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Review

Re-visiting what we know about Irrigation Management Transfer: A review of the evidence

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ABSTRACT

Irrigation Management Transfer and Participatory Irrigation Management (IMT/PIM) remain popular policies with national governments and international funding institutions. However, despite their widespread application as remedies for poor irrigation system performance, the actual effectiveness of transfer programs is still the subject of much debate and contestation. Our study enters these debates on IMT/PIM through a Systematic Review of all available impact assessments of IMT/PIM in Asia, Africa and Latin America published since 1994. In total we reviewed 131 citations, which together provided 230 case studies of 181 separate IMT/PIM interventions. We found the strength of the methods used to infer impact was low or very low in almost all cases. As important, we found that the distribution of studies was unrepresentative, the data analyzed less than ideal, and the specific criteria for determining success frequently unclear. This leads us to question any overall conclusions based on existing impact evaluations. Our overall conclusion is that research to inform future IMT/PIM policy needs to design better assessments of IMT/PIM performance but that this body of literature must also be supplemented by studies that provide insights into IMT/PIM policy practice.

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1. Introduction

> When you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind.
> — Lord Kelvin

> When you can measure it, when you can express it in numbers, your knowledge is still of a meagre and unsatisfactory kind.
> — Jacob Viner (cited in Sayer, 2010, 175)

Irrigation Management Transfer (IMT) and Participatory Irrigation Management (PIM) have formed a central tenant of institutional reform in the irrigation sector worldwide since the 1980s. IMT/PIM has now been implemented in nearly 60 countries (FAO, 2007) and remains the main institutional solution for irrigation management problems in the developing world. Despite the widespread and continued application of IMT/PIM as a remedy for 'poor' system performance, the actual effectiveness of transfer programs in terms of improving irrigation, agricultural and management efficiency is still a subject of much debate. On one side, case studies, development banks and international donors highlight the potential of management transfer, often with reference to key success stories in the dynamic commercial farming sectors of China, Turkey and Northern Mexico (Ujjankop, 1995; Johnson, 1997; Johnson et al., 1998; Tren and Schur, 2000; Murray-Rust and Svendsen, 2001; Scheumann and ul-Hassan, 2001; Johnston et al., 2004; Salas and Wilson, 2004; Seshoka et al., 2004; Wang et al., 2008a; Wang et al. 2008b). On the other side, scholars critique the conceptual underpinnings and implementation record of participatory irrigation and organized user management and provide evidence of its failure (Goldensohn, 1994; Cleaver, 1999; Moustafa, 2004; Narain, 2004; Shah et al., 2002; Blaikie, 2006; Meinzen-Dick, 2007; Mollinga et al., 2007; Shah, 2008; Suhardiman, 2008; Vandersypen et al., 2008; Venot, 2011).

What is the reality? Or better put, what is the evidence on which the various conclusions of IMT success or failure are based? Given the scale of IMT/PIM implementation, it is remarkable how few attempts have been made to rigorously answer these questions. In 1994, over one hundred papers were presented at the first International Conference on IMT/PIM, held in Wuhan, China. Of these, only 25 contained data on performance outcomes and only 5 evaluated data using before-and-after or with-and-without comparisons, making it difficult to draw cross-national conclusions. Vermillion (1997) draws attention to similar methodological problems in a review of 29 IMT/PIM case studies, arguing that the majority of assessments fail to establish a causal link between management transfer and impact. As put by Vermilion over a decade ago, the literature on the impacts and outcomes of IMT/PIM is a 'disparate collection of definitions and methodologies from which it is difficult to deduce general conclusions or policy implications' (1997: 5).

No further studies have tried to systematically evaluate the quality and conclusions of the now much larger 'disparate collection'. However, there has been significant development in the use of systematic review methods to draw insights from multiple, independent studies attempting to measure and attribute impact. To provide new insights into evidence for IMT/PIM success and failure, we apply a systematic review methodology to examine, to the extent possible, all such studies published since the 1994 conference on IMT/PIM impacts. The specific goals were to understand:

(1) The extent to which the impact of IMT/PIM in Asia, Africa and Latin America have been documented,
(2) The quality of those documented efforts,
(3) The basis for conclusions of success/failure, and
(4) The actual conclusions and the extent to which they support PIM/IMT as a policy model.

In total we identified 131 papers which together produced 230 assessments of 181 individual IMT/PIM interventions. A number of studies examined more than one intervention, and some interventions were examined by more than one study. According to study authors, 29 per cent of the cases were ranked as a success, 26 per cent a failure, and the rest were deemed inconclusive. We found though that the overall evidence on which these figures are based is drawn from an unbalanced selection of ex post case studies which rarely employ methods capable of attributing impact or establishing causality and have varying, and often unclear, assessment criteria. What lessons can be drawn for future assessments of IMT/PIM and the continuing investment in the policy? To help answer this question, we also briefly engage with insights from some of the key qualitative work that fell outside the boundaries of our main analysis. In contrast to impact evaluations, this work focuses less on the issues of success/failure, or impact and causal attribution and more on nuanced understandings of the contextual variables and power dynamics behind individual IMT/PIM implementation paths. Our overall conclusion is that research to inform future IMT/PIM policy needs to include much better designed impact assessments to evaluate whether IMT/PIM implementation is worth the costs, together with continued qualitative assessments to provide insights into IMT/PIM policy practice and the meanings of success.

2. Background

Starting in the 1960s, countries as varied as Taiwan and the United States began to turn over the management authority for irrigation systems from government agencies to farmer cooperatives or user groups (FAO, 2007). Management transfer has taken many forms, ranging from total privatization (IMT) – where all management functions of irrigation infrastructure are transferred to the users – to co-management or Participatory Irrigation Management (PIM), where responsibilities are shared between public sector agencies and water user associations or groups. The technical differences between IMT and PIM have been discussed by authors such as the FAO (2007), Hatcho and Tsutsui (1998), Van Vuren et al. (2004) and Svendsen et al. (1997), however in practice the terms are used almost interchangeably and here also we consider both processes together using the term IMT/PIM.

Implementation of IMT/PIM peaked in the 1990s when the policies became the de facto national irrigation strategies in most developing countries. While the intensity of application has lessened, IMT/PIM programs continue to remain popular with governments and donors. According to FAO (2007:6) at least 57 countries have now implemented some kind of national irrigation transfer program. The 50-year history of IMT/PIM, and especially its last 20 years, has provided a vast literature in the form of case studies, impact assessments, qualitative reports, ethnographies, and a variety of implementation guides for decision makers.

Case studies form the building blocks of our knowledge of IMT/PIM effectiveness and have documented both successes (e.g.