

**“Research Policy
Approaches to
meet Demands
of Green Growth,
Food Security
and Management
of the
Environment”**

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Outline

Global challenges

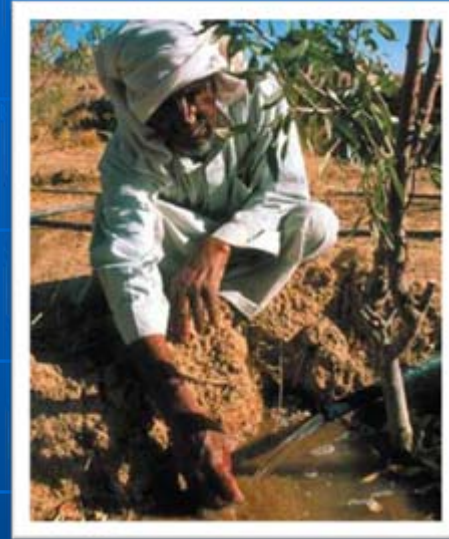
- Green Growth
- Food security
- Environment

Research policy approaches

- New Worlds - New Solutions
- The Grand Challenges
- Coordination – Competition

Global challenges

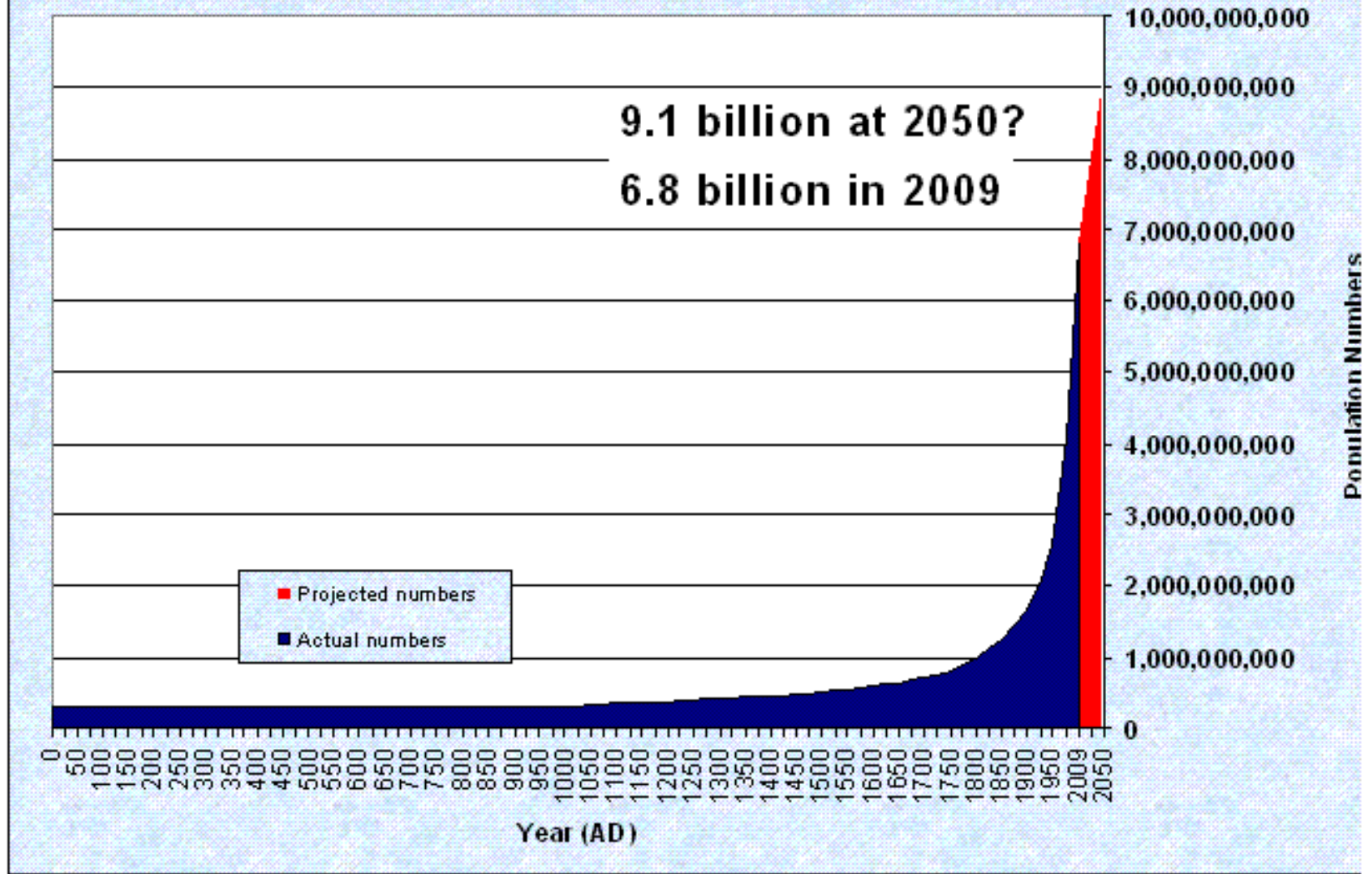
- Population growth
- Pandemics/zoonoses
- Food crisis
- Land use
- Water
- Energy
- Genetic resources
- Urbanisation
- **Climate change**
 - *Consequences for production and environment*
 - *Adaptation and mitigation*



World population growth

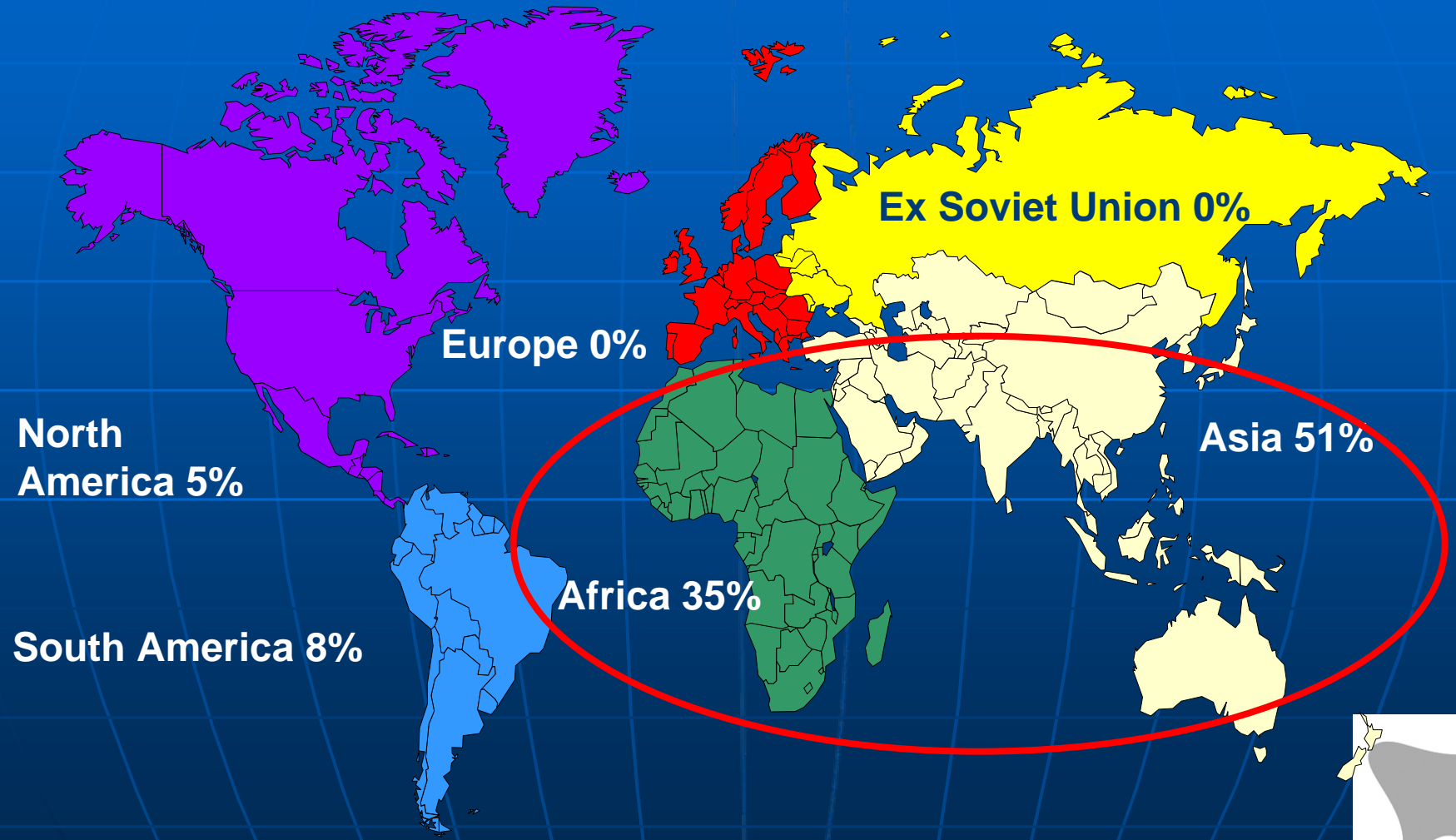
Optimum Population Trust

Source: United Nations 2008-based Medium Variant Projection



(Some details - e.g. Black Death effects - are not represented.)

Distribution of Population Growth during the Next Ten Years



Paths to Green Growth

- Sustainable consumption and production
- Greening business and market
- Sustainable infrastructure
- Green tax and budget reform
- Investment in natural capital
- Eco-efficient indicators

Green Growth in Europe

- Smart, Sustainable, Inclusive

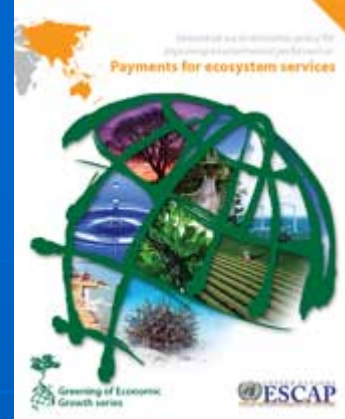


The European Council is discussing the future growth strategy for Europe, EU2020. June 2010

Green Growth - Key element of Europe 2020 Strategy

- The European Commission has launched a new comprehensive strategy for green growth, innovation and jobs.
- The objective is to get Europe out of crisis and prepare the EU economy for the next decade and the long-term challenges of sustainable growth, resources efficiency and aging.
- Green growth is an important element of the 2020 Strategy.

Green Growth in Asia



Green Growth Initiatives in and Beyond the Region

Green Growth is a policy focus for the Asia and Pacific region that emphasizes environmentally sustainable economic progress to foster low-carbon, socially inclusive development.



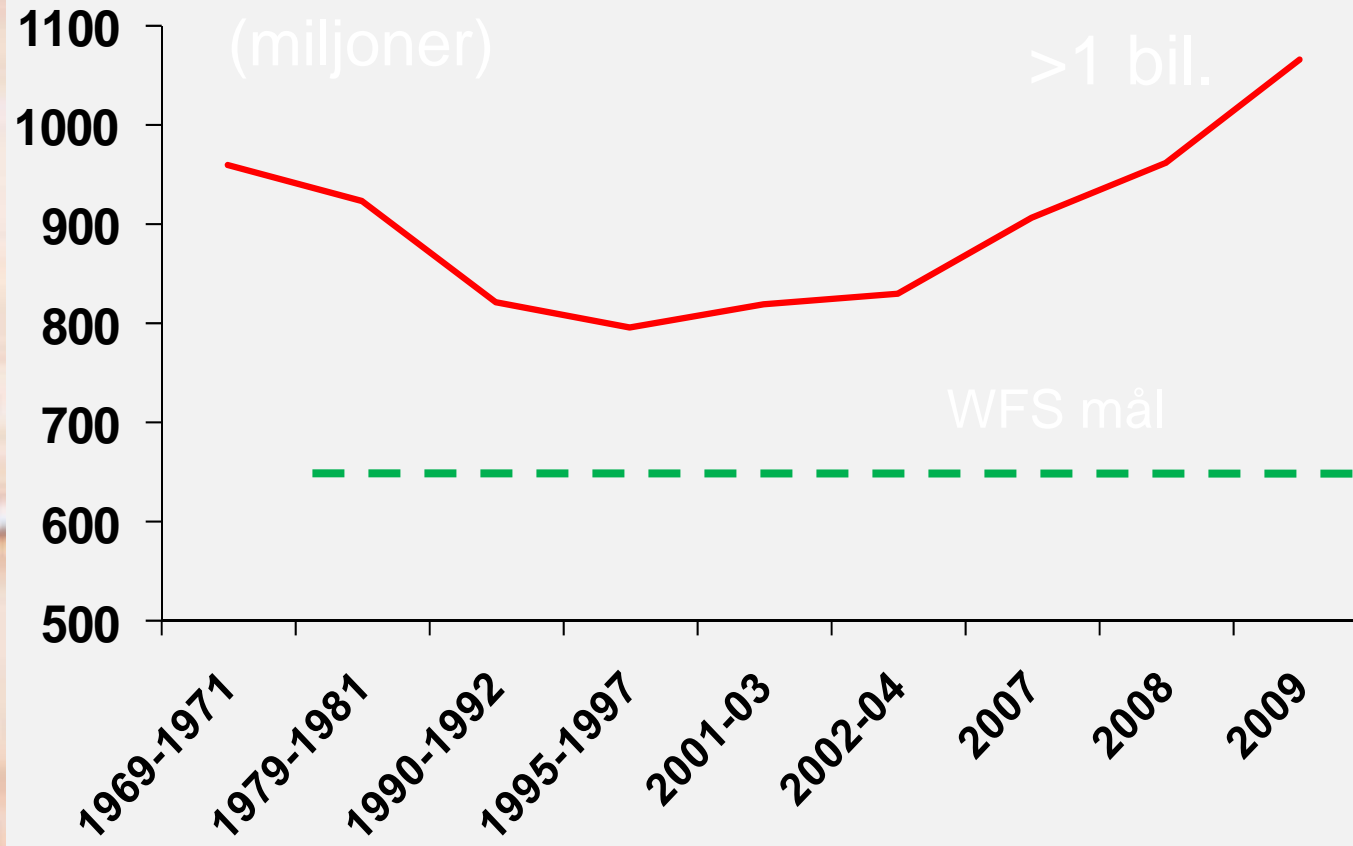
In light of the recent fuel, food and financial crisis it is now imperative for countries in the region to reassess their development paths.



Food security

More people are hungry: an increase of **100 miljoner**, 2003-05.

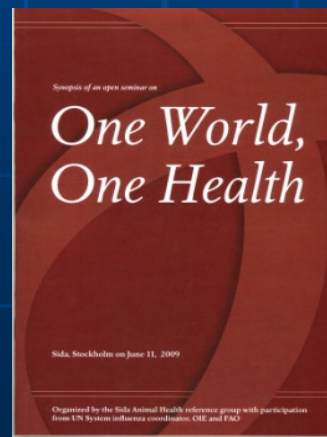
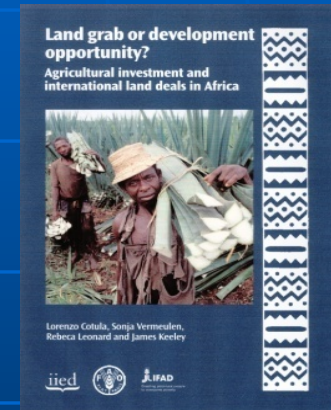
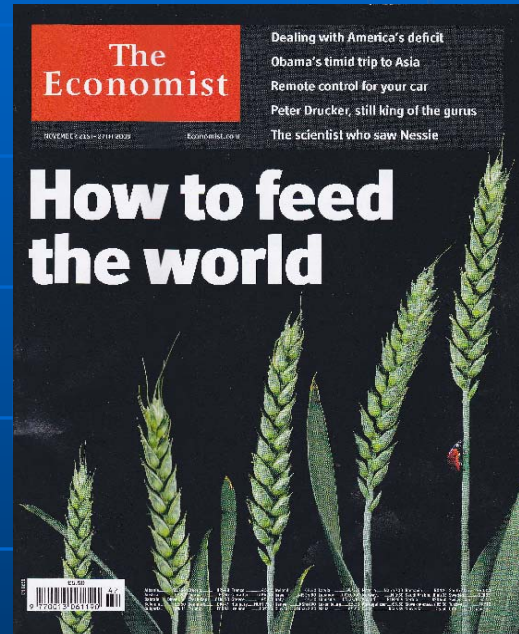
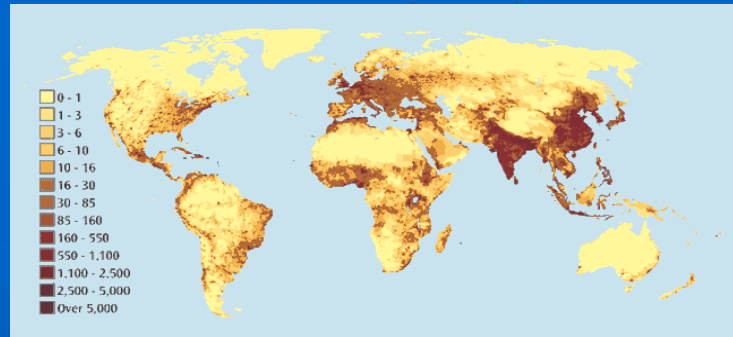
MDG – Goal 1: Half, to 2015, the number of people living on less than \$1 per day.



A growing middle class.....



- Growing economies asks for more and better food
- Young people from the country side move to the cities to get a better life with good income and more demands
- Cao Zhen Hui, young real estate agent in Beijing, belongs to the winners of the new China



More food is needed



- By 2050 a 70% increase of food production is needed
- 80% of food must be produced on land already in use, limited potential for expansion of agricultural land
- Major proportion of food should be produced where it is consumed
- Irrigation in agriculture is needed in many areas

Land use

- In total ca 1,5 billion ha under cultivation in the world
- About 3 billion ha is used for animal husbandry, grazing and fodder production
- 10,5 billion ha - forests, impediments and other related ecosystems
- 10-15 million ha is used for production of bioenergy, corresponding to 0,7-1,0 percent of the total agricultural area.



**The major challenge is to increase productivity
per ha!**

With less water and a safe environment! How?



'World agriculture cannot be sustainable without science-based technology...'

-Per Pinstrup-Anderson, Professor of Food, Nutrition and Public Policy, Cornell University

Environment

Changes in land use and land cover are central issues in the study of global environmental change

Projected anthropogenic and climate pressures may specifically impact agro-ecosystems

In addition, land management and land-use changes affect emissions and sequestration potential of the major greenhouse gases

Future decisions concerning land use and change clearly play a major role in the strategies for adaptation and mitigation of climate change



Forests are one of the greatest Environmental challenges—and opportunities—facing the world in the 21st century.

Key Driving Forces

Economic growth; population growth and changes in demographic attributes

Land-use particularly deforestation

Evolution of political orientations and policies, and

Increasing concerns over pollution, climate change, soil and water degradation and deforestation, as well as visual/aesthetic pollution





New Worlds – New Solutions

The Lund Declaration

EUROPE MUST FOCUS ON THE GRAND CHALLENGES OF OUR TIME

- European research must focus on the Grand Challenges of our time moving beyond current rigid thematic approaches. This calls for a new deal among European institutions and Member States, in which European and national instruments are well aligned and cooperation builds on transparency and trust.
- Identifying and responding to Grand Challenges should involve stakeholders from both public and private sectors in transparent processes taking into account the global dimension.
- The Lund conference has started a new phase in a process on how to respond to the Grand Challenges. It calls upon the Council and the European Parliament to take this process forward in partnership with the Commission.

A New Approach for Research and Innovation in Europe

- Focus on our greatest societal challenges
- Encourage new networks, institutions and policies for open innovation
- Spend more on research, education and innovation, in part through bolder co-investment schemes
- Coordinate and plan R&D programmes better – within Brussels and among the member-states
- Open competition should be standard in EU programmes

Alignment of Research and Development

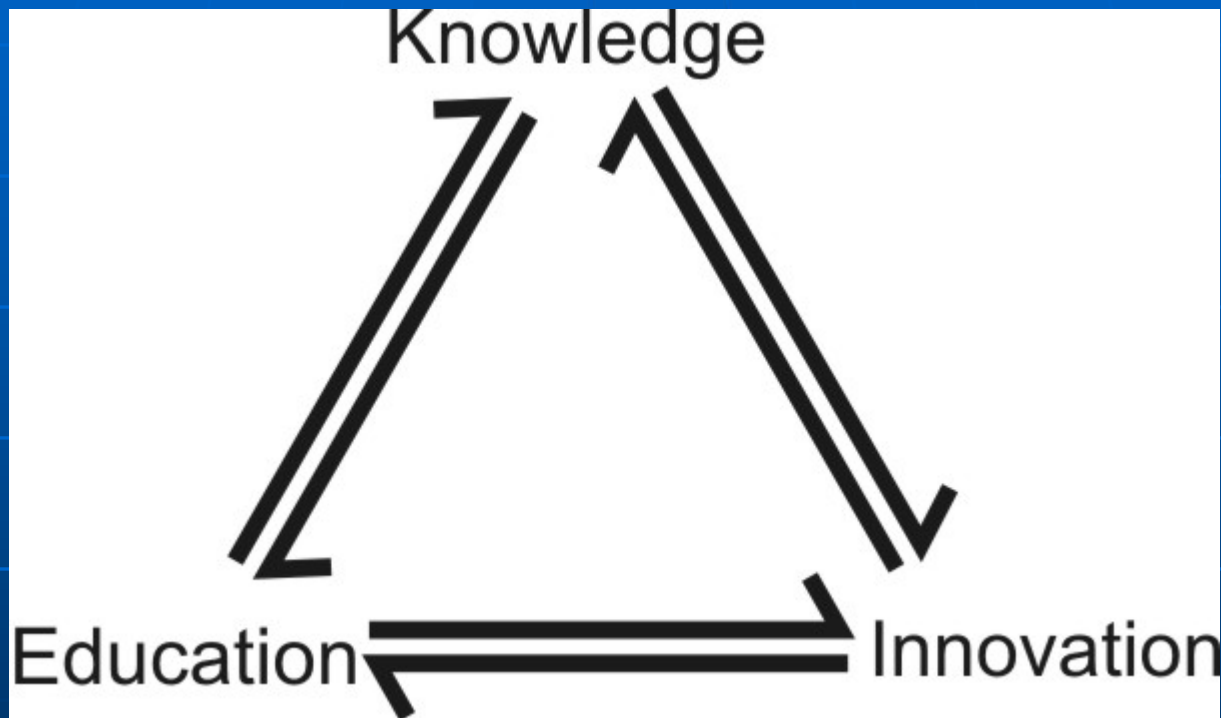
■ **Broader alliances**

- Participatory research
- Research partnership – public/private
- Promotion of industry–academic link
- Collaboration among research councils and other funding bodies

■ **Encouragement of more interdisciplinary approaches**

- Transdisciplinary approaches
- Multi-scale synthesis
- Non-linear theory

The Knowledge Triangle



To enhance Green Growth, secure Food production and consumption and save the Environment we need....

- Political reforms and governance: clear and long term regulations
- Stimulate the private sector; green infrastructure for energy, industry and society
- Secure the environment: sustainable management and use of natural resources, crop production systems and livestock-management
- Education and training: support Research and Innovation, the Knowledge Triangle
- A global perspective of research collaboration



Thank you for your attention!