

# Assessing Social Innovations in Agricultural Research and Development Partnerships<sup>1</sup>

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## Abstract

There has been a move from output assessment of international research and development interventions (input >> activities >> outputs) to include outcome assessment (outputs >> outcomes >> impacts). Outcome assessment emphasizes the impacts of interventions on social goals, such as poverty reduction, social inclusion and environmental protection. While this shift broadened the scope of monitoring and evaluation literature to address social change, systems of innovation thinking, particularly in rural development and agriculture, informs that the dominant paradigm of impact assessment should be complemented by social innovation assessment (SIA), providing research and development actors with critical learning lessons. Although the system of innovation framework has appeared as a relatively more holistic learning framework, analytical and methodological techniques to assess innovation performance, specifically social innovation performance are still emerging. To this end, this paper integrates two distant bodies of literature – the literature on impact assessment of research and development interventions, and the literature on social psychology of assessing learning and innovations. Based on case studies on stakeholder collaboration for innovations in rice and mango, respectively in Nepal and mango, this research identified critical incidents that helped or hindered learning and innovations during the decade-long interventions under the DFID’s Renewable Natural Resources Research Strategy (RNRRS) programme between 1995 and 2006. Based on this qualitative study, an innovation assessment tool was developed in the form of a structured questionnaire. The questionnaire includes statements about the critical incidents and mode of stakeholder interactions to be ranked on a four point scale depending on how often the statements apply to the respondents’ current organizational environments. The SIA provides critical learning lessons for social innovation generation and overall performance improvement in collaborative agricultural research and development interventions at the organizational, network and system levels.

Key Words: agriculture, systems of innovation, social innovation, India, Nepal, South Asia

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## **Introduction**

The systems of innovation theorists particularly in rural development and agriculture argue that the dominant paradigm of economic impact assessment face challenges to provide critical institutional learning lessons on ways of improving research, development and innovation processes (Hall et al. 2003). Although the system of innovation framework has appeared as a holistic learning-based framework, current methodology to assess learning and innovation performance is still rudimentary, specifically when secondary data are not available. An appropriate research approach in such a new field of study is exploratory case studies (Eisenhardt 1989; Yin 2002). However, the importance of case study research methods to complement the dominant paradigm of impact assessment is questionable until analytical strength, relevance to public policy and relevance to poverty reduction are improved going well beyond the contemporary focus on exploratory case studies (Spielman 2005).

Recognizing the limitation of an exploratory case study technique to complement the dominant paradigm of economic impact assessment, this study integrates case study research methods and survey research methods consecutively to assess stakeholder interactions for learning and innovation. To provide a natural progression from the former to the latter research methods, a third research method, the critical incident technique, was embedded within the case study. This was possible because case study research and critical incident technique are flexible methods, and share common data collection procedures, such as individual interviews, group interviews, direct observation and document analysis records (Flanagan 1954; Yin 2002; Butterfield et al. 2005). Based on the findings of the case study and critical incident technique, a social innovation assessment (SIA) tool was designed and implemented with stakeholders related to rice improvement in Chitwan district of Nepal and mango export from Krishna district of Andhra Pradesh, India. The entry points of these studies involve a series of projects on Plant Science Programme in Nepal and Crop Post-Harvest Programme in India implemented under DFID's 11 year Renewable Natural Resources Research Strategy (RNRRS) programme which took place between 1995 and 2006.

This paper investigates how various mainstream and alternative impact assessment techniques relate with social innovation assessment, and how the latter provides institutional learning lessons to research managers and development workers. A two-stage social innovation assessment process is introduced keeping critical learning lessons in mind. This approach of innovation assessment also value indirect use of assessment results as one of the sources of information in policy processes.

## **From Impact Assessment to Institutional Learning Lessons**

The input-output causal analysis of the economic impact assessment, such as cost-benefit analysis and internal rate of return, considers scientific research and technology development interventions as precedent of innovation and entrepreneurs. Outputs are patents or publications, the intermediate indicators of innovation. Industry partners or

rural communities adopt technology developed by the research systems towards enhancing economic growth through increasing productivity, maximizing social inclusion and minimizing environmental damage. A linear results path (input >> activities >> outputs >> outcomes >> impact) seldom exists in complex systems with which humans commonly deal. Various systems approaches, the systems of innovation being one of the latest derivatives of systems thinking, have appeared since the second half of the 20th century to address the limited explanatory power of conventional economic models that view innovation as a linear process driven by the supply of scientific research and technology development (Hall, Mytelka and Oyeyinka 2006).

### ***From attribution to contribution***

Since impacts result from interactions among a number of actors and factors in complex systems, attribution of impacts to an individual agent or a single intervention provides a challenge.

#### *Actor attribution*

When dealing with complex systems, such as the systems of innovation, the number and types of actors increase making it practically impossible to attribute impacts to an individual actor. For example, as one proceeds out from scientific research, knowledge and technology development, knowledge application and ultimate impacts on social goals, the number and type of actors involved in the process becomes large enough to measure the impact of research successfully (Springer-Heinzea et al. 2003). Scholars also agree that it is impossible to demonstrate a causal link between the presentation of research results as outputs, and policy decisions as outcomes, and their subsequent implementation and impacts on social goals, such as economic growth and environmental protection (Gijsbers et al. 2001; Pestieau 2003). This challenge has become more apparent in participatory research and technology development as different groups, including researchers, development activists, extension agents, policy makers, irrigation engineers, farmers, input suppliers, and market agents, may all claim that the positive impacts resulted from their activities (Springer-Heinzea et al. 2003; Lilja and Dixon 2008).

In complex systems, impact assessment should move beyond establishing results path *per se* and addressing the institutions that facilitate assessment of impacts at the network and system levels. The relevant parameters to study involve the rules for generating, collecting and sharing information, financing procedures, intellectual property-rights regulations and availability of human and financial resources (Ekboir 2003). New actors in the system must also be exposed to the role of local, national and international media (Hambly Odame 2003). Therefore, networking and linkages are becoming more important for social innovations, and attributing impacts to an individual actor within complex evolving networks of actors can easily be problematic (Horton et al. 2003).

### *Factor attribution*

Since a multitude of factors influence the impacts of research and development interventions, impact assessors must document a much broader range of factors contributing to two or more impacts (Lilja and Dixon 2008). Agricultural development, for instance, is influenced by many factors including technology, information, policies, markets, infrastructure and weather, and should contribute to a diverse long-term goals, such as poverty reduction, social inclusion and environmental protection (Springer-Heinzea et al. 2003). Since many factors influence systems performance, impact assessment should be conducted from systems perspectives – evolutionary and path dependent nature of technology, frequency and mode of interaction among diverse types of actors, such as public and private researchers, input suppliers and produce buyers, and small and large-scale entrepreneurs, and external forces, such as market and non-market institutions (Nelson and Winter 1982; Nelson 1987; EIARD 2003; Ekboir 2003; Springer-Heinzea et al. 2003).

The problem of an attribution gap is compounded by the evolutionary nature of technological and institutional change because impacts are often a result of number of actors and factors, and appear many years after an intervention is completed (Kuby 1999; Douthwaite et al. 2003). To this end, the Outcome Mapping technique developed at the International Development Research Centre (IDRC) of Canada documents the ways various actors and factors contribute to change rather than trying to attribute change to a single actor, factor or intervention (Smutylo 2001).

### ***Towards alternative analytical and methodological techniques***

Scholars are well aware that impact assessments and other kinds of evaluations are utilized neither in the policy process nor in institutional learning lessons for change management. There can be four intended use of evaluation results – direct use in operational decision making, indirect use in policy process, symbolic use to demonstrate of accountability and process use that brings behavioural and cognitive change through participation of managers, scientists and other stakeholders in the evaluation process (Horton et al. 2003; Mackay and Horton 2003). Scholars argue that impact assessors in the international agricultural research and development community may be looking for direct use in policy processes where indirect use is appropriate and indirect use in operational decision making where direct use is appropriate (Mackay and Horton 2003). In other words, evaluation results are just one source of information in policy process while the results can be one of the meaningful sources of information for operational decisions and change management.

Scholars have moved beyond conventional territories of impact assessment to foster learning and change adapting alternative methods, such as outcome mapping (Armstrong et al. 2000; Earl, Carden and Smutylo 2001; Smutylo 2001), impact pathway analysis (Douthwaite et al. 2003; Springer-Heinzea et al. 2003), results-based management (Pestieau 2003; Kusek and Rist 2004), innovation histories (Hovland 2007; Biggs 2008; Watts et al. 2008), appreciative inquiry (Guijt 2007; Hovland 2007; Ochieng 2007; Biggs 2008; Watts et al. 2008), social network analysis (Brock 1999; Krishna and

Shrader 1999; Scott 2000; White 2002; Hovland 2007; Watts et al. 2008), most significant change (Guijt 2007; Hovland 2007; Watts et al. 2008), listening narratives (Guijt 2007), and episode analysis (Leksmono et al. 2006; Hovland 2007; Hall, Sulaiman and Bezkorowajnyj 2008a).

Explanation of some of the above impact assessment and evolution methods illustrates how scholars have moved from economic impact assessment to institutional learning lessons. Here three relatively common methods are considered for illustrate purpose. First, while recognizing the results paths (Inputs>>activities>>outputs>>outcomes>>impacts), outcome mapping considers results as behavioural change – change in knowledge, attitude, skills and actions (Armstrong et al. 2000; Earl, Carden and Smutylo 2001; Smutylo 2001). The reason for viewing outcomes as changes in behaviour is to stress that development's primary concern to improve the way people behave towards each other and with the environment. Outcomes are logically linked to long-term sustainable development goals – economic growth, social inclusion and environmental protection. Outcome mapping well recognize that these long-term goals are influenced by unexpected and/or uncontrollable factors. However, outcome mapping intentionally limits planning, monitoring and evaluation of results to outcomes which are within the sphere of influence of an organization and to the strategies it uses to work towards achieving those outcomes (Smutylo 2001).

Second, impact assessment scholars at the German Agency for Technical Cooperation (GTZ) propose a two-stage impact assessment approach called impact pathway analysis (Douthwaite et al. 2003; Springer-Heinzea et al. 2003). In the first stage, an intervention is expected to create results paths to see how the intervention aims to achieve results. Then the results paths or impact pathways are used to guide interventions in complex systems. The impact pathway may evolve over time based on learning and critical reflections. In the second stage, an *ex post* assessment of benefits of interventions are done establishing links between the project outputs and developmental changes, such as poverty alleviation. Since the design of an impact pathway is kept open for revision, and is expected to evolve over time, it can accommodate the socially constructed views of different stakeholders incorporating information from a variety of sources and methods and repeating this process as needed (Springer-Heinzea et al. 2003). In an effort to link implementation of activities with long-terms results (outcomes>>impacts), impact pathway analysis well recognize that the implementation (inputs >>outputs) is internal to a project or programme, and is often under its control. However, the other processes (outputs>>outcomes>>impacts) are external to an intervention (Springer-Heinzea et al. 2003).

Third, with increasing demand for accountability, public and private sector organizations have increasingly adopted results-based management (Pestieau 2003; Kusek and Rist 2004). Results-based management attempts to link inputs with outputs as well as with outcomes and impacts. The results of an organizational performance assessment provides learning lessons to results-based management (Peterson, Gijbsbers and Wilks 2003). Results-based management is an improvement over conventional compliance evaluation in assessing the effectiveness of project/programme activities, but it does not provide a satisfactory methodology for identifying and observing outcomes in policy processes (Pestieau 2003). In other words, result-based monitoring and evaluation

framework emphasizes direct use of results in operational decision making than indirect use in policy processes.

In conclusion, with increasing aspirations to succeed through participatory and collaborative interventions, impact assessment is increasingly seen as a tool for institutional learning and change (Franzel et al. 2008; Lilja and Dixon 2008). In the CGIAR, for instance, impact assessments and other evaluations are geared primarily to providing information for fund-raising and satisfying donor accountability requirements (EIARD 2003), but institutional learning lessons are rarely internalized although they are often considered desirable (Hall et al. 2003; Watts et al. 2008). In effect, the field of impact assessment is considering behavioural, cognitive and constructivist perception in learning (Hambly Odame 2008).

### **Use of impact assessment results in operational management and strategic capacity development**

The four intended use of evaluation results are direct use in operational management, indirect in policy process, ritualistic use to demonstrate accountability and process use that brings behavioural and cognitive change through participation of managers, scientists and other stakeholders in the evaluation process (Horton et al. 2003; Mackay and Horton 2003). An effective use of evaluation results lies on stakeholder capacity, technological and social, at individual, group, organizational, network and systems levels (Morgan 1998; Horton et al. 2003; Peterson, Gijsbers and Wilks 2003; Morgan 2005). Stakeholder capacity is not just operational, but more importantly adaptive or strategic; the former involves potential to perform day-to-day activities while the latter involves the socially constructed capacities needed for the organization to learn and change in response to changing technological, economic, social and environmental circumstances, including climate change (Horton et al. 2003). Recently, the adaptive or operational capacity is redefined as innovation capacity (Hall 2005) or deep capacity (Morgan 2005).

Stakeholder capacity involves an ability to successfully harness and apply resources and skills at individual, group, organizational, network and systems levels towards achieving organizational goals and satisfying stakeholder expectations (Horton et al. 2003). When individual and group capacities are widely shared among the organization's members and become incorporated into the organization's culture, strategies, structure and management systems, and operating procedures, they become organizational capacities. Likewise, when organizational capacities are widely shared at networks and systems levels, they become systems capacity relevant for addressing long-term social goals like economic growth, social inclusion and environmental protection.

In conclusion, the linear input-output assumptions of economic assessment need to be complemented by an innovation assessment under the realm of the innovation systems framework providing research managers with critical institutional learning lessons (Hall et al. 2003; Hall, Sulaiman and Bezkorowajnyj 2008b). Although impacts of most scientific research are not known in advance, it is recognized that the adaptive capacity of innovation networks has substantial influence on the likelihood of success (Ekboir 2003). In other words, valuable information for research managers, development

workers and entrepreneurs cannot be obtained from one-time measures of outcomes but from continuous monitoring of the processes that produce the outcomes, and provide learning lessons enhancing strategic capacity of stakeholders. It can be argued that behavioural and cognitive learning can and must be supplemented by constructivist approaches to individual, organizational and systemic learning.

## **From Technological to Social Innovation Assessment**

Innovation assessment, whether it is technological innovation or social innovation, is an important process of managing change in organizations and systems. Technological innovation assessment is usually done using indicators and is relatively straight forward than social innovation assessment.

### ***Technological innovation assessment***

The classical study of innovation assessment is Everett Rogers' (2003) analysis of the diffusion and adoption of hybrid maize in the United States. This study reported an S-shaped innovation diffusion curve representing the number of farmers adopting hybrid seed over time. The diffusion of innovation first increases at increasing rate and then increases at a decreasing rate and finally decreases at increasing rate. Adoption is a bell-shaped probability function, small number of early adopters and laggards falling at two tails. In this study, adoption is an individual process and diffusion is social process involving interaction between early adopters and late adopters. In this case innovation was hybrid maize and counting the number of adopters over time resulted influential results for managing change in agricultural production. Further studies in this area focused on number and time of innovation adoption often, but not necessarily limiting the assessment process for technological innovations (Subramanian and Nilakanta 1996; Damanpour and Schneider 2006). Attempts were also made to assess technical innovations, such as deposit share and return on assets, and administrative procedures, in fields as distant as banking industry and administrative reforms. In high tech industries like biotechnology, counting of products and processes innovations have been used (van Moorsel, Carnfield and Sparling 2005).

### ***Social innovation assessment***

Since most innovation assessment processes focuses on counting technological innovations, this tradition is also common in assessing social innovations. However, there is another body of literature, which introduces a different approach to assessing innovation. This is not counting innovations *per se*, but assessing organizational environment for creativity because creativity climate is the root of all innovations (Amabile and Grysiewicz 1989; Amabile 1996; Amabile et al. 1996; Ekvall and Ryhammar 1999; Kwasniewska and Necka 2004; Mostafa 2005). In this process of innovation assessment, factors that help or hinder creativity in organizations are

determined either from theory, practice or both, and respondents are asked to provide their perception on organizational environment using a Likert Scale.

Organizational performance depends on the interaction of resources they have, processes they involve and values, the criteria employees use when making prioritization decisions (Christensen and Raynor 2003; Christensen, Anthony and Roth 2004). While the performance of novice organizations depends essentially on its resources, the performance of a more consolidated organization depends increasingly on processes and values and less of resources alone. Organizations that are capable of managing change through individual and social learning within an organization and across the system survive in changing environments (Christensen and Raynor 2003). Motivation to learn and adapt changing environments results from both market opportunities as well as non-market institutional arrangements. The latter category of motivations include a range of policies – educational opportunity, infrastructure development, tax and financial policies, policies to foster competition and collaboration among multiple stakeholders – that come under innovation policies.

### **Towards Social Innovation Assessment: A Two Stage Process**

Efforts were made to study the praxis of social innovation assessment using two case studies using a two stage process. The first stage of the social innovation assessment involved case studies of social innovations in the DFID's Plant Science Programme in Nepal and Crop Post-Harvest Programme in India, with specific reference to rice and mango, respectively. The data collection procedure involved semi-structured interview with key informants, focus group interview with farmers' groups, and direct observation of habits and practices of relevant stakeholders, document analyses. The key informant interview more specifically addressed the stakeholder linkages than focus group interview with informal sector participants. The logic behind this discrepancy was that the key informants were directly involved in the partnership projects in question while the focus group participants were not necessarily involved in the specific project activities. A Venn diagram-based tripartite actor map illustrating the public, non-profit private and for-profit private with the rural communities, the informal sector, at the centre served as a visual aid to initiate discussion during the interviews (Pant and Hambly Odame 2006).

In the second stage, a structured questionnaire was drafted based on the findings of the case study. The SIA tool thus developed included questions on background of respondents and his/her organization, organizational environment for learning and innovations. A list of critical incidents that helped or hinder learning and innovations were generated from the analysis of the case study reports. The critical incidents reported by the key informants and focus group interview participants were triangulated against the information from direct observation and document analyses. Based on this information, the researcher prepared a list of statements about organizational environment for innovations to be ranked by respondents along a four point Likert Scale, 1 = 'statement never applies', 2 = 'seldom applies', 3 = 'often applies', and 4 = 'very often applies' to the respondents' current work environments (Box 1). Similar scales were also developed for mode of stakeholder interaction. Although this approach is based

on social psychology of assessing work environment for creativity, creativity as new ways of thinking (Amabile et al. 1996; Ekvall and Ryhammar 1999), this research focuses on organizational environment for learning and innovations, innovation as new ways of doing things. Organizational environment for learning and innovation includes restrictive as well as supportive attitudes, habits and practices of stakeholders (Hall, Mytelka and Oyeyinka 2006; World Bank 2007).

Box 1. Sample questions on the social innovation assessment tool

|   |  |            |                                       |
|---|--|------------|---------------------------------------|
| How often the following statements apply to your current work environments? Please check an appropriate point on the scale.   |  |            |                                       |
| 1 = Never ever,   | 2 = Seldom,  | 3 = Often, | 4 = Very often                        |
| 1   | People in our organization generally know what we are trying to achieve                | <b>1</b>   | <b>2</b> <b>3</b> <b>4</b><br>○ ○ ○ ○ |
| 2   | People in our organization believe that the usual way of doing things is the right way | ○          | ○ ○ ○ ○                               |
| As a part of your current work assignments, how often you practice the following modes of interactions with other formal sector organizations? Please check an appropriate point on the scale.  |  |            |                                       |
| 1 = Never ever,   | 2 = Seldom,  | 3 = Often, | 4 = Very often                        |
| 1.  | Interaction as a member of a committee, board, etc                                     | <b>1</b>   | <b>2</b> <b>3</b> <b>4</b><br>○ ○ ○ ○ |
| 2.  | Interaction through joint publications/reports   | ○          | ○ ○ ○ ○                               |
| As a part of your current work assignments, how often you practice the following modes of interactions with rural communities (farmers' informal groups, community groups, individual farmers)? |  |            |                                       |
| 1 = Never ever,   | 2 = Seldom,  | 3 = Often, | 4 = Very often                        |
| 1.  | Interaction as a member of a committee or board  | <b>1</b>   | <b>2</b> <b>3</b> <b>4</b><br>○ ○ ○ ○ |
| 2.  | Interaction through joint publications/reports   | ○          | ○ ○ ○ ○                               |

The SIA tool thus designed was pre-tested with scientific staffs from both public and private organizations. After pre-testing, a few statements about work environment for innovations, which were related to hierarchy in an organization, and a question about background of an organization, which was related to hierarchy in decision making process, were deleted from the questionnaire. The respondents of the pre-test sample

denied to respond to these questions and suggested not to ask such questions as the hierarchical culture is predominant in formal organizations and rural communities in South Asia with very few exceptions. They also suggested keeping the name of the respondent and name of the organization explicitly optional to report by the respondents' choice. Given the sensitive nature of the information being sought in the questionnaire, as the respondents argued, it was advised to keep the respondent and their organization anonymous. However, in the actual survey most of the respondents willingly mentioned their name and the organization with which they work.

The SIA tool was administered with scientific staff from twenty four organizations that were directly or indirectly related to the commodity specific partnership projects in Nepal and India, rice and mango respectively. Altogether 11 organizations in Nepal and 13 organizations in India related to these commodities were purposively selected for the survey. The organizations include agricultural research institutes, research and development organizations from the public and non-profit sectors, agricultural extension offices, agricultural universities and farmers' organizations. The respondents indicated that the main mandate of these organizations were research, teaching, extension and social mobilization, and entrepreneurship. None of the respondents from these organizations identified policy making as their main mandate. However, the scientific staff from the public sector organizations mentioned this function as their second or third mandate.

Since these organizations were mutually exclusive strata, stratified random sampling with proportionate allocation within an organization was employed to select respondents from respective organizations. Stratification could also be done with the mandate of the organization, but the researcher did not determine the organizational mandate *a priori*. It was relevant to see how respondents identify their mandates. A list of scientific staffs currently working in the organizations was acquired from the official records of respective organizations. The aggregate sample size was 165, which is 30 per cent of the total scientific staffs in 23 organizations. Although the SIA tool was originally indented for administration in an interview mode, the research followed a mix approach to comply with the organizational culture and tight schedule of the scientists. Unless respondents specifically asked to self-administer the questionnaire, interviews were conducted to administer the questionnaire. The higher the level of education, the greater the preference of respondents to self-administer the questionnaire. Likewise, those who are in the authority preferred to self-administer the questionnaire. In the latter case, the respondents and researcher worked through the completed questionnaire to check the things went well. In most cases, the respondents initiated this process of validating the responses on their own.

Depending on the level of sophistication desired, the data generated through social innovation assessment can be analysed using a mix of qualitative and quantitative techniques (Table 1). Data from case study and critical incident techniques can either be done manually or using qualitative data analysis software. Evaluators can choose quantitative data analysis technique at different levels of statistical proficiency and appetitive for quantifying results. Beginners can complete their analysis presenting the results in the form of summary statistics, such as mean, median, mode and standard deviation. Intermediate practitioners of statistical methods can try multiple regressions, factor analysis, and some other more sophisticated multivariate data analysis techniques.

However, most multivariate techniques does not allow for analysing feedback effects that commonly occur in complex systems. To address this limitation, structural modelling (SEM) provides an opportunity to assess feedback effects (Hair et al. 2006).

Table 1. Available analytical techniques for social innovation assessment

| <b>Data source</b>                     | <b>Nature of data</b> | <b>Analytical methods</b>   | <b>Available software</b>  |
|--|-----------------------|---|--|
| Case study/critical incident technique | Qualitative           | Matrices and categories   | NVivo  |
| Social innovation survey               | Quantitative          | (a) Summary statistics<br><br>(b) Multiple Regression<br><br>(c) Factor Analysis, Multivariate Analysis of Variance (MANOVA), Multivariate Analysis of Covariance (MACOVA)<br><br>(d) Structural Equation Modelling (SEM) | Any statistical software, such as STATA, SPSS, SAS<br><br><br><br>AMOS, LISREL |

The two stage process of social innovation assessment embeds critical incident techniques into case study research methods, and provides a basis for quantitative data collection in seemingly qualitative phenomenon, such as social innovations. However, this technique does necessarily require advanced statistical methods to analyze the data. Impact assessors interested in social innovation can build on already available qualitative data collection techniques, such as innovation histories (Hovland 2007; Biggs 2008; Watts et al. 2008), appreciative inquiry (Guijt 2007; Hovland 2007; Ochieng 2007; Watts et al. 2008), and most significant change (Guijt 2007; Hovland 2007; Biggs 2008; Watts et al. 2008), and document critical incidents for innovation before they decide to integrate the qualitative and quantitative methods to generate useful institutional learning lessons.

## **Conclusion**

Distinctly there are two bodies of literature that would come together and inform impact assessment and other evaluation techniques employing the framework of the systems of innovation in rural development and agriculture. On the one hand, impact assessors in international agricultural and rural development are opening the ‘black box’ of science to find alternatives approaches to impact assessment increasingly geared towards generating institutional learning lessons to research managers, development workers and entrepreneurs. On the other hand, the literature on social psychology of

creativity and learning provides tools to assess organizational environment for creativity, and these techniques can be adapted to international agricultural and rural development interventions. The social innovation assessment tool introduced in this paper is such an effort to bring these two bodies of literature together and address some of the challenges of impact assessment in complex systems, such as agricultural innovation systems, where multiple actors and factors contribute to long-term impacts of research and development interventions. The SIA procedure is an approach rather than a structured tool because the design of the social innovation survey questionnaire at the second stage depends on the documentation of the critical incidents using case study research methods at the first stage. Another distinguishing feature of this process is to document incidents leading to successes as well as failures. Under the realm of participatory research and development, attributing impacts to a particular actor, such as an initiator of crop improvement project, and to a particular intervention, becomes further challenging. In this case, moving from attribution to contribution of various factors and actors, and generating critical learning lessons to social innovation generation are desirable.

Since the literature on impact assessment has already introduced alternative assessment techniques, such as innovation histories, appreciative inquiry and most significant change, impact assessors would have enough appetite to digest the literature on assessing work environment for learning and innovation, and specifically the critical incident technique. A cautionary note, however, is that social innovation assessment process should move well beyond assessing individual creativity and organizational environment for creativity, and address learning and innovations at networks and systems levels.

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