collaborative, between actors, sectors and at international level.



## (Agriculture) innovation systems more responsive to needs, forward looking, and cost-effective

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- No one size fits all, many different institutions and actors
- Governance is key
- Guide public research investment according to agreed priorities
- Facilitate collaboration and knowledge flows
- Pay attention to adoption: policy environment



## Strengthen governance mechanisms

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- develop more coherent and longer-term strategies for research and innovation
- strengthen dialogue with stakeholders
- Clarify public-private roles
- Strengthen evaluation frameworks: set up measurable targets, develop consistent evaluation procedures at all levels, that measure effort, outcomes and various impacts
- Better information is needed to improve evaluation and priority setting



## Guide public research investment according to agreed priorities

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- Provide stable funding for research infrastructure to maintain capacity and attract partners
- Focus public efforts on areas not covered by the private sector
- Simplify research programming
- Guide research using project-based, competitive mechanisms, but without excessive instability,
- Explore demand-driven funding
- Dedicate funds to research for policy purpose.
- Targeted incentives to private investment in innovation: IPR, targeted investment support (SMEs, specific topics)
- Facilitate international cooperation
- Provide clear information on support programmes and regulations
- Share information on research and technology



## Facilitate collaboration and knowledge flow

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- **Facilitate collaborative approaches** (public-private, across sectors, multidisciplinary), using funding mechanisms (PPP, projects), networks, competence centres, sharing infrastructure and information etc.
- **Strengthen cross-country cooperation** for cross-border issues and sharing costs: enhance knowledge flow, facilitate staff exchange, attract foreign students, participate in international efforts (GRA on GHG emissions, G20 initiatives, EU programmes, etc.)



## Pay attention to adoption

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- Improve the **enabling policy environment**
- Non-adoption often linked to capacity and incentives (knowledge, viability, size, regulatory constraints, high support): **Identify constraints and focus public efforts on lifting them**
- Facilitate adoption through:
  - **education, training, and extension**
  - facilitating knowledge flows
  - fostering an innovation culture and society's acceptance
  - Targeted incentives
- Government role in extension systems: Governance, public goods aspects



## Conclusion

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- These recommendations were developed for improving productivity and sustainability in food and agriculture
- They broadly apply to the bio-economy, although the framework would need to be adapted to include forestry, fisheries and non-food value chains.



For more information

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- Visit our website: [www.oecd.org/agriculture](http://www.oecd.org/agriculture)  
[www.oecd.org/agriculture/policies/innovation](http://www.oecd.org/agriculture/policies/innovation)
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