FACCE - JPI
Joining Forces in Europe in Agriculture, Food Security and Climate Change

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FACCEJPI
www.faccejpi.com



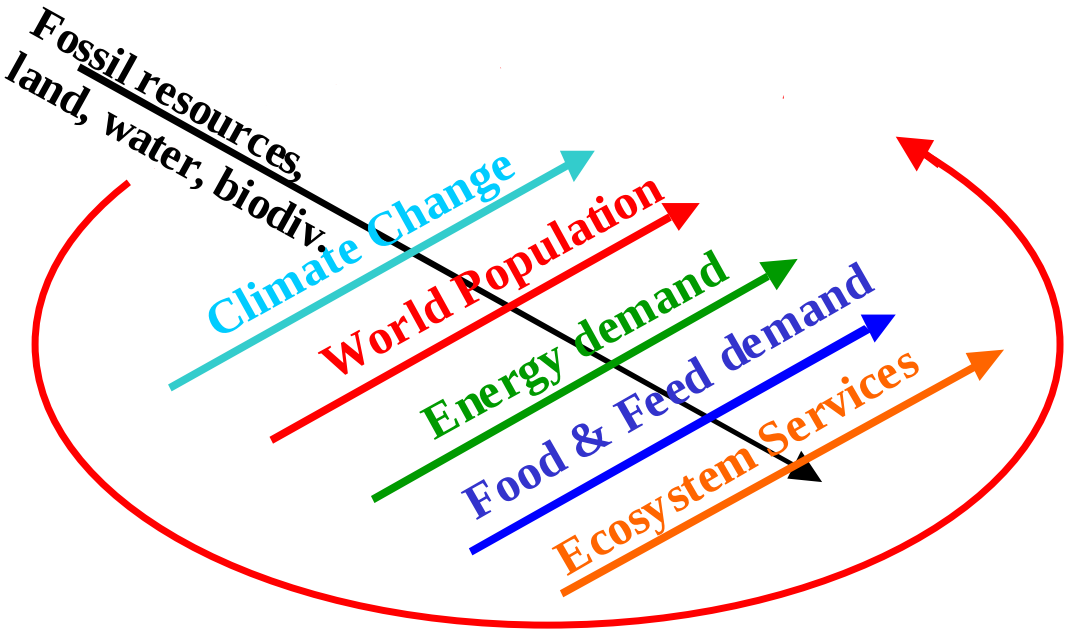



Agriculture Food Security and Climate Change

Outline

- Context
- Background to FACCE-JPI
- FACCE-JPI remit
- FACCE-JPI state of play
- Pilot Action
- Next steps

A perfect storm



A "perfect storm" of food shortages, scarce water and insufficient energy resources threaten to unleash public unrest, cross-border conflicts and mass migration as people flee from the worst-affected regions.

Prof. John Beddington, UK Chief Scientific Adviser

Two Goals of Our Time

1. Achieving Food Security
   - 1 billion hungry
   - Food production to increase 70% by 2050
   - Adaptation to Climate Change and dwindling natural resources critical

2. Avoiding Dangerous Climate Change
   - ”2 degree goal” requires major emission cuts
   - Agriculture and Land use = 30% of emissions…
   - …and needs to be part of the solution

New and strong emphasis on agricultural research is vital for sustainable global development, need for a European approach

European Research Area

3 concepts

– the creation of an "internal market" in research (free movement of knowledge, researchers and technology)

– the restructuring of the European research fabric (improved coordination of national research activities and policies) – "**Ex-Post**" ☞ ☞ ☞ ERA-NET and Art.169

– the development of a European research policy (taking into account other EU and national policies)

"**Ex-Ante plug-ins**" ☞ ☞ ☞ **Joint Programming**

EUROPEAN COMMISSION
Community research

1. Joint Programming in research

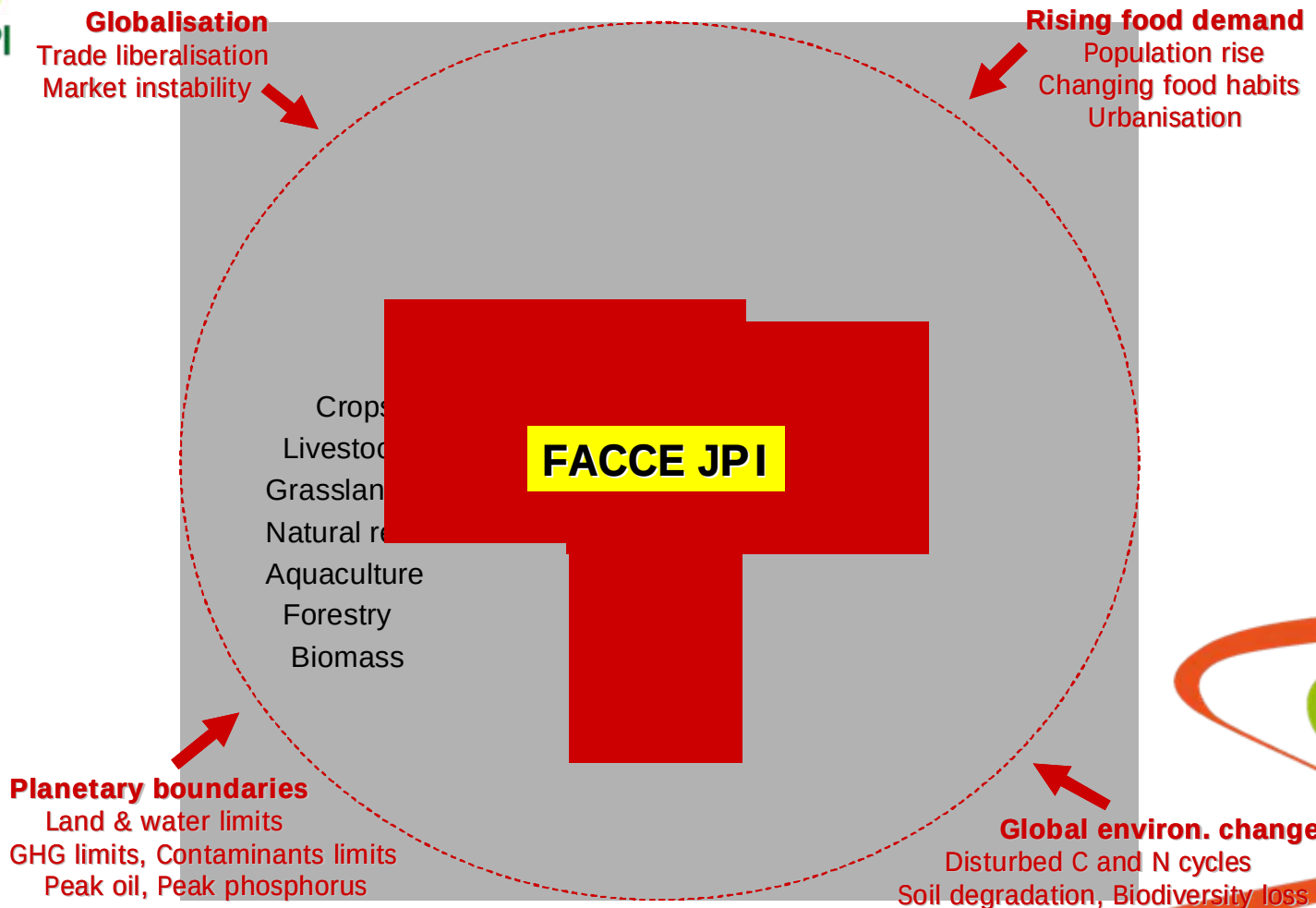
JOINT PROGRAMMING (Definition)

- **Member States** engaging
  - voluntarily and **on a variable geometry basis**
  - in the **definition, development and implementation** of **common strategic research agendas**
  - based on a **common vision** on how to address **major societal challenges**.
- It may involve **collaboration** between **existing national programmes** or the **setting up of entirely new ones**.
- It entails **putting resources together**,
  - **selecting or developing the most appropriate instrument(s)**, and
  - **collectively monitoring and reviewing progress**.

Background to FACCE-JPI

- SCAR Foresight 3 key challenges (2009):
  Food Security, Climate Change, Diet & Health
- EURAGRI brought FR and UK plans together to propose Agriculture, Food Security and Climate Change JPI (Sept 09)
- NL proposed Healthy Diet for a Healthy Life JPI
- These 2 (plus Cultural Heritage) adopted Competitiveness Council (December 2009)
- FACCE-JPI GB created (January 2010)
  €5000 entry fee

FACCE-JPI remit



FACCE-JPI Participants

- Austria
- Belgium
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Ireland
- Israel
- Italy
- The Netherlands
- Norway
- Poland
- Romania
- Spain
- Sweden
- Switzerland
- Turkey
- UK

European Commission
SCAR (observers)

Cyprus

State of the play

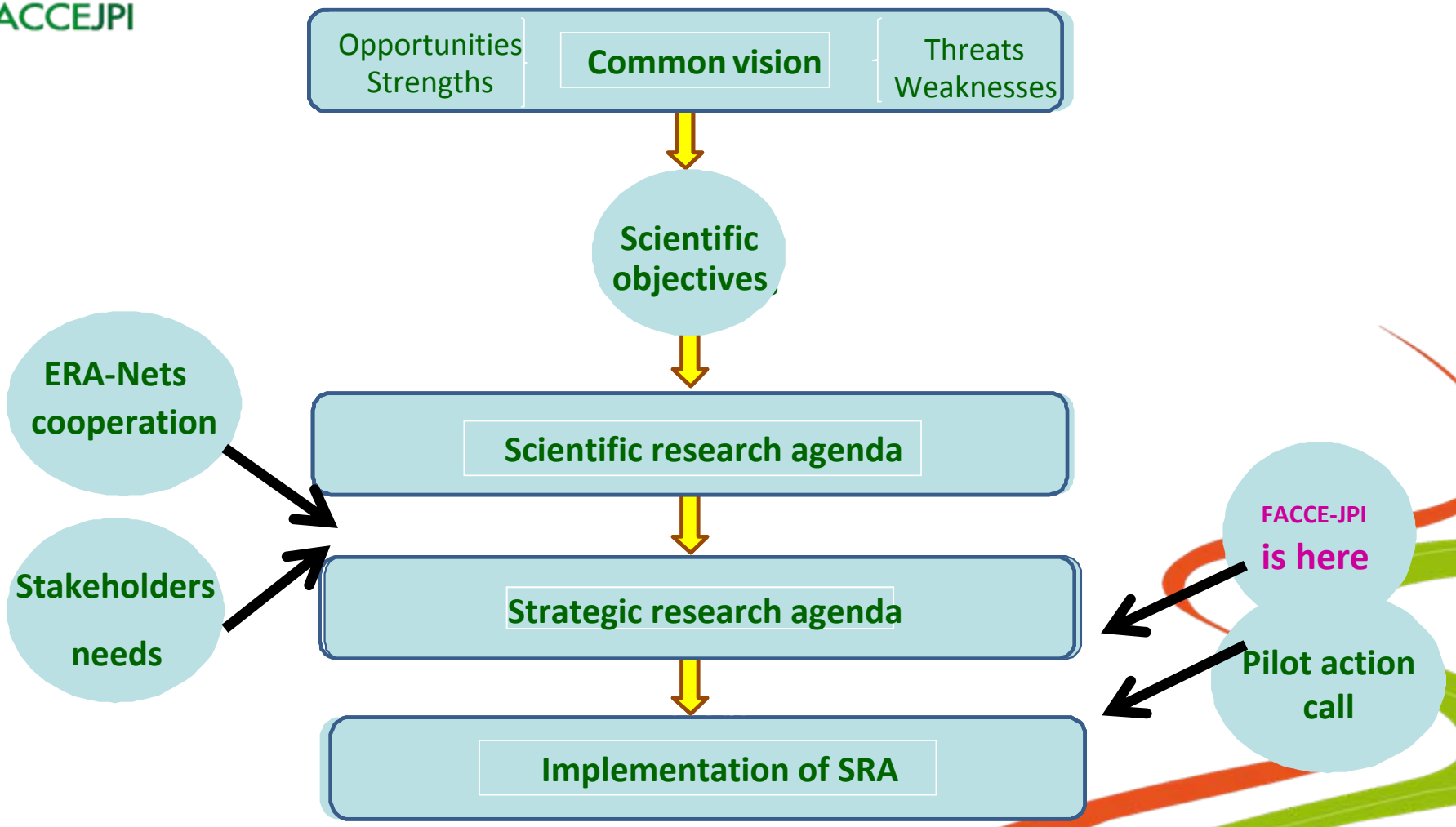
- Since Jan 27th 2010 (1st GB) and June 10th 2010 (1st SAB)

⇒ Many achievements, e.g.:

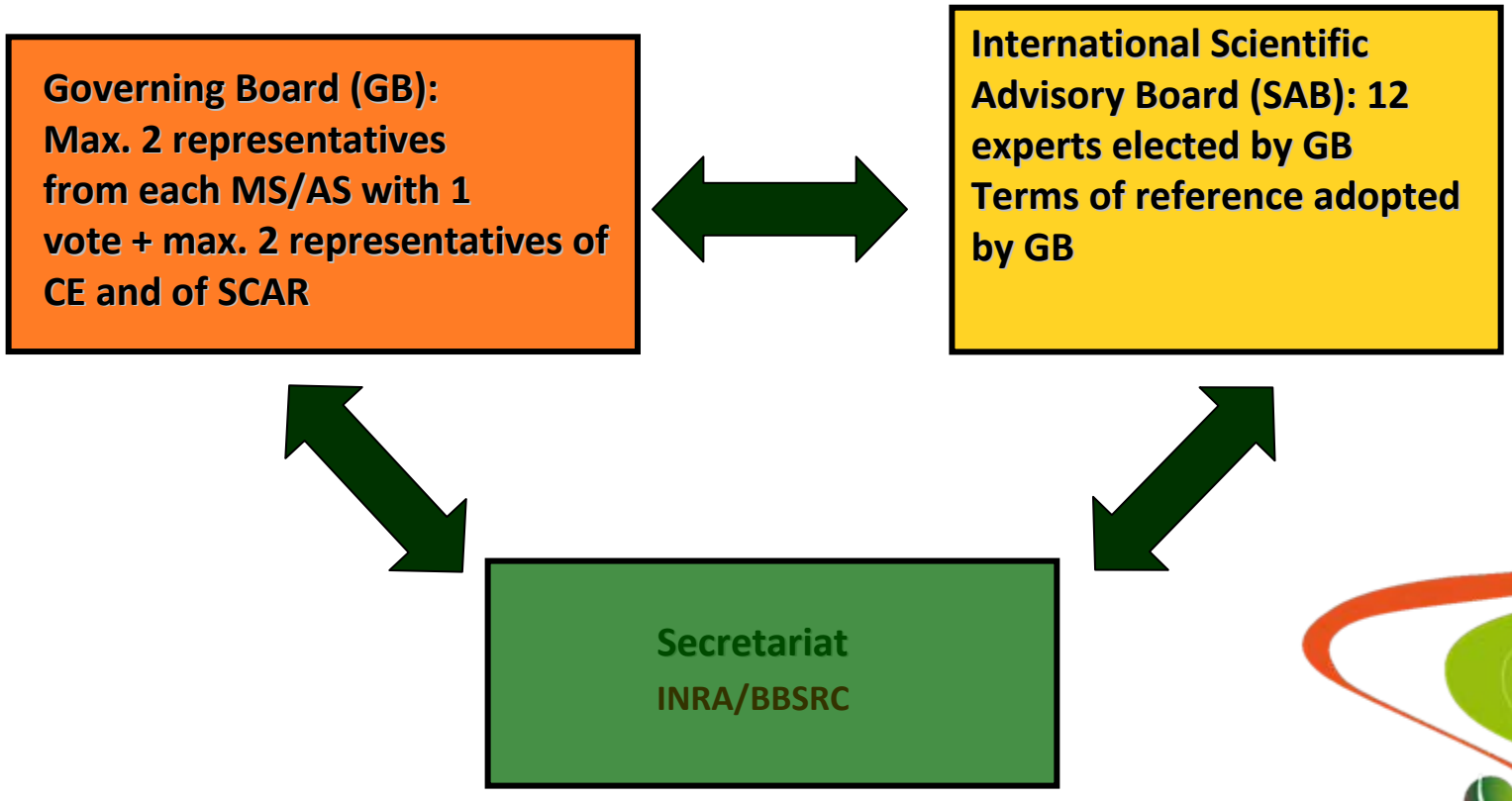
- ⇒ Scientific Research Agenda (ScRA)
- ⇒ Stakeholder consultation
- ⇒ Pilot action call
- ⇒ 1st meeting with the funders/ mapping
- ⇒ ERA-NETs Workshop

With the support of the CSA, tool integrated within the FACCE-JPI to ensure the JPI implementation

The Joint Programming Process



FACCE - JPI Governance



Possibility to add working groups, implementation groups

Scientific Advisory Board

- Elias Fereres
- Steve Long
- Frits Mohren
- Bernd Müller-Röber
- Pirjo Peltonen-Sainio
- John R. Porter
- Thomas Rosswall
- Johan Rockström
- Jean-François Soussana
- Henning Steinfeld
- Joachim von Braun
- Rajul Pandya-Lorch

The members of the SAB (elected by Governing Board) serve in their capacity as independent experts

- Elaborate a scientific research agenda
- Prioritise actions
- Advise on scientific governance
- Advise / participate in peer review and evaluation

Scientific Research Agenda
5 core research themes

1. Integrated food security under climate change, based on an integrated food systems perspective: modelling, benchmarking and policy research perspective.
2. Sustainable intensification of agricultural systems under current and future climate and resource availability.
3. Optimizing trade-offs between food production and the preservation and utilization of biodiversity, ecosystem goods and services.
4. Adaptation to climate change throughout the whole food chain, including market repercussions.
5. Mitigation of N_2O and CH_4 emissions by the agriculture and forestry sector, carbon sequestration and reducing GHG emissions associated with indirect land use change.

COMMENTS WELCOME ON THE SCIENTIFIC RESEARCH AGENDA

Core theme 2: Environmentally sustainable growth and intensification of agriculture

- Provide new approaches for improving farm management and for the sustainable intensification of agricultural systems, but also for low-input high natural value systems in Europe under current and future climate and resource availability.
- Understanding recent yield trends in Europe, taking into account changes in costs and prices and research investments as well as changes in environment, management and genotypes.
- Benchmarking efficiencies of resource use (water, N, energy) according to G x E (including climate) x M combinations across Europe.
- Assessing and raising biological resource use efficiency of crop and livestock systems; increasing total factor productivity.
- Combining crop, livestock and bioenergy systems for sustainable intensification.
- Low input, higher efficiency seeds and breeds.
- Knowledge based IT innovations in agriculture.
- Improved understanding and control of soil functioning and biotic interactions at field to landscape scales.

CT2: Environmentally sustainable growth and intensification of agriculture

– Possible pilot action. Benchmarking at farm gate the current state and historical changes (and their main drivers: economics, Genotype x Environment x Management) in productivity and resource use and institutional innovations and investment needs for sustainable intensification. Assessment of variability in systems by screening a large number of situations, as if taking a meta-analysis approach.

– Medium term. Production of innovative scientific gold standards for agricultural monitoring. Satellite studies where countries could identify key systems with raised productivity and reduced GHG emissions, in which average values of variables can be benchmarked.

– Longer term. Combined development of genomic selection, ecological engineering, precision farming, ecotechnologies and biotechnologies for increased resource use efficiency and productivity in key agricultural systems.

Core theme 4: Adaptation to climate change

- Adaptation to climate change and increased climatic variability throughout the whole food chain, including market repercussions;
- Tailoring adapted regional production systems under climate change;
- Adapting seeds and breeds through conventional breeding and biotechnology to new combinations of environment and management: e.g. abiotic stresses, elevated CO_2;
- Monitoring pests and diseases and developing climate-informed crop and animal protection;
- Adaptive water management in agriculture, watershed management, flood management, irrigation technologies, water re-use;
- Adapting food processing and retailing, markets and institutions to increased climatic variability and climatic change.

Biotechnology here is used in a broad sense, referring to marker-assisted selection, genomic selection and genetic modification methods.

Core theme 4: Adaptation to climate change

– Possible pilot action. Designing management relevant novel ideotypes adapted to climate change and elevated CO_2 and assessing groundbreaking designs for advanced plant and animal phenotyping facilities under climate change.

– Medium term. Understand the adaptive value of diversity, specialization and trade in European agriculture, through appropriate modeling.

– Longer term. Epidemiological models and near real time climate-informed forecasts of pests and diseases. Regional scale strategies for preserving gene resistance against pests, diseases and pathogens in crop and animal species. Drought and heat tolerant productive crop species and thermo-tolerant animal species.

Core theme 5: Mitigation of climate change

- Contribute to direct reductions of GHG emissions through carbon sequestration, substitution of fossil-based energy and products, and mitigation of N2O and CH4 emissions by the agriculture and forestry sector, while reducing GHG emissions associated with indirect land use change;
- Develop monitoring and verification methodologies of field, animal and farm scale GHG budgets, including, or not, indirect land use and cradle to grave life cycle;
- Develop verifiable GHG mitigation and carbon sequestration measures in farming systems;
- Develop technologies and methods to substitute fossil-fuel energy through increased use of biomass and other renewable energies in the agriculture sector without jeopardizing food security.

First mapping meeting on mitigation of agricultural greenhouse gas - induced climate change (theme 5)

- Gathering national funders, policy makers and scientists + members of the SAB
- Recommendation to the GB for implementation of theme 5
  - Research themes
  - Tools identified
  - Next meeting on adaptation (theme 4) in February

Pilot Action

- One-off, initial action at early stage of FACCE-JPI
- To bring together nationally-funded modellers in the areas of crops, livestock and trade, to look at how climate variability and change impact on European agriculture and food security
- 96 letters of intention received, 74 groups eligible
- Selected national applicants met at a networking workshop to develop a Knowledge Hub (network) – October 18, 2011
- Submission of coordinated Knowledge Hub proposal December 2011, Evaluation January, 2012
- Launch of Knowledge Hub – March 2012

Estimated total budget – 15 million euros

Pilot action: instrument

FACCE-JPI Knowledge Hub

- An instrument building on the concept of “Networks of excellence”
- Main idea of “FACCE knowledge hubs”;
  - Bring together research groups that already have funding in the thematic area(s) chosen
  - It can be worded as building “virtual centers” between research groups.
  - The support given can be administration/project management, travel expenses, mobility, money for common research, use of common infrastructure and thematic workshops.

Next steps

- Knowledge Hub starting in 2012
- Working with existing ERA-NETs to implement the Research Agenda (e.g. ERA-CAPS: Coordination Action in Plant Sciences, BiodivERsA)
- Stakeholder consultation → Strategic Research Agenda
- Discussion on an international call on climate change mitigation (2013)
- Possibility of an ERA-NET+ on “Climate smart food systems in Europe”(2014)

Thank you for your attention!

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