Linking your results with AKIS – Agricultural Knowledge and Innovation Systems in Transition

Based on findings from the EU SCAR collaborative working group
And insights in work-in-progress

CORE Organics, Amsterdam, May 2013,

Krijn J. Poppe
Content of the presentation

• Background of SCAR and the Collaborative Working Group

• Some theoretical notions on Innovation Systems, AKIS and social innovation

• Conclusions from the collaborative working group, illustrated by examples from the member states

• Insight in current work-in-progress
• Standing Committee on Agricultural Research (1974, renewed 2005)
  • Representatives of member states that advise the European Commission and Member States on coordination of agricultural research
  • Since 2005: coordination in the European Research Area: EU + candidate and associated countries (in total 37 countries)
  • 2006, Krems (Austria): “ [SCAR to] include questions of advisory services, education, training and innovation in their discussions”
Mandate of the SCAR – CWG on AKIS

• 2008 Communication: “the Commission intends to make use of SCAR to identify agricultural knowledge structures in each Member State, with a view to eventually creating a corresponding CWG”

• 2009 France and the Netherlands volunteered to set up a CWG

• Chaired by Pascal Bergeret and Krijn Poppe
The issue

• 1st SCAR foresight (2007): the mounting challenges facing the agri-food and rural sectors in Europe calls for a review of the links between knowledge production and its use to foster innovation

• 2nd SCAR foresight: rather crude light on the current state of Agricultural Knowledge Systems in Europe:
  “currently unable to absorb and internalise the fundamental structural and systemic shifts that have occurred. The remaining publicly funded AKIS appear to be locked into old paradigms based on linear approaches and conventional assumptions.”

In the mean time a changing policy context: the financial and food crises, EU 2020 strategy: “Smart, sustainable, inclusive growth”, European Innovation partnership, CAP-post 2013
Increased relevance in EU policy:

- Europe 2020 strategy: growth strategy for the coming decade. It wants the EU to become *a smart, sustainable and inclusive economy*.
- The Innovation Union is one of the seven flagship initiatives of the Europe 2020 strategy:
  - turn Europe into a world-class science performer;
  - remove obstacles to innovation
  - revolutionise the way the public and private sectors work together, notably through Innovation Partnerships
  - Within the Innovation Union, Horizon 2020 is the financial instrument 2014 to 2020, proposed budget €80 billion (the EU’s new programme for research and innovation)
- CAP post 2013: Reinforce the role of the Farm Advisory Service (FAS) and to create a ‘European Innovation Partnership (EIP) for agricultural productivity and sustainability’. 
Part II: Theoretical notions

• For economists and others: 2 views on innovation policy

• AKIS – concepts from the reflection paper

• Social Innovation – concepts from the reflection paper
Two views on innovation policy (Smits et al, 2010)

<table>
<thead>
<tr>
<th>Main assumptions</th>
<th>Mainstream macro-economics</th>
<th>Institutional and evolutionary economics: Systems of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>- Equilibrium</td>
<td>- Dis-equilibrium</td>
</tr>
<tr>
<td></td>
<td>- Perfect information</td>
<td>- Asymmetric information</td>
</tr>
<tr>
<td></td>
<td>- Allocation of resources for invention</td>
<td>- Interaction in innovation processes</td>
</tr>
<tr>
<td></td>
<td>- Individuals</td>
<td>- Networks and frame conditions</td>
</tr>
<tr>
<td>Main policy</td>
<td>Science / research policy</td>
<td>Innovation policy</td>
</tr>
<tr>
<td>Main rationale</td>
<td>Market failure</td>
<td>Systemic problems</td>
</tr>
<tr>
<td>Government intervenes to</td>
<td>- provide public goods</td>
<td>- solve problems in the system</td>
</tr>
<tr>
<td></td>
<td>- mitigate externalities</td>
<td>- facilitate creation new systems</td>
</tr>
<tr>
<td></td>
<td>- reduce barriers to entry</td>
<td>- facilitate transition and avoid lock-in</td>
</tr>
<tr>
<td></td>
<td>- eliminate inefficient market structures</td>
<td>- induce changes in the supporting structure for innovation: create institutions and support networking</td>
</tr>
<tr>
<td>main strengths of policies designed under this paradigm</td>
<td>- clarity and simplicity</td>
<td>- context specific</td>
</tr>
<tr>
<td></td>
<td>- analysis based on long term trends of science-based indicators</td>
<td>- involvement of all policies related to innovation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- holistic approach to innovation</td>
</tr>
<tr>
<td>main weaknesses of policies designed under this paradigm</td>
<td>- linear model of innovation</td>
<td>- difficult to implement</td>
</tr>
<tr>
<td></td>
<td>(institutional) framework conditions are not explicitly considered</td>
<td>- lack of indicators for analysis and evaluation of policy</td>
</tr>
</tbody>
</table>
Knowledge & Innovation System: 7 functions

1. Knowledge development and diffusion
2. Influence on direction of search and identification of opportunities
3. Entrepreneurial experimentation and management of risk and uncertainty
4. Market formation
5. Resource mobilisation
6. Legitimation
7. Development of positive externalities

(c) M. Hekkert et al.
AKIS – terminology

• AKS concept originated in 1960s, driven by an interventionist agricultural policy that sought to coordinate knowledge and innovation transfer in order to accelerate agricultural modernization.

• In many countries: strong integration of public research, education and extension bodies, often under the control of the Ministry of Agriculture.

• 1970s: “agricultural knowledge and information systems” (AKIS) in policy discourses (OECD, FAO). Later: agricultural knowledge and innovation systems.
Drivers that eroded AKS / moved to AKIS

• Research, extension and education have undergone a deep restructuring, transformed by the trend towards liberalization.
• Policy agenda: increasing concern over the environmental impact of industrial agriculture, the quality of life of rural populations, rural employment and the need to support the positive externalities linked to agricultural production.
• The linear model of innovation has progressively been replaced by a participatory or ‘side by side’ network approach, in which innovation is ‘co-produced’ through interactions between all stakeholders in the food chain (and especially for 2\textsuperscript{nd} order change).
• The growing disconnection between farmers’ knowledge and research and extension systems.
The FOOD CHAIN PLAYS A ROLE TOO
• Thematically-focused learning networks that are made up of different actors, within and outside the formal AKS.
• Members can include farmers, extension workers, researchers, government representatives and other stakeholders (Rudman, 2010).
• The emphasis is on the process of generating learning and innovation through interactions between the involved actors.
• LINSA: LIN for Sustainable Agriculture
• The difference between AKS and LINSAs is connected to how knowledge is conceptualized: AKS sees knowledge as a “stock to be transferred”, whereas LINSA emphasizes the processes needed to make knowledge useful and applicable to other actors.
Planned results:

- **Tools and methods** for practitioners that are involved in learning and innovation in agriculture

- Recommendations on **policy instruments and financial arrangements** that support learning and innovation for sustainable agriculture

- **Concepts to reflect** on learning and innovation processes as drivers of transition to sustainable rural development

More information: [www.solinsa.net](http://www.solinsa.net); contact: heidrun.moschitz@fibl.org
Social Innovation

• The concept of social innovation originates in critiques of traditional innovation theory. By calling for social innovation, new theories point at the need to take the social mechanisms of innovation into account (social mechanisms of innovation)

• In the context of rural development, social innovation refers to the (social) objectives of innovation – that is those changes in the social fabric of rural societies, that are perceived as necessary and desirable in order to strengthening rural societies and addressing the sustainability challenge (social inclusion / equity: the innovation of society as well as the social responsibility of innovations)
Part III: Findings and recommendations of the collaborative working group
AKIS are quite different between countries / regions / sectors – e.g. extension

• Mainly privatized systems (e.g.: NL, some states in Germany) where the funding mainly comes from direct payments from farmers, but coupled with high state funding for research
• Co-management between farmer organizations and the state (e.g. France, Finland and some states in Germany), with public funding, partial payments by farmers and farmer organizations.
• Semi-state management (e.g. Teagasc in Ireland which has a board with representatives from the state, industry and farmer organizations);
• Management by the state through regional organizations (e.g. Switzerland, Italy and Finland).
Some countries have restructured their AKIS considerably

- NL: Privatising of state extension service, leading to competition; merge of applied research and university into Wageningen UR (a ‘third generation university” with innovation in its mission), learning networks to address systemic coordination issues
- FR: Pole de competativite – regional clustering with special projects to support consortia
- DK: merged applied research into regional universities.
- Hungary: Farm Advisory System in addition to Farm Information Service (chambers of agriculture) and Network of Village Agronomists (and agri-business)
- Austria: announced increased collaboration between institutes
AKIS components are governed by quite different incentives

- interaction between the elements is crucial
- but elements are driven by different incentives, e.g.
  - research: publications, citations, ‘excellence’
  - education: funding based on student numbers
  - extension: payments by farmers / vouchers / subsidized
- Need for multi- / transdisciplinary approach often mentioned
- competition impedes cooperation between actors
<table>
<thead>
<tr>
<th>Aspect</th>
<th>Science driven research</th>
<th>Innovation driven research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incentive to program a topic</td>
<td>Emerging science that can contribute to solving a societal issue (or a scientific question)</td>
<td>An issue / problem in society that can be solved by new research, or a new idea to solve an existing issue</td>
</tr>
<tr>
<td>Participation of users</td>
<td>In demonstration phase / via research dissemination</td>
<td>In agenda setting, defining the problem and during the research process</td>
</tr>
<tr>
<td>Quality criteria</td>
<td>Scientific quality</td>
<td>Relevance (for the sector or a region)</td>
</tr>
<tr>
<td>Focus</td>
<td>Research organisations</td>
<td>Networks of producers and users of knowledge</td>
</tr>
<tr>
<td>Diffusion model</td>
<td>Linear model</td>
<td>System (network) approach</td>
</tr>
<tr>
<td>Type of government policy</td>
<td>Science / Research Policy</td>
<td>Innovation Policy</td>
</tr>
<tr>
<td>Economic line of thinking</td>
<td>Macro-economics</td>
<td>Systems of innovation</td>
</tr>
<tr>
<td>(see table 2.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>To a large extent public money: more speculative and large spill over effects</td>
<td>Public-private partnerships very possible / advantageous</td>
</tr>
<tr>
<td>The role of the EU</td>
<td>Efficiency of scale (member states often too small), smart specialisation between member states, create European research market with harmonisation of hard- and soft infrastructures</td>
<td>Stimulate interaction and learning in Europe between national/regional AKIS. Enable in CAP innovation by networks with farmers</td>
</tr>
<tr>
<td>Typical EU examples</td>
<td>Horizon 2020, FP7, ERC, some ERAnets, Joint Programming Initiatives</td>
<td>CAP: European Innovation Partnership, LEADER, European Technology Platforms, EIPs, some ERAnets</td>
</tr>
<tr>
<td>Type of research</td>
<td>Interdisciplinary with absorption capacity in AKIS (to work with material science, ICT, chemistry etc.).</td>
<td>Transdisciplinary and translational with close interactions.</td>
</tr>
</tbody>
</table>
Different objectives, methods, and public roles

Science
- Science driven knowledge development
- Basic research
- Linear model
- Cross overs sectors
- Society sets agenda
- PUBLIC TASK

Market driven R&D
- Science for competitiveness or social issues
- Business sets agenda, helps to steer, uses results
- PRIVATE-PUBLIC PARTNERSHIPS

Innovation in partnership
- Prototypes // Localisation
- Change business models / finance
- Food chain is co-creator
- (De-)regulation, procurement etc.
- LEARNING AND INNOVATION NETWORKS
- INFORMATION BROKERS
Role of EU policy

Science

- Countries are too small, large spill overs: pool funds
- Compete and collaborate with US, China, Brazil etc.
- Help re-organisation process in Europe (infrastructures)

Market driven R&D

- Collaborate with business in Food Chain in PPP
- Manage spill overs between EU regions

Innovation in partnership

- AKIS are REGIONAL
- Innovation, not dissemination
- Organise international exchange for spill-overs (farmers, extension)
- Empower innovation groups in CAP
- Don’t forget monitoring (learning)
Work in progress

• Proposals by EU for European Innovation Partnership
• Issues currently discussed in collaborative working group
Connecting Horizon 2020 and Rural Development
Rural Development Policy:
- Knowledge transfer
- Cooperation
- Pilot projects
- Demonstration
- Advisory services
- Investment

Research & Innovation Framework:
- Research projects
- Multi-actor projects
- Pilot project clusters
- Innovation brokers
- On-farm experiments

Operational Groups
- ETPs, ERA-Nets, JPIs, etc.

EIP Network
- Standing Committee on Agricultural Research (SCAR)

Steering Board
- European Innovation Partnership ‘Agricultural Productivity and Sustainability’

Member States Programmes

Rural Development Committee

Steering Board

Horizon 2020 Programme Committee

Farmers • Advisers • Enterprises • Scientists • NGOs
Innovation in partnership

Market driven R&D

TARGET GROUPS

Science

Innovation:
3 mln 75%

Social Innovation:
6 mln 1.6%

Some new farm systems

Innovation in partnership

Knowledge transfer?
Interactive innovation model in the EIP

• The innovation model under the agricultural EIP goes far beyond speeding up transfer from laboratory to practice through diffusion of new scientific knowledge (referred to as a "linear innovation model").

• The EIP adheres to the "interactive innovation model" which focuses on forming partnerships - using bottom-up approaches and linking farmers, advisors, researchers, businesses, and other actors in Operational Groups.

• This knowledge “exchange” will generate new insights and ideas and mould existing tacit knowledge into focused solutions. Such an approach will stimulate innovation from all sides and will help to target the research agenda.
Network Function of the EIP

– Interlinking innovation-related actions
– Ensuring an effective flow of information
– Exchange on best practice
– Systematic feedback about practice needs
– Exchange with ETPs, ERA-NETs, JPIs etc.
– Interface function of SCAR
Current issues in CWG - AKIS

- What is exactly an operational group?
- Are innovations in innovation policy possible (e.g. inducement prizes, SBIR)
- Which themes in innovation (first)?
- Cross border aspects
- Support of innovation processes by ICT
- Incentivize extension, research and education
What does it mean for your ERA-net?

• Do you encourage projects in science, R&D or innovation – and treat them differently?
• Linking your project results or their research agendas?
• How do you manage spill-overs between countries?
• Do you require your projects to link up with innovation networks?
• Do they include organic agribusiness and do they co-finance?
• Do you encourage the use of social media?

Have AKIS clients participate with their problems
Thank you for your attention

krijn.poppe@wur.nl

www.wageningenur.nl\lei

See the website of
SCAR (European Commission)