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RESHAPING RURAL EXTENSION: EMPHASISING SOCIAL LEARNING PROCESSES AND STAKEHOLDER DIALOGUE

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ABSTRACT

The paper presents the conceptual foundations and practical tools of the integrative 'Learning for Sustainability' (LforS) extension approach. This approach aims to facilitate sustainable rural development by emphasising both productive themes that directly generate income or added value (e.g., by increasing efficiency or improving yields), and themes that give priority to maintaining the production base, sustainability and security. At the centre of the LforS approach is a continual process of knowledge exchange and mutual learning of local and external experts, which is based on local knowledge and expertise integrated with external knowledge and experience, thus providing a sound basis for local innovation.

KEY WORDS: *SUSTAINABILITY, SYSTEMIC APPROACH, LOCAL INNOVATION*

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INTRODUCTION AND OBJECTIVES

The main problems of agriculture relating to sustainable development are well-known. The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) demonstrates the need to focus on small-scale farmers in order to enhance sustainable rural development.

Sustainable rural development requires greater coherent action of stakeholders at all levels. A main hindrance to coherence lies in the main actors' different perceptions of agriculture, land management and related problems. Joint learning processes involving local resource users, farmers and external agricultural experts, institutions, policy, extension workers and researchers are needed to bridge this gap in perception and understanding. Both the informal and implicit knowledge of the local population and the scientific and formal knowledge of external experts and researchers must be tapped, valorised and integrated to reduce the risks and possible external social and ecological damages associated with agriculture. Extension services have an important role to play in this process of joint learning and knowledge exchange.

This paper presents the conceptual foundations and practical tools and methods of the 'Learning for Sustainability' (LforS) approach for interaction in favour of sustainable development which was developed by the Centre for Development and Environment (CDE), University of Bern, Switzerland in collaboration with its partners. *Reshaping Rural Extension. Learning for Sustainability (LforS) – An Integrative and Learning-Based Advisory Approach for Rural Extension with Small-Scale Farmers* (Gabathuler *et al*., 2011) is based on the results of 15 years of action research within CDE's programmes in Africa, Asia and Latin America, as well as earlier rural development programmes implemented by Swiss development actors. The methods and tools have been tested in numerous workshops and on other occasions, especially in Mongolia and Mali.

Theoretical background and conceptual basis

LforS is based on a systemic concept of sustainable rural development, which integrates ecosystem services and the socio-economic context. Although focusing on the local level, it also considers the institutional and economic framework at regional, national and international levels. The multiple LforS tools were designed on the basis of this concept. These different tools and instruments serve to stimulate the joint learning process of local and external experts, which is based on local knowledge and expertise integrated with external knowledge and experience. The systemic approach of Churchman (1979) is the conceptual basis for integrating disciplinary and sectoral views and contributions to understand the interrelations of agro-ecosystems and human systems.

LforS is a learning-based extension approach that emphasises collaborative learning and uses a solid design of the learning process. It is based on Ruth Cohn's (Cohn, 1976; Kuebel, 2002) concept of 'theme-centred interaction' (TCI) to foster equal interaction between socially and economically unequal actors. The development of the LforS approach was influenced by the work of the Latin American pedagogue Paulo Freire (1972; *Pedagogy of the Oppressed*), Carl Rogers (1969; Client-centred counselling), Thomas Gordon (1982; Leader effectiveness training) and Robert Chambers (Chambers *et al*., 1989; Farmer first). In addition, important stimuli also came from participatory rural appraisal (Chambers, 1994) and its further development into participatory learning and action and the livelihood approach.

DISCUSSION

Towards an integrative approach to extension

Critical assessment of the development of extension services from the perspective of small-scale farmers presents a rather negative overall picture. Developments in recent decades in many developing and transition countries have presented new opportunities (e.g., new markets, opportunities for free exchange of opinions and participation in decision-making processes, access to information). People with access to global networks now have opportunities to organise themselves in order to achieve common

goals. Most small-scale farmers are not in a position to take advantage of these opportunities, because of their limited access to information, technical know-how and experience. Their economic marginalisation is increasing because of the success of investment in commercialised agriculture based on industrialised techniques and scale. Many donors and governments have cut back on the extension services they offer to small-scale agriculture in order to support allegedly more profitable value-added chains.

In light of this situation, we are aware of the political dimensions and the need for change at the different levels of decision-making; nevertheless we attempt to summarise the new challenges of an integrative approach to extension.

Challenge 1: Designing an extension approach

An integrative approach to extension should be based on fundamental values – for example, with respect to the question of dealing with hierarchies, social inequities, differing points of view and different interests, and use of natural resources. Questions of communication among partners and of how to establish relationships between extension agents and the beneficiaries of extension must also be clarified. In connection with this, for instance, principles for shaping negotiation, learning and decision-making processes, as well as modes of communication and conduct, must be defined. Methodological and didactic procedures need to be designed.

Stakeholder dialogue is a possible alternative to the prevalent top-down and bottom-up approaches. It allows endogenous and exogenous problem-solving approaches, as well as options for using existing and new opportunities, decided upon and co-ordinated with local actors. To increase the effectiveness of extension, new experiences and know-how on the design of learning processes and communication flows should be exploited.

Social learning processes that build on the knowledge and experience of the learners strengthen mutual trust and cooperation among the actors involved and improve group competence. The role of the extension agent is as a facilitator of autonomous learning processes and a transmitter of new knowledge.

The livelihood approach heightens the perception of the farm and household as a social and economic unit that is in continual interaction with the social, economic and ecological environment, and allows problem-solving approaches to be matched to the specific needs of farms and households.

The impact of extension can be optimised by adapting the extension approach to the needs, psycho-social conditions, cultural and social reference system and prevalent learning strategies of clients; and by promoting value-adding synergies through better co-ordination of investments made by farms, households and communities with investments made at regional and national level.

Challenge 2: Determining relevant extension themes

Attractive themes that are relevant to clients are the core of agricultural extension. Extension services should be capable of recognising and anticipating problems, potentials and opportunities in their wider context, and be able to communicate these to the recipients of their services and establish their connection with potential extension themes. The themes dealt with should be designed in such a way that they are also relevant to farms, households and communities with little income and few resources.

Extension should not only focus solely on increasing agricultural production or maximising economic profit, but must also consider issues such as resource conservation and social well-being. Such extension themes help to maintain the basis of production, while production-based themes increase the value added. The two types of investment should be correlated and linked in such a way that value-added synergies can develop.

Resources for new investments can be released by optimising expenses at the farm, household and community levels. Agricultural extension themes should not concentrate only on boosting agricultural production, but include options for optimising costs.

Budget counselling, for instance, can often identify options for reducing costs (e.g., by lowering energy costs, using available resources more efficiently or organising collective transport or purchase and sale of products).

Agricultural extension can help to reduce the growing pressure on natural resources and create jobs by developing new opportunities for income-generation, such as the processing and marketing of farm products (alternative livelihood options).

Challenge 3: Improving the conditions for implementing extension themes

Secure access to resources, legal security, political stability with transparent processes and structures, access to services and good infrastructure are important prerequisites for the implementation and sustainable impact of extension themes.

The beneficiaries of extension must become familiar with market mechanisms to function properly in the marketplace and allow decision-makers to establish advantageous framework conditions. They must have access to relevant information about supply and demand, price fluctuations, new opportunities, niche markets, etc. Extension can help small-scale farmers to gain better access to markets.

Access to favourable terms of credit are important as they enable farms, households and communities that have few resources to finance investments in extension activities, and they can also trigger development dynamics on their own.

Challenge 4: Co-operation among beneficiaries

Successful implementation of extension themes requires close cooperation among clients, whether the goal is to save costs (e.g., use of common resources such as water or pastures) or to optimise problem-solving approaches (e.g., integrated watershed management). Extension themes on organisational development help to foster cooperation among partners. Problems that are beyond the capacity of individual farms, households or communities to manage can be resolved or mitigated using locally available knowledge, experience and capital.

Conflicts, such as those over access to natural resources, can be avoided or at least reduced by a well-moderated stakeholder dialogue that facilitates negotiation of appropriate problem-solving approaches. Every extension approach should allow for the possibility of conflict management.

Challenge 5: Development and organisation of extension services

The development and internal functioning of an extension service have an influence on extension activities. A working atmosphere that is organised in a participatory, accountable and creative fashion will generate an extension service that cooperates well with its clients.

Challenge 6: Knowledge management

Agricultural extension lies at the interface of research and implementation. Effective linking of extension and research and good organisation of knowledge management benefits everyone concerned.

Negotiation of development goals and extension themes requires reliable information. Research findings related to economic, social and ecological trends (e.g., pricing trends, migration, the condition of natural resources) are indispensable for successful stakeholder dialogue.

Extension service clients and extension services, as beneficiaries of research findings, must be fully included in participatory and transdisciplinary research activities. These activities encourage innovative thinking and give impetus to new learning processes.

Research findings on successful livelihood and community strategies are especially important for integrative extension that takes account of an entire farm or household.

Challenge 7: Training of extension agents

The challenges will continue to increase in the future, given the growing demands on natural resources, intensifying environmental problems, and population growth. Inadequate training of many extension agents, decision-makers and clients is undoubtedly the limiting factor in the development and expansion of competent

extension organisations and successful implementation of extension themes. Depending on the subject, point in time and target group, training may consist of awareness-raising and capacity-development. Special training efforts are needed at the level of local decision-makers, such as farm and household heads, people with political responsibility, administrative officers, technical service providers and staff from non-governmental organisations (NGOs). These actors must be familiar with complex dynamic conditions so that they can develop appropriate solutions to problems and take decisions competently.

Meeting these challenges calls for an integrative, learning-orientated extension approach that builds on societal learning processes in order to promote group competence among local actors. Extension agents must be trained in themes, methods and pedagogy so that they are able to fulfil their demanding tasks.

Extension as a learning-centred process

There are two main actors in agricultural extension: the extension agent and the client, with the latter sometimes consisting of a group of people. As a rule, the extension agent supports the client in clarifying a problem that the client often perceives only vaguely. The task of the extension agent is to support the clients so that they can describe the existing problems clearly and use this as a basis to independently formulate goals and problem-solving approaches. In the final analysis, extension thus means supporting the clients in an autonomous learning process. Extension agents must accordingly have adequate knowledge to be able to shape learning processes of this sort.

Extension agents who work with heterogeneous learning groups must fundamentally change their perception of their role. They are no longer primarily transmitters of new knowledge, but facilitators who encourage the group learning process through structuring, combining, providing methodological–didactic support, and purposefully incorporating new information. An important share of the knowledge and experience comes from the learning group itself and can be complemented by new information from the extension agent, depending on the theme. The members of the learning group are not in competition with one another, but cooperate to learn together and to implement what they have learned in the interest of the group (i.e., social learning). When a heterogeneous learning group is competently led by an extension agent, it is possible to address even potentially contentious issues – such as different uses of a resource by different parties – even though the members of the learning group represent different views of, and interests in, the issue. Doing this increases the prospect that a common solution can be found that is acceptable to all parties.

LforS puts particular emphasis on the design of the learning process. This is a permanent process that extends throughout the entire extension cycle, from the stakeholder dialogue and awareness-raising workshops, to participatory monitoring and evaluation. Learning and implementation results are equal concerns in the LforS approach. The important goals in a learning process based on LforS are:

- making the points of view and specific interests of the various actors involved transparent and thereby strengthening mutual understanding and trust
- promoting common understanding of problems and developing common problem-solving approaches
- learning from mistakes and using them as a motivation for making improvements
- anchoring ownership of, and accountability for, implemented measures among the actors involved
- strengthening independent and accountable action by involved actors.

To achieve these goals, the LforS approach gives priority to learning methods that foster active and collaborative learning.

Stakeholder dialogue, social learning processes based on the knowledge and experience of those doing the learning, active learning methods and participatory monitoring help to anchor ownership among the beneficiaries of extension.

Components of the learning-based LforS extension approach

The LforS extension approach comprises seven fields of activity (Figure 1): three basic components (horizontal boxes) and four activity lines (vertical boxes). The basic components require continual action irrespective of specific extension themes. They create a sound basis and prepare the foundations for the implementation of specific extension themes. The activity lines cover the different extension activities in a narrower sense. Specific extension themes are implemented in the course of an extension cycle, moving through a sequence of theme-specific activities along the four activity lines: awareness-raising, capacity-building, social mobilisation, and monitoring and evaluation.

Table 1 gives an overview of the goals of the single fields of activity and how they will be attained (for a more detailed description of the components see Gabathuler *et al*., 2011).

LforS is a learning-orientated extension approach that gives precedence to collaborative learning. The beneficiaries of extension are empowered to develop and implement their own solutions to problems based on common in-depth understanding of problems, existing potentials and opportunities and their interactions.

Guiding principles for the selection of extension themes

The following important principles have been

TABLE 1: GOALS AND ACTIVITIES OF THE FIELDS OF ACTIVITY OF THE LforS EXTENSION APPROACH

Fields of activity	Goals	To be attained by
Stakeholder dialogue	Negotiation of extension themes. Creation of supporting conditions for effective implementation.	Identification and discussion of specific extension themes to be implemented. Synchronisation with local and regional development goals. Regular multi-stakeholder meetings for co-ordination of development efforts at different levels (household, community, regional, national).
Organisational development	Development of an organisational structure to strengthen cooperation at community level and between farms and households.	Team-building. Development of common rules and organisational structures at local and regional levels.
Knowledge management	Provision of information for the stakeholder dialogue and development of problem-solving approaches.	Collaboration with competent services and research organisations. Exchange of knowledge and experiences among farmers and communities. Synthesise and evaluate (capitalisation of) experience.
Awareness-raising	Promoting common understanding of problems. Developing problem-solving approaches at the local level.	Workshops with local communities: • to raise understanding of ecological, economic, political, institutional and social factors influencing development processes at different levels and their interactions • to identify problems, potentials and opportunities in the local context • to develop adapted problem-solving approaches.
Capacity-building	Imparting methodological and technical information and skills for successful implementation of extension themes.	Training with farmer groups. Selection of relevant extension themes at the village level. Identification of criteria for successful implementation. Practical training and participatory technology development (PTD).
Social mobilisation for implementation	Supporting the willingness to implement extension themes. Providing the resources needed for implementation.	Support for step-wise implementation of extension themes. Competitions among farmers and local communities. Use of incentives and awards for communities that achieve the best results.
Monitoring and evaluation	Quantitative and qualitative assessment of extension themes implemented. Self-evaluation to guide activities.	Monitoring commission at the community level. Participatory monitoring for qualitative and quantitative assessment of implemented extension themes. Internal evaluation of extension approach and organisation. Recommendations for the next extension cycle.

identified and should be considered in shaping extension themes.

The livelihood approach as a starting point

Particularly in the case of small-scale subsistence farms, the farm and the household are not clearly distinguishable from one another. Both draw from the same pool of available resources. Investments at either level will have an effect on the other. For example, poor health among household members can lead to reduced production, or investments in maintaining soil fertility can improve performance of household members because of an improved diet.

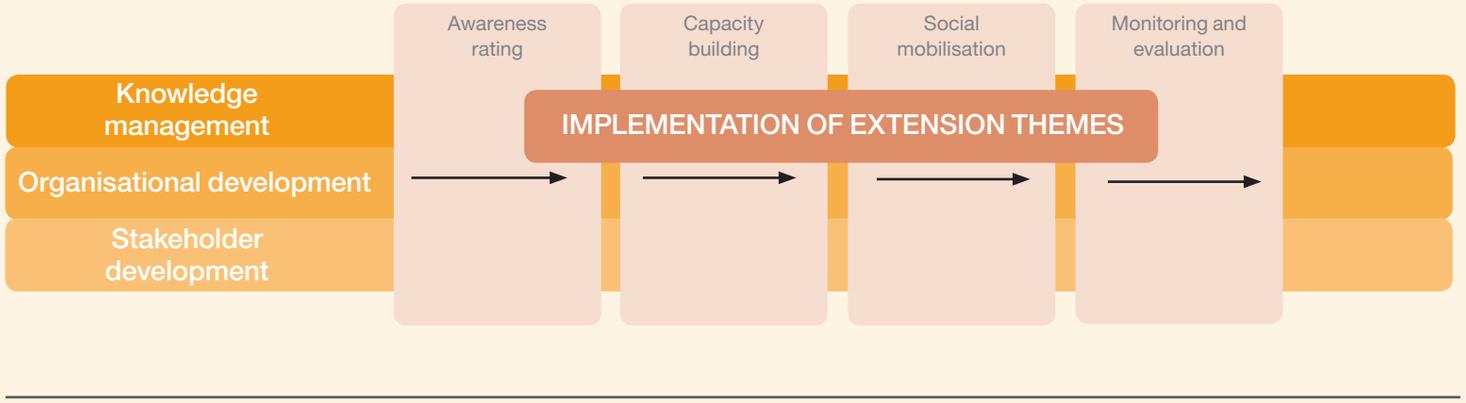

FIGURE 1: THE STRUCTURE OF THE LforS EXTENSION APPROACH

Including different points of view

We usually perceive things that are familiar to us or that arouse our immediate interest. Depending on existing problems, potentials and opportunities, different stakeholders often have selective and different points of view and perceptions. The points of view of other actors are frequently not recognised or acknowledged. Agricultural extension must acquaint clients with less familiar points of view and make these transparent so as to foster solutions that are acceptable to all the partners concerned.

Making needs and requirements visible

Farms and households have very different needs for, and interest in, agricultural extension, depending on their economic circumstances. The more resources an extension theme requires (in the form of investment capital, expenditure of labour, access to natural resources and knowledge for its implementation) the greater the risk that less well-off farms and households will be unable to implement it.

Striking a balance between productive and other extension themes

Extension should not be limited to production-based themes that directly generate income or added economic value (e.g., by increasing efficiency or improving yields), but must also include topics that cover resource-conservation and social well-being, i.e. themes that give priority to maintaining the production base and sustainability and security. Agricultural extension for small-scale farmers must give greater attention to the latter themes, particularly against the background of increasing ecological problems and the need to find alternative sources of income. Thus, while composing the supply of extension themes and topics, production-based and other extension themes should be balanced according to the given ecological, economic and social situation in the region. This balance must be continually readjusted depending on prevailing circumstances.

Considering direct or indirect solutions to problems

Solutions to problems derived from a direct causal relationship (cause–effect) are not always the most effective. It is often worth exploring an issue thoroughly in order to find adequate, efficient and innovative problem-solving approaches. Land degradation in areas with cold winters, for instance, may be more efficiently combated by insulating houses and through more efficient use of biofuels (and reduced demand on vegetation cover), than using labour intensive soil conservation measures.

Innovation: finding alternative solutions
Conditions such as established conventions, customs, traditions and laws, are usually not immutable. It is therefore also worth seeking solutions outside the given framework of conditions. This can lead to innovation and frequently to promising extension themes.

Finding synergies that generate added value
An extension theme (e.g., production of manure in animal stalls) combined with a second theme (e.g., planting grass strips to protect against erosion) can produce additional beneficial synergies (e.g., in addition to soil conservation and improvement of soil fertility). The grass strips, for instance, produce additional fodder that can be fed to animals in stalls, and the strips are protected against degradation by animals.

Tools and methods used in the LforS approach

Attractive tools not only improve understanding of extension themes, but also promote independent, proactive and creative thinking on the part of participants. Ownership of the problem-solving approaches that emerge from such learning processes is anchored with the participants. The LforS approach uses methods and tools that meet the following requirements:

- Including different levels (mainly local, regional and national) in considering problems, potentials and problem-solving approaches
- Identifying and considering interactions between extension themes and other important development factors
- Making prevailing trends and dynamics understandable
- Supporting development of appropriate and innovative technical or organisational and institutional problem-solving approaches
- Presenting problem-solving approaches clearly
- Promoting assimilation of what has been learned through appropriate didactic methods (adaptation to cultural and social conditions)
- Actively including those who are doing the learning
- Promoting dialogue and exchange of experience among participants
- Strengthening formation of groups and empowerment in communities.

Numerous methods and tools are used within the LforS approach (Gabathuler *et al.*, 2011), some of which are already widely used among PRA practitioners; others have been developed by the authors (Table 2).

Integrated in awareness creation and capacity-building, games are used:

- To introduce a new topic – as they convey an initial overview of relationships, links and dynamics, and make complexity easier to grasp
- To identify key aspects for training – as the course of the game and the debriefing reveal already acquired knowledge as well as gaps in knowledge
- To create a common reference framework (the shared game experience) for subsequent discussions
- To test knowledge newly acquired in a training course.

CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

Goals and success factors

The goal of any advisory agricultural extension service is to support clients in finding solutions that will have a sustainable impact and to implement these solutions on their own.

This can be achieved through appropriate support in six core areas of extension:

- Recognition and comprehension of existing problems (awareness-raising)
- Negotiation and planning of local and regional development goals that are the focus of extension (stakeholder dialogue)
- Development of appropriate problem-solving approaches (capacity-building and knowledge management)
- Implementation of appropriate solutions (social mobilisation and advice during implementation of extension themes by clients)
- Assessment of results achieved (monitoring and evaluation)
- Empowerment for independent action (organisational and institutional development).

TABLE 2: OVERVIEW OF TOOLS AND METHODS USED IN THE DIFFERENT FIELDS OF ACTIVITY OF THE LforS EXTENSION APPROACH

Fields of activity	Tools and methods (examples)	Objectives
Stakeholder dialogue	Regional stakeholder workshop (2–3 days; all concerned stakeholder groups)	Planning extension themes Team and trust building Fostering mutual understanding of problems Developing common problem-solving approaches
	Future workshop (1–2 days; 3 phases: critique, visions, implementation)	Developing visions for future development Team building Fostering mutual understanding of problems Developing common problem-solving approaches
	Vision mapping	Developing visions Team building, organisational development Anchoring ownership Developing common solutions
	Radio broadcasting	Information and communication Interactive exchange of experiences Social mobilisation
	Public discussion forums	Opinion forming
	Fairs and exhibitions	Exchange of experiences Promote cooperation between extension organisations
Organisational development	Common visions	Trust and team building Strengthening of ownership Developing common rules
	Team-building	Trust building Improving and strengthening cooperation
	Planning workshops	Formulating common goals Strengthening teamwork
	Development of livelihood and community strategies	Reflecting on current strategies Reflecting on conditions Learning about inter-connections Developing innovative strategies
Knowledge management	Data bank	Compilation of results
	Synthesis and evaluation	Documenting successful problem-solving approaches
	Spatial and temporal information	Generation of key information Illustrating inter-connections
	Documenting local experience	Exploiting indigenous knowledge

Communication between extension agents and the beneficiaries of extension and among different stakeholders is important to achieve the goals of agricultural extension. Creating transparency and trust through the establishment of reliable communication flows will increase the chances of achieving the goals that have been set.

Anchoring ownership of the solutions implemented among the beneficiaries of extension is an important factor in the success of agricultural extension. If a client – an individual farm-household or a group – implements a solution without background knowledge or knowing the related advantages and disadvantages, and without taking independent responsibility for it, ownership is likely to remain with the extension organisation and the goals of extension will not be achieved. If clients integrate a solution into their own thinking, action and value system, they will increasingly lay claim to ownership themselves.

Implementation of the LforS approach – experiences and shortcomings

More than 15 years of ongoing experience in developing instruments and implementation of LforS in programmes show an ambiguous or double-edged picture. The success of the approach has been proven by many workshops and other forms of communication such as simulation and learning games (see Box 1) and other training tools. Many experiences confirm that it is possible to stimulate an integrative learning

TABLE 2: OVERVIEW OF TOOLS AND METHODS USED IN THE DIFFERENT FIELDS OF ACTIVITY OF THE LforS EXTENSION APPROACH ***CONTINUED***

Fields of activity	Tools and methods (examples)	Objectives
Awareness-raising	LforS awareness-raising workshops	Recognise viewpoints and interests of other actors Team and trust building Discover inter-connections and dynamics Develop common point of view on problems Develop common problem-solving approaches
	Photo gallery	Establish a personal relationship to the theme
	Cycle diagnosis	Deepen understanding of inter-connections Promote common understanding of problems Recognise risks and potentials
	Simulation games	Experiencing process dynamics at an accelerated rate Forming groups Creating a positive learning atmosphere Creating a common basis of reference
Capacity-building	Participatory technology development	Promoting innovation Testing solutions Learning by comparing
	Photo series on possible extension themes	Identifying relevant extension themes
	Practical workshops	Applying knowledge and practising skills
Social mobilisation	Revolving funds	Facilitating investments Strengthening independent action
	Implementation contest	Promoting implementation of extension themes
Monitoring and evaluation	Participatory monitoring	Quality control Learning from experience
	Internal evaluation	Evaluating extension approach, content and organisation
	Impact monitoring	Identifying the impacts of extension
	Photo monitoring	Documenting results Learning from experience

process when we can fulfil preconditions for creating transparency and trust through the establishment of reliable communication. The experience shows that the current status quo in the educational and agricultural institutions offers little room for fulfilling the preconditions. Specifically, it was and is only possible to bring local and external actors together to learn together in the context of local resource users. The institutional logic does not value such learning because of its power to question the 'scientific' and structural logic of the dominating paradigm.

LforS calls all the decision-makers in those institutions to join the reflection and enhance opportunities for 'Learning for Sustainability', defined as mutual learning by all partners, respecting their rights and without limiting their freedom of thought. Wisdom is not a privilege of institutions.

BOX 1: SIMULATION GAMES

Simulation games are an effective tool for fostering interactive learning processes and particularly suitable for training in communicative and social skills, as well as building problem-solving and decision-making capacity. The games immerse players/learners in a simulated reality that becomes their experimental field. In this simulated, complex reality, the teams playing the game must develop strategies which show interdisciplinary competence, make decisions, negotiate individual and collective interests, and finally – act. Debriefing – systematically reflecting on and evaluating the course of the game – is an integral component and a key to successful integration and transfer of learning.

FIGURE 2: SET OF THE 'LIVELIHOOD AND COMMUNITY DEVELOPMENT' GAME (LEFT) AND FARMERS, LOCAL DECISION-MAKERS AND ADVISORS PLAYING A SIMULATION GAME, PRECAD, MALI (RIGHT)

The 'Sustainable livelihood strategies and community development' game

Target group: stakeholders in community development (farmers, local authorities, local NGOs, etc.)
Number of players: 6–15, subdivided into 3 households
Duration: 3–4 hours, plus a debriefing session of 1-2 hours
Facilitation: by a game supervisor
Material: the game consists of a board, game rules, household investment cards, community investment cards, event cards and a form of money (e.g., different types of grain) (Figure 2).

The game is about developing sustainable livelihood strategies at the household level and at the same time creating favourable conditions at the community level in order to improve well-being and deal with events as they occur. The game links different levels of decision-making and action, i.e., the household and community levels. A coherent and diversified household strategy is needed to deal with events that occur in the social, economic and ecological realms, and to improve a household's well-being.

A successful livelihood strategy combines productive and income-generating activities with investments in social security, education and strategic activities. Communal and individual well-being can be positively enhanced with a concerted strategy for community investment and cooperation among households.

Learning in the game

Learning about risks and opportunities: At the beginning of the game, the facilitator explains the different types of activities households might invest in to compose their livelihood strategy, and the possible risks and opportunities (represented by

BOX 1: SIMULATION GAMES *CONTINUED*

event cards) that must be considered and could influence the well-being of individual households or the community.

Learning about resilience by diversification:
By developing an appropriate strategy, households seek resilience to various types of events while improving their economic and social situation, without neglecting ecological conditions. Households have to find a balance between investments in productive, income-generating activities which result in direct returns, and strategic investments in well-being, security and intensification measures which do not generate any direct returns, but can reduce or reinforce the effects of 'events' in the dynamic context (simulated by the 'event' cards). Wise and concerted strategic investments help to reduce risks and adverse effects of some of the events or can even reinforce the positive effects of other events. Generally, neither a one-sided nor a dissipated strategy is successful, as the former lacks resilience and the latter lacks coherence.

Learning about creating coherence between individual and collective strategies:
Together, the households constitute the community. The annual general community meeting (GCM) provides an opportunity to create a general organisation at the local level that is more or less favourable to the strategies that households pursue. The development of a community investment strategy, to be implemented by the GCM, and successful co-ordination among households will allow players to optimise their investments at the household level. The household that owns the most assets at the end of the game wins.

Learning about external influences:
Political and economic decision-makers, and ecological and socio-cultural framework conditions are each represented by event cards that describe an event and its specific implications.

Learning by confronting and comparing with real life situations:
Players participate very actively and find themselves confronted with different types of decision-making related to the reality of their daily lives. Reflections on the course of the game continually refer to the real life situations of the participants.

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