Ministry of Economic Affairs,
Agriculture and Innovation

AKIS – Agricultural Knowledge and Innovation Systems in Transition

First findings from the EU SCAR collaborative working group

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Content of the presentation

- Background of SCAR and the Collaborative Working Group

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

- Some reflections from the collaborative working group, illustrated by examples from the member states

Background of SCAR and the CWG: mandate

- 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)

>> see website SCAR (EC)

- 2006, Krems (Austria): " [SCAR to] include questions of advisory services, education, training and innovation in their discussions"
- 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

Background of SCAR and the CWG: 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 sate 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

Working methods of the CWG

- A network of civil servants from the Member States and the European Commission
- No budget, except for some experts to write a methodological state of the art paper (prof. Talis Tissenkopf, Anne-Charlotte Dockes, Bettina Bock)
- Inventory of national issues and structures, reflection, but no research
- Several working packages
  - reflection paper state of the science
  - AKIS policy
  - Social innovation
  - Management of complexity and porosity
  - Country cases

Part II: Theoretical notions

- For economists and others: 2 views on innovation policy
- AKIS – concepts from the reflection paper
  (available online at the SCAR website)
- Social Innovation – concepts from the reflection paper

Economics: thinking on equilibrium and dis-eq.

Adam Smith

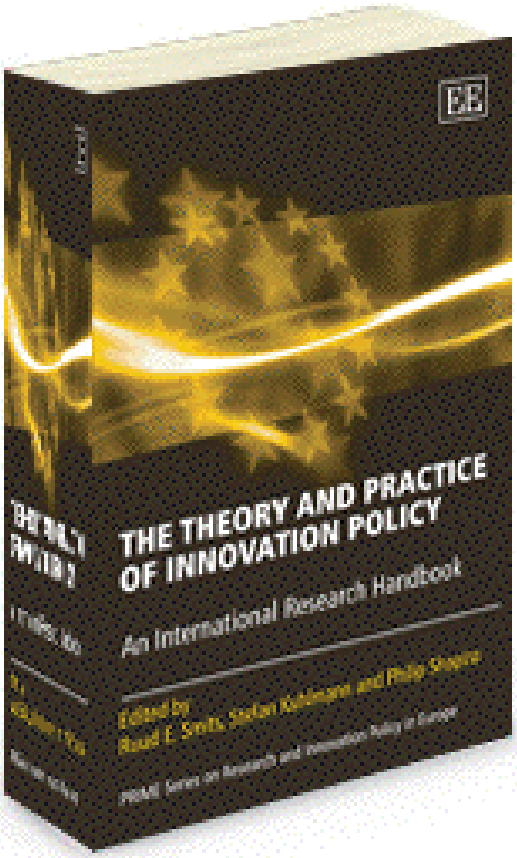
- Ricardo
- Marshall
- Walras
- Coase
- Hayek
- Friedman
- Ostrom

- F. List: infant industry
- K. Marx: role of capitalist
- J. Schumpeter: entrepreneur / business cycle
- K. Arrow: market failure
- O. Williamson: Inst. Econ.

Two views on innovation policy (Smits et al, 2010)

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

Knowledge and 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 (see reflection paper)

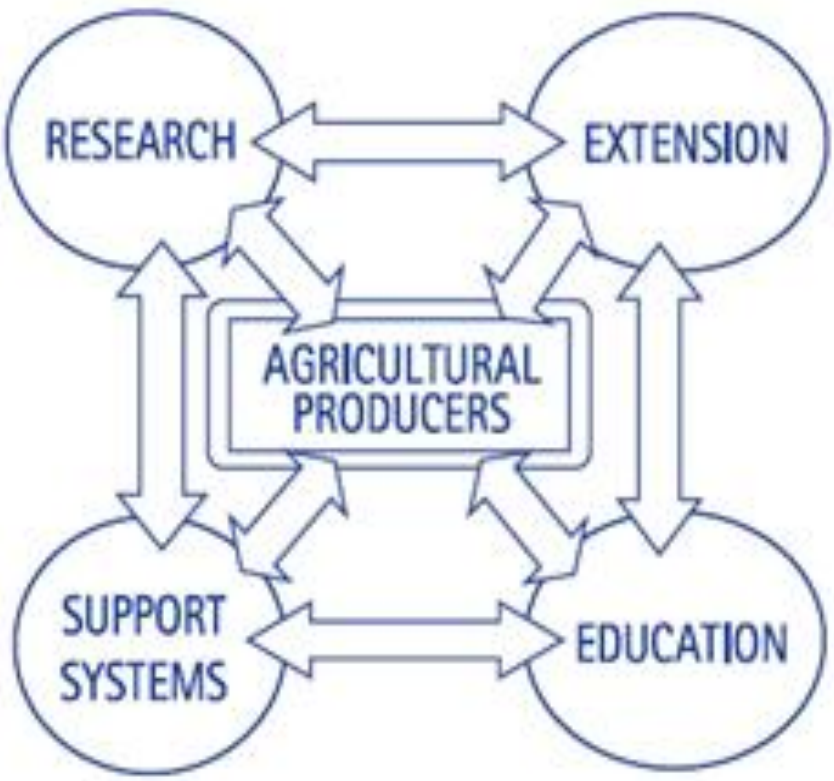
- AKS concept originated in 1960s, driven by an interventionist agricultural policy that sought to coordinate knowledge and innovation transfer in order to accelerate agricultural modernization.
- In many countries: strong integration of public research, education and extension bodies, often under the control of the Ministry of Agriculture
- 1970s: "agricultural knowledge and *information* systems" (AKIS) in policy discourses (OECD, FAO). Later: agricultural knowledge and *innovation* systems

- "a set of agricultural organizations and/or persons, and the links and interactions between them, engaged in the generation, transformation, transmission, storage, retrieval, integration, diffusion and utilization of knowledge and information, with the purpose of working synergistically to support decision making, problem solving and innovation in agriculture" (Röling and Engel, 1991).

Drivers that eroded AKS / moved it to AKIS

- Research, extension and education have undergone a deep restructuring, transformed by the trend towards liberalization (privatization of service delivery, the multiplication of extension organizations, farmers contributing towards the cost of these services, competitive bidding for research and extension contracts and tighter evaluation procedures).
- 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 2nd order change)
- The growing disconnection between farmers' knowledge and research and extension systems.

Agricultural Knowledge and Innovation Systems



An AKIS should be able to propose and develop practical ideas to support innovation, knowledge transfer and information exchange.
Policy needs to reflect the manner in which innovation actually occurs today: often through diffuse networks of actors who are not necessarily focused on traditional research and development.

Learning and Innovation Networks

- Thematically-focused learning networks that are made up of different actors, within and outside the formal, institutionalized, 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.

SOLINSA
Support of Learning and Innovation Networks for Sustainable Agriculture

Agriculture Knowledge Systems In Transition: Towards a more effective and efficient support of Learning and Innovation Networks for Sustainable Agriculture

solinsa.net

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; **contact:** heidrun.moschitz@fibl.org

SEVENTH FRAMEWORK PROGRAMME
Funded by the European Union

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*)

Some reflections / first findings

AKIS is originally a theoretical concept (based in observations) that is relevant to describe national or regional AKIS: they exist.

- CWG are able to describe their national or regional system in AKIS terms
- And find this useful to reflect on their policies.

- However:
  - There is no *One size fits all* formula
  - more scientific work is possible, for instance could typologies of systems (in relation to strategies of regional food chains and policies) help?

Some reflections / first findings

AKIS are quite different between countries / regions

- Mainly privatized systems for extension (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).
- Uncoordinated individual innovation nucleuses.

(Reflection paper, based on Laurent, 2006)

Some reflections / first findings

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 competitivite – 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)

Some reflections / first findings

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

Some reflections / first findings

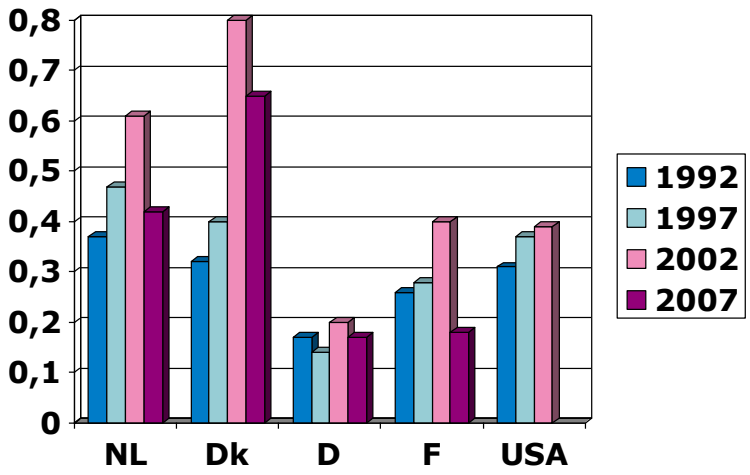
AKIS are governed by public policy but consistent AKIS policies do not exist

- Policies for education and for research
- Some countries (e.g. NL) see research / innovation programs as a policy instrument to reach certain public goals (e.g. environment) and combine them with other types of regulation
- Interaction with innovation in private sector often weak
- Questions on relation between agricultural innovation instruments and general innovation policy (e.g. Flanders)

Some reflections / first findings

- Monitoring of AKIS (input, system, output) is fragmented
- The high level of attention to "innovation" in the policy domain and the lack of research for evidence-based policy are inconsistent.

  - Data mainly on R&D food industry, patents (CIS), publications of research system
  - No monitoring reports for parliament / public
  - Sometimes ex-post policy analysis of certain innovation programs



R&D in food industry

In conclusion: first findings

- AKIS is originally a theoretical concept (based in observations) that is relevant to describe national or regional AKIS: they exist
- AKIS are quite different between countries / regions
- Some countries have restructured their AKIS considerably
- AKIS components are governed by quite different incentives
- AKIS are governed by public policy but consistent AKIS policies do not exist
- Monitoring of AKIS (input, system, output) is fragmented
- The high level of attention to "innovation" in the policy domain and the lack of research for evidence-based policy are inconsistent.

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Thank you for your attention

and thanks to co-chair Pascal Bergeret and WP leaders Peter Keet and Owen Carton for support

The CWG will finish its work at the end of 2011 and plans a conference in early 2012 -check the SCAR website

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