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Monitoring for change, assessing for impact: the WorldFish Center experience

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Impact Assessment at the WorldFish Center

Like many CG centers, a traditional emphasis on the development and dissemination of new technologies has shaped impact assessment within the WorldFish Center. In particular, the aquaculture program has in the past focused on commodities, economics, stock improvement and integrated farming. One of the stated aims of ICLARM (now the WorldFish Center) was to 'resolve critical technical and socio-economic constraints to increased production, to improve resource management, and equitable distribution of benefits in economically developing countries' (Pullin 1983). Assessing the impact of projects undertaken to achieve these aims has largely been quantitative in nature, applying economic models to assess productivity, welfare and technological efficiency, for example. *Ex post* and retrospective impact assessments have dominated and, to a large extent, continue to do so. In comparison to *ex post* impact assessment activities, less attention has been given to monitoring and evaluation, and to the process of learning and adaptation, during project implementation.

Impact Assessment has traditionally sat within the social science division of WorldFish, forming part of the Policy Research and Impact Assessment Program (PRIAP), now replaced by the Policy, Economics and Social Science Discipline (PESS). Within this disciplinary framework, the process towards institutionalising impact assessment into all stages of project implementation at the WorldFish Center has been underway for some time. In 1999, Gupta and Dey put forward a three phase impact assessment framework to assess the impact of rural aquaculture project on food security and poverty alleviation. The framework comprises a planning stage or *ex ante* assessment (phase one), assessment of impact at the adoption stage using monitoring and evaluation methods (phase two), and an *ex post* assessment following adoption and dissemination of technologies (Gupta and Dey 1999, following Ahmed et al. 1999, Bantilan 1996 and Bantilan and Rayan 1996). In a move towards a holistic approach, in keeping with the three-dimensional approach to sustainability prevalent at the time, the indicators within the framework were broadly categorized as socioeconomic, ecological and institutional. The data collected to measure progress towards indicators was, however, largely quantitative in nature.

More recently, there has been a shift in approach both in the research carried out by the center, and to impact assessment. The emphasis has moved from the adoption of technical innovation and productivity/profitability gains of agricultural research, towards a broader approach addressing poverty alleviation and associated changes in equity, food security and health. Accompanying this shift, two clear trends have emerged within the CGIAR system. Firstly, there as has been a move towards the development and application of methods which increase the impact of agricultural research on poverty and which facilitate learning and change. The methods and tools to achieve this aim are new to many of the scientists working within the CGIAR system. A brief survey carried out at the WorldFish Center showed that many scientists are not familiar with alternative, participatory forms of monitoring and evaluation, including Outcome Mapping. Some had applied OM in their projects but were not satisfied that the benefits from the approach exceeded the costs of its application. At present, it seems there is a lack of appropriate, effective tools for participatory monitoring and evaluation for application in a natural resource management context. Simultaneously, there has been a trend towards increased partner collaboration and impact-oriented research which requires a more responsive and adaptive approach to impact assessment and M&E than has previously been applied at the WorldFish Center.

In response to these emerging trends, this paper describes how new approaches to M&E and impact assessment are being piloted in the type of large-scale multi-country project in which the WorldFish Center is increasingly engaged. Drawing on a Challenge Program project in five countries, the paper briefly outlines the project and the challenges arising in the implementation of an effective impact assessment and monitoring program. The paper presents recent experiences with the application of Outcome Mapping and Most Significant Change stories and their relevance to research for development in the field of natural resource management more specifically.

Community-based Fish Culture in Seasonal Floodplains – IA and M&E

The WorldFish Center is currently implementing a number of large-scale projects involving multiple countries and National Research Partners (NARES partners). A project supported by the CGIAR Challenge Program on Water and Food, 'Community-based fish culture in seasonal floodplains and irrigation systems' (CPWF35) is an example of this type of complex project involving NARES partners in five countries, namely Bangladesh, Vietnam, China, Cambodia and Mali currently in its fourth year of implementation. The project is currently in its fourth year and aims to develop appropriate technologies for community-based fish culture. Using an adaptive learning approach over a number of culture cycles, national partners and direct

beneficiaries at the community-level are encouraged to evaluate fish culture activities each year and modify the approach for the subsequent year based on their learning experience.

Addressing natural resource management issues through community-based and co-management approaches such as this one for community-based aquaculture is an increasingly common approach. The WorldFish Center has been at the forefront of research to develop these approaches since its early work in the Philippines in the 1980s and more recently in Bangladesh through the Community-Based Fisheries Management Project and the Global Fisheries Co-Management project. The open-access nature of the aquatic resources which support fisheries and aquaculture interventions are often most appropriately managed through community-based approaches, which require a detailed understanding of social processes and the nature of access rights. The project on community-based aquaculture therefore places equal emphasis on both the technical issues under development and the institutional arrangements required to support community-based aquaculture.

During the project inception phase in 2005, provisions were put in place to establish a baseline survey for the collection of key indicator data including household demographics and assets, agricultural production and consumption, land use and aquaculture practices. Baseline data has since been collected in all project villages in each of the five participating countries. However, whilst providing a detailed picture of the situation in each of the communities prior to the development of community-based fish culture, local partners reported a number of problems associated with the survey. A key issue was the length of time required to undertake such a detailed survey, resulting in 'interview fatigue' and frustration amongst local partners and respondents alike. Yet the data was necessary to provide an effective baseline for *ex post* impact assessment and for the analysis of conditions in the communities where the project was being implemented. However, the time required to complete the survey meant that local staff spent the majority of their time in the field engaged in extractive data collection instead of engaging with the community in a more meaningful way. Similar problems were encountered with the longitudinal survey, which was derived from the initial baseline survey. The longitudinal survey was put in place to monitor changes during the course of the project. In addition, the validity of recall data from quantitative surveys was called into doubt. Methods were called for which would permit triangulation of survey data, and support attribution of impact. It therefore became necessary to prioritize data needs from the baseline and the monitoring surveys, and to seek alternative methods of information gathering.

Failure to capture unanticipated changes taking place in participating communities as a result of project activities is an inherent risk in the use of quantitative methods. In particular, negative or undesirable effects of the project may be missed. Most importantly, however, is the lack of

opportunity for project beneficiaries to define the outcomes and impacts they wish to see as a result of their participation in the project. How could these unexpected changes be effectively and analytically captured in the community-based fish culture project and what methods could be introduced to capture them that would be easy to convey to partners in all five countries?

In response to this apparent gap in the project's M&E and Impact assessment strategy, qualitative and participatory methods were introduced to compliment the existing quantitative M&E tools, and supporting a more open and responsive approach to change occurring in communities involved in the project. In addition, it was hoped that these approaches would broadened the scope of the project impact by addressing issues such as capacity building amongst NARES partners, and institutional learning and change. As a first step in the development of an assessment framework combining quantitative and qualitative approaches, methods being piloted include Outcome Mapping (OM) and Most Significant Change stories (MSC).

Outcome Mapping- pilot testing for R4D

Outcome Mapping is described as a 'method for tracking behavioural changes in development programs' and 'a methodology for planning, monitoring and evaluating development initiatives that aim to bring about social change' (Smutylo 2005). Development of the methodology has been led by the International Development Research Center (IDRC) with the aim of providing an approach by which development project teams can monitor the linkages between their actions and activities and development outcomes. It has been widely implemented in Asia, Africa and Latin America, and has prompted the development of an active online discussion group of practitioners who seek to apply and adapt the approach[1].

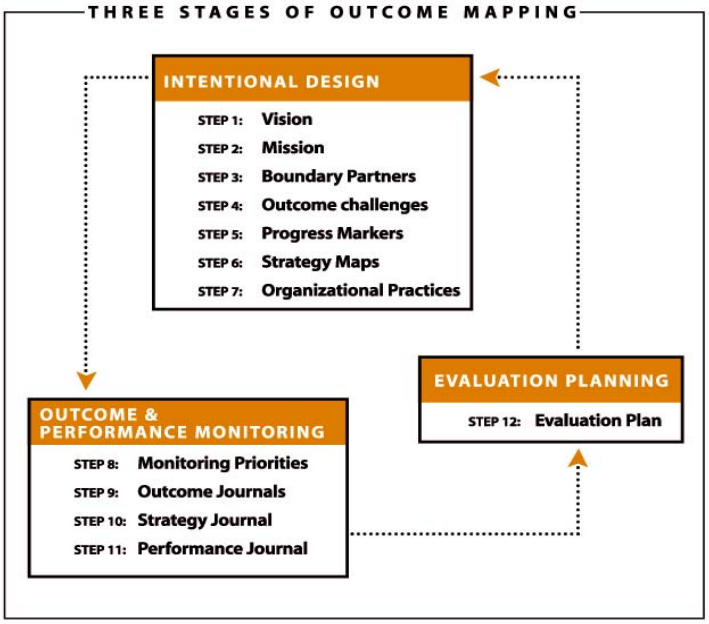
Outcome Mapping was developed to address the complexities of international development where changes are non-linear, often not possible to see within the time frame of a project, and may not take the form anticipated. The approach looks at development as a result of changes in behaviour, and changes taking place in the actors involved which may lead to more sustainable project outcomes. These changes are more easily monitored than specific impacts, which may arise from a combination of factors and outcomes, making attribution difficult.

The focus on process and change which emphasizes changes in behaviour, relationships, actions and activities of people and organizations, makes Outcome Mapping an innovative approach to assessing and interpreting impact. The methodology is centred on the identification of

[1] The Outcome Mapping Learning Community http://www.outcomemapping.ca

'boundary partners' with whom the program interacts directly and which the program hopes to influence[2]. Project participants and beneficiaries are encouraged to reflect on the processes that need to be in place to achieve and sustain development impact. The Outcome Mapping approach recognizes that although impacts may not be seen within the project lifetime, the actions of the people involved will pave the way towards impact in the long-term.

Outcome Mapping is a three stage process. The first step, Intentional Design, clarifies the overall objectives of the program in terms of the changes it would like to bring about and the strategies the program will use to achieve these changes (Smutylo 2001). Intentional Design helps to answer the Why? How? Who? and What? of the program, leading to the definition of the project Vision, to be achieved through the development of a Mission, Strategy Maps and Organisational Practices, and working with boundary partners to measure progress towards Outcome Challenges and Progress Markers (Figure 1). The Second Stage, Outcome and Performance Monitoring, uses journals to chart changes in the indicators defined in Stage One. The full OM process includes the monitoring of outcomes using an Outcome Journal, a Strategy Journal to monitor strategies and activities and a Performance Journal to monitor organizational practice. The Third Stage, Evaluation Planning, sets evaluation priorities.



Source: Earl et al 2001

[2] The description of Outcome Mapping presented here draws on work by Terry Smutylo Sarah Earl and Fred Carden. Further details can be found in Smutylo (2005), and Earl et al. (2001).

In the context of the Challenge Program project, Outcome Mapping has the potential to serve as a useful tool to explore the changes taking place within communities where the project is being implemented. It also creates a better understanding of impacts of the project on beneficiaries, both in terms of the impacts already taking place and those that the beneficiaries would like to see arising as a result of the project. The use of approaches such as OM, which adopt a more participatory approach to impact monitoring, are needed to ensure that a complete and accurate picture of project impacts emerges, allowing project beneficiaries to more openly share their experience of project impact outwith the confines of a structured survey approach. Significantly, such an approach should place emphasis on the impacts and changes which are important to beneficiaries.

With support from the CGIAR ICT-KM 'Knowledge Sharing in Research and Institutional Knowledge Sharing Pilot Project Initiative', the Outcome Mapping approach is currently being piloted in one country to evaluate its suitability as an effective complimentary monitoring tool for the Challenge Program project. The aim of the project is to critically evaluate Outcome Mapping and its relevance to other WorldFish Center projects. Although in its initial stages of implementation, a number of constraints and benefits to the approach have already been identified.

Outcome Mapping was introduced through a two-step process, comprising a 'theoretical', training workshop, during which the local project team was given an overview of the OM framework, and developed the initial draft for the intentional design stage of the project (1.5 days). In a second step, the Outcome Challenges of the boundary partner groups and their progress markers were developed together with one of the communities. The initial institute based workshop was conducted in the local language and English. In the community, the process was carried out entirely in the local language, with support from the English-speaking facilitator. By following this approach, we aimed to minimize the influence of the WorldFish team and reduce the risk that pre-conceived ideas regarding the nature of the progress markers developed in the community would be imposed on the community.

At this stage, applying the Outcome Mapping process has generated the following benefits:

- Outcome Challenges and Progress Markers identified by the community revealed the nature of some of the constraints they faced in the development of community-based fish culture. Progress Markers of where the community-group would like to see change included indicators relating to how they worked together as a group, and the support

they received from local authorities. Whilst some of these issues had been raised during previous visits by the project team, some new issues raised and were now captured in a more formal way.

- Creating a Vision for the future of fish culture and its related outcomes in the village, followed by the development of Progress Markers towards this goal, encouraged project participants to reflect on the linkages between their own activities and the achievement of their vision. This step can create a stronger sense of responsibility and empowerment in the community as project participants clearly recognize their own role in the success of the project and the dependency on external agents to make change happen is therefore reduced.

- Progress markers were created to define short term, medium term and long term goals, taking the process and the achievement of Outcome Challenges two years beyond the project lifetime. By doing this, the community group was encouraged to consider the challenges facing them when the project came to an end. Progress markers were put in place to reflect the mechanisms and actions they will put in place to ensure the long-term sustainability of communal aquaculture in their community.

- The identification of Boundary Partners clarifies the role of different stakeholders in the implementation, responsibility and accountability for project success. Bringing together community participants and representatives from local authorities at the workshop allowed both groups to articulate their expectations of one another in the achievement of project goals, with indicators identified to formalize the relationship between the two groups and their responsibilities. This process also involved the local project team and their contribution to project success. Previously, a more general dissatisfaction was felt towards the local authorities by the community group and the level of support they had received. The OM process – at this early stage – seems to be suitable to support dialogue between stakeholders, and eventually lead to mutually agreed action.

- OM provides a process to ensure that all project stakeholders are familiar with the objectives of the project and can help to identify the expectations of all involved, which may differ widely from the intended objectives of the project at its initial inception.

However, a number of issues were also revealed which could hinder the effectiveness of OM in the research for development context, or which raised concerns about power and accountability in applying OM:

- Outcome Mapping is strongly participatory in its application and a relatively complex process. Where the process is being communicated to a group for whom the language of the trainer/facilitator is a second language, there is the risk that the concepts that lie at the heart of OM are misinterpreted and miscommunicated. Participatory methods are an expected component of research and development work, yet they require skill and experience if they are to be applied well. In countries where participation is uncommon and top-down control is the norm, conveying the need to permit project beneficiaries to speak openly and without fear is a very real scenario. In addition, the skills needed to guide the project participants through the selection of progress markers, without exerting a modifying influence, also take time and experience to acquire. The process of translating OM workshop outcomes can also add a level of interpretation and manipulation on the part of the local team who are implementing the research project. Whilst a hands-off approach to facilitation is ideal, there is nevertheless a need to introduce a degree of monitoring during the progress marker stage to ensure that more powerful individuals do not use the OM concept of 'behavioural change' to exert their influence on weaker members, putting in place markers to influence and control the activities of others.

- The idea of 'behavioural change' should also be handled with caution if OM does not intend to move into the realm of social engineering, with influence and change externally imposed. However, long terms goals of increased cooperation between community members and greater solidarity will serve to empower and provide a strong base for future community initiated schemes.

- The full Outcome Mapping process is intended for introduction to a project through a three day workshop, following the three-stage process described above. However, there is flexibility within the process to allow adaptation according to the project context. Within the context of the Challenge Program project, even in a relatively condensed format, the process required a substantial time investment on the part of the WorldFish project team, the partner country team and, most importantly, the community group. For this reason, OM was introduced by way of the two phase process described above. For the purposes of the Challenge Program project, the full OM methodology appears to be overly cumbersome.

- The three day workshop, the relatively complicated terminology that has to be conveyed to project partners and beneficiaries, and the use of detailed monitoring 'journals' may be more appropriate to a large-scale, multi-million dollar development

project, than a 3-year research for development project. Within the CGIAR system it is important to bear in mind that research is the primary focus and that monitoring tools such as OM should provide a tool to support our research efforts. In this regard, scientists should have resources at hand to guide them in the selection and application of appropriate tools to obtain the information they need. In its complete form, many scientists are unlikely to take up the OM methodology as part of their project monitoring and evaluation plan.

Most Significant Change

In seeking to find alternative assessment approaches to compliment quantitative methods to M&E and impact assessment, a form of participatory monitoring and evaluation known as 'Most Significant Change' was also introduced to the Challenge Program project. This was seen as a potentially useful tool given its simplicity and its use of storytelling to communicate experiences of change, and the who, why, how and why of an event or situation. The technique was invented by Rick Davies in Bangladesh to overcome problems of monitoring processes and outcomes in a project spanning more than 46,000 people in 785 villages. Most Significant Change (MSC) is notable for introducing intermediate monitoring for impact during the course of the project, and for its lack of indicators (Davies and Dart 2005). The MSC technique essentially revolves around a single question posed to people directly involved with the project, such as:

'Looking back over the last month, what do you think was the

most significant change in [particular domain of change]?'

Due to the relative simplicity of the approach, which is easy to explain and can be communicated well across cultures, and its emphasis on encouraging project participants to share their stories and experiences in a relatively unstructured and informal way, MSC was thought to be particularly relevant to the Challenge Program project as a means to identify unexpected changes –both positive and negative. The technique has so far been applied in one project country, where it was found to elicit a number of unexpected positive project impacts from participants. Although only applied to a limited extent in the project so far, with an emphasis on story collecting[3], the technique appears to work well, with few potential constraints to effective assessment of impact. However, despite its simplicity, caution will need

[3] The analysis and quantification steps of the full MSC process have not yet been introduced.

to be exercised to ensure that story-tellers are not influenced by the more powerful in the group or community or that they are motivated by a wish to please the project team (particularly where negative impacts might be occurring).

Conclusions

As the WorldFish Center works towards institutionalising impact assessment and M&E, it is aiming to incorporate both into all stages of project planning and implementation. Progress has been made towards this goal with the introduction of impact pathway analysis into the project development process, with impact pathways obligatory in the development of most projects. Impact pathway analysis has also been integrated into research planning, a relatively new approach in agricultural research, signaling a move away from an emphasis on retrospective and *ex post* impact assessment (Briones et al. 2004). Whilst quantitative methods are still a central component of impact assessment at the Center, it is recognised that an increasingly multi-disciplinary approach is necessary to capture the impacts of R4D on poverty and all its complexities. At present, however, alternative approaches, including participatory and qualitative methods for IA and M&E are less well-known and the efficacy of their application uncertain. There is a need to carefully evaluate alternative methodologies available to research scientists and to put forward appropriate tools for impact assessment and M&E that can be readily taken up and applied R4D, particularly in the natural resource management context.

Combining quantitative and qualitative assessment methodologies in the community-based fish culture project has highlighted their complimentarity and the benefits of including both approaches within project impact assessment and M&E frameworks.

Outcome Mapping has been found to bring a number of important benefits to project monitoring and evaluation:

- Creating a longer term vision for sustainability and impact
- Identifying unanticipated problems and constraints to project success and documenting them in a formal way
- Revealing outcome and impact priorities held by project participants and stakeholders
- Creating a sense of ownership and responsibility for project success, clarifying roles and responsibilities, articulating where change is needed and monitoring progress towards required change

However, a number of disadvantages have also been identified, including:

- The potential for unequal power relationships within the participating group, particularly at the community level, to be expressed in the development of progress markers
- The relative complexity of the approach and difficulties in communicating terminologies and processes if working in more than one language
- Substantial time investment of stakeholders to work through full OM design phase
- Potential for misinterpretation and inappropriate application of the concept of 'behavioural change'

In an attempt to address these issues, it is anticipated that the OM process will be modified to place emphasis on progress markers which are more closely related to the impacts that project beneficiaries would like to see as a result of introducing community-based fish culture, and the actions they would need to do as a group if they work towards achieving these impacts. A framework which combines elements of OM with the MSC is one option for development.

Through the continued application of Outcome Mapping and MSC in the Community-Based Aquaculture project, it is hoped to develop a concise framework for monitoring and evaluation which adopts key elements of both methodologies, and which supports learning both at the community and institutional level. Both methodologies will be evaluated for their relevance to research for development project in the fisheries and aquaculture context, and particularly as a tool to be applied in large-scale, multi-country projects in conjunction with traditional quantitative approaches.

Bibliography

Ahmed, M., Dey, M., and M.Williams. 1999.Assessment of impact of aquatic resources research by ICLARM: scope and methodologies. Naga – WorldFish Center Quarterly 22(2):4-10

Bantilan, M.C. 1996. Research evaluation and impact assessment: framework and strategies. In: M.C. Bantilan and P.K. Joshi (eds). Evaluating ICRISAT research impact: Summary proceedings of a workshop on research and impact assessment, 13-15 December 1993. International Crops Research Institute for the Semi-Arid Tropics, Patancheru, Andhra Pradesh, India. 148pp.

Bantilan, M.C. and J.G. Rayan. 1996. Using impact assessment in research priority setting: developments at ICRISAT. In Proceedings of Global Agricultural Science Policy in the Twenty-First Century, p.427-456. Melbourne, Australia, 26-28 August 1996.

Briones, R., Dey, M.M., Ahmed, M., Stobutzki, I., Prein M., and B.O. Acosta. 2004. Impact Pathway analysis for research planning: The case of aquatic resources research in the WorldFish Center. Naga – WorldFish Center Quarterly 27 (3&4):51-55

Davies R, Dart J (2005) The 'Most Significant Change' (MSC)Technique - A guide to its use. Available online at: http://www.mande.co.uk/docs/MSCGuide.htm

Earl S, Carden F, and Smutylo T (2001) Outcome Mapping: Building Learning and Reflection into Development Programs. International Development Research Center, Ottawa, Canada

Gupta, M. V. and M. M. Dey (1999). "A framework for assessing the impact of small-scale rural aquaculture projects on poverty alleviation and food security." FAO Aquaculture Newsletter(23): 22-25.

Pullin RSV (1983) Statement on collaboration between NACA and the International Centre for Living Aquatic Resources Management (ICLARM). In: Pillay TVR (ed) Report of the second advisory committee meeting of the network of aquaculture centres in asia. Establishment of a Network of Aquaculture Centres in Asia. FAO, Rome, pp Annex IX

Smutylo, T. 2001. Crouching impact, hidden attribution: overcoming threats to learning in development programs. Ottawa, Canada: International Development Research Centre: http://www.idrc.ca/en/ev-26968-201-1-DO_TOPIC.html

Smutylo, T. (2005) Outcome Mapping: A Method for Tracking Behavioural Changes in Development Programs, ILAC Brief 7, CGIAR.