

**Assessing IWMI's Research Impacts: A Framework for Action<sup>1</sup>**  
**November 26, 2002**  
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**Executive Summary**

Through its research on land and water management, IWMI strives to have a “positive impact on the activities and perspectives of policy makers, water managers and poor rural communities in developing countries” (IWMI, 2001, 10). While IWMI prides itself on the quality of its research and the influence this research has had on resource policies and practices, the organization lacks a formal system to track and measure its impacts.

Establishing an effective impact assessment program requires clear procedures for identifying, monitoring, evaluating and communicating impacts of individual projects and programs. As importantly, an institution should have at its core a clear conceptual structure that describes how desired impact will be achieved. This conceptual base is especially important for an organization such as IWMI where impacts are designed to occur over wide geographic and temporal scales and are therefore inherently difficult to quantify.

With these issues in mind, this paper lays out a framework for establishing an impact assessment program at IWMI. The framework addresses both the conceptual and practical considerations for measuring and tracking impacts of natural resource management research and can serve as a road map for IWMI to better assess its contributions toward improved water and land management in developing countries. The paper begins with a brief discussion of impact assessment at IWMI and highlights some of the important issues shared by both IWMI and other organizations in measuring and evaluating the impacts of resource related research. The second section describes a logical thought process for considering the nature and scale of desired IWMI impacts and pathways for impact achievement and outlines a methodology for practical impact assessment. The final section details a set of recommendations for firmly establishing a systematic impact assessment program at IWMI. These recommendations are that IWMI should:

1. Assess the efficacy of current institutional structure and more clearly set research priorities for achieving impact through an external peer review performed in conjunction with the update of IWMI's Strategic Plan.
2. Nurture an internal impact “culture” by placing greater emphasis on impact assessment within in each researcher's individual operating plan and by rewarding researchers for quality and innovation in assessing project impact in addition to output.
3. Develop standard impact assessment procedures to be included in the Quality Management System.
4. Develop a typology of IWMI projects by impact type and scale with an associated set of relevant impact indicators.
5. Test the impact typology and impact assessment procedures through two or three pilot projects.
6. Based on the results of the pilot projects, begin implementing an institution-wide impact assessment program.

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## **Introduction**

As stated in IWMI's 2000-2005 Strategic Plan, "IWMI does research for one reason: to have a positive impact on the activities and perspectives of policy makers, water managers and poor rural communities in developing countries" (IWMI, 2001, 10). Indeed, since its inception in 1984, IWMI's research on water and land resources has not only influenced policy and management decisions but has also had a positive impact on the lives and livelihoods of individual farmers. In India, for example, IWMI's report entitled *The Global Situation of Groundwater* was used to shape parliamentary discussions in 2002 on a groundwater strategy for this country. In Sri Lanka, IWMI's extensive work on malaria and irrigation brought together for the first time health and irrigation authorities to discuss and agree upon a common strategy for reducing malaria in the country's tank cascade irrigation systems. At the field level, the study *Pedaling out of Poverty: Social Impact of a Manual Irrigation Technology in South Asia* encouraged the NGO, International Development Enterprises, to rethink its treadle pump marketing strategies in South Asia, and IWMI's work in South Africa helped to establish mechanisms for the poor to meaningfully participate in catchment management discussions.

While IWMI prides itself on the quality of its research and the role that research has played in improving water and land management, the organization lacks a formal, organization-wide system for assessing its actual impacts. Both the 2000 External Programme and Management Review and IWMI's 2000-2005 Strategic Plan have highlighted a need for such a system not only to improve IWMI's internal management and priority setting processes but also to ensure that research activities meet the needs of IWMI's stakeholders and partners. Furthermore, it is clear that without a means to measure the significance of research results, the true value of some IWMI programs will go unrecognized while the mistakes of other projects might be repeated. To address these concerns, this paper provides a conceptual framework for developing and implementing an impact assessment program at IWMI.

The paper is divided into three sections. The first section provides a brief overview of both the progress IWMI has made in terms of impact assessment since the last External Programme Management Review and highlights some of the obstacles to impact assessment faced not only by IWMI but other research organizations. In light of these considerations, the second section outlines a proposed framework, both conceptual and practical, for assessing impact at IWMI. The final section details several actions we propose to take over the next year to begin testing this proposed methodology and institutionalizing impact assessment into IWMI's core operations.

## **Background**

As part of IWMI's second External Programme and Management Review (EPMR), the review panel recommended that "IWMI adopt more formal procedures for priority setting and for impact assessment" (TAC Secretariat, 2000, 76). Fully concurring with this recommendation, IWMI management agreed that impact assessment would become a central component of the new Director General's strategic review of the organization. Accordingly, the institute's 2000-2005 Strategic Plan included a road map for translating research into impact by the year 2005. As part of this plan, it was envisioned that by 2005 IWMI would measure the quality and direct impacts of its research and, in close collaboration with its

partners, ensure that IWMI's knowledge reached the organization's ultimate stakeholders—the water users in developing countries.

Towards this goal, stronger emphasis has been placed on transforming output into impact. Through standardized logical frameworks and project proposal templates, project leaders are now required to specifically identify anticipated impacts, beneficiaries and knowledge dissemination pathways at the outset of a project. Similarly, at the end of a project there is now a greater focus on drawing linkages between project outputs and project impacts as well as documenting these impacts. While these steps have helped to encourage project leaders to consciously consider the ultimate effects of their work, there remains considerable concern over the ability to practically link resource-related research to broad societal outcomes. Furthermore, project leaders have raised questions about the selection of appropriate indicators and methods of measuring and attributing impact as well as the resource requirements and internal incentives for monitoring and evaluating project impacts.

These and other concerns are shared by a number of research organizations involved in resource-related research. The International Food Policy Research Institute (IFPRI), for example, has devoted considerable attention to evaluating the impact of social science research. In *Impact Evaluation: Assessing the Impact of Policy-Oriented Social Science Research* (IFPRI, 2002), a workshop summary report, IFPRI researchers together with leaders from other governmental and non-governmental organizations succinctly outlined some of the major considerations for evaluating the impact of policy-related research. Like IWMI's research staff, questions related to impact measurement and attribution were raised together with conceptual concerns over the scale of impact and time lags to achieving impact. The workshop's participants also identified several means by which researchers can strive to enhance the impact of their research, such as clearly identifying the intended research beneficiaries and selecting appropriate communication tools; building capacity alongside the generation of new knowledge to enhance the likelihood of uptake; and recognizing the direct as well as indirect impacts that can extend from a single project (e.g., knowledge generation, data accumulation, and capacity building).

### **A Framework for Institutionalizing Impact Assessments**

Drawing from these considerations, we have designed a framework to help construct a meaningful impact assessment program at IWMI. This framework does not address specific questions (e.g., what indicator should be used for a particular project), but rather outlines a practical thought process through which project managers and the institution as a whole can consider measuring, monitoring and evaluating the impact of its activities. The framework begins by examining several fundamental questions associated with impacts and their assessment, the answers to which are critical if impact assessment is to be meaningful. A methodology for moving from a conceptual framework to an actual impact assessment program is then described. This section concludes by discussing how the lessons learned from impact assessments can be further utilized and communicated by the organization in setting future program priorities.

#### **Conceptual Considerations**

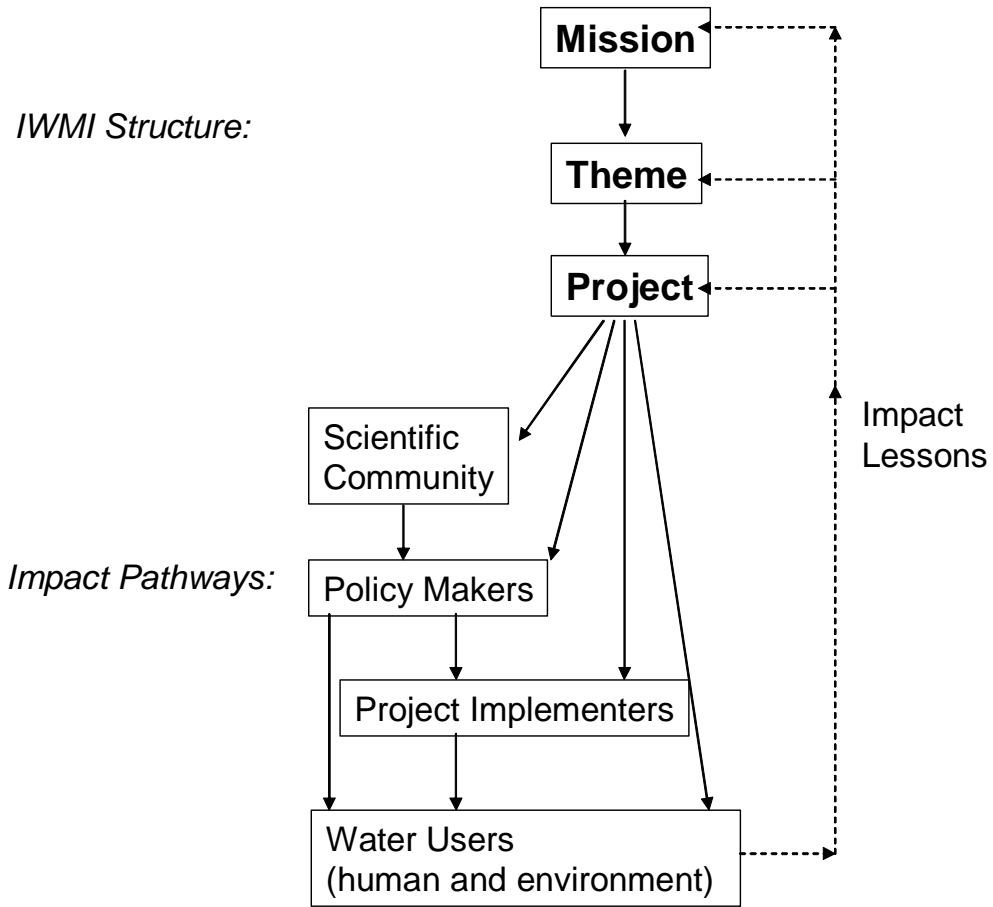
A simple, but non-trivial, step in establishing an effective impact assessment program is the clarification of IWMI's goals and the means through which it hopes to achieve those goals. To better understand the IWMI mission, how individual projects are expected to contribute to

that mission and therefore how the contributions of those projects might be measured, we may begin by asking ourselves three fundamental questions.

**1. Why are we doing what we are doing at the institutional, theme and project levels?**

Impact assessment at IWMI requires a clear understanding of organizational goals. IWMI's mission, simply stated, is "to improve the management of water and land resources for food, livelihoods and nature." To accomplish this goal, IWMI has created interrelated themes around which to organize research. Within these themes, individual projects are implemented (see Figure 1, IWMI Structure). Given the broad nature of IWMI's overall mission and the range of external factors involved, it is relatively difficult to measure the overall impact of IWMI, with a budget of less than \$20 million, on the global water and land resource environment. However, from a top-down perspective, IWMI management can and should explicitly consider, at least conceptually, how it expects its Themes to impact overall mission goals and how individual projects will further Theme objectives. From a bottom-up perspective, the goals and objectives of individual projects can be clearly defined in terms of their linkages to broader research themes and the measurable contributions they can be expected to generate.

**Figure 1. Conceptual pathways to IWMI impact**



To fulfill its mission, IWMI is organized along research themes, each of which implements specific projects. Projects are designed to impact water and land use decisions either directly or through a series of impact pathways. The impact of a project at the point it enters the pathway will tend to be relatively easy to measure. The impact of the project as the results move through the pathway chain will tend to be more difficult to measure but are critical in project design considerations nonetheless.

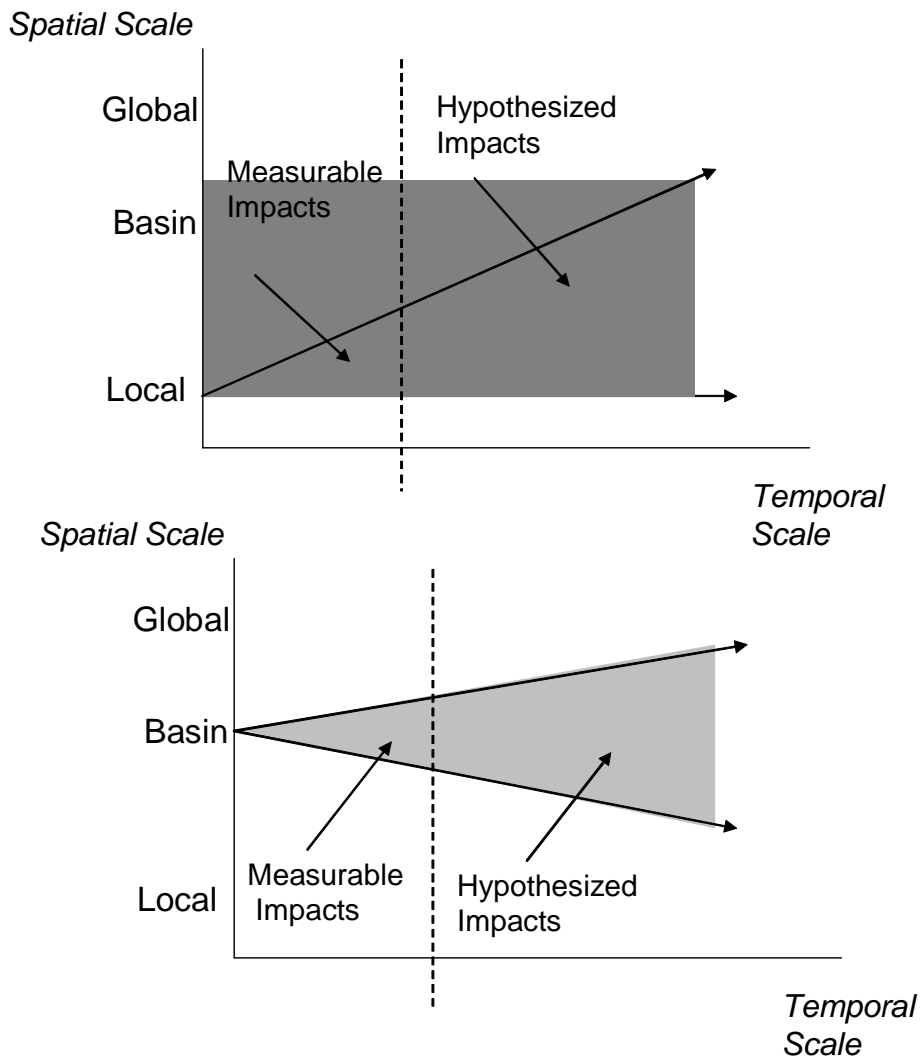
## **2. On which pathways will we travel to generate impact?**

Again, IWMI's mission is to improve the management of water and land resources for food, livelihoods and nature. To accomplish this mission, IWMI works through its projects and partnerships to increase knowledge and to influence the behavior of a variety of agents including the scientific community, government policy makers, project implementers, and individual farmers (see Figure 1, Impact Pathways). These agents are then expected to further change knowledge levels and behavior of actors at other levels. In order to properly assess the impact of IWMI's work, projects should be designed from the outset with a clear understanding of the direct and indirect pathways through which intended results will reach outside agents and eventually impact the resource environment. With this understanding, practical and conceptual indicators for assessing impact can be built into project design.

## **3. At what scales are direct and indirect project impacts expected?**

In the broadest sense, IWMI hopes all of its projects will have a lasting, global impact on water and land management. However, beyond the conceptual level, it is unrealistic to expect that such impacts could be easily measured or attributed. Nonetheless, individual projects can and should be designed with their expected, measurable impacts at relatively narrow scales clearly articulated. Secondly, the project should consider, at least conceptually, how the impact at one scale will impact other scales and enhance IWMI's overall mission (see Figure 2). Some of the scales that should be considered include geographic (global, basin, farm) temporal (seasonal, annual, decadal), social (individual, household, community, nation), and sectoral (agriculture, health, energy, industry, environment). While "scaling up" is now a popular concept, projects at broader scales should also consider their potential impact in "scaling down" (e.g., understanding the potential for translating policy suggestions at the global or basin scale to local communities). Various partnerships within the impact pathways, again, may serve as important conduits in this process.

**Figure 2. Impact Assessment:  
Two Examples of the Space/Time Relationship**



## Methodological Considerations

With the IWMI mission fully understood, the relationship between IWMI structure and mission goals clearly articulated, and an understanding of the pathways through which Themes and projects will contribute to mission objectives, it then becomes possible to begin developing a practical and useful impact assessment program at the project level which can contribute to our understanding of overall IWMI impact. Assessment of project impact must be considered at two levels. The primary level consists of the direct impacts the completion of any project is expected to have. The second level consists of the broader, secondary and tertiary impacts a given project may have. In general it is at the first level that project impact is most easily measured but at the second level that mission goals are more likely to be met. In this section we focus on the practical measurement of primary project impact. We will later provide suggestions on building quantitative measurement of primary impacts into a mixed quantitative/qualitative framework for assessing IWMI's overall impact.

The development of a program for impact assessment begins with an examination of the purpose of the specific research project. By referring again to Figure 1, we can see that the immediate purpose of a project may be to generate new knowledge for the scientific community, to influence resource-related policies, and/or to directly promote changes in water usage. The means to achieving these goals might be through the publication of journal articles based on the results of original research, hosting workshops for policy makers, or developing training materials for use by extension agents. Only after the exact pathways to impact are articulated can we consider the specific indicators which might best be employed to measure whether or not the project met its immediate impact objectives.<sup>2</sup>

It should be stressed that the indicators to be employed will vary from project to project depending on project nature and objectives. Considerable research has been done elsewhere on measuring impacts of natural resources research, and it behooves IWMI to access the related literature in developing its own impact indicators for specific projects and classes of projects. There are, however, some general principles of impact measurement worthy of consideration here. In general, it has been said that the creation of practical impact assessment indicators should follow the SMART approach. That is, they should be simple, *measurable*, *achievable*, *realistic*, and *time-bound*. Using this approach, we might, for example, consider using the number of citations of a specific journal article rather than attempting to quantify how the article actually impacted the scientific community. Kilpatrick (1998) outlined other tools such as case studies, peer reviews, user evaluation and statistical methods that might prove useful to IWMI if we develop SMART style indicators.<sup>3</sup>

In developing our impact measurement tools for various project types, we must also remember that most, if not all, IWMI projects will have multiple impacts through multiple impact pathways. Thus the attempt to measure impact should not end with the direct project output (e.g., journal articles, workshops, hydrologic models, etc.). The hiring and training of staff, the collection and dissemination of primary data, and the establishment of partnerships

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<sup>2</sup> An important side question relates to the mix of impact pathways IWMI should target in trying to reach its mission goals. This is an issue which should be addressed by the IWMI management team.

<sup>3</sup> However, we must always remember that all measurable indicators, but perhaps in particular SMART indicators, are only proxies for true impact. There is always a danger of losing sight of this fact and focusing only on the measurable proxy rather than the true goal.



and networks, for example, can generate impacts of equal importance to those related to primary project goals. Thus, IWMI leaders should be cognizant of the possibilities for the positive, indirect impacts, and include their measurement in the assessment of project impacts.

Another important consideration in impact assessment is the timeframe for analysis. Ideally, impact assessment involves ex-ante, intermediate, and ex-post evaluations. Ex-ante analysis helps to identify the existing situation and the opportunities for impact generation. Intermediate assessments are used to see if projects are on track and progress is being made toward intended impact. Ex-post evaluation follows the completion of a project to determine if the intended impact was indeed achieved as expected or if other outcomes occurred. To conduct an in-depth impact assessment at all three stages can involve considerable human and financial resource requirements and may often require the assistance of partner organizations. Thus, depending on the type of project and resources available, IWMI will need to develop guidelines for determining the timing, scope and responsibility of impact assessment.

Finally, there is no point in conducting impact assessment if the lessons learned are not used. While the intent of the institution as a whole as well as of individual project leaders is to have a positive impact on the land and water resource environment, in reality not all projects will achieve their goals, while others may have no, or perhaps even negative, impact. The point, however, is to learn from past experiences, whether positive or negative. A mechanism must be constructed so that senior management can take the lessons learned from each impact assessment and use that information to improve future IWMI work. Furthermore, IWMI should consider sharing the results of its impact assessments and its process of developing an impact assessment program with external organizations including other research and development organizations as well as donor agencies. This, in and of itself, could have positive impacts on resource management and thereby further IWMI's mission.

### **Next Steps**

Implementing an impact assessment program is a multi-staged process that involves both qualitative as well as quantitative analysis. It is therefore not realistic to assume that within one or even ten year's time that IWMI will be able to measure the full impact of its projects and programs. IWMI can, however, make concrete steps toward better monitoring and evaluating the direct impact of its research projects and from that assess, at least conceptually, progress toward the institution's overall mission. To improve IWMI's capacity in this regard, we propose several actions over the next year (see Annex for 2003 workplan and timeline).

At the project level, we propose the development of an impact typology for IWMI. This typology would divide research projects by type (e.g., primary research, field techniques, policy dialogues, outreach activities, etc.). For each project type, specific measures can then be developed to assess project impact. Developing this typology and the associated impact measures should involve IWMI's active participation in the impact assessment network, the use of literature reviews, and perhaps the involvement of an outside consultant. It would likely be a mistake to conduct this work independently, ignoring the experience of others and in essence re-inventing the wheel. Simultaneously, specific procedures for implementing an impact assessment program should be incorporated in IWMI's Quality Management System

(QMS) as part of the project management cycle. Once the impact typology and related monitoring and evaluation procedures are in place, two to three pilot impact assessment programs should be conducted. Possible targets might be new projects based within IWMI's benchmark basins, where IWMI has a long history of involvement and has acquired a range of statistical information. These pilot studies will allow us to test the efficacy of the typology, the practicality of proposed indicators and measures, and the functionality of the QMS procedures. In addition, the pilot studies will help us assess the resource requirements of an impact assessment program before launching it on an institution-wide basis.

In addition to project level initiatives, actions are also needed at the institutional level to support the development of an impact assessment program. First, as described in greater detail in the 2004-2008 Strategic Plan Memorandum, we are proposing to undertake a peer review assessment of our programs in 2003. The primary purpose of the assessment is to determine the extent to which we have achieved our institutional goals and objectives to date and to evaluate our research priorities for the future. This process will also allow IWMI's senior management to strategically review the organization's conceptual structure to ensure that its current research themes and projects actively contribute to the mission of the organization as a whole and that the appropriate partnerships are in place to effect secondary and tertiary impacts at multiple scales. Second, IWMI as an institution must continue to nurture an impact culture. This will in part evolve naturally from the establishment of a practical and systematic impact assessment program. This must be further reinforced, however, by evaluating and rewarding staff for their impact assessment work and initiative. This does not imply that staff members are evaluated based on the extent to which their project had a positive impact, but rather that the quality and effectiveness of impact assessment work is evaluated as part of each researcher's annual review. That said, forums for highlighting and communicating positive impacts of individual projects should be explored. Internally, this might be at IWMI's Annual Research Meeting to complement the current emphasis on quality research concepts and project outputs. Externally, communicating research impacts should become a regular aspect of IWMI's general and donor-specific reporting processes.

## **Conclusions**

This paper, responding to a critical organizational need, has outlined out a framework for establishing an impact assessment program at IWMI. The framework addresses both conceptual and practical considerations for measuring and tracking impacts of natural resource management research. To begin implementing the impact assessment program, we have identified a set of tasks to be carried out over the next calendar year in close coordination with the development of the 2004-2008 Strategic Plan. The tasks involve creating an impact typology, developing standard impact assessment procedures, assessing IWMI's internal organizational structure and external partnerships, and fostering an "impact culture" throughout the organization. With the conceptual framework we have described here together with the proposed tasks for 2003, we firmly believe we can make significant progress over the next year towards the establishment of a meaningful and effective impact assessment program at IWMI.

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