

## Participatory Impact Pathways Analysis

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### Abstract

Participatory Impact Pathways Analysis<sup>1</sup> (PIPA) allows participants in a workshop to make explicit their assumptions and hypotheses about how their projects will achieve impact. These hypotheses can be used as the basis for *ex-ante* impact assessment, monitoring and evaluation of the project's progress along its impact pathways, and the identification of impact hypotheses required for *ex-post* impact assessment. A project's impact pathways are made explicit in the form of hypotheses contained within an outcome logic model, and optionally, an impact logic model. Both put greater emphasis than traditional logic models on the actors involved in making change happen and how these actors themselves are expected to change. Testing of impact hypotheses contained within the logic model(s) through regular reflection workshops, as described in this brief, is a practical action research method to understand how research outputs can be developed and used so as to achieve developmental outcomes. The process outcomes of the PIPA workshops have included building participants' capacity to carry out versions of PIPA themselves and helping projects in a program better understand what each other are doing.

### Introduction

People act on the basis of their understanding of how the world works – their 'theories of action' (Argyris and Schön, 1974). We do *X* because we believe, based on past experience or what we've read, that *Y* will happen. This applies to projects and programs as well. So it follows that if you can improve a project's theories of action you can improve how people implement it (in this paper we use project to mean both project and program). This has long been recognized by a particular branch of evaluation, called program theory evaluation, which describes projects' theories of action in a 'logic model' and then evaluates the project using the model as a framework (see Chen, 2005 for example). Logic models describes how project outputs are developed with, and used by, others to achieve chains of outcomes that contribute to eventual impact on social, environmental or economic conditions. In this paper we describe an approach, called Participatory Impact Pathways Analysis (PIPA), which allows project staff and stakeholders to jointly develop logic models to describe the project's impact pathways. The term 'impact pathways' is synonymous with 'theories of action' and 'program theory'. We use the term because it is more widely understood in agricultural research.

### Development and use of PIPA

'Participatory Impact Pathways Analysis (PIPA)' was first used in a workshop in January 2006 in Ghana, with seven projects funded by the Challenge Program on Water and Food. To date, nine PIPA workshops have been held for 46 projects. Researchers from the International Center for Tropical Agriculture (CIAT - Spanish acronym), the International Potato Center (CIP - Spanish acronym) together with two evaluation specialists<sup>2</sup> are developing PIPA. PIPA developed from work at CIAT on innovation histories (see ILAC Brief no. 5 – Douthwaite and Ashby, 2005) funded by ILAC. A paper describing the approach has been accepted for publication in the Canadian Journal of Program Evaluation (Douthwaite et al. (in press)).

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<sup>1</sup> The Participatory Impact Pathways Analysis Wiki contains more information about PIPA:

<http://impactpathways.pbwiki.com>

<sup>2</sup> Ronald Mackay and Rick Davies

PIPA centres on a three-day workshop in which ideally project implementers, participating next users, end users and politically-important actors attend. Next users are the people and organizations who will use what the project will produce while end users are the people the next users serve. Clients and beneficiaries are synonyms for next users and end users. Politically-important actors are those people and organizations that can help create an enabling environment for the project, but with which the project does not directly work.

The workshop process is designed to help participants surface, discuss and describe their hypotheses for how project strategies<sup>3</sup> and outputs could eventually contribute to desired goals such as poverty reduction. The description of these hypotheses is a description of the project's impact pathways.

PIPA has helped workshop participants to:

- Clarify, reach mutual understanding and communicate their project's intervention logic and its potential for achieving impact;
- Understand other projects working in the same program and identify areas for collaboration;
- Generate a feeling of common purpose and better programmatic integration (when more than one project is represented in the workshop);
- Produce a narrative describing the project's intervention logic and possible future impacts (thus a form of ex-ante impact assessment);
- Produce a framework for subsequent monitoring and evaluation.

#### **When PIPA works best**

PIPA is useful when two or more projects in the same program wish to better integrate. At least two people for each project should attend, preferably the project leader and someone else who knows the project and has time and inclination to follow up on what comes out of the workshop. PIPA also works well when one project wishes to build common understanding and commitment with its stakeholders. In this case, two or more representatives from each important stakeholder group should attend. The ideal group size is four to six and the ideal number of groups is three to six. We have facilitated workshops with nine projects developing impact pathways but this leaves little time for individual presentations and plenary, and participants tend to be overwhelmed by too much information.

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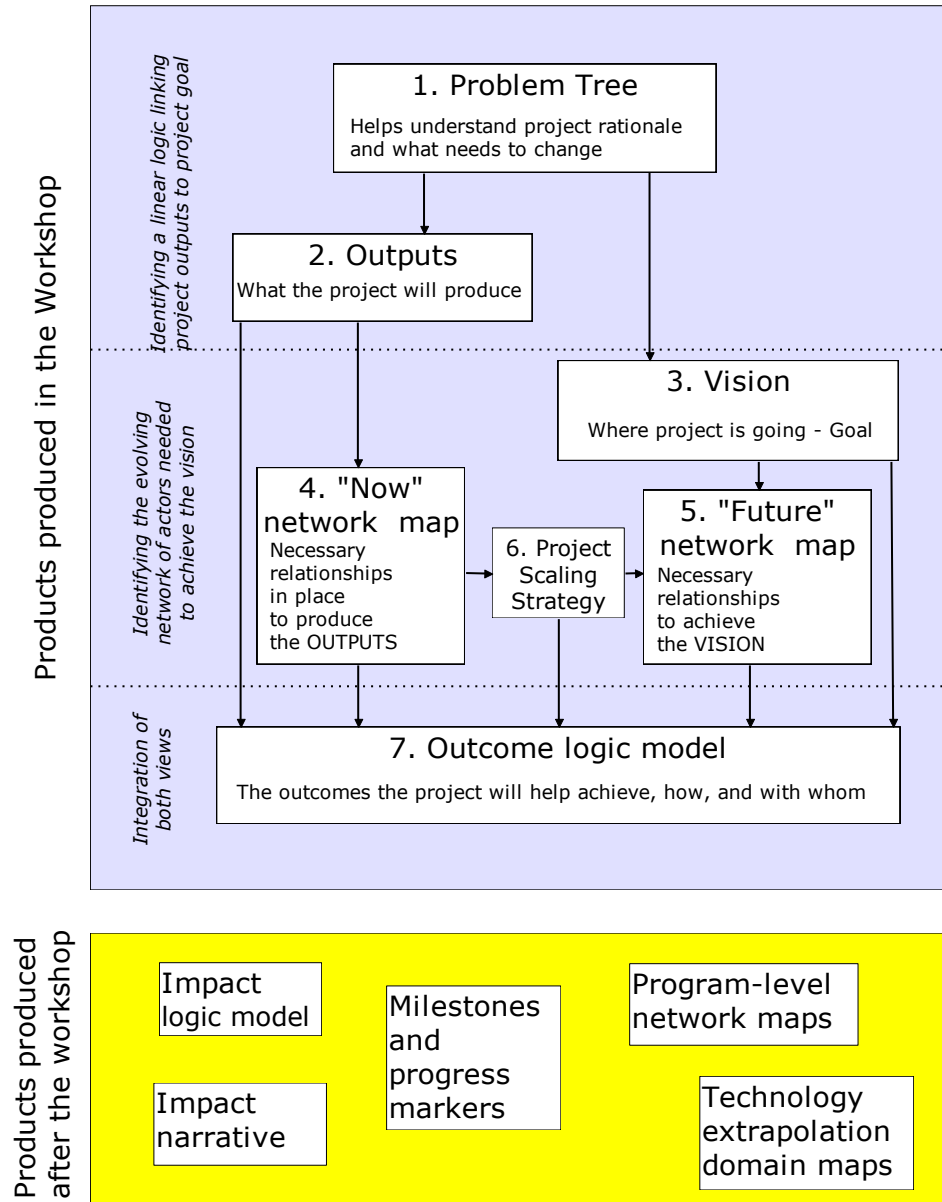
<sup>3</sup> We understand a project strategy to be made up of one or more activities. For example, holding a workshop is an activity, while the strategy is to train trainers to bring about necessary changes in KAS to achieve a desired outcome.

**The PIPA process**

We have used PIPA at the beginning, middle and end of projects. PIPA describes project (or program) impact pathways in two ways:

- (i) A problem tree that shows a linear logic showing that if the project helps solve certain problems, it will contribute to solving others and so eventually achieve its goal; and,
- (ii) Network maps showing how the actors involved work together, influence each other and influence the general environment for the new knowledge or technology being developed.

**Figure 1: The PIPA Process (numbers in the text refer to the boxes in the road map)**



The workshop process, shown in Figure 1, develops the two perspectives in turn and then integrates them through developing a outcome logic model that describes the project strategies, outputs and outcomes necessary to achieve the project vision. The table links the outcomes to the actor or group of actors that will bring them about, thus making future evaluation easier. Somewhat similar logframes

commonly used in the CGIAR system often lack an actor focus and can end up containing narrative statements in them without people, for example “rice yields increased by 25% in pilot sites”. The impact logic model is developed after the workshop and describes how the actor-outcomes the project will achieve will scale-out and scale-up to achieve social, economic and environmental impacts.

The workshop begins with participants developing a problem tree (1) that links the problems the project is directly addressing with the social, environmental and/or economic conditions it wishes to improve (see Figure 2). The approach used for developing the problem tree is based on work by Renger and Titcombe (2003). The branches of a problem tree end when it has identified a problem that the project will directly address. Once identified, these ‘determinant’ problems help define the outputs the project needs to develop to help solve them (2). Outputs are defined as things the project produces that others use.

**Figure 2: Presenting a problem tree in the Volta Basin Impact Pathways Workshop**



Participants then carry out a visioning exercise (3), which borrows from appreciative inquiry (see ILAC Brief no. 6 – Acosta and Douthwaite, 2005), to describe project success one-and-a-half years in the future. One-and-a-half years is chosen because most of the projects we work with work in complex environments where it difficult to plan with any certainty for more than 6 months. One-and-a-half years represents three time periods (see Figure 4). Projects working in simpler and more predictable environments would construct their visions further in the future. We have found that having a relatively short time horizon helps keep the vision concrete. However, it is sometimes useful to construct visions for after the end of a project to stretch participants to think about who will be using and promoting project outputs once the project has finished, and so who they really need to be working with.

The second part of the workshop involves participants drawing the networks of people and organizations (the actors) already working in the area in which the project wishes to intervene, or is already intervening (4). They then build influence towers to indicate the relative influence of each actor in the respective networks they have drawn. Next to the towers they indicate if the actor’s attitude is negative, neutral or positive to what the project is trying to do (see Figure 3). Our use of influence towers borrows from Schiffer (2007).

They then redraw the maps showing how the actors should be linked to achieve the project’s vision (5). They then record the most important changes in the networks and actors’ attitudes, explain why the changes are important and who needs to do what to make them happen. This forms the basis of a project’s scaling strategy (6).

**Figure 3: Drawing network maps in a PIPA workshop**



(i) Drawing a network map



(ii) Placement of influence towers and drawing of 'smiley' faces to indicate stakeholder attitude to the project

The final part of the workshop involves distilling and integrating what has been produced into the outcome logic model (see Table 1 for the format used). One table is filled out for each of the four main stakeholder groups – next users, end users, politically-important actors and project implementers. Different workshop outputs have different starting points in the table. For example, strategies for developing project outputs would be entered in column 4 of the table. Participants then describe what changes in knowledge, attitudes, skills (KAS) and practice will result from the development and use of project outputs. In contrast, the scaling strategy (see (6) Figure 1) often identifies changes in stakeholder knowledge or attitude towards what the project is trying to do, and would be entered in column 3 followed by the cells in the other columns.

**Table 1: The outcome logic model<sup>1</sup>**

Actor (or group of actors who are expected to change in the same way)	Change in Practice required to achieve the Project's Vision	Change in KASA required to support this change	Project strategies <sup>2</sup> to bring about these changes in KASA and Practice?	What are the key assumptions <sup>3</sup> ?

<sup>1</sup> One table is filled out for the four actor groups – next users, end users, politically-important actors and project implementers

<sup>2</sup> Project strategies include co-developing project outputs (knowledge, technology, etc.) with stakeholders, capacity building, communication, political lobbying, etc.

<sup>3</sup> Key assumptions are things that are beyond the control of the project but which affect project success. For example, a key assumption for a project working to improve milk quality is that farmers will receive a higher price for better quality milk.

**After the Workshop**

**Developing the impact logic model to describe a project's impact pathways**

Each line of the outcome logic model represents an impact hypothesis, which is that the project strategy to achieve the desired change will work as anticipated. What are lacking are the hypotheses about how these changes will contribute to eventual impact on people's livelihoods. In other words, what is missing is the rationale that explains why the project is seeking to achieve the outcomes described in the outcomes logic model. This rationale is not always needed, but if it is, it is given in the impact logic model, which is a graphic representation of how project strategies lead to adoption and use of the knowledge and technologies it produces.

The impact logic models we have constructed describe two types of adoption – scaling-out and scaling-up. Scaling-out is the horizontal spread of project outputs from farmer to farmer, community to community, within the same stakeholder groups. Scaling-up is a vertical institutional expansion, based largely on a desire or need to change the rules of the game. It can be driven by the influence of first-hand experience, word-of-mouth and positive feed back, from adopters and their grassroots organizations on policy makers, donors, development institutions, and the other stakeholders who then have an interest in building a more enabling environment for scaling-out processes.

A number of change theories<sup>4</sup> can be used to explain how scaling-out and scaling-up occur. We have developed the Learning Selection Change (LSC) theory to explain how scaling processes take place<sup>5</sup> and used it as the basis for impact logic models for CPWF projects that initiate experiential learning with stakeholders in a territory.

Constructing an impact logic model is not something we attempt in the PIPA workshop, but rather is something that we do based on the workshop outputs and our knowledge of change theories. We use the participants own words, both from the written materials produced in the workshop and recordings of their presentations of those materials. We send a first draft for them to modify.

Basing the impact logic model on published change theories helps with the justification and design of project strategies to achieve change. It also means that impact evaluation, both during and after the life-

<sup>4</sup> See a summaries of different change theories at <http://www.comminit.com/en/taxonomy/term/36%2C25>

<sup>5</sup> See <http://boru.pbwiki.com/f/Learning-Selection-Change-Theory.doc>

span of the project, is testing published theory and is contributing to the body of knowledge about how research can foster developmental change in different contexts.

**Use of Workshop Outputs**

The outputs from a PIPA workshop and afterwards (Figure 1) can be used for a number of purposes. Our work with CPWF has focused on using the information for ex-ante impact assessment – that is, predicting likely project outcomes and impacts, and the opportunities and threats to their achievement. More recently we have worked to develop a practical approach to impact pathways evaluation – the monitoring and evaluation of projects’ progress along their impact pathways. Outputs can also be used to set the foundation for ex-post impact assessment, and for producing program-level network maps that can help guide and monitor programmatic integration. These uses are briefly described below and summarized in Table 3.

**(i) Impact Pathways Evaluation**

All projects need to carry out some form of evaluation to: 1) to communicate to donors the expected and actual impacts of the project to help win funding to begin with, and then to show it was money well spent; 2) to show compliance with agreed work plan, and to negotiate changes to it when required; and 3) to provide systematic information to support learning and decision making during the implementation of the project. Impact pathways evaluation provides a framework for all three. Impact pathways, expressed in the outcome and impact logic models, map the types of change to which the project expects to contribute. They also provide the impact hypotheses that are needed for ex-post impact assessment.

If a project opts to carry out impact pathways evaluation, the workshop participants need to first identify milestones and progress markers. They identify milestones from the outcome logic model using the format shown in Table 2. The milestones should be SMART – specific, measurable, attributable, realistic and time-bound, and achievable within the lifespan of the project.

**Table 2: Format used for identifying project milestones**

The key changes in KAS and Practice that the project wishes to monitor	Assumptions <sup>1</sup>	SMART milestone	Means of verification? By whom? In what form?

<sup>1</sup> Assumptions are things that are beyond the control of the project but which affect project success. For example, a key assumption for a project working to improve product quality (e.g., fish, rice, etc.) is that farmers will receive a higher price for better quality.

We suggest that projects adopting impact pathways evaluation complement the monitoring of milestones with the use of Most Significant Change (Davies and Dart, 2005) to pick up unexpected outcomes. We also suggest regular reflection workshops to with the agenda shown in Box 1.

The process of regular reflection on progress along a project's impact pathways is shown graphically in

**Box 1: Suggested agenda for a one-day Impact Pathways Reflection Workshop**

*To prepare*

- Review of problem trees and network maps to reacquaint participants with the project impact pathways

*Workshop*

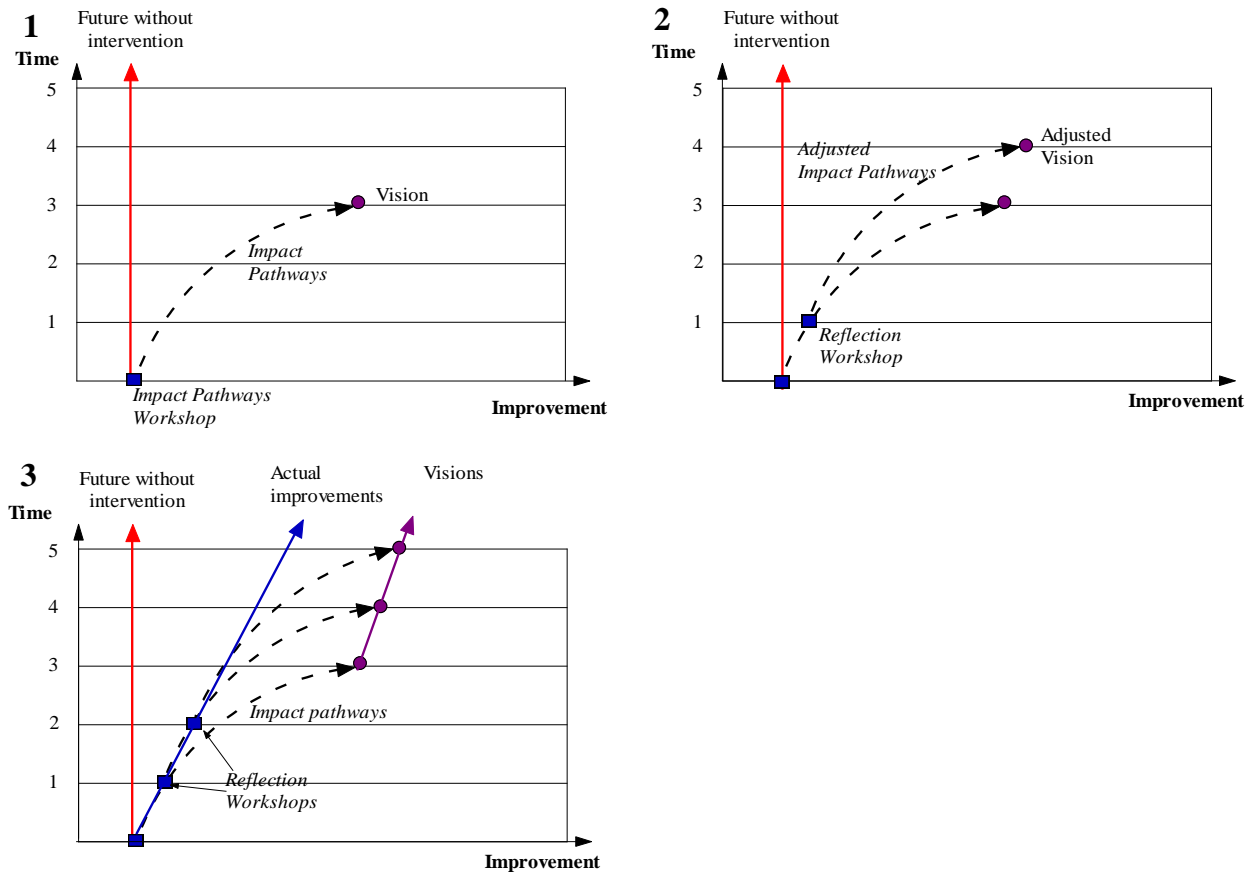
- Short progress reports on project activities
- Reflection on progress to achieve the milestones
  - Document achievement of progress indicators and reasons for changes
  - Set progress indicators for next reflection workshop and list changes to individual work plans
- Reflection on relevance of milestones
  - Document milestones added, subtracted and modified, and reasons for the changes
- Reflection on whether the impact hypotheses (as described in outcome logic models) are valid or require change
  - Documentation of changes and reasons for them
- Review and selection of most significant change stories
- After-action review of last six months
  1. What went well in the last six months
  2. What didn't work so well
  3. What was unexpected? What new opportunities and threats presented themselves?
  4. What to change in the project for the next six months?
  5. Key lessons learnt
- Evaluation of workshop (using after-action review)

Figure 4, and can be understood as follows.

1. The process begins with a PIPA workshop in which the participants develop a shared view of where they want to be three time periods in the future and describe the impact pathways to achieve that vision. As mentioned above, one time period is how long a project can realistically plan with a high degree of certainty. The project then implements strategies indicated in column 4 of the outcome logic model. The strategies lead to changes in KAS and practice of the participants involved.
2. A reflection workshop is held one time period later to reflect on progress, based on the agenda in Box 1. The vision changes to some extent, based on what has been learned, as do some of the activities and strategies.
3. The process continues as the project makes real improvements and moves closer to achieving the vision.

The regular use of evidence (gained through monitoring milestones and progress markers, Most Significant Change and other analyses) to test the hypotheses contained within the project's outcome and impact logic models constitutes action research which contributes to an improved understanding of how research does and does not bring about developmental change. GTZ, based on years of experience, concluded that 'good practice' is for the project itself to carry out this evaluation (Kuby, 1999) within its life-span. Good facilitation and documentation of the reflection workshops is critical to the quality of the action research carried out. Such action research can be published (see Douthwaite et al., 2007 for an example).

**Figure 4: Learning a way into the future by reflecting on progress along impact pathways**



**(ii) Ex-ante impact assessment**

Ex-ante impact assessment evaluates the type and magnitude of impact a project is likely to have. We argue that to be plausible, such assessments must be based on a critical scrutiny of a project’s impact hypotheses. We do this by asking questions that emerge when we construct the first draft of their impact logic models. We also use a social network analysis program (NetDraw) to redraw their networks relationship by relationship and ask them to explain the logic behind the changes between ‘now’ and the ‘future’. We ask projects to quantify their milestones as much as possible. In some cases we also analyze where else in tropics has similar conditions to the project’s pilot sites to identify where in the world project outputs could potentially be ‘extrapolated’<sup>6</sup>.

**(iii) Laying the foundation for ex-post impact assessment**

Ex-post IA usually occurs some years after a project has finished, and tries to identify the project’s contribution to highly aggregated developmental outcomes, such as livelihood improvements. According to EIARD (2003), good practice is for the evaluator to make explicit the impact hypotheses the assessment will test. Hence PIPA helps lay the foundation for ex-post IA by providing the evaluator with hypotheses to test about project outcomes, impacts and causality.

**(iv) Program-level network maps**

The CPWF seeks to foster programmatic integration within the river basins in which it works. To help visualize, plan and monitor this process we combine the network maps drawn by all the projects working in one basin. This helps the basin coordinator identify ‘hub’ organizations working with one or more projects where synergies may be sought, and overload avoided. The future map shows the types of

<sup>6</sup> The approach is called ‘extrapolation domain analysis’

relationship projects need to forge to achieve their goals, and which the basin coordinator can help with. Although we have not done it yet, if the maps are regularly redrawn, they will serve as a network monitoring tool.

**Table 3: Use of PIPA outputs**

<b>Use of PIPA outputs</b>	<b>PIPA outputs used</b>	<b>Process</b>
Ex-ante impact assessment	<i>Essential:</i> Impact logic model, milestones, impact narrative <i>Optional:</i> Extrapolation domain analysis	An impact narrative is written that explains the impact logic model, the assumptions made when quantifying the milestones and the analysis carried out to produce maps showing potential extrapolation domains of project output(s)
Impact Pathways Analysis	<i>Essential:</i> Outcome logic model, milestones and progress markers, vision <i>Optional:</i> Impact logic model	Regular reflection workshops evaluate progress made against progress markers and milestones and adjust the outcome logic model, impact logic model (if constructed)
Laying the foundation for ex-post impact assessment	<i>Essential:</i> Outcome and impact logic models <i>Optional:</i> Impact pathways analysis (that updates project impact hypotheses) Extrapolation domain analysis	The assessment tests the impact hypotheses contained in the AO framework, impact logic model and extrapolation domain analysis (if carried out)
Program network maps	<i>Essential:</i> 'Now' and 'future' network maps	Network maps from projects in a program (e.g., river basin) are put together to provide information for program management

### Process Use of PIPA

Carrying out a PIPA workshop is probably worthwhile even if no use is made of PIPA products. We asked participants in the first PIPA workshop in the Volta basin what had been the most significant change resulting from their attendance. The four responses we received were:

- New knowledge from the PIPA workshop led a project member to a methodology for "Influence Network Mapping" which is showing sufficient promise as to make the front page of the CGIAR eNews in June 2007 (see [http://www.cgiar.org/enews/june2007/story\\_04.html](http://www.cgiar.org/enews/june2007/story_04.html)).
- PIPA helped a peri-urban waste water project identify the Ministry of Food and Agriculture and Accra Metropolitan Assembly as key stakeholders and the project subsequently lobbied both organizations to change a crucial by-law.
- A third project attributed their success in organizing a capacity building consultation workshop with end users to the clarification of project outputs through constructing a problem tree in the workshop.
- The workshop motivated the projects working in the Volta basin to meet to identify synergies and share impact pathways methodology with colleagues who had not attended the workshop.

### Conclusions

Participatory Impact Pathways Analysis (PIPA) is a relatively young and experimental approach that draws from program theory evaluation, social network analysis and research to understand and foster innovation. It has been developed to meet some of the multiple evaluation and management needs of complex research-for-development projects and programs. These requirements include:

- Carrying out an evaluation of likely project impacts and how they will occur (ex-ante impact assessment);
- Helping projects better understand what each other are doing, identify common interests and foster programmatic integration;
- Provide a framework and design for both compliance- and learning-based monitoring and evaluation;
- Provide the impact hypotheses required for impact assessment after the project has finished.

PIPA begins with a workshop which makes explicit impact hypotheses expressed in an outcome logic model, and optionally an impact logic model. The impact hypotheses are the basis for ex-ante impact assessment, monitoring and evaluation, and ex-post impact assessment. Both logic models put greater emphasis on the actors involved in making change happen, and how these actors themselves are expected to change, than traditional logic models.

Testing of the impact hypotheses contained within the framework through regular reflection workshops, as described in this paper, constitutes action research on how to foster developmental impact based on the use of research outputs. Our hope is that 'Impact Pathways Evaluation' will change researchers' perception of M&E to something they want to do to help them do a better job, and to publish, rather than something they feel have to do to satisfy the donor.

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