

On the Impact Assessment of ACIAR (Australian Centre for International Agricultural Research) Projects

John Spriggs, Bob Farquharson and Bob Martin*

Abstract

The current ACIAR (Australian Centre for International Agricultural Research) guidelines for impact assessment of agricultural development projects see impact assessment as being useful for both *accountability to stakeholders* and as a *learning tool* to find out what works, what doesn't work and why. The methodology involves the use of conventional economic evaluation and the estimation of a money metric based on measuring outcomes in terms of economic surplus changes attributable to directed actions and activities. On the question of *accountability to stakeholders*, this paper suggests that the money metric may not be the best outcomes-based measure of performance against development goals and that other performance indicators ought to be considered. The paper also suggests exploring other approaches to assess accountability including qualitative (narrative) methods as well as process-based accountability. On the question of using impact assessment as a *learning tool*, the paper suggests this might be quite useful for more traditional non-adaptive research, but is less useful for adaptive research projects involving participatory action research (PAR). With PAR projects, learning about what works, what doesn't work and why already occurs as an integral part of the research process. The paper concludes with some thoughts about project evaluation of an ACIAR-funded project with which the authors are involved in northwest Cambodia focusing on upland crop production and marketing.

Key words: Project evaluation, impact assessment, adaptive project management, Cambodia.

Contributed paper for the 54th Annual AARES Conference, Adelaide 10-12 February 2010

* John Spriggs is Professor, Australian Institute for Sustainable Communities, University of Canberra (John.Spriggs@canberra.edu.au); Bob Farquharson is Senior Lecturer, Melbourne School of Land and Environment, University of Melbourne; and Bob Martin is Professor and Director of the Primary Industries Innovation Centre, University of New England.

On the Impact Assessment of ACIAR (Australian Centre for International Agricultural Research) Projects

John Spriggs, Bob Farquharson and Bob Martin¹

1. Introduction

The instigation for this paper is an ACIAR-funded project on which we are working entitled the *Cambodian Crop Production and Marketing Project (CCPMP)*. The CCPMP aims to achieve sustainable poverty reduction by enhancing the production and marketing of maize and soybean in north-western Cambodia.² Following completion, the project will need to undergo an impact assessment and so one of our project activities is planning for this eventual project evaluation. As part of our planning, we consulted the ACIAR guidelines which are detailed in Davis *et.al.* (2008) entitled *Guidelines for Assessing the Impacts of ACIAR's Research Activities* and hereafter referred to as the *Guidelines*.³ The purpose of this presentation is to give our thoughts on the *Guidelines* and provide some ideas for possible improvement.

We begin by examining the stated purposes in the *Guidelines* of the impact assessment. This is followed by a brief summary of the approach proposed in the *Guidelines* and then our comments. We then propose some ideas for possible improvement and look at what these mean for the CCPMP.

2. Stated Purposes in the Guidelines of Impact Assessment

The stated purposes of impact assessment are discussed in the *Guidelines* (p. 13). They are

1. To provide accountability to stakeholders, as well as a clear measure of the returns to the funds ACIAR invests.
2. To provide lessons on what works, what does not and why and hence provide a valuable learning tool for project participants and project managers.

It is envisaged that the first of these stated purposes would be achieved by impact assessment made after project completion while the second of these stated purposes would be achieved by impact assessment at various stages of a project, from its conception and design, through to well after completion.

¹ John Spriggs is Professor, Australian Institute for Sustainable Communities, University of Canberra (John.Spriggs@canberra.edu.au); Bob Farquharson is Senior Lecturer, Department of Agriculture and Food Systems, University of Melbourne; and Bob Martin is Professor and Director of the Primary Industries Innovation Centre, University of New England.

² As with most ACIAR-funded projects there is also an Australian component that aims to encourage the adoption of conservation farming practices and summer crop diversity in north-eastern Australia.

³ An electronic version of Davis *et.al.* (2008) may be found at: <http://www.aciar.gov.au/publication/IAS58>.

3. ACIAR's current approach to impact assessment

ACIAR's current approach to impact assessment is summarized in the *Guidelines* (p. 15) as:

... to trace the way in which the research leads to changes in the world ... The process of tracing through the causal links between the research and the ultimate impacts is sometimes referred to as 'results mapping' or 'pathway analysis' ... With these impact pathways identified, impact assessment takes place within a benefit-cost analysis that explicitly uses the broad theories of applied welfare analysis (through the concepts of economic surplus) to value inputs and outcomes.

Thus, the focus of ACIAR's approach to impact assessment is benefit-cost analysis using the concepts of economic surplus. In undertaking these impact assessments, the *Guidelines* proposes 3 different levels of study to be undertaken. They include:

1. *Desktop studies* to be undertaken by ACIAR staff during the life of the project using subjective assessment;
2. *Adoption studies* to be undertaken by principal researchers 3 years after completion of the project using evidence-based assessment; and
3. *Full impact assessments* to be undertaken by external consultants 4 to 10 years after completion of the project using quantitative assessment of costs and benefits

To implement this approach, the *Guidelines* (p. 21) proposes that impact assessments involve 8 steps as in Table 1 below.

Table 1: Eight Steps to Impact Assessment in the *Guidelines*

Step	Desktop and Adoption Studies	Full Impact Assessments
1	Identify all RD&E inputs*	Estimate RD&E inputs*
2	Identify outputs	Measure outputs
3	Identify outcomes	Quantify outcomes
4	Identify the <i>without scenario</i>	Quantify the baseline
5	Identify impacts	Estimate impacts
6	Identify beneficiaries and benefits	Estimate net benefits
7	Return on ACIAR investment	Return on ACIAR investment (point est.)
8	Identify uncertainties	Return on ACIAR investment (range est.)

RD&E = research, development and extension

4. Comments on ACIAR's current approach to Impact Assessment

Our comments on ACIAR's current approach to impact assessment are organized around the stated purposes.

1. *To provide accountability to stakeholders as well as a clear measure of the returns to the funds ACIAR invests.*

It is entirely reasonable that development programs be subject to accountability. Taxpayers in Australia have a right to know that development funds spent are being well-used. Also stakeholders in the developing country have a right to know that interventions by ACIAR are meeting their intended goals. However, we wonder whether the focus on reducing accountability down to a single money metric based on economic surplus calculations is the right way to go.

It is not that the *Guidelines* does not recognize the importance of a wide range of effects of ACIAR projects that extend beyond directly increasing income and wealth. However, to the extent possible, the impacts are interpreted and summarized in terms of a money metric (a dollar value of total net benefits). In the full impact assessment the proportion of these total net benefits attributable to ACIAR are compared with ACIAR-attributed costs to get a ‘return on investment.’ But what exactly is meant by ‘return on investment’? Obviously it is not intended to be a financial return – Australian taxpayers and their Government don’t support development to achieve a financial return. Rather the ‘return’ seems to be an indicator of aid effectiveness in achieving development goals. Thus, the more effective is the R&D in meeting these goals, the higher the return. But what are the development goals about which Australian aid should maximize effectiveness? According to the Statement of Expectations by the Minister for Foreign Affairs (2008) and reprinted on the ACIAR website, ACIAR should:

- strive to maximize the effectiveness of aid by Australia through
- Ensuring an adoption focus in program delivery
 - Active attention to agreed aid effectiveness principles (such as the Paris Declaration and Millennium Development Goals).

The Paris Declaration includes five principles of aid effectiveness of which the fourth principle (managing for results) provides support for the use of Impact Assessment.⁴ The Millennium Development Goals (MDGs) to which the Australian Government subscribes are summarized in Table 2 below.

Table 2: Millennium Development Goals

No.	Millennium Development Goals*
1	Eradicate extreme hunger and poverty
2	Achieve universal primary education
3	Promote gender equality and empower women
4	Reduce child mortality
5	Improve maternal health
6	Combat HIV/AIDS, malaria and other diseases
7	Ensure environmental sustainability
8	Develop a global partnership for development

* Source: AusAID (see <http://www.aid.gov.au/keyaid/mdg.cfm>)

⁴ The Paris Declaration refers to five principles of aid effectiveness: (1) *ownership* by partner countries of their development policies and strategies, (2) *alignment* of donor support with national development strategies of the partner countries, (3) *harmonization* of support among donors, (4) *managing for results* and *mutual accountability*.

Of all the MDGs, perhaps the one that comes closest to being addressable by a money metric is eradication of extreme hunger and poverty. After all, agricultural R&D is often viewed as a way to tackle rural poverty by increasing agricultural productivity. Economic surplus measures can be used to measure the gains from productivity improvements through lower consumer prices or lower production costs. The expectation is that some of these benefits will accrue to lower income consumers and producers and hence lead to poverty alleviation. To the extent that they do, then economic surplus measures are related to poverty alleviation. But does that mean we can simply add up the dollar value of gains from the R&D intervention and argue that this has a one-to-one correspondence with the goal of poverty alleviation?

Conventional economic surplus measures make the simplifying assumption that all producers (consumers) are treated equal: rich and poor, male and female, etc. If the RD&E leads to an extra \$1 of economic benefit to a rich farmer (consumer) this is counted (by the economic surplus measure) as equal in value to an extra \$1 of economic benefit to a poor farmer (consumer). Thus, from the viewpoint of a research project leader, if the KPI is simply to improve economic surplus it makes no difference whether the work is conducted with rich farmers or poor farmers; rather it is the aggregate change in value that is important. What is more, it may just provide the project leader with implicit encouragement to focus only on rich farmers. After all, they are often commercially and politically more savvy, have more resources, equipment and knowledge and know how to get things done. So it might be easier and less costly to work with just the richer farmers.

Other MDGs such as promoting gender equality or ensuring environmental sustainability are more challenging to evaluate properly using a money metric. In the *Guidelines* (p. 77), it is proposed to measure environmental and social impacts by estimating ‘community’ shadow prices (willingness to pay). There is no discussion about who constitutes the ‘community’ (Australian taxpayers or developing country stakeholders), but we assume who is meant are developing country stakeholders. This sounds sensible enough, but we suspect that assessing their willingness to pay could be much more difficult to achieve in practice than in theory. Community members often have diverse views on issues and community members’ attitudes change over time, particularly in response to more information. Thus, for example, it could be quite a challenge to obtain reliable information on their willingness to pay for improved gender equality. In our experience, obtaining reliable information is very much a function of how much you invest in building up a relationship with the community. The more we invest in relationship building, the higher the level of trust and the higher the quality of information exchange. We suspect that the quality of relationship building varies from one project team to the next. Therefore, the quality of information concerning community shadow prices will also vary from one project team to the next. In terms of accountability, perhaps we should be looking at how well the project team has developed relationships with local stakeholders. But, this would require a different approach to accountability; one that involved assessing the research *process* as opposed to the research *outcomes*. Process-based assessment is discussed later in this paper.

One of the attractions of using economic surplus-based measures is that it simplifies comparison of performance across projects, across ACIAR programs or even across agencies

(ACIAR in comparison to other government agencies). Because of this, such a number can expect to attract a lot of attention. This adds an interesting dilemma to the assessors. To be credible the money metric and the analysis needs to be seen to be objective. However, as the *Guidelines* (p. 58) points out; benefit-cost analysis is as much an art as a science. There is considerable subjectivity in the analysis and so the number can be quite rubbery. There are many complex calculations involved and often the required data in developing countries are poor or non-existent. The difficulties are exacerbated by the need to make long-range projections of impacts which have yet to be realized at the time of the assessment and because of problems of attribution (to what extent can the impact be attributable to the research) and additionality (to what extent is the impact of the research over and above what would have otherwise occurred)⁵. the *Guidelines* (p. 68) makes the very salient point: “Highly complex approaches to assessment can give the impression of accuracy where it is unwarranted.” Even for the most well-meaning assessor, the combination of complexity of calculation and the subjectivity of analysis can lead to misapprehension of the accuracy of the results. Perhaps, in recognition of this dilemma, ACIAR commissioned a study by Raitzer and Lindner (2005) which proposed that for an impact assessment study to be considered credible, it needed to demonstrate *transparency* and *analytical rigour*.

But there is another potential problem. The complexity of the money metric calculations together with the subjectivity of the analysis might also be expected to result in a kind of information asymmetry and hence raises the possibility of principal-agent problems. The primary people involved in assessing project impacts include the project leader (in charge of the adoption studies), the ACIAR program manager (in charge of the desktop study) and the external consultant (in charge of the full impact assessment). Project leaders may be expected to have some interest in showing their projects in the best possible light. But what about ACIAR program managers and the external consultants? It is conceivable that ACIAR

⁵ According to Deloitte-Insight Economics (2007):

- Attribution is concerned with the problem of determining the extent of the connection from research ‘causes’ to external ‘effects’. We need to recognise that establishing a clear causal link between a particular R&D project and particular final economic (or other) impacts is difficult due to issues such as the time lags involved; difficulties with research quality and the knowledge diffusion process to those who generate the impacts; disentangling the contribution of research performed in Australia and overseas; that outcomes often require many non-research inputs; the lack of a contractual paper trail in the case where public domain knowledge (such as academic publications) resulting from R&D may be used by many end users; and difficulties in attaching economic values to outcomes in the environmental, health and social spheres, where outcomes are ends in themselves rather than means to deliver an economic value; and
- Additionality is concerned with the underlying premise that the true extent of an impact is the benefit *over and above* what would otherwise have occurred. The crucial measure of the ‘true’ impact of any R&D project is the extent to which its performance (the factual) has exceeded the alternative (counterfactual) case. If a R&D project starts today and we want to evaluate its impact in 10 years time, the relevant counterfactual (or base case) is what we consider the state of affairs will be in 10 years without the R&D having been conducted, not the state of affairs today.

program managers may also have some interest in showing that the projects they manage are doing well? And while external consultants may be expected to have interests that align closely with ACIAR, it is conceivable that ACIAR itself may have an interest in showing its projects in a good light to help secure future funding for the agency.

An interesting question arises as how to interpret benefit-cost ratios and net present values derived from the economic surplus calculations. Suppose we undertake a project where the benefits accrue in a developing country and we achieve a benefit-cost ratio of say 5:1. Can we say this is 'very good'? While it is tempting to say yes, there are the problems we have already identified in connection with estimating the benefits. Often, assessors will attempt to offset this criticism by erring on the side of being conservative in estimating benefits. But even so, from whose perspective do we mean 'very good'? For example, if we mean from the Australian taxpayers perspective, then it begs the question of how do Australian taxpayers value international development research. Suppose they value \$1 of benefit to a developing country the same as a \$0.10 of benefit if it occurred within Australia. Then the benefit-cost ratio may not look 'very good' at all.

2. To provide lessons on what works, what does not and why and hence provide a valuable learning tool for project participants and project managers

From time to time during a project or following completion it makes sense to examine what worked and what didn't work with a view to making improvements in the future. In the *Guidelines* (p. 13), the idea is that the *desktop reviews* can achieve this purpose during the life of the project, while the *adoption studies* and *full impact assessments* can achieve this purpose following project completion. In our view, while these impact assessment studies might be helpful, we wonder if they are sufficient for this purpose. This is especially a concern for participatory action research (PAR) projects such as the one we are working on in Cambodia.

With regard to the *adoption studies* and *full impact assessments*, these are respectively intended to take place 3 years and 4 – 10 years following project completion. Because of the long time lag, this suggests the intention must be to learn lessons which can be extrapolated to new projects rather than in possible extensions of the project under review. If this is the case, care is needed in extrapolating beyond the particular context of the project because the context is important. What works in one social, political and environmental context may not work in another context. This problem has been discussed at length by Pawson and Tilley (1998) in their work on *realistic evaluation*. We have no problem with drawing lessons for the purpose of project extension, but from a practical viewpoint, this needs to take place before the end of the existing project.

This brings us to the question of using the *desktop studies* to help provide lessons on what works and what doesn't work. While this might work in some projects, it seems to be structurally inadequate for participatory action research projects such as the CCPMP. Impact assessments of the type proposed in the *Guidelines* are structured to suit non-adaptive projects that proceed in a closed, static and linear way from beginning to end. Such projects proceed according to a prespecified blueprint that would be followed step-by-step until completion (see the 8 Steps of Impact Assessment above). During such projects, the desktop study could represent an important opportunity for evaluation with a view to drawing lessons and project

modification. However, our project is not of this type. Rather, it is a PAR project which attempts to be adaptive and responsive to the local biological and social context. For such projects we think that a more appropriate evaluation framework would involve the processes of action learning, systems thinking, reflection, and the roles of networks and complexity. In such projects, the idea of waiting until a program manager does a desktop review to learn the lessons of what works and what doesn't would be structurally inadequate. Lessons are learned by the research team through frequent interactions with local stakeholders.

5. Ideas for Improvement

1. *Providing accountability to stakeholders*

In the previous section we discussed some of the problems we have with using the money metric as a KPI. The drive to achieve a single money metric feels a bit like a straightjacket. If something doesn't quite fit, we find a way to make it fit or else we ignore it. An alternative is to consider other KPIs that more closely align with the Millennium Development Goals. It would be good if the selection of KPIs could be determined in consultation with the relevant stakeholders. It may well be that through this consultation process the money metric we have been discussing (or some modification of it) is selected as one of the KPIs for poverty alleviation. But others are also possible such as a rural poverty headcount index for the area (i.e. percent of rural population below the agreed poverty line).

As a guide to developing candidate KPIs, a useful starting point might be Lists C, G and H in the *Guidelines* (pp. 97 – 99).

- List C contains a set of possible outputs associated with the major output types; *technology*, *capacity built* and *policy analysis*. For example, under the *capacity built* major output type the outputs include: scientific knowledge, research networks, physical research infrastructure, farmer skills
- List G contains a set of possible environmental impacts. For example, one impact category is *water* which may include “lower water use, improved water use efficiency and improved water quality”.
- List H contains a set of possible social impacts. For example, one impact category is *health* which may include “reduced risks to human health from injury, diet, exposure to dangerous chemicals/pathogens, improvement in availability of healthier diet”.

One alternative approach is to develop a composite KPI that attempts to weight individual KPIs according to what is considered important to stakeholders. We are not particularly fond of this approach because it oversimplifies and there is the question of how to choose the weights. But it is popular with policymakers and there are precedents. In the development literature, an example is the UN's Human Development Index (HDI) which is used to rank countries. It is a weighted average of KPIs involving outcomes related to health, education and national income.

Another possible *outcomes-based* method is to use narratives. Telling the story of the ways in which a project has impacted (or not) on the lives of people in a developing country can provide a depth of understanding that is not available from a scientific approach. The narrative is also a form of accountability that is immediately accessible to Australian policy makers and

taxpayers. According to Pamphilon and Hardy (2006), narrative is one of the key ways in which we make and share meaning. Pamphilon and Hardy propose using the World Café discussion process (see <http://www.theworldcafe.com/principles.htm>) that draws on individual and collective learnings. It can be used as a way of developing an understanding that is coherent to both the narrators (as individual and in the group of stakeholders) and the audience.

Thus far, we have focused on *outcomes-based* approaches to addressing accountability. Whether we use a money metric, some other KPI, or a narrative the assessment is based on an examination of actual or expected outcomes. An alternative or complement to *outcomes-based* accountability is *process-based* accountability. Meat inspection is a good example of where, in recent years, *process-based* accountability (i.e. HACCP) has replaced *outcomes-based* accountability (i.e. organoleptic inspections at the end of the production line). The change came about because the *outcomes-based* approach was unable to pick up key microbiological hazards. The idea is if one focuses on getting a good RD&E process in place then this, in turn, will lead to good outcomes. We then don't need to be so concerned about outcomes. It is the RD&E process that becomes central to the question of accountability and putting in place appropriate checks is the key to ensuring the process is working well.

2. *To develop a learning tool by examining what works and what doesn't.*

As mentioned earlier, our project follows a participatory action research (PAR) process. We believe that one of the key advantages of using a PAR process (properly) is that learning (and adaptive research) is an integral part of the process and thus using impact assessment as a learning tool would be unnecessary and inefficient.

PAR has developed in response to a perceived shortcoming in the conventional approach to development research. One of the key features of development research, particularly at ACIAR, is the need *to make a difference* on the ground in the lives of people in the recipient countries. Indeed the inclusion of *adoption studies* in the *Guidelines* is ample recognition that adoption is highly valued in research programs funded by ACIAR. It is also an implicit recognition that perhaps in the past, some research programs have not resulted in satisfactory levels of adoption.

The PAR process is summarized in the four stages of Figure 1. The process begins (Stage 1) with preliminary (mapping) research in the broad problem area typically using a cross-disciplinary or trans-disciplinary approach.⁶ This mapping research is used as the basis for an initial understanding by the research team on the nature of the development problems being experienced. This initial understanding is then tested against the understanding by local stakeholders (in Stage 2) and a refined understanding of the development problems is formed by both the project team and the local stakeholders before collaboratively developing an action plan. The action plan is then implemented (Stage 3). Following this, the results of the actions are evaluated by the project team and local stakeholders at the "Reflection" stage (Stage 4). This leads to a subsequent round of research, planning, action and reflection and so on.

The PAR process thus differs structurally from that of conventional research in that the process:

⁶ In the case of the CCPOMP, there are four disciplines represented: production, socioeconomics, marketing and value chain management.

- is circular (or as is more accurately described, spiral) rather than linear.
- Involves action (implementation) and reflection (evaluation) as an integral part of the process
- Involves participation of local stakeholders in the direction of research and development actions

As may be seen in Figure 1, evaluation takes place in Stage 4 and involves consultation between the research team and local stakeholders. This evaluation may take place a number of times during the life of a particular project. The evaluation is integral to the process and is used to help refine the understanding of the research team and also to help provide direction to the project on an ongoing basis.

6. Case Study: The Cambodian Crop Production and Marketing Project (CCPMP)

In this section we briefly discuss our ACIAR-funded project on upland crops in northwestern Cambodia as a case study. We begin by describing some basic parameters of the project (background, aims and objectives and the expected impacts). This will lead into a discussion of how we might go about doing the project assessment

6.1 Basic Parameters of the Project

(a) Background

Production of upland crops such as maize and soybean have rapidly expanded in north-western Cambodia since re-integration of the former Khmer Rouge began in 1996. However, in the space of 10 years, crop yields are now declining and soils are being degraded by excessive cultivation and burning. The development has been largely driven by market demand in Thailand. Local farmers are disadvantaged by lack of market information, inadequate post-harvest technology, and poor transport infrastructure.

The Australia-based collaborators in the project are the University of New England (UNE), Industry & Investment New South Wales (I&I NSW), The University of Canberra (UC), The University of Melbourne, and CSIRO. Collaborators in Cambodia are the Cambodian Agricultural Research and Development Institute (CARDI), the Maddox Jolie Pitt foundation (MJP) and CARE International. The Provincial Departments of Agriculture (PDA) in Battambang and Pailin are engaged via Memorandums of Understanding and staff secondments with MJP and CARE.

There are four discipline-based components of the Project – Production, Socio-Economics, Marketing and Value Chain. These have been called Communities of Practice (COP) and they aim to operate cooperatively to achieve the Project aims.

(b) Aims and Objectives of CCPMP

The overarching aim of the Project is to improve the functioning of the production – marketing system for maize and soybean in north-western Cambodia as a key to increasing cash income, sustainable growth and poverty reduction for smallholder farmers (Martin 2007). The Project aims to facilitate the sharing of knowledge and information at all stages of the value chain from farmer to end-user. This will deliver practical benefits including improved food security, increased income, and reduced vulnerability to disruptions for rural poor farmers.

The Project objectives are:

1. To exploit the potential synergies and efficiencies that can be obtained by the production component informing the marketing component of the value chain, and vice versa;
2. To enhance the adoption of improved technologies and practices for production of upland crops by integrating agronomic, economic, environmental and social factors; and
3. To improve post-harvest management, communications along the supply chain and value chain integration for maize and soybean in north-western Cambodia.

(c) Expected Impacts

The expected impacts are:

1. **Economic** - Improved technologies (such as rhyzobium inoculation of soybeans) is expected to substantially increase crop yields and profits. During the course of this project we have conducted a number of economic evaluations of technologies from the viewpoint of the upland farmer (Farquharson et al. 2006, 2008, Scott 2008, Scott and Freeman 2007) and these have been used to refine the project focus and technology emphasis;
2. **Social** - enhanced networks and learning between farmers and other stakeholders are expected to improve knowledge, attitudes, behaviours, skills, relationships and institutional arrangements in the value chain ; and
3. **Environmental** - Adoption of no-tillage, conservation farming practices and fertiliser application is expected to reduce soil erosion and slow down the decline in soil fertility. This adoption will be driven by better awareness of the associated cost savings and reduced labour inputs.

6.2 How to assess the CCPMP?

As mentioned previously, there are four components to the project (production, socio-economics, marketing and value chain). Our research team is still in the process of developing an approach to project evaluation of these four components. In this section we provide a few general comments about project assessment followed by an outline of a draft evaluation process for one of the socio-economics component.

(a) Accountability to stakeholders

From the earlier discussion on ensuring accountability to stakeholders we suggest a three-pronged approach involving:

- (i) development of relevant KPIs (non-economic as well as economic);
- (ii) a narrative based on a discussion with local stakeholders; and
- (iii) Assessment of the RD&E process.

Coincidentally, a recent paper by Madzivhandila et al. (2008) has proposed something similar. They adopted a ‘trident’ approach from an earlier paper by Ellis and Hogard (2005) which included:

1. **Measurement of outcomes** – Their proposal is similar to ours in the sense of analyzing pre-determined KPIs. Of course, the actual KPIs selected may well be different because of the different nature of the respective projects.
2. **Description and analysis of the process** – They refer to their action research process as Continuous Improvement and Innovation (CI&I). It is broadly similar to our own, though with 6 steps as opposed to our 4 stages. In Madzivhandila et al. (2008), assessment of the quality of the process takes place in the *sample of stakeholders’ perspectives* (see next point). While stakeholders’ perspectives on process are very useful, there are likely to be parts of our RD&E process with which the local stakeholders are not cognizant. There is a role for someone like the ACIAR program manager to ensure that the process is working well. Given some of the problems that have arisen in past attempts at participatory development (see, for example Cooke and Kothari, 2002), a comprehensive assessment of process is essential.
3. **Sample of stakeholders’ perspectives** – For this, they interviewed 100 project participants and asked about outcomes (i.e. gross margin, growth, reproduction, mortality and marketing) and perceptions. While the survey is a good idea, it would also seem to be useful to have an in-depth discussion with local stakeholders perhaps in the form of a World Café to help develop a narrative of what the project means to them.

(b) Learning lessons

We decided at a very early stage (prior to inception) that this project would follow a participatory action research (PAR) approach. This was in response to comments of previous writers (e.g. R. Chambers, 2005, Clark *et al.*, 2005) who have criticized the conventional “top down” research, development and extension as having less than desired outcomes as well as poor rates of adoption. This makes the job of project evaluation as a learning tool straightforward because learning is an integral part of the PAR process. It takes place at the fourth (evaluation/reflection) stage of the four stage action research cycle. As mentioned earlier, Madzivandhila et al (2008) also used a PAR process. At the evaluation/reflection stage their key questions were:

1. What happened as a result of our actions?
2. What made a real difference? Why?

These questions would be equally useful to use at the evaluation/reflection stage of our own PAR process.

(c) Draft Evaluation Process of the Socio-economics Component

The socio-economics component of our project is concerned with issues of village level adoption of technical innovations in the project. The draft evaluation process is summarized in the following 7 steps:

1. Develop an Impact Pathway from project inputs to project impacts (see Figure 2);
2. Develop qualitative key performance indicators (KPIs) for assessing progress along the Impact Pathway (in consultation with local stakeholders);

3. Develop a Crop Profit Groups (CPG) for each of 8 focus villages (4 in each of Samlaut and Pailin districts) and use a PAR approach (Figure 1) with each CPG using a gross margin focusing framework (see Mandzivhandila et. al., 2008) *Stage 1* (research) would involve a review of the current situation and current practices. It would also explore opportunities for action to improve the situation. *Stage 2* (planning) would involve an assessment of possible alternatives at village workshops. *Stage 3* (action) would involve trialling agreed upon production, post-harvest and marketing technologies (e.g. SMS and alternative price/contract arrangements) *Stage 4* (evaluation) would involve the use of village workshops to evaluate the trials of agreed new technologies
4. Develop a time and timing schedule of the PAR process. Madzivhandila *et al.* 2008 used a 30 day cycle of regular farmer group meetings to develop and maintain momentum and feedback among the farmer groups
5. We would consider conducting workshops at the end of the early and main wet seasons in Cambodia to regularly revisit and maintain momentum;
6. Develop an agreed upon set of quantitative KPIs as a means of measuring progress in improving crop performance, adoption of new technologies and increases in farm family income. These would provide the basic information for an epIA to be conducted by an external analyst after the Project is completed.
7. At the project completion we would conduct a survey of CPG members and meet with CPGs to discuss the project outcomes and process and thus develop a narrative of the socio-economic component.

7. Conclusion

This purpose of this paper has been to examine the current ACIAR guidelines for impact assessment from the perspective of a project team which is in the process of planning for an evaluation following project completion. One of the defining features of our project is that it involves participatory action research (PAR). Hence we examined the guidelines with this in mind. We examined the guidelines in relation to the two stated objectives; accountability to stakeholders and as a learning tool.

With regard to using impact assessment for accountability, we distinguished two possible approaches: *outcomes-based* and *process-based*. While the guidelines focused on the former, we thought a good case could be made for focusing on the latter either in addition to or instead of the former. With regard to the outcomes-based approach, we also wondered whether the money metric as emphasized in the Guidelines was the most appropriate KPI. We thought perhaps other KPIs should be explored that more directly related to the actual goals of development (e.g. the Millennium Development Goals). We also thought that a narrative approach to assessing outcomes would be useful as a way of obtaining a coherent and rich understanding of the ways in which the project impacted on local stakeholders.

With regard to using impact assessment as a learning tool, we thought it would be superseded in PAR projects like ours by the process itself which includes learning and adaptation as integral components.

8. References

Clark, R., Bacusmo, J., Bond, H., Gabunade, F., Matjuda, L.E., Motiang, D.M., Madzivhandila, T.P., Nengovhela, N.B., Trevos, A.A., Timms, J. and Toribio. J. (2005), 'A Model for Achieving Sustainable Improvement and Innovation in Regions', *International Conference on Engaging Communities*: Brisbane, August.

Chambers, Robert (2005). *Ideas for Development*. Institute of Development Studies, Earthscan: London

Cooke, B. and U. Kothari (2002). *Participation: The New Tyranny?* Zed Books: London.

Davis, Jeff, Jenny Gordon, David Pearce and Debbie Templeton (2008). *Guidelines for Assessing the Impacts of ACIAR's Research Activities*. Impact Assessment Series (IAS) 58, ACIAR: Canberra.

Deloitte-Insight Economics (2007), *Impact Monitoring and Evaluation Framework: Background and Assessment Approaches*, A report compiled for the Cooperative Research Centres Association Inc., June.

Ellis, R. and Hogard E. (2006), 'The trident: A three-pronged for evaluating clinical, social and educational innovations', *Evaluation* 12(3): 372-383.

Farquharson, Robert J, Chea Sareth, Chapho Somrangchitra, Martin, Robert J, Haigh, Bruce M, Scott, J Fiona, and Ung Sopheap (2006), 'Changes in Management Can Improve Returns from Cambodian Upland Crops' Paper presented to the International Association of Agricultural Economists Conference, Gold Coast, Australia, August 12-18, 2006.

Farquharson, Bob, Scott, Fiona and Chea, Sareth (2008), 'Upland crop technologies in Cambodia: economic evaluations and some adoption issues', Paper contributed to the 52nd Annual Conference of the Australian Agricultural and Resource Economics Society Inc., Canberra, ACT, 5-8 February, see <http://www.landfood.unimelb.edu.au/staff/publications/Farquharson-AARES-2008.pdf>).

Madzivhandila, Percy, Groenewald, Izak, Griffith, Garry, and Fleming, Euan (2008), 'Continuous Improvement and Innovation as an Approach to Effective Research and Development: A 'Trident' Evaluation of the beef Profit Partnerships Project', Contributed paper to the 52nd Annual Conference of AARES, February.

Martin, Bob (2007), *Project proposal: Enhancing production and marketing of maize and soybean in north-western Cambodia and production of summer crops in north-eastern Australia*, ASEM/2006/130, ACIAR, Canberra.

Pamphilon, Barbara and Ross Hardy (2006). "Changes that Matter: A Participatory Approach to Monitoring and Evaluation in the Pacific". Paper presented at the International Conference of the Australasian Evaluation Society, Darwin, September.

Raitzer, David A. and Robert Lindner (2005). *Review of the Returns to ACIAR's Bilateral R&D Investments*, Impact Assessment Series Report No. 35, August.

Scott, Fiona (2008), 'Economic Evaluation – Workshop on Implementation of on-farm demonstrations of improved practices for upland crops', Samlaut and Pailin Cambodia, *ACIAR Project Number ASEM/2006/130 and ATSE Crawford Fund*, February.

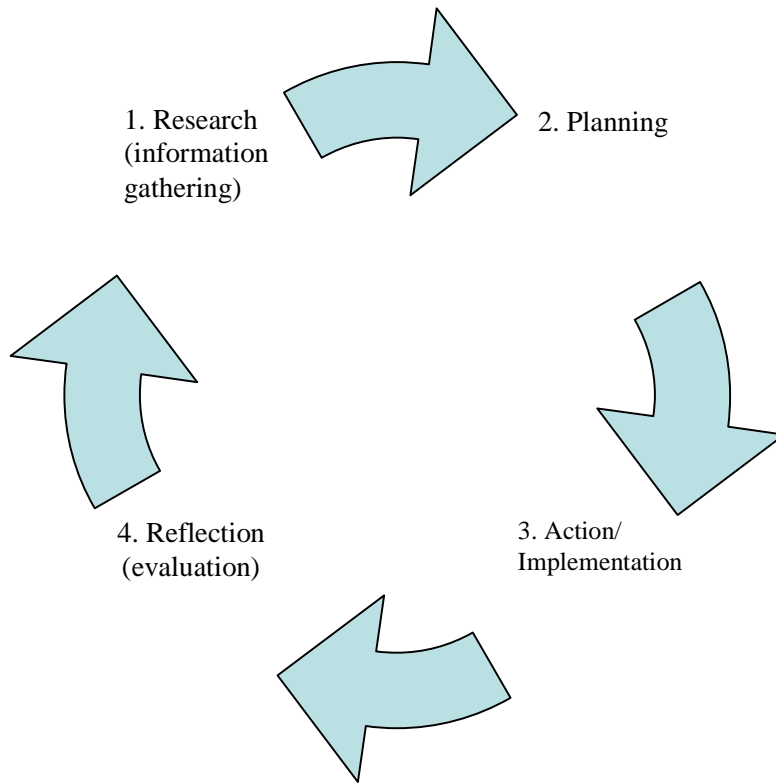


Figure 1: Participatory Action Research Process

Inputs :
(Research investment)

Outputs: Outputs are the first and most immediate results of a research project

Outcomes: The external use, adoption or influence of a project's outputs by next and final users that results in adopter-level changes needed to achieve the intended impact

Impacts: The 'big picture' changes in economic, environmental and social conditions that a project is working toward.

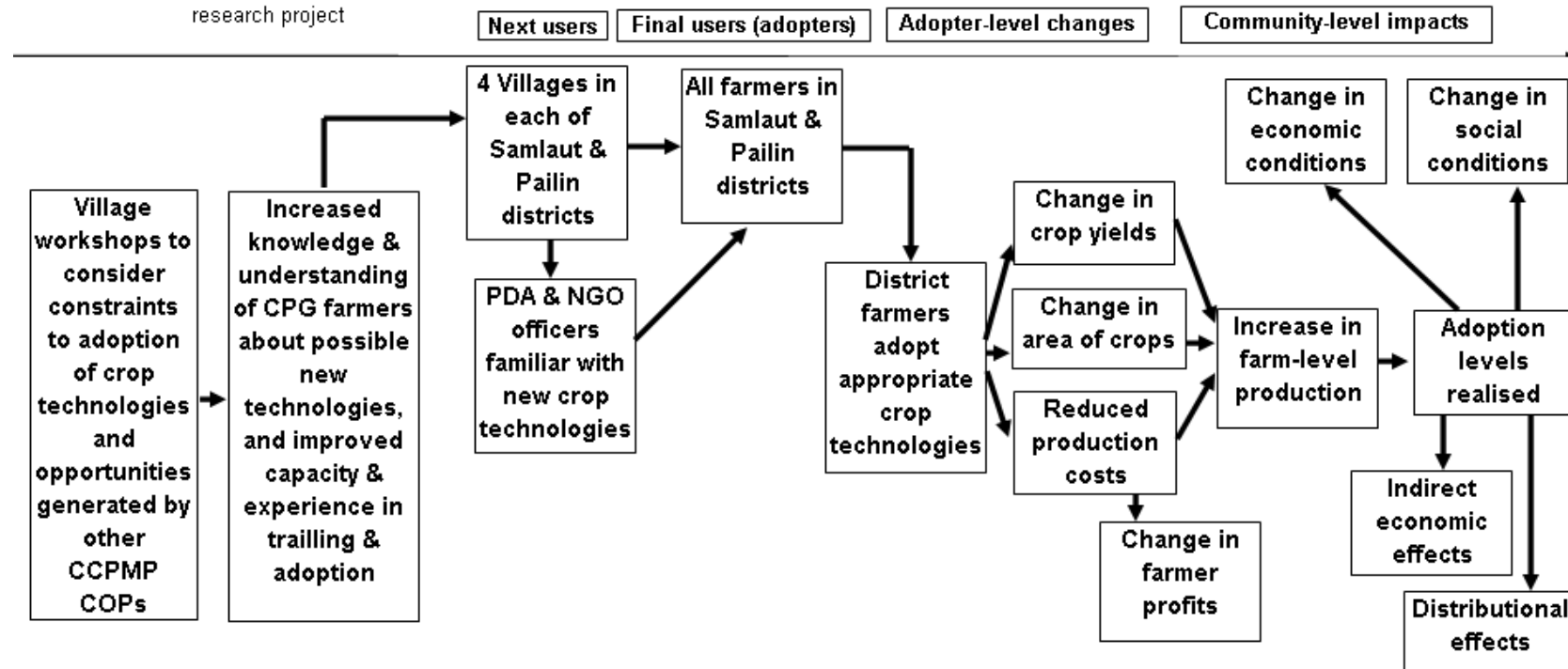


Figure 2. An Impact Pathway for the Socio-Economics component of the Project