AgriLink

AGRICULTURAL KNOWLEDGE: LINKING FARMERS, ADVISORS AND RESEARCHERS TO BOOST INNOVATION

AGRILINK'S MULTI-LEVEL CONCEPTUAL FRAMEWORK

THEORY PRIMER: 8) GOVERNANCE

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AgriLink's multi-level conceptual framework

Theory primer: 8) Governance

The elaboration of this Conceptual Framework has been coordinated by **The James Hutton Institute**, leader of AgriLink's WP2.

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It has gone through a transdisciplinary process, with implication of both practitioners and researchers in writing, editing or reviewing the manuscript. This participation has been organised within AgriLink's consortium and beyond, with the involvement of members of the International Advisory Board of the project, including members of the Working Group on Agricultural Knowledge and Innovation System of the Standing Committee on Agricultural Research of the European Commission.

Theory Primers

The purpose of the primers is to provide AgriLink consortium members with an introduction to each topic, which outlines the key points and identifies options for further reading. The primers have also served to demonstrate the wide range of expertise in the consortium, and to highlight the specific research interests of consortium members. Primers are intended to act as a **foundation for academic journal articles, and an early opportunity for collaboration between consortium members**.

8) Governance

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1.0 General Overview of the Theory or Approach

1.1 Summary of the Theory, Approach or Topic

Governance as a topic or concept is covered in many different disciplines, ranging from public policy, political sciences, administrative sciences, to environmental sciences, human geography and sociology, institutional economics and behavioural economics. This primer considers mainly literature relating to the field of environmental and common pool resources governance. Knowledge can be viewed as a public good or a common pool resource. We therefore posit that in particular Ostrom's work on institutions and social-ecological systems has relevance.

1.2 Major authors and their disciplines

- Governance is understood as "the **totality of interactions**, in which government, other public bodies, private sector and civil society **participate**, aiming at solving societal problems or creating societal opportunities" (Meuleman, 2008, p11). Another broad definition adds the normative dimension: Governance is "a collection of **normative insights** into the **organization** of influence, steering, power, checks and balances in human societies" (In 't Veld, 2011, p9).

- Major authors are difficult to identify due to the spread of governance work across disciplines and topic areas.

- In institutional economics, governance is closely linked to institutions (formal and informal rules that determine actors behaviour), because governance is conceptualised as the necessary structures to make rules effective (the "forms, modes and practices of organisation to put rules into practice")

- Major contributions have been made by Elinor Ostrom through her Institutional Analysis and Development (IAD) framework (Ostrom, 1990; Ostrom, 2005). This has been applied empirically in many case studies and adaptations made.

- Further developments include a proposition for a "politicised" IAD framework (Clement, 2010), to simultaneously consider institutions, the politico-economic context and discourses across governance and government levels in order to allow the generation of policy recommendations (the conventional IAD approach concentrates on describing and analysing a situation).

- Further developments are the combination of the IAD with a social-ecological systems (SES) framework (McGinnis, 2010), and a diagnostic approach to unpacking the SES framework into multiple levels (Ostrom and Cox, 2010).

- A key asset of the IAD framework is its ability to link multiple governance levels. Issues of scale are inherent in governance concepts (termed multi-level governance) (Moss and Newig, 2010)

- Ostrom's concept of IAD/SES could be applied as a tool for assessment of the advisory system performance, where knowledge/information on sustainability is subject of transaction, while taking into account the whole system of interactions involved (if using SES). But the framework should be adapted to the specificities of the agricultural knowledge system.

- Polycentric governance (Marshall, 2009), decentralised governance (Birner and Wittmer, 2004; Clement, 2010) and adaptive (or reflexive governance) (Folke et al., 2005; Rouillard et al.; Voss et al., 2006) is often cited as a requirement for effective governance, but at the same time as challenging

- the way in which a system or a resource is governed is expected to have impacts on the outcomes and the effectiveness of governance, for example community-based governance (Marshall, 2008) and participatory governance (Newig and Fritsch, 2009) are important in the management of natural resources

- Meuleman distinguishes three governance styles: market, network and hierarchy. These styles are ideal types and, in real situations, there are mixtures of styles. Nevertheless, each style is internally consistent and has distinct internal logic: "The central value of hierarchical governance is authority; therefore the output must be authoritative and legitimate. Empathy and trust are central in network governance, and therefore results are expected to be based on consensus. Market governance is based on competition and price, which makes it logical that the best results are the most competitive and cheapest products. This internal logic seems so attractive that many public managers and politicians adopted one of the styles as their belief system or doctrine" (Meuleman, 2010, p51). Similarly Oliveira (2017) privatization governance, self-governing institutions, and state-led governance (meaning the same as governance styles by Meuleman). The conclusion to the question which governance is the best for example for ground water use, was that the multilevel (i.e. combined) governance as the most useful for examples from India and USA. The study stated that no one single governance type/style is the best for all conditions or even states. It could be assumed that similar rule could apply to knowledge governance.

- The literature on IAD and SAS is quite extensive and used across the globe.

1.3 Key references

Ostrom, E., 1990. Governing the Commons. The Evolution of Institutions for Collective Action. Cambridge University Press, Cambridge.

Ostrom, E., 2005. Understanding Institutional Diversity. Princeton University Press, Princeton, NJ.

Ostrom, E., Cox, M., 2010. Moving beyond panaceas: a multi-tiered diagnostic approach for social-ecological analysis. Environmental Conservation **37** (4): 451-463.

McGinnis, M., 2010. Building a programme for institutional analysis of social-ecological systems: a review of revisions to the SES framework. Indiana University, Bloomington, USA.

1.4 Brief history of how the theory has developed and been applied

Elinor Ostrom worked from 1970s on case studies dealing with common pool resources (CPR) threatened by exhaustion (concentrating on self-governance or network governance in combination with other governance types). The concept of CPR evolved as a response to insufficiency of working with only two concepts: pure public and private goods (Samuelson 1954, Ostrom 2010) and limits of corresponding state and market governance. CPR including knowledge (especially knowledge on CPR or sustainability issues) carries out features of public goods where one of the challenges is the equality of access to this resource (or its provision). Elinor Ostrom and her team analysed a large number of case studies on CPR, carried out several experiments (assessing the outcome of communication and cooperation of actors) and modelling exercises, in order to identify factors of success and failure of relevant system characteristics and produced a list of 'design principles', which synthetize core factors that affect the probability of long term survival of an institution developed by the users of a resource (Ostrom 2010). Later they asked questions how to develop the theories further to increase understanding and predicting when those actors involved in CPR dilemmas will be able to self-organise and how various aspects of the broad context affect their strategies and success (Ostrom 2010).

The experience from these case studies led to development of Institutional Analysis and Development framework (IAD) helping to organise diverse efforts to study common-pool resources and providing language for describing relationships at multiple levels and scales. Her work challenged a presumption that either the market (privatisation – private governance) or government (public domain and its governance) can do better job, than local actors protecting and managing the resources, who were conceptualised primarily as voters or consumers (Ostrom 2010, Olivera 2017).

This reflects the thinking in public policy which was characterised by a dichotomy of governance structures: market and hierarchical governance (i.e. governance structure of a firm). Another benefit of using IAD/SES is that several group of factors are dealt together in a systematic way, trying to avoid one sided point of view, and asking the question "what institutions could resolve the social dilemma".

Another outcome of these studies was a concept of polycentric governance (Ostrom 2010).

Further studies led to enrichment of previous IAD with missing factors (e.g. governance, resource units) and extending it to a systems assessment. The concept is called Socio-ecological systems and was used also for assessment of institutions and policies. Ostrom (2010) started to study the learning process (especially social learning leading to better decisions, to solve social dilemmas about norms and cooperation). Both concepts can be used to assess how the CPR/ public goods (knowledge) are produced, spread (distributed), and used in a systematic way. The SES provides a systems approach.

Ostroms' work on knowledge relates to its public goods/CPR characteristics (and therefore relevance of IAD/SES approach in this case). In her literature Ostrom speaks about information/knowledge as source and specifically as a CPR (Hess, Ostrom 2001) or about "global knowledge pool". The approach has been applied in the assessment of systems producing CPR/public goods (in this paper also knowledge as CPR) and as a tool for policy assessment, but the literature focusing on knowledge/advisory services with this approach is rather limited. The approach provides clear structure to the analysis of suitability of governance regimes, the role of property rights and regimes, the ways how key stakeholders are participating on the resource provision. Because the AKIS is a system of high complexity the approach has potential to help dealing with numerous factors, interdependencies and the whole dynamic quite effectively.

1.5 Basic concepts

IAD and SES concepts

AID and SES provide a framework for s systematic study and supports understanding complex social dilemmas and confusions regarding management of common pool resources or public goods (e.g. knowledge, fish in the sea). The framework is compatible with using different theories for example public goods/common –pool resources theory, collective action theory, game theory, transaction costs theory – because in itself it is only a framework for labelling and describing the components of a system without explaining or theorising about the links between the components.

Knowledge carries characteristics of public goods (long term difficulty to exclude others from using the pool of knowledge, and low extraction, because if used by one there is no decrease of using for others), CPR (the resource could be commonly used) and partly also club goods (short term exclusion is possible – innovation used only by small group). As a private goods it is more related to providing access to the knowledge. CPR and club goods are by neoclassical economist regarded as public goods (dilemma in exclusion of free riders who use the goods without contribution). Thus the knowledge could be seen lying somewhere between pure public goods, CPR and club goods. This diversity of characteristics of this good creates complex institutional and governance situations which could be source of confusion (deduced from graph on goods characteristics in Hess, Ostrom 2010).

IAD (Ostrom 2010):

The IAD supports the study of complex systems which are composed of cluster of variables which could be unpacked several times according to actual interest. The core of the framework is an action situation which is influenced by several external factors. The key clusters of variables are:

1. Biophysical conditions, which may be simplified in some analyses to be one of the four types of goods defined.

2. Attributes of a community, which may include the history of prior interactions, internal homogeneity or heterogeneity of key attributes, and the knowledge and social capital of those who may participate or be affected by others.

3. Rules-in-use, which specify common understanding of those involved related to who must, must not, or may take which actions affecting others subject to sanctions. The rules-in-use may evolve over time as those involved in one action situation interact with others in a variety of settings

Due to the characteristics of the good (in our case: knowledge) the IAD could be adapted and used for the performance assessment of advisory system and for the assessment of institutions generated by actors involved in the system (e.g. the AKIS) or its subsystems. IAD concept is flexible enough to study different property regimes (e.g. when the resource is government property, private property, community property or owned by no one and also counts with diversity of property rights (not only right to sell the property) which could occur when public goods or CPR are managed and/or produced (Ostrom 2010).

Aspects of 'good governance' are discussed in a number of policy documents (OECD, 2006) and are associated with the following aspects: transparency, legitimacy, participation in decision making, horizontal and vertical integration, learning mechanisms, and communication and conflict management.

Diagram [if available]

The IAD and subsequently the SES describe how to describe and analyse (diagnose) a governance system.
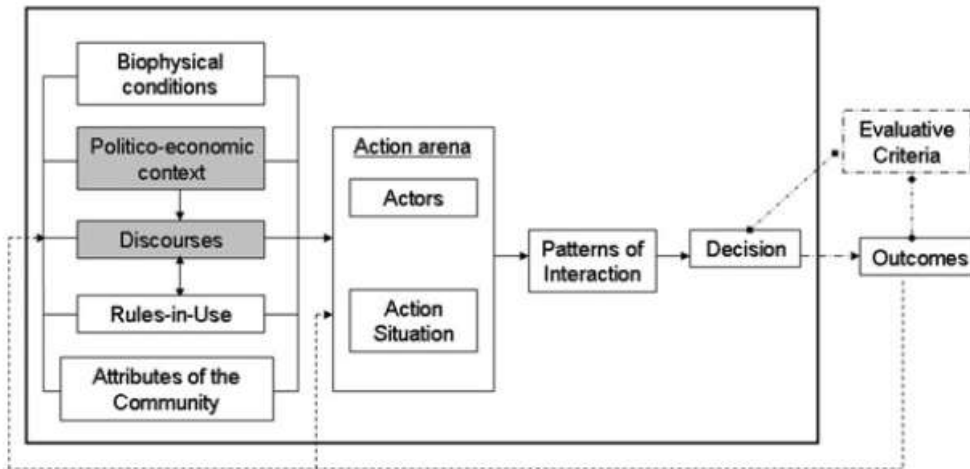

Figure 1: Revised IAD Framework by Clement (2010), building on Ostrom (2005). Added variables appear in grey shaded boxes. These variables impact both the action situation – notably in the way they position actors – and the actors, as they shape values, norms and preferences.
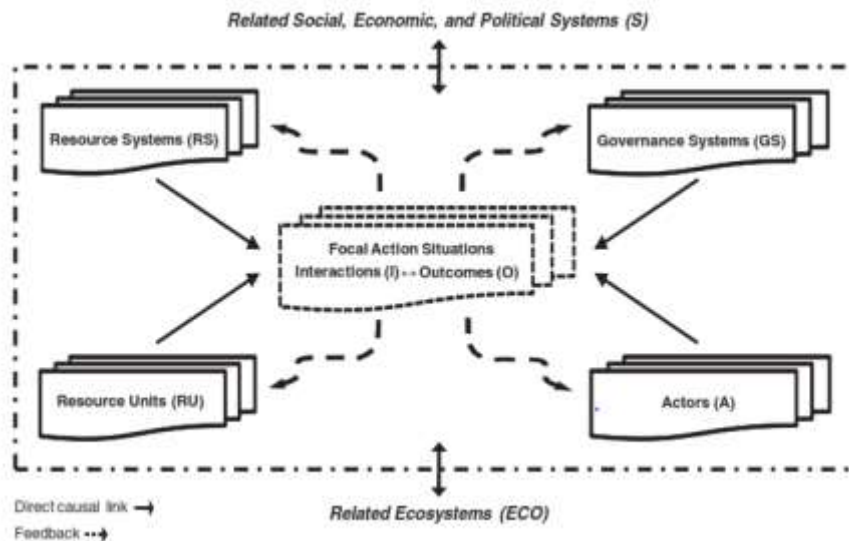
Figure 2: Revised SES framework combining the IAD and SES frameworks (McGinnis, 2010)

Figure 2 shows the features of the SES framework, including its multi-tiered quality. The (five) primary entities are the first level of the framework. These are each associated with a set of attributes, which can, in turn, be decomposed into a set of sub-attributes to form the second level of the framework (Figure 3).
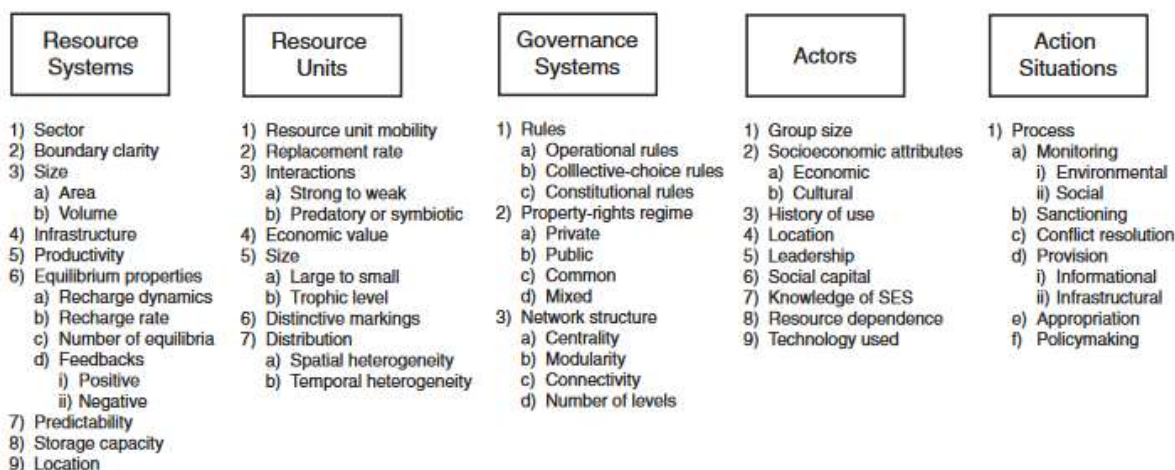
Figure 3: The set of attribute underlying each entity in the SES framework

2.0 Application to the analysing the role of farm advisory services in innovation

2.1 Relevance to AgriLink Objectives

[tick relevant]	AgriLink Objectives
	Develop a theoretical framework utilising a multi-level perspective to integrate sociological and economic theories with inputs from psychology and learning studies; and assess the functions played by advisory organisations in innovation dynamics at multiple levels (micro-, meso-, macro-levels) [WP1];
	Assess the diversity of farmers' use of knowledge and services from both formal and informal sources (micro-AKIS), and how they translate this into changes on their own farms [WP2];
	Develop and utilise cutting edge research methods to assess new advisory service models and their innovation potential [WP2];
Yes	Identify thoroughly the roles of the R-FAS (regional FAS) in innovation development, evaluation, adoption and dissemination in various EU rural and agricultural contexts [WP2];
YES	Test how various forms of (national and regional) governance and funding schemes of farm advice i) support (or not) farmers' micro-AKIS, ii) sustain the relation between research, advice, farmers and facilitate knowledge assemblage iii) enable evaluation of the (positive and negative) effects of innovation for sustainable development of agriculture [WP4];
YES	Assess the effectiveness of formal support to agricultural advisory organisations forming the R-FAS by combining quantitative and qualitative methods, with a focus on the EU-FAS policy instrument (the first and second version of the regulation) and by relating them to other findings of AgriLink. [WP4].
	At the applied level, the objectives of AgriLink are to:
YES	Develop recommendations to enhance farm advisory systems from a multi-level perspective, from the viewpoint of farmers' access to knowledge and services (micro-AKIS) up to the question of governance, also recommending supports to encourage advisors to utilise specific tools, methods to better link

	science and practice, encourage life-long learning and interactivity between advisors [WP5];
	Build socio-technical transition scenarios for improving the performance of advisory systems and achieving more sustainable systems - through interactive sessions with policy makers and advisory organisations; explore the practical relevance of AgriLink's recommendations in this process [WP5];
	Test and validate innovative advisory tools and services to better connect research and practice [WP3];
	Develop new learning and interaction methods for fruitful exchanges between farmers, researchers and advisors, with a focus on advisors' needs for new skills and new roles [WP3];
YES	Guarantee the quality of practitioners' involvement throughout the project to support the identification of best fit practices for various types of farm advisory services (use of new technologies, methods, tools) in different European contexts, and for the governance of their public supports [WP6].

2.2 How this can be applied/developed in AgriLink

The Social-ecological system (SES) could serve after some modifications as a framework for assessment of the AKIS while asking questions like: "What are enabling and blocking factors influencing the support of farmers' decision making in sustainability issues?" The assessment of SES would cover investigation how actors reflect production characteristics including particular area of studied innovations, characteristics of actors (from direction of interest to power in the arena), social settings (e.g. trust), property regimes in farming and in knowledge and knowledge access (e.g. role of IT in establishing of private properties where previously the knowledge was a common and vice versa[1]), governance styles/regimes (state, private, common or self-governance) and their appropriateness, policies and their role, and others factors (to be specified).

For carrying out the case studies (WP2) the approach could provide consistent guidance for studying of all key actors role in farmers' decision making (e.g. studying relationship between farmers and advisors, organisations which generate knowledge, exchange of knowledge/experience between farmers).

Also WP4 could benefit from this approach, which can help in studying governance regimes on all levels (EU, national, regional), also in assessment of their effectiveness and explanation of the reasons of their appropriateness and potential space for institutional change. The theoretical background would help in understanding the role of state, private and self-governance styles (network). The experience and theories behind the CPR management is particularly suitable for studying commonly managed knowledge transfer (self-governance), based on networks, knowledge sharing, any level of cooperation of different stakeholders (e.g. farmers and their representatives, advisors, researchers).

2.3 Research questions relevant to AgriLink

The first level research questions (derived from the proposal directly):

1. What are the roles of a wide range of advisory organizations (and other actors) play in farmers' decision-making?

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[1] Hess, Ostrom (2001)

2. What changes are necessary in order to enhance contribution of advisory organizations to learning and innovation in sustainable farming?

Second level research questions:

1.a What are mechanisms and dynamics of farmers decision making on sustainability issues in farming?

1.b What are factors influencing farmers decision making on sustainability issues and what is the role of advisory services in this process?

1.c What are the factors influencing the effectiveness of advisory organisation in providing advice to farmers deciding on sustainable issues? (factors/variables are listed in the SES literature and should be adapted, e.g. governance, policies, actors characteristics….)

2.a Under which context are particular governance regimes suitable?

2.b What combination of governance regime should contribute to increase of effectiveness of advisory organisations?

2.c How the context specific (e.g. social context) institutional change should look like in order to enhance effectiveness of advisory organisation in advice provision on sustainability issues?

The research questions could be elaborated to **third level** in order to focus on sufficient details.

For example for 2.c.a it could be: "What and how technological change can help to institutional change in favour of advisory services effectiveness?" (e.g. IT)

2.4 Methodological implications

Methods from institutional analysis and policy analysis are commonly applied while taking into account systems approach and interaction of social and physical world. Methodology can help to assess effectiveness of governance, to assess the role of policies in advice provision, to define proposals for institutional change in advisory systems, while taking into account frequently overlooked factors such as social capital or property rights. Research methods could be desk-based review of documents to understand individual and collective actors' roles in the system and in the governance of the system combined with qualitative research (e.g. based on interviews) to get in-depth insights into how the system is governed, what are the power relations, influences, processes, outputs and outcomes etc. The most frequent format is in deep case study approach.

Case study survey (WP 2) can use the framework to reflect the complexity of the studied subject. Also study of governance (WP 4) could be guided by this approach (e.g. the SES gives to governance place and its relations to the other parts of the system studied). It would help to ensure that all components in the system (e.g. history/ legacy of previous arrangements, individual working relationships, etc.) are considered that might have an influence on its performance. Finally work-package assessing the advisory systems and defining the conclusions/suggestions for change could also benefit (WP 5), because the SES provides for example framework for a design of criteria of the system assessment. It means assessment of its all subsystems, for example policies and governance, flow of information and advice as outputs of the system, actors and their relationship, "production and processing" of information, and complex action situation in which all transactions happen.

2.5 Strengths and weaknesses/Sensitivities regarding use

Strengths:

The framework provides an excellent structure for assessment of complex situations while taking into account thematic areas including several disciplines in systematic and systems approach.

The framework/approach gives good ground for studying cooperative efforts in advisory service (e.g. agreement of farmers or farming organisations on common approach in "production" and dissemination of knowledge, sharing experience and knowledge between farmers).

Approach provides common theoretical framework for assessment of roles of institutional environment, social settings (e.g. social capital) in the transactions of knowledge, and also actor assessment, property rights regimes and their role in effectivity of different governance styles and to the action situation in which different actors participate on the transaction (i.e. creation and transfer of knowledge). The approach offers a possibility to assess suitability of current governance styles or types to particular stages and factors of the knowledge transfer (e.g. appropriateness of private or state governance) given social settings and particular institutional arrangements in particular country/region.

As it is approach not used in AKIS research widely, its use can bring new insights to the topic.

Weakness:

The use of the approach is quite demanding especially for those who are new in that approach.

2.6 Potential operational problems

The distinction between institutions and governance structures is not straightforward

When there is ambition to go deep in the topic, the data collection and especially drawing the reliable conclusions are quite demanding tasks. It is because the framework reflects complex situations in quite systematic way and needs to be used in a creative way, because the right use of the framework is context specific (Ostrom 2010).

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