

BOOK REVIEW

Water scarcity, livelihoods and food security: research and innovation for development, edited by Larry W. Harrington and Myles J. Fisher Oxon, UK and New York, NY, Routledge, Earthscan Studies in Water Resources Management. © International Water Management Institute. 2014, 245 pp.

This book is an attempt to provide a ‘top-level summary’ of the main lessons learned from a 10-year research-for-development programme, the CGIAR Challenge Program on Water and Food (CPWF). It is written by ‘insiders’, most of whom played key leadership roles in the programme. It is a useful but somewhat disappointing book about an extremely important and ambitious programme designed to extend over 15 years but reduced rather arbitrarily to 10 years. It was one of three such ‘challenge programmes’ initiated by the CGIAR at the beginning of the twenty-first century and intended to shift the international agricultural research system to more inclusive partnership-based research programmes focusing on major global challenges – it was thus another in a series of CGIAR reform experiments. Substantively, the CPWF initially focused on a perceived global water scarcity crisis, but it evolved over time to address a range of water-related development challenges in large multi-national river basins.

Before proceeding with the review, I need to be transparent about my involvement with the CPWF. The programme was launched and managed by the International Water Management Institute (IWMI). At its launch, I was IWMI’s first director for Africa. I was therefore involved from the beginning – reviewing an early draft of the CPWF proposal, leading the submission of proposals from IWMI’s African offices under the first-phase competitive grant programme, and managing one of the first-phase projects. When I left IWMI, I joined a southern African agricultural and natural resources policy and research network (FANRPAN), where I developed and led a CPWF ‘basin focal project’ on the Limpopo Basin. I also carried out an external review of one of the first-phase projects. Subsequently, as an independent consultant, I was closely involved with the second phase of the CPWF in the Nile Basin: I led a review of past experiences with sustainable land and water management work in the Blue Nile, Ethiopia; and during the last year of the programme, I assisted the Nile basin leaders in strengthening the scientific outputs and synthesizing lessons and messages for policy makers. I am therefore also an ‘insider’: I have been involved in the CPWF from the beginning, and have worked with many of the authors of the chapters in this book. I therefore do not claim that this review presents an objective external perspective. I do claim that it is a review by a sympathetic but critical semi-insider.

The CPWF was designed as a 15-year programme to be implemented in three phases from about 2003 to 2018. The first five-year phase was designed to address water scarcity issues to improve crop water productivity. It worked in nine river basins in Latin America, Africa and Asia. There were five cross-cutting themes. Most of the work was carried out through projects which were funded after a competitive review of concept notes and then proposals. The criteria emphasized partnerships between CGIAR centres and both other

international organizations and national (i.e. developing country) institutions, but did not specify specific research questions. Therefore, the project topics were very diverse. As project implementation proceeded, the CPWF leadership began working with project leaders to develop and use tools intended to focus the projects more clearly on research for *development*. The tools included a theory of change, outcome logic models (later called outcome *learning* models), and network analysis. As a project leader then, I considered the tools potentially very useful, but shared the general perception that we were being asked to retrofit and do additional work on already tightly budgeted projects. Very few projects were able to fully adopt these tools. One project, on multiple-use water services, had adopted its own theory of change based on learning alliances and the “learning wheel” (Van Koppen, Moriarty, & Boelee, 2006).

An external review in 2007 criticized the lack of focus that had resulted from the design of the competitive call. Fifty-five projects were being implemented, with little thematic coherence. The five cross-cutting themes were underfunded and had little influence on the implementation of projects; and the ‘basin co-ordinators’ had few resources and no real influence in most cases. Further, as documented in the book, the management structure was unwieldy and inefficient. The CPWF leadership responded to the review and criticisms from the CGIAR interim Science Council by commissioning ‘basin focal projects’ (BFPs). These were designed to collect and systematize existing data on 10 river basins (the 9 original ones plus the Niger). The BFPs were intended to influence the design of the second phase. This was only partially achieved, because the second phase was designed while the BFPs were still being implemented. An important conclusion drawn from the BFPs is that framing the problem in terms of ‘water scarcity’ is at best an oversimplification. Water is not necessarily scarce in a physical sense, and the incidence of poverty is only weakly linked to water scarcity. The relationships among water, livelihoods and poverty are highly variable and nuanced.

Phase 2 (approximately 2009–2013) focused on a subset of six transnational river basins (small Andean basins flowing west, Ganges, Limpopo, Mekong, Nile, Volta), and for each basin identified a specific ‘basin development challenge’ (BDC). These emerged from a combination of reviews of the BFPs and first-phase research and stakeholder consultations. An example is the Nile BDC: “to strengthen rural livelihoods and their resilience through a landscape approach to rainwater management”. For each basin, four to five complementary projects were designed. All basins had a project intended to coordinate the others and lead in communication, knowledge management and learning lessons. All of the projects were based on the theory of change and outcome learning models developed during Phase 1. These attempted to specify the anticipated pathways from research to *outputs* (new knowledge attitudes and skills), to *outcomes* (changes in behaviour – new policies or practices), which would lead in turn to *impacts* (reduction of poverty, conservation of natural resources).

The original plan was that Phase 3 would build on the outputs and outcomes of the second phase to achieve demonstrable and significant impacts. However, as Phase 2 was being implemented, the CGIAR aborted the challenge programmes in favour of a new and more ambitious set of mega-programmes, the CGIAR Research Programs (CRPs). In 2012, the CPWF budget was reduced by 45% and a strict end date of December 2013 was imposed. The CPWF was integrated into the Water, Land and Ecosystems CRP – also led by IWMI. With little time remaining, projects were forced to either find additional resources to complete their original plan or cut activities. A major casualty of the reduction in the budget was the monitoring and evaluation programme, which was already underfinanced. The book under review was to a large degree intended to influence the

design and implementation of the new Water, Land and Ecosystems mega-programme – and to some degree it has.

The book consists of nine loosely integrated chapters. Chapter 1 is an overview of the CPWF which argues that the programme represents a “new paradigm”, “research for development” (R4D). Chapter 2 reviews the evolution of the CPWF from a focus on water scarcity and improving water productivity to a more nuanced view of water and poverty, arguing that water management is a useful entry point to address broader socio-economic and environmental issues. Chapter 3 provides a useful but rapid overview of what kinds of research were done to address the “wicked problem” of water management in river basins. Chapter 4 is an “institutional history” of the CPWF which tries to identify lessons learned as the programme evolved and adapted to new insights and new realities. To its credit, it is reasonably self-critical, but it fails to capture nuances of experiences and lessons learned at the level of the basins. Chapter 5 focuses on technical innovations within dynamic institutional contexts, demonstrating that a distinction between ‘technical’ and ‘institutional’ innovation is false: technical innovations are embedded in complex institutional and policy contexts. Chapter 6 is a systematic assessment of the value and outcomes of CPWF institutional research. This is the only chapter whose authors are not ‘insiders’, though they were associated with the programme. Chapter 7 reviews experiences and lessons from the strong emphasis on partnerships, kinds of engagement platforms, and the role of power relationships in the R4D process. Although largely descriptive, not analytical, this chapter highlights the gap between R4D, which prioritizes achieving outcomes (behaviour change), and the incentive structures of CGIAR institutions, which emphasize production of refereed publications. Chapter 8 uses “change stories” to illustrate outcomes and impacts emerging from the research outputs. Finally, Chapter 9, written by the former programme director and research director during Phase 2, attempts to articulate the key messages and lessons they have derived from the CPWF experience.

Although the roots are older, over the past two decades international agricultural and natural resources management research has seen an important paradigm shift. Traditional research focused on a single technology or management practice, testing it in the laboratory and then on selected farmers’ fields. It was then handed over to ‘extension services’ to be disseminated to farmers. This is somewhat of a caricature, but not entirely. The ‘new’ R4D paradigm views innovation as a dynamic social learning process. It emphasizes partnerships with a diverse set of stakeholders, co-learning and communication among multiple interested stakeholders, and designing the programme to achieve specific outcomes and ultimately impacts. Its tools include outcome learning models, participatory impact pathway analysis, engagement platforms (often called innovation platforms), the use of games and other tools to enhance shared learning, and flexible adaptive management. R4D is not only multidisciplinary; it also requires scientists to accept new and often subordinate roles. Research is not designed and led solely by the scientists; rather, scientists often work as facilitators and trainers, with other stakeholders leading the learning and communication processes.

None of this is unique to the CPWF, but the CPWF pioneered the development and application of this new paradigm at a large scale on multiple river basins and with a large number of partners. Over its 10 years, the CPWF budget was about \$120 million. At this scale, it has made substantial (but unquantified) contributions not only to the science of water management broadly defined, but also to the practice of R4D and to enhancing institutional capacities and human resources. There is now a substantial cadre of scientists, policy makers, development practitioners and institutions able to implement the R4D

paradigm. Its research outputs have made innovative and important contributions to our knowledge of water management, its complex relationships to poverty and livelihoods, and the potential and limitations of water management as an entry point to improve livelihoods and sustain ecosystem services. The new CGIAR mega-programme on Water, Land and Ecosystems has adopted not only the essential elements of the R4D paradigm but many of its tools and practices.

The CPWF has clearly been an important and game-changing programme. So, why does this reviewer characterize the book as “useful but somewhat disappointing”? First, the book is useful as a source of detailed information on how the programme was initially conceived, how it evolved over time, and what the key actors, especially those leading Phase 2, believe they accomplished. Given the scale and importance of the CPWF, this book is critically important to understand these things. It plays a role similar to that of autobiographies: not the last word, but an important source of data on how the experience is interpreted retrospectively by its leadership. Second, the lessons themselves are very important in designing and implementing future integrated natural resources research-for-development programmes. In this regard, the final chapter on “messages and meaning” is an especially useful synthesis, organized around six “core messages”.

But the book is also disappointing for several reasons. First, although some chapters are mildly self-critical, much of its content consists of superficial summaries of what was done and claimed outcomes, with little insightful analysis of why or how these outcomes were achieved (or not). All the chapters sacrifice depth for broad coverage. Second, there is a great deal of repetition among chapters – the same examples are presented to illustrate points in multiple chapters, in a few cases even using the same wording. Third, what can be seen as a strength – presenting the perceptions of insiders – is also a drawback. Most chapters come across as being written *by* insiders *for* insiders. Those chapters that acknowledge reviews of earlier drafts by others are in every case acknowledging other insiders (plus, in some cases, one or two anonymous reviewers). Critical reviews by outsiders might have challenged the authors to sharpen their chapters and add depth.

Unfortunately, some chapters are also difficult to follow because of the overwhelming use of acronyms and assumptions about the reader’s existing knowledge. This reviewer found several of the chapters confusing and difficult to follow even as a semi-insider; and there is too much repetition and overlap among the chapters. A consolidated list of acronyms and more detailed editing of chapters would have made the book more readable.

Finally, the book is based on a fundamental but undocumented assumption: that the contributions of this \$120 million programme are great enough to justify the costs. This reviewer shares that assumption – but it remains an assumption. An external review of the programme commissioned by the CPWF in 2013–2014 came to very positive conclusions, but it is not a formal, externally commissioned impact assessment (Hall, Bullock, & Adolph, 2014). Its stated purpose was to assess the CPWF’s achievements and identify useful lessons – which it does well. While a few external reviews of selected Phase 1 projects were commissioned, there has been no formal credible independent review of the programme, and no quantified *ex post* impact assessments of either the programme or its constituent projects. Basically, we have no hard evidence to say whether the positive outputs and outcome justify the large investment. A recent review of CGIAR water management research investments since 1990 came to a similar overall conclusion, with the impacts of only a very few water management programmes having been credibly assessed (Merrey, 2014).

To conclude, the CPWF was an important, game-changing research-for-development programme. This book is strongly recommended to those interested in understanding the

evolution of the CPWF and the lessons learned from its experiences as understood by the key participants. However, the final chapter on what the CPWF really accomplished remains to be written.

References

- Hall, A., Bullock, A., & Adolph, B. (2014). *Forward looking review of the CGIAR challenge program on water and food 2013-2014*. Colombo: CPWF. Retrieved from <https://cgspace.cgiar.org/handle/10568/41729> (accessed January 11, 2015).
- Merrey, D. J. (2014). *An evaluation of CGIAR centers' impact assessment work on irrigation and water management research*. Unpublished report submitted to the Standing Panel on Impact Assessment (SPIA) of the Independent Science and Partnership Council, Consultative Group on International Agricultural Research (CGIAR), October. Retrieved from http://impact.cgiar.org/sites/default/files/pdf/Merrey-Irrigation_Research_IAs-Oct2014.pdf
- Van Koppen, B., Moriarty, P., & Boelee, E. (2006). *Multiple-use water services to advance the millennium development goals* IWMI Research Report No. 98. Colombo: IWMI, IRC, CPWF. Retrieved from <http://www.iwmi.cgiar.org/publications/iwmi-research-reports/> (accessed January 11, 2015).

Douglas J. Merrey
Independent consultant
Email: dougmerrey@gmail.com

© 2015, Douglas J. Merrey
<http://dx.doi.org/10.1080/07900627.2015.1010195>