

In 2003, the CGIAR Secretariat asked the Standing Panel on Impact Assessment (SPIA) to initiate a series of impact assessment studies on natural resources management (NRM) research. The main objectives of this SPIA initiative were to obtain better information on the demonstrable impacts of CGIAR investments in NRM research, to identify gaps in data and methodology, and to provide avenues for better NRM impact assessment in the future. The impact brief presented here describes the major results of one of seven center NRM impact assessments emerging from this SPIA initiative: Giordano M.A., Samad M., and Namara R.E. Forthcoming. Assessing the outcomes of research and interventions on Irrigation Management Transfer. In: *The Impact of Natural Resource Management Research: Studies from the CGIAR* (Zilberman D. and Waibel H., Eds). CAB International: Wallingford, UK.



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Tracing the Outcomes of Research on Irrigation Management Transfer

In most of the developing world, irrigation schemes are making, or have already made, the transition from State-dominated to more participatory management.

The process that later became known as Irrigation Management Transfer (IMT) began in the late 1980s, when a number of governments began exploring the potential of water user associations (WUAs), local non-government organizations (NGOs) and the private sector to take over some or all of the roles hitherto exercised by the State. The rationale behind IMT was that it would enhance efficiency and boost the productivity and sustainability of irrigated agriculture.

For the past 15 years, the International Water Management Institute (IWMI) has worked with its partners to conduct research on IMT programs and their effects. This brief highlights some of the impacts of this research, focusing mainly on Asia.

Rationale

Besides promising improved productivity and sustainability, IMT became imperative because governments could no longer fund the recurring costs of irrigation. Nor could they recover such costs from farmers.

But the cart came before the horse: despite widespread interest in, and adoption of, IMT, there was very little documentation on the 'how' and 'what' – what worked and didn't work in the process and the resulting gains or losses in efficiency and productivity. Policy-makers, development agencies, and WUAs all needed accurate information and viable management options. Consequently, there was an urgent need for a systematic, comparative assessment of the different approaches to IMT, the problems encountered in their implementation, and their impacts on a range of biophysical and socioeconomic indicators. This need was coupled with a growing demand for supportive legal, policy, and regulatory frameworks, and for information on the suitability of different IMT processes in different political, social, and economic settings.

In response, IWMI launched a series of global, regional, and national projects to review and analyze past IMT processes and impacts. IWMI's role was not to promote IMT but rather to act as an independent advisor, assessing the extent to which IMT enhanced performance. On the basis of this research, the Institute designed IMT policy and operational recommendations to assist governments and local institutions. To complement the country- and context-specific recommendations, IWMI also produced, in collaboration with the Food and Agriculture Organization of the United Nations (FAO), generic guidelines for IMT and for establishing WUAs.

Measuring the outcomes

The purpose of the study presented in this brief was to measure, to the extent possible, the outcomes of IWMI's research on IMT knowledge, policy, and operations in countries where the Institute had played a direct role in shaping or implementing IMT reform.

For several reasons¹ the study could not directly assess the welfare effects and rate of return to IWMI's research investment. Instead, a methodology was developed for tracing impact along 'pathways' that lead first to increased awareness of new IMT approaches, then to better IMT policies, and finally to improved irrigation management (Figure 1).

The methodology included:

- Internal review of knowledge disseminated by IWMI through publications, workshop proceedings, and presentations

- Assessment of the demand for IWMI's IMT research, the uses made of it, and the implications for management
- Bibliometric and webmetric analyses to measure the demand for IWMI's IMT research products
- Structured surveys of clients where IWMI had been directly involved in action research or project implementation.

The bibliometric and webmetric analyses used the Web of Science, Google Scholar™ (beta) (<http://scholar.google.com/>), and data on website downloads of IWMI's IMT research outputs.

High demand for information

The study provides evidence of substantial and continuing demand for IWMI's IMT research results. The bibliometric and webmetric assessments revealed that:

- By July 2005, half of IWMI's 251 IMT outputs were on the IWMI website. For these 126 outputs, a Google Scholar search documented 529 citations, of which 65 per cent (or 345) were by non-IWMI authors (see Table 1).
- The largest numbers of citations were for IWMI's Research Report series (107, excluding IWMI citations) and peer-reviewed journal articles (81, excluding IWMI citations). The most cited publication was IWMI's IMT synthesis report², which had 25 citations by non-IWMI authors.
- During the period January 2000–July 2005, some 18 IWMI research reports and 5 IWMI working papers on IMT were in the top 50 monthly downloads from the IWMI website, with over 29,000

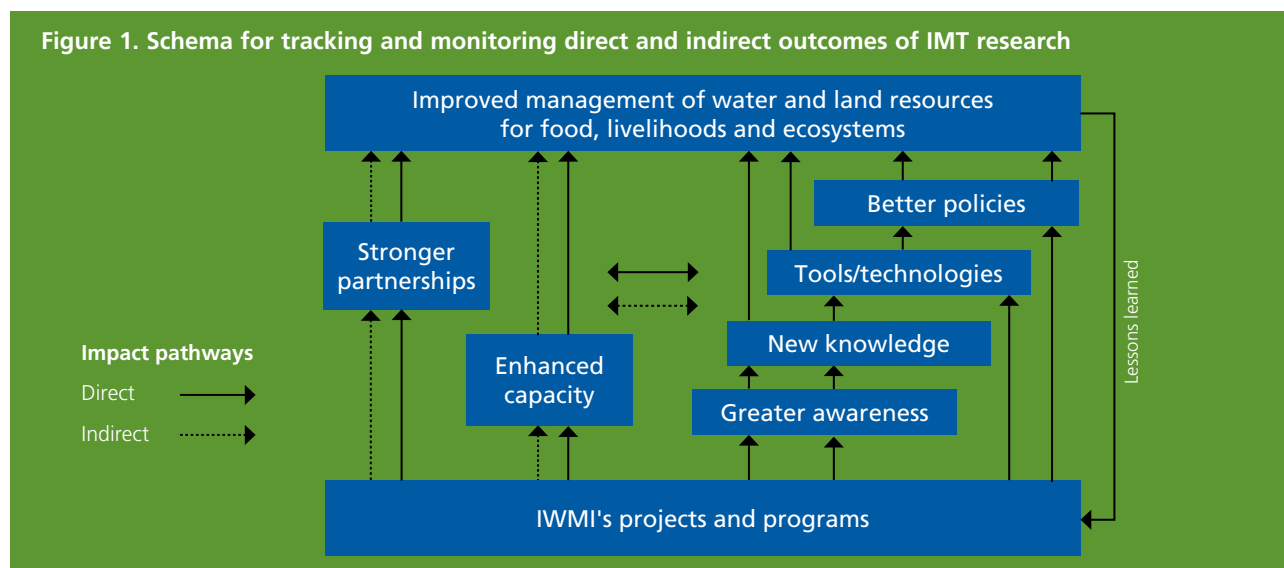


Table 1.
Summary of Google Scholar citations of IWMI's IMT publications, July 2005

Publication category	IWMI IMT Outputs			Citations		
	Total	Registered in Google		Total	By non-IWMI authors	
		(No.)	(%)		(No.)	(%)
IWMI research reports	21	19	90	141	107	76
Journal articles (peer reviewed)	24	22	92	114	81	71
Workshop papers and proceedings	79	29	37	88	49	56
IWMI short report series	15	15	100	50	24	48
Other IWMI research/policy brief series	69	23	33	59	30	51
Books and book chapters	16	9	56	36	22	61
Monographs, technical reports, case studies	12	7	58	36	29	81
IWMI project reports and unpublished reports	12	2	17	5	3	60
Journal articles (non-peer reviewed)	3	0	0	0	0	0
Total	251	126	50	529	345	65

total downloads of these 23 publications during the period.

- October–December 2003 registered 1136 downloads of IWMI's IMT research reports (853) and working papers (283) by institutions and individuals in developed countries (70 per cent) and developing countries/countries in transition (30 per cent). Over 170 downloads were by universities and research organizations.

In addition, a total of 5700 copies of the IWMI/FAO IMT guidelines have been distributed since 1999: 4100 in English and a combined total of 1600 in Spanish, French, and Russian.

Since their publication in March 2004, IWMI's guidelines for establishing WUAs have consistently ranked in the top 10 website downloads each month, with monthly downloads of the English version averaging 475. In a user survey in Central Asia, nearly all respondents were aware of the guidelines. Several development agencies in the region confirmed using the guidelines, including the Asian Development Bank, which had used them to develop its own training manuals as well as recommending them to other agencies. The guidelines are thought to have been used to establish over 250 WUAs.

Specific benefits of the guidelines, as noted by survey respondents from Central Asia and elsewhere, include:

- Better understanding of institutional reform and farmer participation in irrigation management
- Better project design and management
- Better quality of work
- Establishment of effective WUAs facilitated
- Enhanced effectiveness in project implementation
- Reduced operational costs.

Contributions to decision-making

Direct and indirect data sources indicate that IWMI policy and operational interventions have also contributed positively to IMT decision-making. Although evidence of policy advice translating into field-level productivity impact was not available, policy reform was generally consistent with IWMI recommendations. Also, IWMI continues to receive requests to assist in subsequent IMT by former client countries, indicating that the advice given previously was valued. There is evidence of IWMI's policy advice being adopted by Nepal, Pakistan, and Sri Lanka:

- In Sri Lanka, the Government amended the Agrarian Services Act and the Irrigation Ordinance to legalize the role of farmers' organizations in irrigation schemes; the Mahaveli Authority, the country's

largest multi-purpose water resources development project, is being restructured; and the Government established the National Water Resources Council to formulate a comprehensive water policy stipulating holistic and sustainable water management. Under a project entitled Shared Control of Natural Resources (SCOR), stakeholder participation in watershed management was encouraged. In one watershed, survey respondents indicated that, as a result of the SCOR project, not only did they get legal access to water, but cropping patterns and intensity had improved, the area cultivated had increased, and shifting cultivation had declined. Although these positive developments had not been quantified, it was clear that IWMI's IMT research had indirectly improved water productivity and led to more equitable access to resources.

- In Nepal, as a result of research on gender and IMT by IWMI and others, the national irrigation policy now stipulates that at least one-third of WUA members must be women farmers. IWMI's recommendations were incorporated into the new Irrigation Regulation 2056. The recommendations cover WUA capacity building, environmental protection, water rights, operation and maintenance, and the switch to variable rather than flat rate user fees.
- In Pakistan, after IWMI's pilot interventions in 1995–2000 to establish water user federations, the Sindh provincial government adopted IWMI's model for three study canals. Lessons from the pilot study were used to improve IMT policy for the rest of the province. In Punjab, following an IMT process that began in May 2000, 22 farmers' organizations took over irrigation management in October 2006. As in Sindh, IWMI has been asked to assist in capacity building for these organizations. While the developments in Sindh and Punjab cannot be directly attributed to IWMI interventions, the direction of change is consistent with IWMI recommendations. Also, the fact that IWMI has been asked to support subsequent IMT activities strongly suggests its research findings were useful to policy-makers.

Reflections and lessons

This study shows that in evaluating natural resource management (NRM) research, it is vital to distinguish between projects at the micro and macro levels. For macro projects, where the focus is on policies,

institutions, strategies, and processes at the regional, national or sectoral level, different analytical methods are needed to the conventional cost-benefit approaches that are commonly applied to micro projects.

This case study demonstrates high demand for IWMI's research results and policy advice. However, IWMI faces two challenges common to impact assessments of NRM macro projects. First, how can it be determined what would have happened in the absence of IWMI's inputs? For example, would other organizations have filled the gap? Second, is it possible to distinguish productivity and efficiency gains due to increased farmer participation in irrigation management from gains due to other factors?

There is usually a considerable time-lag between research and resulting changes in policies and practices. IWMI's IMT research began in the early 1990s, but most of the key recommendations and interventions came nearly a decade later. Their full impact has not yet been felt.

What next?

The project did not assess the economic benefits of IWMI's IMT research, partly because these benefits have not yet become fully apparent and partly because of a lack of resources for collecting and analyzing baseline data. IWMI is seeking to address this limitation through further research along the impact pathways outlined in this study.

This analysis has nevertheless provided some insights into the influence of IWMI's IMT research to date. In the future, a more in-depth assessment should be conducted to gauge its longer-term impact. By drawing lessons from the past, such an assessment would make a valuable contribution to the design of future IMT projects and programs.

Notes

- 1 The focus was on outcomes rather than impacts for three reasons: the long time-lag between research and measurable changes in policies and practices; the output was information, which raised the challenge of attribution between IWMI's research and other sources of advice or ideas for policy-makers; and lack of resources for baseline data.
- 2 Vermillion D.L. 1997. Impacts of irrigation management transfer: A review of the evidence. IWMI Research Report 11. International Irrigation Management Institute: Colombo, Sri Lanka.