

Biotechnology and Biological Sciences Research Council

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Research Councils UK



7 Research Councils; collectively, RCUK;
NDPBs established by Royal Charter; funded by (D)BIS:

- Arts and Humanities Research
- Biotechnology and Biological Sciences Research
- Economic and Social Research
- Engineering and Physical Sciences Research
- Natural Environment Research
- Medical Research
- Science and Technology Facilities

Mission, remit and role of BBSRC



Mission:

to promote and support high-quality research, training and knowledge transfer relating to the understanding and exploitation of biological systems

Very broad remit:

all non-medical biology (except aspects of ecology, environment, evolution)

Dual role:

“health of the science base” - scientific excellence

“excellence with impact” - strategic relevance

BBSRC funding



Total funding around £420M per annum for:

projects:

research grants:

“responsive” mode (including NI, IPA and GPA)
and “managed” initiatives

people:

studentships and fellowships

BBSRC priorities



Research priorities:

Ageing research: *lifelong health and wellbeing*

Bioenergy (2nd generation biofuels)

Global security

Living with environmental change

Nanotechnology

Systems approach to biological research

Synthetic biology

Technology development for the biosciences

Crop science

Animal health

Welfare of managed animals (farmed and companion)

BBSRC priorities



Policy priorities:

Economic and social impact

(including increasing collaborative research with business and provision of skills and training)

Impact on public policy

(including generating knowledge and skilled people to address public policy changes)

Increased international collaboration

Replacement, reduction and refinement in research using animals

Some recent BBSRC initiatives

Crop Science (£13M)

Combating Endemic Diseases

(£11.5M - including additional funding from SG & DEFRA)

Rural Economy and Land Use Programme

(£7.5M from BBSRC - with ESRC, NERC, DEFRA, SG)

Sustainable Agriculture Research for International
Development (with DFID, £7M)

Combating Infectious Diseases of Livestock for
International Development

(with DFID & SG, £9.5M+)

Studentships

Doctoral training grants:

- Quota studentships
- CASE studentships
- Targeted priority studentships
- Industrial CASE and Industrial CASE Partnerships

Masters training grants

(Awards to institutions (or companies) not individuals)

“Niche skills” review

“Strategically important and vulnerable areas of UK bioscience Expertise” (BBSRC Skills and Careers Strategy Panel, following consultation undertaken with Biosciences Federation):

Whole-animal physiology

Industrial biotechnologies

Plant and agricultural sciences

- plant physiology
- plant breeding
- plant pathology and pest management
- soil science
- horticulture

(developing “Advanced Training Partnerships” aimed to address these areas)

Systematics and taxonomy

New BBSRC Strategic Plan 2010-15



Founded on world-class bioscience:

with 3 strategic research priorities:

- food security
- bioenergy and industrial biotechnology
- basic bioscience underpinning health

underpinned by 3 enabling themes:

- knowledge exchange, innovation and skills
- exploiting new ways of working (tools, resources, data)
- partnerships (with stakeholders and other funders - national and international)



BBSRC/RCUK AND FOOD SECURITY

 **BBSRC Food**
Security


RESEARCH
COUNCILS UK

Why food security? A looming crisis

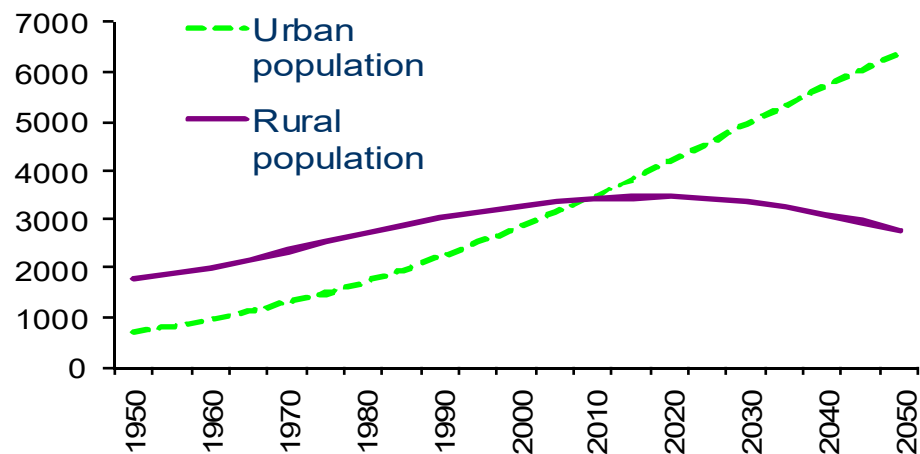
Rising world population:

- from 6B to 9B by 2050
- already more people in urban than rural areas
- changing diet: more demand for meat & dairy

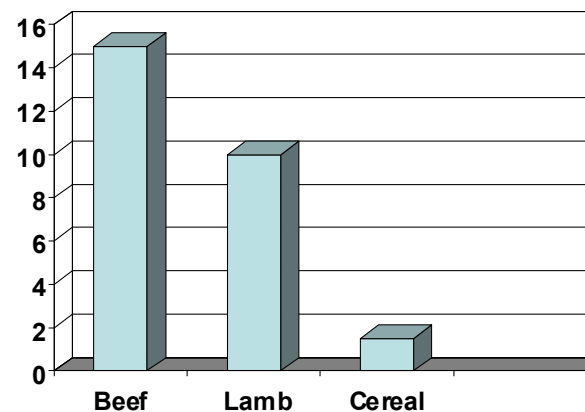
facing **global shortages of food, water and energy**,
compounded (not caused) by **climate change** -

“**a perfect storm**” (John Beddington)

For the first time in human history more people
now live in towns and cities than in the
countryside



Water use in cubic metres per Kg of product



Why food security? The challenge ahead



“Food security, nutrition and sustainable agriculture must remain a priority on the political agenda, to be addressed through a cross-cutting and inclusive approach, relevant to all stakeholders at global, regional and national level .”

[G8 statement July 2009]

- By 2050, we must **double food supply** from **less land** than is available today, with **less water, fertiliser and pesticide** and **lower GHG emissions**
- **Major economic, social and political impacts** if we fail to respond to the challenge - and we must **act now** or it will be too late
- **New research, innovation and skills are essential to meet this challenge**

Food security

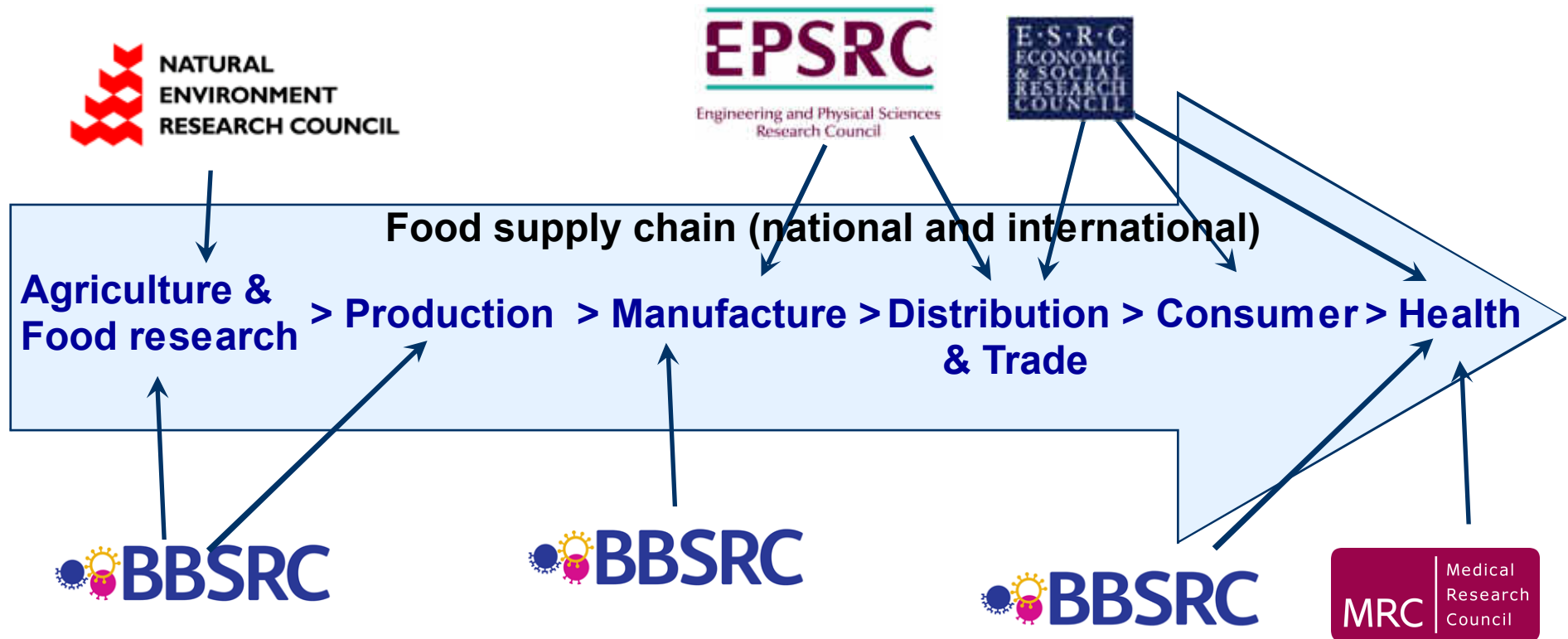
What are the RCs doing?



BBSRC is leading the development of a new cross-Research Council and Government Departments **multidisciplinary** programme on food security (long term, multi-funder and multi-stakeholder):

- to address complex challenges of securing global supply
- of sufficient, affordable, safe and nutritious food
- in ways that are economically, environmentally and socially sustainable

Research Councils and the food supply chain



RCs, other Stakeholders and the food supply chain



Food supply chain (national and international)

Agriculture & food production > Manufacture & processing > Distribution, trade, retail > Consumer > Health



Agriculture and Horticulture Development Board



International partners

Farming, food and related industries

Food security

What others are doing



Cabinet Office report - Food Matters: Towards a Strategy for the 21st Century

GO-Science Food Research Partnership (developing cross-Government food research and innovation strategy)

Foresight Projects on Global Food and Farming Futures, Land Use Futures

Royal Society report – Towards Sustainable Intensification

DEFRA Council of Food Policy Advisors

HoC EFRA Committee inquiry - Securing food supplies up to 2050: the challenges for the UK

APPG on Food and Agriculture for Development inquiry - the UK's Role in Tackling the Challenge of Global Food Security until 2050

Chatham House report - Food Futures: Rethinking UK Strategy

RSC/ICChemE report - The vital ingredient

NFU report - Why Science Matters for Farming

Other cross-Research Council (and wider) activities in Living with Environmental Change, Global Uncertainties etc

What the RCs are doing

Progress to date (i)



Stakeholder workshop: funders, scientists, industry (Feb)

Consultation document: 120+ responses (May-Jul)

- Background and **drivers**
- Research **targets:** crop production; livestock and fish production; agricultural practice; food safety; nutrition, food quality, processing and manufacturing
- Potential **barriers** to delivery: knowledge transfer and translational research; training, skills and career paths; coordination across research funders; regulatory framework; public and stakeholder engagement

Drafting of **food research “roadmap”** document

What the RCs are doing

Progress to date (ii)



(Interim) Food Security Programme Development Board to

- **bring together funders** with significant existing spend in area of food security:
 - RCUK (BBSRC (lead), ESRC, EPSRC, MRC, NERC)
 - Government Departments (BIS, DEFRA, DFID, FSA)
 - Devolved Administrations (SG)
 - Technology Strategy Board
- **co-design new programme** and strategy
- **develop governance** for the new programme

Aims of the new food security programme: added value (i)

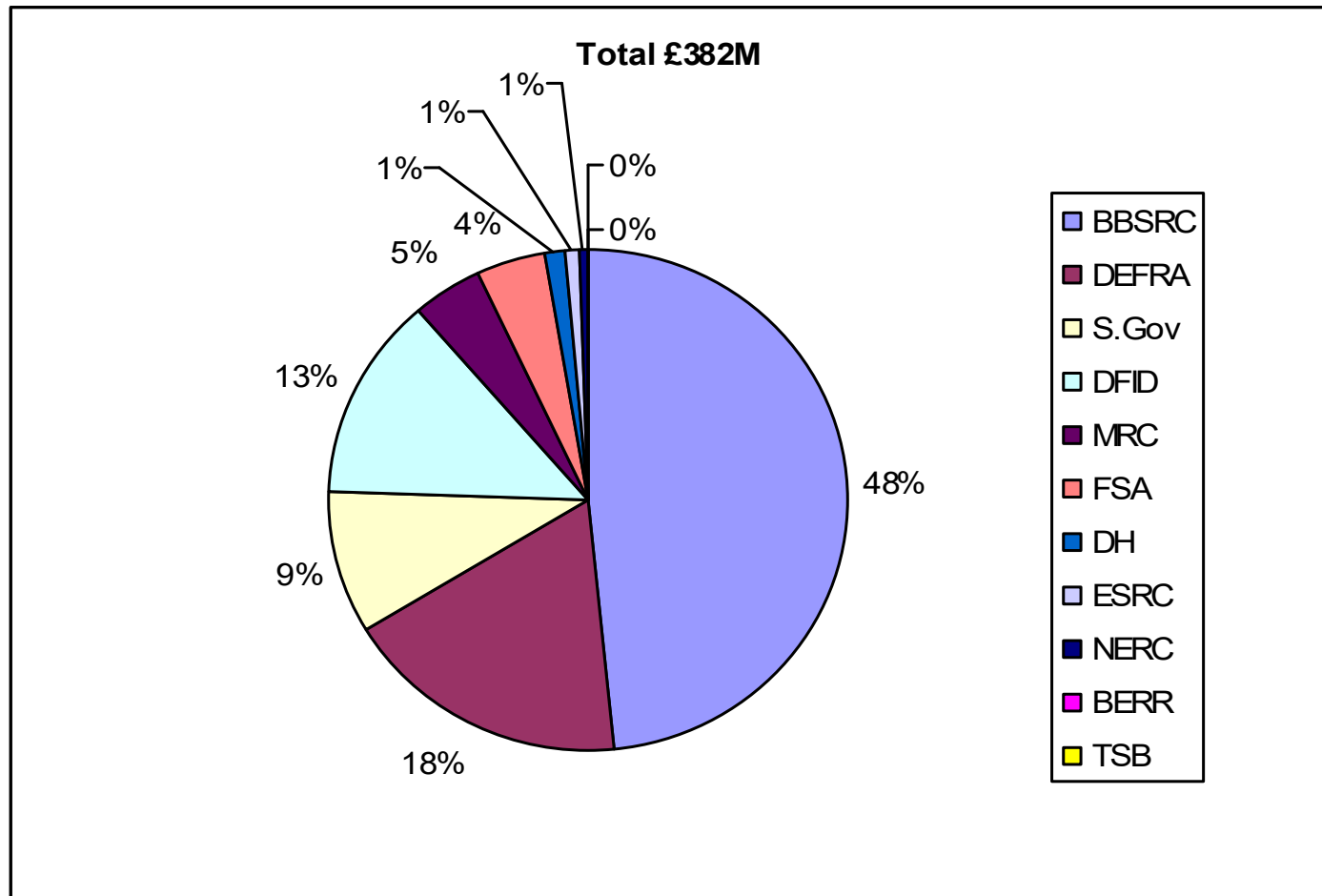


- **Improved coordination**
 - Main funders more joined-up. Shared high-level strategy (food research “roadmap”). Help to focus research and training effort
 - Greater awareness among funders of opportunities for co-funding, synergy, avoiding duplication. Enhanced efficiency and value for money
- **Clear leadership**
 - Give 'focus' to provide a focal point for research communities, industry, politicians and policymakers on food security
 - Build a more coherent and joined-up case for food security research in government spending rounds

Current UK public funding of food-related research

BBSRC is the major UK funder of food-related research

BBSRC spend ~£185M pa



Aims of the new food security programme: added value (ii)



- Greater impact
 - Mechanism to deliver key elements of cross Government food research and innovation strategy
 - Increase the impact of UK interactions internationally on food security
 - Link research priorities and outcomes better to the development agenda, G8 commitments and MDGs
- Horizon scanning/foresight
 - Platform for the partners to engage in joint horizon scanning to identify and respond to emerging priorities

Food security: relationships to other cross-RC activities

New programme complements existing RCUK themes

- UK, EU, World context
- Growing population
- Changing demographics
- Agricultural efficiency
- Aquaculture
- World trade
- Transport
- Post harvest losses
- Food processing
- Food choice
- Retail

Competition for land and reducing 'energy' inputs in modern agriculture

Impact of environmental change on water and food security

Energy

LWEC

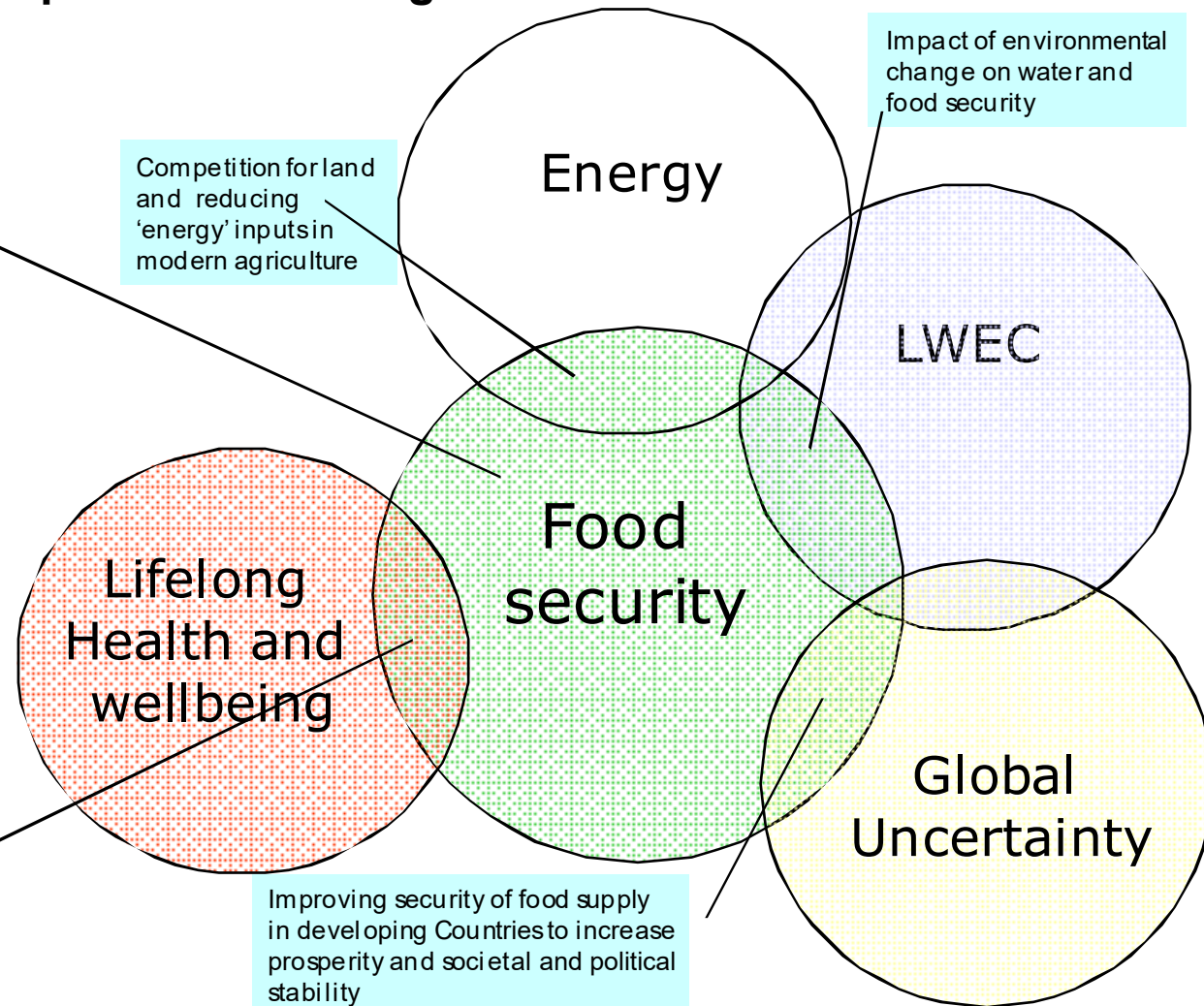
Food security

Lifelong Health and wellbeing

Global Uncertainty

Sustainable, safe and nutritious food supply

Improving security of food supply in developing Countries to increase prosperity and societal and political stability



Food Security: one of five cross-cutting R&D programmes being considered by the “**Core Issues Group**” of RC CEs and GD CSAs:

- Food Security (BBSRC and DEFRA)
- Health and Wellbeing (MRC and DH)
- Living With Environmental Change (NERC and DEFRA)
- Resilient Economy (EPSRC and BIS/DfT)
- Security (ESRC and HO)

Food Security PDB activities



Develop **governance**/management arrangements

Develop research **themes**

Map relevant **UK activities**, gaps and synergies

Develop **international perspectives** and links:

(global issue; UK science has potential for wider application)

- Developing and emerging countries
- European Union
- “Agricultural super-powers”

Food Security PDB next steps



Research “roadmap” (informed by consultation responses):

- complete thematic framework
- map existing activities
- identify gaps, synergies and priorities

Governance

- subgroup considering options

Work with Government

- especially FRP, to align with wider food research and innovation strategy

Handover

- PDB will be replaced by agreed governance structure

Food R&D need for Multidisciplinary approach



“Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.”

[FAO, World Food Summit 1996]

Need not only to:

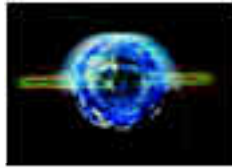
increase production from same or smaller area of land;
using less water, energy, fertiliser, pesticides;
while safeguarding other ecosystem services;
and avoiding exacerbating effects of climate change;

but also:

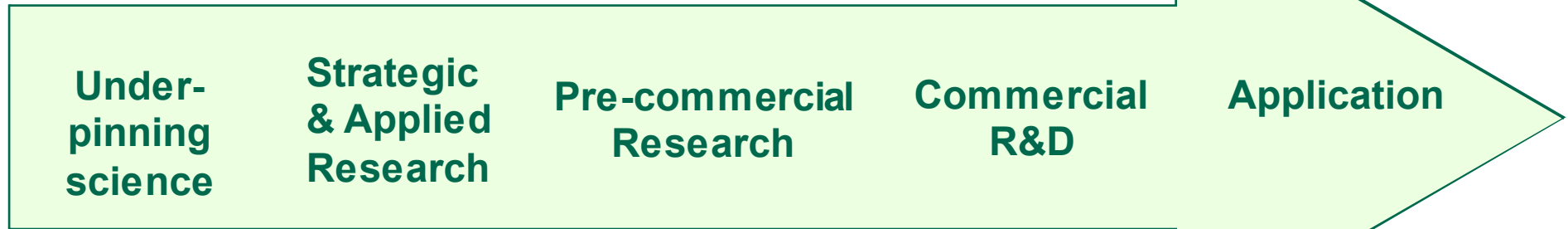
make more effective use of resources;
through better understanding of political and economic determinants of access to available food supplies (finance, regulation, trade, governance etc);
and social and cultural factors that influence food consumption.

i.e. food security research is not just about biology and farming.

Food R&D translational “pipeline”



Technology Strategy Board



Agriculture and Horticulture Development Board



Companies

Farming, Food and related industries



Biotechnology and Biological Sciences Research Council



Agriculture and food are (back) at the top of BBSRC's agenda.

Are there opportunities for collaboration (individually or collectively) with agri-food charities?

Thank you.