

Dossier “RAAKS: multi-stakeholder learning in agricultural innovation systems”

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Table of Contents

Scope.....	2
In-Depth	2
RAAKS: the resource	3
RAAKS: an overview	4
RAAKS in Practice	6
Windows and tools	7
References	8
KIT’s Involvement.....	8
KIT, AKIS and RAAKS.....	8
Cases of the use of RAAKS in AKIS	9
Area Sustainable Economic Development (SED)	9
RAAKS & rural service delivery.....	9
RAAKS & decentralization	10
RAAKS & value chain development	10
Contact relevant KIT staff	10
Resources.....	10
Key Reading.....	10
Case studies of the application of RAAKS	10
Learning resources for RAAKS.....	11
KIT resources.....	12
Websites	12
References	12
Glossary.....	14

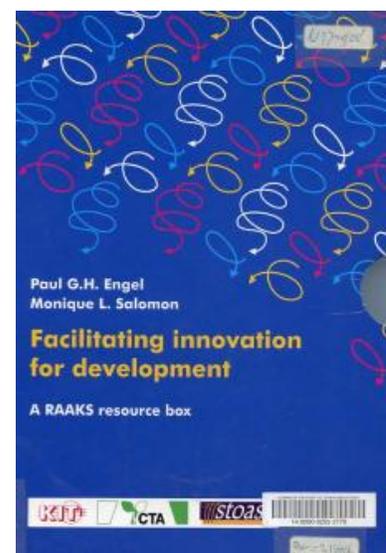
Scope

This KIT dossier provides free online access to the full content of the [RAAKS Resource Box](#). RAAKS stands for Rapid Appraisal of Agricultural Knowledge Systems and provides guidance for conducting participatory action-research in a multi-stakeholder context. In the world of development co-operation, many agricultural projects are more than simply technical interventions. It is crucial to recognize when different stakeholders have different views on what actually constitutes the problem. In such a case the problem can only be defined by simultaneously looking for the solution. This requires procedures to structure a process of learning and inquiry, which Checkland (1981) eventually named [soft systems methodology](#). The classical premise that 'if you carefully analyse the problem, you are likely to find the solution' has been reversed to: 'If you don't collaboratively learn to find the solution, you will never define the problem.' For large, multi-faceted development projects such a 'social learning' approach is increasingly recommended to achieve effectiveness and sustainability.

RAAKS builds on this with a model of learning and inquiry that is specifically aimed at problems in [agricultural knowledge and information systems \(AKIS\)](#). RAAKS is special in that it is theoretically founded in the [soft systems methodology](#) and practically validated in four continents, including Africa and Latin America ([Engel, 1997](#); [Engel & Salomon, 1997](#)). Dr. Paul Engel (see portrait to the right) also provided a brief description of RAAKS in layman's terms ([1995b](#)). [Click here](#) for a shortcut to [the contents of the RAAKS resource box](#). In '[KIT's involvement](#)', an overview is provided of work with RAAKS in AKIS by staff of the [Sustainable Economic Development \(SED\) section](#) of the Royal Tropical Institute (KIT). In the [Resources section](#) you will find case studies of the application of RAAKS, learning resources for RAAKS, and KIT resources in relation to RAAKS. For the above RAAKS references refer to the [end of the In-Depth section](#).

In-Depth

- RAAKS: the resource
 - Background
 - Contents of the RAAKS box
- RAAKS: an overview
 - Stakeholder analysis
 - Knowledge for innovation
 - Stakeholder platform
 - Pro-poor and gender-sensitive
 - Applicability
 - RAAKS in Practice
- Windows and tools
 - Phase A: Defining the relevant systems and its problems
 - Phase B: Analysing constraints and opportunities
 - Phase C: Articulating policy and strategy/planning for action
- References



RAAKS: the resource

Background

Project design for rural poverty reduction has shifted from top-down interventions to a more stakeholder-based innovation system perspective. **RAAKS** (Rapid Appraisal of Agricultural Knowledge Systems) is a methodology for facilitating agricultural innovation and rural development from this new perspective.

Paul Engel, Monique Salomon, and others at the [Department for Communication and Innovation Studies](#) of Wageningen University developed the **RAAKS** methodology, on the basis of fieldwork in four continents. Since then, **RAAKS** has been widely used for [innovative capacity](#) development and social learning processes at the community level among rural organizations and institutions and, more recently, in agricultural market chains.

Contents of the RAAKS box

The **RAAKS** methodology has been described in 'Facilitating innovation for development: a **RAAKS** resource box.' The **RAAKS** resource box contains a book with the theoretical background and a manual with tools for team use. It was originally published in 1997 by KIT Publishers, CTA, and STOAS. The second publication of 2002 has been out of print for some years, but the free online version has been available from the KIT website ever since. The book 'The social organization of innovation: a focus on stakeholder interaction' (Engel, 1997) details **RAAKS'** foundation in scientific theory and development practice. It uses the agricultural knowledge and information systems (AKIS) perspective to look at the social organization of innovation. The manual 'Networking for innovation: a participatory actor-oriented methodology' (Salomon and Engel, 1997) explains and illustrates the methods, and outlines workshops and exercises that can be used for preparing a team, organizing the work, and carrying out an analysis. The full reference and links can be found at the [bottom of this page](#).

A **RAAKS** action-research study is carried out in 3 phases: (A) problem definition; (B) analysis of constraints and opportunities; and (C) strategy development and action planning. In each phase, different perspectives or 'windows' are used to explore the situation. Each window comes with one or more tools. The original **RAAKS** box contained a set of 34 laminated cards for all the windows and tools used in **RAAKS**. The tools provide practical means for gathering and organizing the relevant information. Every tool card provides information on the expected outputs, relevant questions, and the working procedure. In some cases the actual use of the tool is illustrated with a worked example. The window cards indicate the tools used and provide information on design, validity, use and applicability of the exercise. Direct web links to the tools and windows are tabulated below.

Click on [windows](#) or [tools](#) to learn more on how to use them. The links in below table provide direct online access to each of the windows and tools used in **RAAKS**.

Table 1: RAAKS Tools for different Windows

Window	Window opens to the following subject	Tools for each Window
A1	Problem definition and objectives	Problem definition exercise

A2	Identifying relevant actors	Actor identification exercise
A3	Tracing diversity of mission statements	Actor Objective Sheet
A4	Environmental Diagnosis	Environmental limits checklist
A5	Clarifying the problem situation	Prime mover septagram (or spider-web)
		Approximation Exercise I: leadership & coordination
		Approximation Exercise II: problems & diversities
B1	Impact analysis	Impact Analysis Sheet
B2	Actor analysis	Actor Analysis Checklist
B3	Knowledge Network Analysis	Info-source-use Exercise
		Communication Network Sheet
		Source-intermediary-User Sheet
B4	Integration analysis	Linkage Matrix
		Linkage Mechanism Checklist
B5	Task Analysis	Task Analysis Sheet
B6	Coordination Analysis	Basic Configurations
		Prime-mover septagram
		(spider-web)
B7	Communication Analysis	Communication Analysis exercise
B8	Understanding the social organization of innovation - Summing-up	Window Reporting Sheet
		Understanding social organization of Innovation
		Approximation Exercise I: leadership & coordination
		Approximation Exercise II: problems & diversities
C1	Knowledge Management Analysis	Knowledge Management Analysis Exercise
C2	Actor Potential Analysis	Actor Potential Checklist
C3	Strategic Commitments	Defining possible actions
		Strategic Commitments

RAAKS: an overview

Stakeholder analysis

RAAKS is a methodology to help stakeholders gain a better understanding of their performance as innovators. It can be used to focus on the present and potential social organization of actors (groups or individuals) in a situation where innovation is desirable. At the core of **RAAKS** lie the appreciations of

the principal stakeholders. The **RAAKS** process helps to make these appreciations explicit by encouraging stakeholders to assess and re-assess their understanding of the problem situation and their own role in it.

Knowledge for innovation

RAAKS provides a way to improve the generation, exchange and utilization of knowledge and information for innovation. Men or women villagers, researchers, policymakers, extension workers, consumers, producers of inputs or services, industrialists and/or traders, guided by a team of specialists, can all be involved in a RAAKS study. In developing countries, its application has generally been directed at bottom–up policy formulation and planning, and at the organization and evaluation of agricultural research and extension.

Central elements of **RAAKS** are teamwork, focused collection of information, qualitative analysis, and strategic decision-making. **RAAKS** uses a variety of windows to achieve a fundamental analysis, a transparent problem definition and recommendations for action. The important issues addressed in **RAAKS** include forms of cooperation between actors, actors' objectives and their conflicting and/or shared interests, integration and coordination of activities, relevant knowledge and information networks, and the division of tasks (research, experimentation, training, farming and so forth).

Stakeholder platform

RAAKS promotes the development of a shared conceptual framework that can facilitate the exchange of ideas, experiences, and knowledge. Moreover, this establishes a basis for implementation: because people work together in the process, they tend to emerge with a joint commitment to change. They have identified their shared concerns and the networks that are most relevant, and can explore possible new alliances and begin to formulate action proposals that are feasible to implement

Pro-poor and gender-sensitive

As a participatory methodology, the use of **RAAKS** immediately suggests the inclusion of women and other groups of stakeholders who are often forgotten. Depending on the local situation, this might also include newer immigrants, young people, the elderly, or landless farmers. In many knowledge and information systems, it is important not only to understand their role as actors, but also to seek ways to build them into the information system – supplying as well as receiving information. If they have been defined as target groups, this is essential.

RAAKS differs from participatory rapid appraisal (RRA) and participatory technology development (PTD) by its focus on the social organization of innovation, which is the way actors (individuals and organizations) build and maintain relationships with each other to foster innovation. PRA focuses more on analysing local farming and livelihood systems and general conditions enabling and/or constraining their development. PTD helps to create a process of creative interaction between local community members and outside facilitators, to experiment with and develop technologies. **RAAKS** complements both PRA and PTD. In practice, **RAAKS** teams often combine techniques from these and other participatory approaches

Applicability

RAAKS is useful to: (1) governmental, non-governmental and private organizations who feel pressed to improve their performance with respect to innovation. They include extension, research or development agencies, exporters of agricultural products, agro-industries, and national or international policymaking bodies; (2) organizations or institutions that intervene on behalf of particular developments; (3) managers of agricultural development programmes, extension managers, researchers, and development professionals in general. To them **RAAKS** is a way of facilitating inquiry into the constraints and opportunities that affect networking, cooperation and communication for innovation.

RAAKS can be used by: (1) field workers to chart out the knowledge and information networks in which you operate; (2) trainers to encourage trainees to take a comprehensive, critical look at their performance as facilitators of innovation in agriculture; (3) managers to encourage teamwork, self-monitoring and the generation of ideas on how to improve collective performance related to innovation, with built-in feedback and follow-up; (4) researchers to develop an understanding of the social organization of innovation as a basis for proposals for action and/or further analysis; and (5) consultants to facilitate a shared understanding among stakeholders, to define what can be done and by whom, and to improve the way stakeholders function together.

RAAKS in Practice

The steps for designing of **RAAKS** action research are outlined below. Again, **RAAKS** is not a ready-made solution but, instead, offers a menu of field-tested methodological elements: windows, step-wise phases, tools and exercises. A **RAAKS** team can choose among these, deciding to leave out certain ingredients or add new ones, fitting their approach to local circumstances or to the problem situation at hand.

Objectives

Generally, a **RAAKS** study has three objectives:

- To identify opportunities to improve a knowledge and information system (the organization, decision making, and exchange of information among actors) in order to improve the potential for learning and innovation;
- To create awareness among relevant actors (target groups or constituencies, managers, policymakers, producers, traders, researchers, and extension workers) with respect to the opportunities and constraints that affect their innovative performance;
- To identify actors and potential actors who could remove constraints and take advantage of opportunities to improve innovative performance and to encourage their commitment to such changes.

Designing a **RAAKS** study requires that: (1) intentions are clarified; (2) a design for the analysis is made; and (3) procedures are agreed upon.

Intentions

RAAKS directs attention first to helping actors study the ways they have organized themselves for innovation, rather than immediately focusing on specific solutions. Strategic diagnosis is emphasized. To achieve the three objectives above, a **RAAKS** exercise combines three different intertwined learning processes:

- joint inquiry, involving both the team and other stakeholders in exploring a shared concern with respect to innovation-related performance;
- contrasting results obtained by using different “windows” to create a useful tension among different, but equally relevant and valid, interpretations of the same situation; and,
- a task oriented path that leads participants from analysis and interpretation of the problematic situation to designing and committing themselves to potential useful actions.

Windows and tools

To answer questions such as 'what should be addressed?', the windows and tools provided by **RAAKS** can provide part of the answer, although building a good team and hard work are equally important. The windows are meant to open up possibilities, guiding a **RAAKS** team to seek information effectively and make sense of their observations.

After the initial preparation, which involves team building, getting acquainted with the methodology, and building relationships with relevant stakeholders, a **RAAKS** study consists of three phases:

Phase A: Defining the relevant systems and its problems

The broad objective of the first phase is to identify opportunities to improve a knowledge and information system. Click [here](#) for direct online access to the windows and tools used in phase A.

Phase B: Analysing constraints and opportunities

During the second phase, team members go into the field to more systematically gather information on the social organization of innovation. A **RAAKS** study generally means interviewing key informants. Windows for Phase B are numbered B1 to B8. The team’s choice of windows depends upon the problem situation and the priorities expressed during the first phase. Phase B results in a more detailed picture of how different networks of actors interact, the issues that dominate their debates, and the way they coordinate their activities or fail to do so. Click [here](#) for direct online access to the windows and tools used in phase B.

Phase C: Articulating policy and strategy/planning for action

During the third phase, propositions for policy or strategy, and plans for action, are formulated and debated. Three windows numbered C1 to C3, provide support in analysing the potential of different actors to carry out specific strategies. The opportunities and constraints identified in earlier phases provide a basis for preparing realistic action proposals. The involvement of some or all of the stakeholders in all the phases of the study helps to stimulate their commitment to putting

recommendations into practice. Click [here](#) for direct online access to the windows and tools used in phase C.

References

Engel, P. G. H. & Salomon, M. L. (1997). Facilitating innovation for development: a **RAAKS resource box**. Amsterdam: Royal Tropical Institute (KIT). Available from <http://www.search4dev.nl/nl/record/422848>.

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- Salomon, M. L., & Engel, P. G. H. (1997b). **Windows and Tools**. Amsterdam: Royal Tropical Institute (KIT). Available at <http://www.search4dev.nl/document/448403> (Windows) and <http://www.search4dev.nl/document/448402> (Tools).

For more resources, see the [Resources Section](#) of this dossier.

KIT's Involvement

- KIT, AKIS and RAAKS
- Cases of the use of RAAKS in AKIS
- Area Sustainable Economic Development (SED)
- RAAKS & rural service delivery
- RAAKS & decentralization
- RAAKS & value chain development
- Contact relevant KIT staff
- Projects
- Publications

KIT, AKIS and RAAKS

Most of KIT's work involving RAAKS actually uses RAAKS as originally intended by its creators, namely for improving the [Agricultural Knowledge and Information System \(AKIS\)](#), see below [KIT publications](#) and the [online RAAKS Resource Box](#). Different RAAKS tools are being used in KIT's capacity building programmes in Tanzania, Mali and Nigeria, and have been incorporated in various KIT manuals and tools. Recent trends in international development cooperation further underline the need for this toolbox: emphasis is currently given to the interaction between public and private sector and civil society for poverty reduction at both national and sub-national levels. Although RAAKS has been developed in the agricultural sector with its complicated stakeholder environment, RAAKS methods and tools can be used in other sectors.

Cases of the use of RAAKS in AKIS

Two examples of the use of RAAKS (Rapid Appraisal of Agricultural Knowledge Systems) in AKIS by staff of the Sustainable Economic Development (SED) section of the Royal Tropical Institute (KIT) are:

- **Client-Oriented Research Management Approach (CORMA): the agricultural research system of Cape Verde (2005).** Various tools from the RAAKS Toolbox were used to analyse the interaction between the different actors and to assess the performance of INIDA (the National Institute for Agricultural Research and Development) of Cape Verde (Heemskerk, 2008). [Read more ...](#) CORMA has adapted a number of tools from the RAAKS toolbox for analysing the social organization of innovation, including actor configurations, the knowledge network, co-ordination, and communication. In addition, CORMA looks at the internal organization of research in 5 management areas, including human resource development, financial management, and monitoring & evaluation. For more information on the CORMA approach see [Heemskerk et al. \(2003\)](#) and [Wennink and Heemskerk \(2006\)](#).
- **Agricultural Innovation Systems Analysis (AISA) of the Kenyan cut flower industry.** Kenya's floriculture Agricultural Science, Technology and Innovation System was analysed using many of the tools from the RAAKS Toolbox that contribute to the understanding of the social organization of innovation, including tools for policy analysis, actor identification, actor analysis, the linkage matrix, and actor x function analysis (Heemskerk, 2008b). [Read more ...](#)

Area Sustainable Economic Development (SED)

The Area Sustainable Economic Development (SED) of the Royal Tropical Institute (KIT) is engaged in research, training, and consultancy to improve the livelihoods of vulnerable producers in developing countries. SED uses the RAAKS Toolbox for analysis of multi-stakeholder environments to promote value chain development, rural decentralization, and rural innovation. For more information on the activities of SED, click on the links to the [home page of SED](#) on the KIT web site and the fact sheet of SED on [innovation for rural development](#), which also provides a list of [projects on rural innovation](#) in which SED is currently involved.

RAAKS & rural service delivery

The Agricultural Knowledge and Information System concept has been widely adopted in KIT's approaches, but also brought further in e.g. agricultural innovation systems. In accordance with the recent trends towards interdisciplinarity at decentralised level, the concept of 'The Innovation System' seems more appropriate than the AKIS and involves the implementers/innovators/farmers in the analysis. Fortunately, the tools in the RAAKS toolbox can be and are also used in Innovation System Assessments, though some additional emphasis on participation and particularly on participatory monitoring and evaluation of institutional and organisational innovation. KIT is currently working on these additional dimensions of RAAKS. The KIT information portal on rural and agricultural innovation systems provides access to hundreds of free, online resources at http://portals.kit.nl/rural_innovation_systems.

RAAKS & decentralization

Multi-stakeholder processes surrounding local governments in rural and urban areas are complex. Elected local government members have become central actors within an already existing network of actors, interests and power relations. Although legal, with powers and responsibilities enshrined in law, they have to earn legitimacy and develop effective working relations with (informal) authorities, service providers and other organisations. KIT is using RAAKS tools in support of decentralization programmes and training to build capacity within institutions like ministries, NGOs, citizens' organisations and projects to make them able to effectively accompany local governments, facilitate multi-stakeholder process management and enhance social learning. This is essential to move the decentralization process forward and to enlarge the quality and equity of local governance and the capacity of local government to deliver. The KIT information portal on rural and agricultural innovation systems provides access to free, online background material at The KIT information portal on decentralization in developing countries provides access to hundreds of free, online resources at http://portals.kit.nl/rural_decentralization_and_local_governance.

RAAKS & value chain development

In relation to economic chain development, multi-stakeholder analysis and consequently the use of RAAKS tools are essential elements of the assessment of the roles of different actors at various levels in the chain. An example is the analysis of the alpine medicinal plant chain in India as described by Belt (2003). The KIT information portal on value chain development provides access to hundreds of free, online resources at http://portals.kit.nl/value_chains_for_development.

Contact relevant KIT staff

To contact staff, [click here](#).

Resources

Key Reading

- Case studies of the application of RAAKS
- Learning resources for RAAKS
- KIT resources
- Websites
- References

Case studies of the application of RAAKS

- [Engel \(1997\)](#) uses a large number of case studies and synthesis studies to validate and illustrate the practical use of RAAKS, including: a. studies of peasant technology in Colombia; b. knowledge and information use by farm advisers in the Netherlands; c. the horse sector of the Netherlands; d. the impact of interinstitutional co-ordination in Colombia; e. effective linkage strategies in Colombia, the Philippines, Nigeria, Ivory Coast, Tanzania, and the Dominican Republic; f. networking among non-governmental development organizations in Peru, West

Africa, and India; g. a RAAKS evaluation study in Central America (Guatemala, El Salvador, Panama, Costa Rica, Nicaragua, Honduras). See [Box 4 on page 16 of Engel \(1997\)](#).

- [Hulsebosch \(2001\)](#) used RAAKS in combination with PRA tools for capacity building of community-based organizations in an integrated rural development programme in Mali. A detailed discussion of the methodology is included.
- [Bhavana Rao and Misra \(2010\)](#) combined RAAKS with Systems Thinking to develop a methodology for balancing livestock-based livelihoods, natural-resources management, and development in India.
- [Carvalho \(2006\)](#) used RAAKS to investigate knowledge flows within the industrial shoe cluster of Sinos Valley, Brazil. One of the conclusions is that RAAKS and its participatory approach could have helped in avoiding the crisis that took place in the late 1980s.
- [Teverson \(2003\)](#) identified sources, channels, and use of agricultural information by farm households, using a modified version of the RAAKS methodology. This was part of a project to develop and promote the best disease resistant and farmer acceptable bean varieties to poor farmers, in a participatory manner, through appropriate seed uptake pathways in the southern highlands of Tanzania.
- [Karbo and Bruce \(undated\)](#) applied RAAKS to extensionists and development workers in Northern Ghana to identify the constraints and opportunities for increasing pig and poultry production. The exercise was limited to analysing actors, knowledge networks and communication and yielded valuable information.
- [Kuiper e.a. \(1996\)](#) used RAAKS to: i) develop and implement a set of improved management strategies and techniques that can reduce the aggravating effects of irrigation on waterlogging and salinity in Pakistan; ii) to expand the institutional capacity to effectively manage the solutions; and iii) to maximize the role of farmers and rural communities in irrigation management for increasing agricultural production.
- [Ordinola, Bernet, and Manrique \(2007\)](#) The RAAKS-based Participatory Market Chain Approach (PMCA) was used to involve all the stakeholders to generate innovations to improve potato competitiveness. As a result of this work, the T'ikapapa (meaning 'potato flower' in Quechua) product has been developed. T'ikapapa is the first commercial brand supporting the sale of native potatoes under strict quality standards.
- [Pontius, Dilts, & Bartlett \(2001\)](#) indicate that an approach such as RAAKS and its underlying principles of social learning have helped those involved in the Farmer Field School Movement to understand what they were doing and why they should continue doing it. Farmer Field Schools and Integrated Pest Management in South-East Asian rice are not really cases of the application of RAAKS, but the principles are the same. Similar observations are made by Hall (2007), when he remarks that RAAKS never really received the attention it deserved. Hall is co-ordinator of LINK (Learning, INnovation and Knowledge), which is a specialized United Nations University organization that focuses on policy aspects of rural and agricultural innovation in developing countries.
- Studies involving the use of RAAKS by KIT staff are presented on the [KIT's involvement page of this RAAKS dossier](#).

Learning resources for RAAKS

- The full series of lectures for the PhD Course 'UNU-MERIT 1.4 - Knowledge for Development' by Dr. [Engel \(undated\)](#) of the [Maastricht Economic and Social Research and Training Centre on Innovation and Technology](#) is presented as open courseware, including the syllabus, video recordings, slideshows, and recommended reading.

- [Engel \(1997a\)](#) describes the practical aspects of RAAKS and indicates under what circumstances RAAKS can provide practical solutions to agricultural innovation problems.
- [Salomon & Engel \(1997\)](#) explain in considerable detail how to prepare and conduct RAAKS action research. Exercises that RAAKS teams and trainers can use for team building and as a first introduction to RAAKS are included.
- [Pretty & Vodouhe \(1997\)](#) provide an overview of participatory action and learning tools that can be used in rural development in developing countries.
- [Keijzer \(2006\)](#) compares RAAKS with a number of similar tools.
- The two documents on the development of PMCA (Participatory Market Chain Approach) by [Bernet, Devaux, Ortiz, & Thiele \(2005\)](#) and by [Bernet, Thiele, & Zschocke \(2006\)](#) explain how and why PMCA evolved from the RAAKS approach.

KIT resources

- The [KIT Information Portal on Rural Innovation Systems](#) provides access to free, full-text electronic documents on Rural Innovation Systems (RIS), both as an analytical concept and a development tool. It is also a unique entry point for all other Internet sources on RIS, including newsletters, discussion groups, websites, bibliographic databases, and directories of organizations and projects.
- Studies involving the use of RAAKS by KIT staff are presented on the [KIT's involvement page of this RAAKS dossier](#).
- The RAAKS dossier is one of a [family of dossiers](#) that is part of the KIT information [portal on Rural Innovation Systems \(RIS\)](#), which contains hundreds of free web resources on the subject. Other RIS dossiers discuss the application of the Rural Innovation Systems (RIS) approach for [outsourcing agricultural advisory services](#) and for [enhancing the poorest farmers' access to agricultural advisory services](#) (research, training, advice, and extension). The remaining dossiers concern the development of an effective [policy environment for rural innovation](#) and an [introduction to RIS](#). The [portal site map](#) helps you navigate both the RIS portal and its associated dossiers.

Websites

- [ARD\(Agriculture and Rural Development department\), World Bank](#)
- [IFPRI \(International Food Policy Research Institute\)](#)
- [Farmer First Revisited workshop](#)
- [ILAC - Institutional Learning & Change Initiative](#)
- [Innovation Africa Symposium](#)
- [Knowledge for Development](#)
- [LINK - Learning INnovation Knowledge](#)
- [PROLINNOVA - PROMoting Local INNOVAtion](#)
- [Research Into Use](#)
- [Rural Innovation Systems](#)

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- Engel, P. G. H. & Salomon, M. L. (1997). *Facilitating innovation for development: a RAAKS resource box*. Amsterdam: Royal Tropical Institute (KIT). Please note that the 'box' itself is not online, because it is indeed no more than a box, containing the following three resources:
 - * Engel, P. G. H. (1997). *The social organization of innovation: a focus on stakeholder interaction*. Amsterdam: Royal Tropical Institute (KIT). Retrieved from http://www.kit.nl/extern/ils/engel_1997_innovation.pdf.
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Glossary

Enablers of knowledge management

are systems and infrastructures which ensure that knowledge is created, captured, shared, and leveraged. These include culture, technology, infrastructure and measurement.

Experience

refers to what people have done and what has happened to them in the past.

Explicit knowledge

is the knowledge that is there for all to find and use in, for example, databases and publications. It can be found in structured repositories and unstructured repositories of knowledge. See also tacit knowledge.

Human capital

comprises the capabilities of the individuals required to provide solutions to the people with whom the organization does business.

Knowledge

is information which provides guidance for action. It comprises a fluid mix of experiences, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experience and information. It originates and is applied in the mind of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices and norms. Key related concepts are experience, truth, judgement, and rules of thumb. The set of concepts, meanings, skills and routines developed over time by individuals or groups as they process information. Knowledge is in people, 'between the ears'. It is intrinsically related to

social practice. Actors generate, transform, integrate, exchange, disseminate and utilize knowledge while going about their daily business.

Knowledge management

There is no "one suits all" definition of knowledge management. A fairly wide definition could be as follows: "Knowledge management is the creation and subsequent management of an environment which encourages knowledge to be created, shared, learnt, enhanced, and organization for individual, social, or organizational benefits."

Knowledge mapping

comprises a process which provides and organisation with a picture of the specific knowledge it needs in order to support its business processes.

Learning organizations

are where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together. The concept originated from Peter Senge's 1990 book *The fifth discipline: the art and practice of the learning organization*. See also the related terms mental models, team learning, systems thinking and personal mastery.

Peer assist

is a meeting or workshop where people are invited from other teams within an organization to share their experience.

Rules of thumb

are shortcuts to solutions to new problems that resemble problems previously solved by experienced workers.

Signature skill

is an ability by which a person prefers to identify himself or herself professionally.

Structured repositories of knowledge

comprise databases, expert systems, and the like. They are characterised by their ease of searchability. See also unstructured repositories of knowledge.

Systems thinking

an approach to analyse and understand how things influence one another within a whole. In nature, systems thinking examples include ecosystems in which various elements such as air, water, movement, plants, and animals work together to survive or perish. In organizations, systems consist of people, institutions, structures, and processes that work together to make an organization effective or not.

Tacit knowledge

resides in people's heads. See also explicit knowledge.

Unstructured repositories of knowledge

include project reports and other non-indexed sources of information. See also structured repositories of knowledge.

Appreciations

The perceptions, preoccupations, judgements and understanding of the principal stakeholders.

Communication

A process that may take place when people or groups of people exchange information, including symbolic information, with each other. The information involved in such exchanges can take many different forms - for example, it may be spoken or written, on video or radio, or electronic. In describing the process, any one or combination of various aspects may be emphasized, such as the communications media, the participants, the cultural issues involved or the rules that govern the **exchange process**.

Communication networks

Patterns of communication that arise as a direct consequence of actors' decisions to search for, to exchange and to make use of the experiences, knowledge and ideas of others. This leads to increases in both formal and informal communication - perhaps through e-mail exchanges, meetings, newsletters, workshops, journals, conferences or courses. These communication patterns are one of three 'social forms' that emerge from interactions among actors in their search for new ideas.

Convergences

When a number of actors begin to share ideas and define relevant problems, alternatives and solutions in similar ways, their views can be said to be converging. In a team or network, actors whose views converge to some extent can work together more effectively - for example, it becomes easier to narrow down the scope of their inquiries and the range of issues and alternatives they see as relevant to innovation. (However, strong convergence can be a disadvantage, leading actors to ignore important information that does not match their perceptions!) Convergences are one of the three 'social forms' that emerge from interaction among actors in their search for new ideas.

Knowledge network

Individual people who join together to deliberately generate, share and use ideas, knowledge and information; each participant is both a source and a user of information. Often existing local knowledge networks can be identified and encouraged.

Configuration

A particular arrangement of actors. An innovation configuration appears when actors work together to achieve innovation. It is made up of the convergences (see below) and networks (for both communication and resource sharing) that emerge as a part of this process. Mutually accepted views, procedures and ground rules for collective behaviour with respect to innovation come into being, making joint decision making and coordinated action - and eventually the steering of innovation processes - possible. Basic configurations are models that can be used to help identify prime movers and dominant relationships among actors in a situation that is under study. They provide one way of looking at innovation configurations.

Innovation

A social process of interactive inquiry that actors carry out in order to construct or reconstruct their practices. The main elements are experimentation and networking, which may result in developing new methods and materials (technical, social or other) or in adaptation of ideas, practices and other elements developed by others. Because innovation requires interaction among actors, it can be seen as the outcome of a process of mutual learning.

Innovativeness

A social competence. A collective capacity to learn: to generate, identify, obtain, develop and put to use technologies that are appropriate to specific conditions and societal objectives. The capacity for innovativeness is embedded in the social relations and interactions of a large number of semi-autonomous actors - individuals, groups, organizations and institutions.

Interface

A shared boundary between actors where interactions may occur. One way to increase relevant interactions (and therefore communication) is to identify strategic interfaces, and encourage or build linkages at these points.

Knowledge and information system (KIS)

A linked set of actors - individuals, organizations, institutions and networks. Multiple linkages emerge (or are strengthened) as a result of their networking in search of innovation. System performance depends heavily on elements such as cooperation among actors, effective communication, agreement with respect to objectives and interests, and how well the system defines and coordinates its tasks. RAAKS involves actors in looking at their existing system or systems, studying for example communication patterns, convergences, resource coalitions and configurations to see how the system is put together. This makes it possible to consider what changes might be useful - perhaps new networks or other types of linkages that could be improved or established to promote innovation - and to work towards commitments to achieve this.

Learning

A complex activity that manifests itself in a relatively stable change in behaviour of a person or a group of persons. Learning is rooted in the human capacity to improve one's understanding and skills on the basis of day-to-day experience. Such a change is sometimes also observed after a person or group has been involved in an organized learning activity or has gone through some kind of 'critical' experience.

Linkage mechanisms

Organizational arrangements (e.g. liaison offices, meetings or administrative relationships) that help to link up the parts of the system. This facilitates the exchange of resources - perhaps by contributing to communication (meetings among farmers, with extension workers or liaison offices are some examples), coordination (e.g. mutual adjustment of activities, such as water distribution or publicity campaigns) or resource transfers (perhaps credit, salary payments or shared labour).

Mission statement

A short concise statement setting out the essential purpose of an individual or organization; ideally, this statement specifically describes objectives, relevant constituencies and activities, plus other stakeholders and/or partners, rather than being 'beautiful but vague'! Different actors strive for different kinds of development: they may have widely differing views of what must be achieved, how and by which actors. What an actor sees as a mission sets the stage for their activities; it affects their expectations, the ways they search for information, and their impact. Similarly, the degree of diversity among the mission statements of relevant actors has a strong influence on the system.

Networking

An active process of building and maintaining meaningful interactive relationships with relevant actors; one of the most important ways actors organize themselves to search for the ideas and information they need to change their practices - that is, to innovate. Within a system, networks link relevant sources and users of knowledge and information or other resources. Therefore, the more effective and efficient the

networking among stakeholders in development, the better the chance of innovation. The process of networking leads in turn to more or less stable patterns of relationships: convergences, communication networks and resource coalitions; in short, innovation configurations. This makes actors increasingly capable of supporting the purposeful generation, use and transformation of innovations.

Because the composition and integration of a network affect communication and resource linkages, they impact the availability and relevance of these resources and the extent to which the system achieves its objectives. Networks are thus an important part of knowledge management strategies

Problem/problem definition/problem situation

Even when a problem is stated in their assignment, a team must look carefully at the way they will define the area of human activity (see above) and problem (Window A1) to be considered. The fact that different stakeholders have different ideas about the definition of any problem is a key element in a RAAKS study, encouraging stakeholders to assess and re-assess their understanding of the problem situation and their own role in it. The picture of the underlying problem evolves as a variety of actors work together.

These definitions determine the objectives the team will work towards and, critically, the participants in the study. For example, the problem may seem to be that farmers do not participate actively enough in extension programmes; or it may seem more institutional, such as a lack of coordination between research and extension. In either case, the importance of this decision makes clear that the way the problem is stated must be critically examined! Either of these problems might not be the real issue.

Resource coalitions

Alliances among actors who decide to pool their resources to improve their performance. These alliances are one of the three social forms (see below) that emerge as a result of interactions among actors as they search for new ideas. Such alliances can be used as a means of wielding power and influence.

Social forms

Patterns that emerge as a result of networking for innovation. With continuing contact, these may stabilize and persist. The existence of these social structures influence later behaviour/interactions of the actors involved; they may have either an enabling or a constraining influence. Engel identifies three such social forms: convergences, resource coalitions and communication networks.

Social organization of innovation

This phrase recognizes innovation as taking place within a social context; this context can thus either facilitate or impede the process. Further, if the context is sufficiently well understood, the actors involved can work together to organize themselves in ways that are more beneficial to their objectives - that is, they can organize to search for ideas and information that will allow them to change their practices.

Social practice

The activities we all engage in are largely socially defined. That is, the society in which we function - whether within the family, a particular type of work, or a country, region or tribal group - tends to have rules (written or unwritten) about what makes a competent 'X', where X may be a mother, a doctor, a farmer, a particular sort of business, a teacher, a policymaker and so forth. Any set of actions can be seen as a 'social practice', in the sense that actors socially define and reinforce rules of competence as

they relate to each other. A social practice can then be defined as a discernible set of actors, who define and uphold performance through some form of rule-governed social interaction.

Interplay in-and-between diverse social practices is a breeding ground for innovation; networking is a way of encouraging this interplay among relevant practices. Further, this concept can be useful in understanding the differences in the rules that govern different practices - for example, farmers in comparison to researchers or extension workers. A clearer perception of each others' activities as social practices in their own right could help to improve the interplay between groups and to generate more effective networking practices among them.

Stakeholders

Actors whose interests are affected by a particular area of human activity, whether as victims or beneficiaries. In a RAAKS study, generally those who are concerned with maintaining or changing performance in this area. (See 'The AKIS perspective' in Chapter 1.) As with actors, stakeholders may be individuals, organizations, legal entities, etc.

Strategic diagnosis

This is an appraisal of constraints and opportunities, leading to a joint definition of useful strategies for improvement.

Synergy

An effect arising from the cooperative activity of two agents that, when working together, produce a combined result greater than either one could have achieved alone. When actors whose resources (see linkages above) complement each other work together, the collaboration increases the effectiveness of all. Each actor then achieves more than they could alone.

Volition

Volition emphasises both sense-making (creating comprehension and purpose) and commitment to stick to decisions that have been made. It also involves fluidity: an informed and thoughtful volition which is never in error and which is always subject to challenge and re-formulation. In addition, volition shows purpose and determination, even if no objects and results are specified in advance.

Window

An analytical perspective that focuses on particular issues relevant to understanding a problem situation. Windows provide a framework for the use of a RAAKS team.

RAAKS

RAAKS (rapid appraisal of agricultural knowledge systems) is a diagnostic framework and participatory methodology for analysing complex multi-stakeholder situations and for designing effective co-operation and communication strategies. It is an important methodology for facilitating innovative performance in agriculture, natural resource management and rural development.

AKIS

In general terms, the purpose of an agricultural knowledge and information system (AKIS) is to facilitate agriculture-related practices to be innovated continuously. The system integrates farmers, agricultural educators, researchers and extensionists to harness knowledge and information from various sources for better farming and improved livelihoods. Even when such a broad intentionality is recognized, the specific mission of an AKIS is permanently debated amongst social actors in one way or the other

affected by agricultural performance. AKIS can be improved, e.g. made more sensitive to the needs of poor smallholders, using RAAKS, see <http://www.kit.nl/4616?tab=2>.

Participation

Participation (by both men and women) could be either direct or through legitimate intermediate institutions or representatives. Participation also means freedom of association and expression on the one hand and an organized civil society on the other hand.

Soft systems methodology

SSM as a methodology lends itself particularly well for dealing with complex situations where those involved lack a common agreement on what constitutes the problem that needs to be addressed. The aim of SSM is to bring about improvements in a situation perceived as problematical. As such, it does not seek to solve 'the problem' but to facilitate a learning process which allows its users to gradually develop a more comprehensive understanding of the situation under study. In contrast to hard systems, such as computer or transport systems, soft systems are mental constructs for human understanding. When applied to agricultural knowledge and information systems (AKIS), the AKIS could be described as a system to help farmers escape poverty, or a system to increase agricultural production, or a system to develop technologies that have a high theoretical yield potential. SSM supposes a systems approach as described in systems thinking.