



RESEARCH
PROGRAM ON
Water, Land and
Ecosystems

LED BY:

IWM
International Water
Management Institute



CGIAR Research Program on Water, Land and Ecosystems (WLE)

Measuring the Impact of Integrated Systems Research: Promising Approaches and Why CGIAR Needs to Care

Nancy Johnson

Funded by:



RESEARCH
PROGRAM ON
Forests, Trees and
Agroforestry



RESEARCH
PROGRAM ON
Policies,
Institutions,
and Markets



Standing
Panel on
Impact
Assessment

IN PARTNERSHIP WITH:



CGIAR Research Program on Water, Land and Ecosystems (WLE)

Measuring the Impact of Integrated Systems Research: Promising Approaches and Why CGIAR Needs to Care¹

Nancy Johnson

¹ In response to Holger Meinke's keynote paper titled 'Integrated systems research – Oxymoron, pleonasm or tautology? Who cares?' (Meinke 2021).

The author

Nancy Johnson, independent consultant, Saint Paul, Minnesota, USA.

Johnson, N. 2021. *Measuring the impact of integrated systems research: promising approaches and why CGIAR needs to care*. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Research Program on Water, Land and Ecosystems (WLE). 21p.

doi: <https://doi.org/10.5337/2022.203>

/ agricultural research for development / integrated systems / systems research / impact assessment / CGIAR / research programmes / monitoring and evaluation / natural resources management / investment / funding / organizational learning / food systems / land use / water systems / remote sensing /

ISBN 978-92-9090-936-1

Copyright © 2021, CGIAR Research Program on Water, Land and Ecosystems (WLE), International Water Management Institute (IWMI).

Fair use:

Unless otherwise noted, you are free to copy, duplicate or reproduce, and distribute, display or transmit any part of this report or portions thereof without permission, and to make translations, adaptations or other derivative works under the following conditions:

ATTRIBUTION: The work must be referenced according to international citation standards, while attribution should in no way suggest endorsement by WLE, IWMI or the author(s).

NON-COMMERCIAL: This work may not be used for commercial purposes.

SHARE ALIKE: If this work is altered, transformed or built upon, the resulting work must be distributed only under the same or similar Creative Commons license to this one.

Front cover photo: CIAT's bean genebank at Kawanda research station, Uganda, receives new varieties from Colombia and safeguards beans across Africa; Georgina Smith / CIAT.

Acknowledgements

The support received from the CGIAR Research Programs (CRPs) – Water, Land and Ecosystems (WLE); Forests, Trees and Agroforestry (FTA); Policies, Institutions, and Markets (PIM) – and the CGIAR Standing Panel on Impact Assessment (SPIA) is gratefully acknowledged. The author appreciates the contributions of the workshop participants via their active engagement in the workshop discussions, and is grateful for helpful comments received on an earlier draft of the paper from members of the workshop Organizing Committee.

Project

This work summarizes experiences gained in different WLE projects in Ethiopia, and it was directly supported by the central WLE program management.

Donors

Funding for preparation of this report was provided by the following:



RESEARCH
PROGRAM ON
Water, Land and
Ecosystems

This research was carried out as part of the CGIAR Research Program on Water, Land and Ecosystems (WLE) and supported by Funders contributing to the CGIAR Trust Fund (<https://www.cgiar.org/funders/>).



RESEARCH
PROGRAM ON
Forests, Trees and
Agroforestry

CGIAR Research Program on Forests, Trees and Agroforestry (FTA)



RESEARCH
PROGRAM ON
Policies,
Institutions,
and Markets
Led by IFPRI

This work was undertaken as part of the CGIAR Research Program on Policies, Institutions, and Markets (PIM) led by the International Food Policy Research Institute (IFPRI). This report has not gone through IFPRI's standard peer-review procedure. The opinions expressed here belong to the authors, and do not necessarily reflect those of PIM, IFPRI, or CGIAR.



Standing
Panel on
Impact
Assessment

CGIAR Standing Panel on Impact Assessment (SPIA)

Contents

| | |
|--|-----|
| Abstract..... | vii |
| Introduction | 1 |
| Background and context | 2 |
| Integrated systems research in CGIAR..... | 2 |
| Impact assessment in CGIAR..... | 4 |
| Summary of workshop findings | 6 |
| Impact assessment methods and approaches..... | 6 |
| MELIA in the research process..... | 8 |
| Influencing CGIAR structures and processes | 9 |
| Conclusions | 11 |
| References | 12 |

Abstract

Measuring the impact of integrated systems research has been a challenge to CGIAR since it expanded into natural resource management research in the early 1990s. Despite repeated efforts, it has yet to be adequately addressed. Meanwhile, the demand for evidence of impact on development outcomes has only increased, as have calls for greater methodological rigor. At the same time, there is greater recognition of the complex, systemic nature of many problems facing society today and the need for new approaches to designing, implementing and evaluating research. In an attempt to provide pragmatic guidance to One CGIAR and others on how to address these issues in the design of research for development programs that involve integrated systems research (ISR), CGIAR held a virtual workshop on Measuring the Impact of Integrated Systems Research on September 27–30, 2021. Participants took stock of recent experiences and reviewed existing and new tools and approaches with the potential to overcome conceptual, empirical and institutional challenges that obstruct ISR. In terms of methods for assessing the impact of ISR, the workshop highlighted recent advances in the use of geospatial data and called for more significant investment in both the quantity and quality of qualitative methods. Integrating monitoring, evaluation, learning and impact assessment (MELIA) into the research programs will require greater capacity on the part of managers, researchers and MELIA specialists to use theory of change effectively and efficiently for multiple purposes. It is also becoming increasingly clear that some of the challenges in conducting ISR in CGIAR are not technical but have to do with structures, processes and internal tensions within CGIAR itself about the kind of outcomes it seeks and the way it organizes and implements research. While calling for research that contributes to sustainability and systems transformation, CGIAR has in different ways failed to adequately support, and to learn from, the kinds of integrated systems approaches that will likely underpin success. Workshop participants proposed tackling this head-on through changing CGIAR systems, processes and incentive structures, and engaging directly with funders on how impact is understood and measured.

Introduction

Measuring the impact of integrated systems research (ISR) has been a challenge to CGIAR and others since it became part of the international development agenda in the early 1990s. Despite repeated efforts (Waibel and Zilberman 2007; ISPC 2012; Sayer et al. 2017; Stevenson and Vlek 2018; Stevenson et al. 2019), ISR has yet to be adequately addressed. Demand for evidence of impact on development outcomes has only increased, as have calls for greater methodological rigor in impact assessment (Stevenson et al. 2018). At the same time, there is greater recognition of the complex, systemic nature of many problems facing society today. The emerging field of “sustainability science”² raises new questions about the way that we think about and implement impact evaluations.

In an attempt to provide pragmatic guidance to One CGIAR³ and others on how to address these issues in the design of research for development programs that involve ISR, three CGIAR Research Programs (CRPs) – Water, Land and Ecosystems (WLE); Policies, Institutions, and Markets (PIM); Forests, Trees and Agroforestry (FTA) – and the CGIAR Standing Panel on Impact Assessment (SPIA) held a workshop on Measuring the Impact of Integrated Systems Research on September 27–30, 2021. The workshop took stock of recent experiences within and outside CGIAR, particularly in the area of landscape approaches to natural resource management (NRM). Existing and new tools and approaches, such as theory-based approaches and geospatial data from remote sensing, were presented and discussed in terms of their potential to overcome empirical challenges of measuring impact. The workshop was structured to allow for significant discussion time, and participants drew on their experiences with ISR and with monitoring, evaluation, learning and impact assessment (MELIA) in the current CRPs, which are coming to a close, and in new One CGIAR Initiatives, which are in the process of being developed.

This paper is organized as follows. Section 2 presents the background and context on ISR and impact assessment in CGIAR. Section 3 briefly describes the workshop itself and then summarizes key issues and messages in three areas: impact assessment (IA) approaches and methods, MELIA in the research cycle, and CGIAR structures and processes. Section 4 concludes with key recommendations and ways forward.

² “The three core objectives of Sustainability Science are: (1) understanding the fundamental interactions between nature and society; (2) guiding these interactions along sustainable trajectories; and (3) promoting social learning necessary to navigate the transition to sustainability. A key characteristic of Sustainability Science is that research is defined by the problems it addresses rather than the discipline(s) it employs.” (Belcher and Hughes 2021: 3)

³ One CGIAR is a dynamic reformulation of CGIAR’s partnerships, knowledge, assets and global presence, aiming for greater integration and impact in the face of the interdependent challenges facing today’s world. For more information, visit <https://www.cgiar.org/food-security-impact/one-cgiar>

Background and context

Integrated systems research in CGIAR

While not offering a definition of ISR, Holger Meinke⁴, in his keynote paper, referred to a framework that posited three levels of technologies (Table 1). Level 1 technologies fit into well-defined research processes in which impacts are easily quantifiable and have clear cause–effect relations. At level 3, innovations operate in complex, global systems where human, built and natural elements interact and where effects are difficult to quantify or foresee.

Table 1: Levels of technologies and their key characteristics for matching scientific knowledge with the nature of the problem

| Level | Examples | Characteristics | Foreseeability | Scale |
|------------------|--|---|--|---|
| Level I | COVID vaccine to prevent disease/death Smart irrigation technologies to save water <i>Disciplinary Control</i> | Well-defined social goals Focus entirely on line-of-sight impact Knowledge embedded within the technology | Predictable impacts Quantifiable | Shop-floor level Clear cause–effect relations |
| Level II | COVID vaccine distribution and roll-out within countries Water saved used for private rather than public good (e.g., Murray–Darling Basin, Australia) <i>Interdisciplinary Adaptive</i> | Contested and often competing social goals Focus mainly on the process of governing the interactions arising from technologies and innovations Knowledge-intensive technologies | Internal system behavior very hard to predict Emergent properties and unforeseen consequences Broad trajectories are somewhat foreseeable and quantifiable | Technologies as networked social/cultural phenomena |
| Level III | A fair and effective global health system (i.e., global sharing of vaccines) Global water governance that fosters collaboration and preserves resources <i>Transdisciplinary Consensus seeking</i> | Emergent behaviors difficult to perceive; very hard to understand interactions Focus has not emerged yet as there are no agreed upon, universally valid goals | Non-predictable evolution with some foreseeable consequences defying quantification Impossible to manage and too difficult to perceive, often leading to disbelief and denial | Complex, global system where human, built and natural elements interact |

Source: Adapted from Allenby and Sarewitz (2011).

⁴ Chair of CGIAR's Independent Science for Development Council and Adjunct Research Professor for Global Food Sustainability at the University of Tasmania, Australia.

Even Level 1 technologies may require an enabling policy environment and active engagement from researchers in the policy process, as Meinke illustrated with an example of Norman Borlaug’s efforts to get high-yielding wheat varieties disseminated in India during the Green Revolution. However, policy processes and ISR were not explicitly part of the research agenda until CGIAR expanded into research on NRM beyond the farm in the early 1990s (see ISPC 2012 for a review). In addition to centers such as the Center for International Forestry Research (CIFOR), World Agroforestry (ICRAF) and the International Water Management Institute (IWMI), CGIAR also supported several cross-center programs that were highly regarded for their ISR and landscape work, e.g., Alternatives to Slash and Burn (ASB), Systemwide Program on Collective Action and Property Rights (CAPRI) and the CGIAR Challenge Program on Water and Food (CPWF).

ISPC (2012: 1) concluded:

The past decade has seen a major transformation of the CGIAR research agenda. A consensus has emerged that the natural resource base upon which agriculture depends is a vital object of CGIAR research. Many studies have argued for changes in the culture, incentives, structures and funding to enable the CGIAR to address natural resource management (NRM) issues more comprehensively and effectively. Much progress has been made, but impediments remain. This report is the result of a systemwide review of NRM research in the CGIAR as it moves toward new modes of research. The Panel’s report reviews the progress made and supports the view that there are still opportunities to improve the CGIAR’s approaches to NRM research in support of the four system-level outcomes (SLOs): food security, poverty alleviation, improved nutrition and environmental protection. Improvements will come through the capture of new science, better organization of science, stronger leadership, mobilizing new skill sets, adopting an impact culture and making longer-term investments.

Issues raised by ISPC (2012) were tackled by several of the CRPs founded in 2011 to improve both research organization and impact culture. ISR was a key part of the agenda in the CRPs on Climate Change, Agriculture and Food Security (CCAFS), WLE, FTA and PIM and specific areas in which CGIAR research made advances, including: research on multi-stakeholder platforms for improved landscape resource management (e.g., Sarmiento Barletti and Larson 2021), participatory land use planning methods (e.g., Flintan et al. 2019), collective action games for building capacity to manage common property resources (Meinzen-Dick et al. 2018) and the general improvement of modeling of outcomes across landscapes.

Despite these successes, a 2021 CRP synthesis concluded that core funding available to CRPs was insufficient and that funding for:

systems programs, especially those focusing on participatory approaches, and programs related to environmental health, were most severely affected by low and uncertain funding. While CCAFS was generously funded, WLE was the least funded CRP, and systems CRPs Humidtropics, Drylands, and Aquatic Agricultural Systems (AAS) were not extended to a second phase (CAS 2021a: 2).

The synthesis concludes by pointing out that while “CRP experiences with systems and participatory approaches are highly relevant to [One CGIAR] Action Areas 1 and 2, including long-term, place-based multidisciplinary research, such as the Sentinel Research Program of FTA,” funding and acceptance by system donors were limited (CAS 2021a: 3), as was the ability to raise long-term bilateral funding (CAS 2021b). Understanding and addressing this lack of support will be essential to ensuring these topics are successfully included in the One CGIAR agenda.

Impact assessment in CGIAR

The CGIAR expansion into NRM in the 1990s occurred at a time of shrinking budgets for CGIAR and a shift from core to project funding (for reasons unrelated to the CGIAR mission or performance). This meant that centers needed to make more of an investment in fundraising and to make choices about what to fund and not to fund. Evidence of impact (actual or potential) was one of the criteria often used. This required comparable evidence of impact across different research areas, bringing tensions and sometimes outright competition among research areas.

CGIAR has employed social scientists, mainly economists, almost since its inception. Impact assessment has been part of their agenda, and pioneering conceptual and empirical work on the returns to research helped to justify investment and inform investment decisions. However, as CGIAR funding moved from science and technology funding to development funding, there was an increasing need to show impact of CGIAR investment on specific development outcomes beyond agricultural productivity and to do so in the time frames of development projects. This is consistent with Holger Meinke’s observation that CGIAR funders have changed over time (Meinke 2021). Rather than funding priority research topics and areas, they see themselves as development “investors” who are looking for a return on investment measured in terms of impact at scale on development outcomes.

The push to show “big numbers,” in terms of people or hectares “reached” with CGIAR innovations or reductions in poverty or undernutrition, favored quantitative approaches and Level 1 innovations. Yet, there was growing concern in some quarters about how realistic or scientifically defensible the claims really were. Improving the validity of impact evidence was the goal of the “rigor revolution” in impact assessment, part of the broader effort around aid accountability and the Millennium Development Goals (MDGs) (Savedoff et al. 2006). Steady progress has been made on data and methods, within and outside CGIAR, but again they have still largely focused on Level 1 technologies. Within CGIAR, it has long been recognized that apart from high-yielding crop varieties, the evidence of impact is scarce. Attempts are regularly made to identify and fund studies in “under-evaluated” areas such as NRM or policy research; however, results have been limited (SPIA 2019).

One explanation is that in some areas of research the standard tools of impact evaluation, especially quantitative, statistically-based methods, are not appropriate. One area where this has typically been true is for so-called small-N cases, where data are only available for one or a small number of units. Policy influence or landscape/basin-scale interventions are examples. In such cases, it is not possible to statistically test the differences between treatment and control units. Many approaches exist in the evaluation literature – built around theories of change (ToC) and alternative hypotheses that can be applied to such cases. However, more needs to be done to minimize potential bias in the way qualitative and quantitative data are collected and used to support causal claims (White and Phillips 2012). Such approaches are growing in use in CGIAR, especially for documenting outcomes. There is also a growing interest in how such theory-based approaches can complement quantitative studies to better understand how an impact happened and thus make the results more helpful in informing future research and development investments.

As mentioned above, one of the ways that CGIAR responded to the shifts in both quantity and quality of funding and to demands for greater accountability for development outcomes was through a series of reforms designed to enhance synergies across the centers and to make a stronger case for impact

on development outcomes. In 2009, a major reform was undertaken that led to the establishment of 15 CRPs. Full explanation is beyond the scope of this paper; however, the reforms brought to the forefront the issue of how to systematically monitor and evaluate the performance of the programs in terms of contribution to development outcomes. An investment was made in the early part of the CRPs to build capacity to understand and use ToC in designing and implementing programs. As implementation progressed, the need for more monitoring and reporting capacity was recognized and additional investments were made in staff and systems. While the exact role of MELIA in One CGIAR is still being defined, what is clear is that results-based monitoring and reporting will continue to be a key part of performance management.

Summary of workshop findings

The workshop was held to take stock of past experiences and to review methods (new or existing) that could be relevant to the challenges facing researchers and evaluators who work on complex, integrated, landscape/basin-oriented research. To frame and inform the discussions, presentations were given on several key topics: [a keynote highlighting both the importance of ISR to the CGIAR agenda and the inherent tensions between ISR and CGIAR funding and accountability mechanisms](#); and landscape approaches and their impacts, methods for assessing impacts, and CRP MELIA experiences.

Ultimately, the workshop sought to provide clear, actionable advice to research programs, including but not limited to the new One CGIAR on how to conduct project/program evaluations and impact assessments, and improve performance management of complex, integrated, landscape-oriented initiatives.

Impact assessment methods and approaches

Importance of qualitative methods

One of the major conclusions of this workshop was that qualitative methods have an essential role to play in understanding and evaluating the impact of CGIAR research. This applies to research in general and to landscape research/ISR in particular. [SPIA member Monica Biradavolu talked about the need for more and better use of qualitative methods, on their own and as part of mixed-methods studies. Brian Belcher, a specialist in research evaluation and professor at Royal Roads University, argued for greater use of theory-based approaches⁵](#) since they are appropriate for the small-N nature of CGIAR projects and for the nature of ISR/landscape research “in complex adaptive systems that engage with and seek to influence a range of system actors, where objectives are jointly determined and changeable, where process may be as or more important than specific research product” (Belcher 2021: 2).

Qualitative approaches were considered to be important for understanding and characterizing the context in which ISR takes place and in which it is evaluated. There was strong support for greater use of qualitative methods across the ISR agenda, including but not limited to questions about program impact. In an analogy with quantitative impact assessment, economists have typically been involved in research and impact evaluation, and the same should be true for qualitative researchers from disciplines such as anthropology, sociology or political science. However, in recent years, CGIAR has struggled to recruit and retain high-quality social scientists, especially qualitative researchers (Barrett et al. 2009; CAS 2021b). Addressing this issue may involve innovative partnerships with universities or specialized consultancies and could require action at CGIAR level to understand and address barriers.

It was also recommended that SPIA provide more support on qualitative approaches. To date, SPIA has largely focused on quantitative approaches. In line with its mandate, SPIA would focus on improving the quality of qualitative impact work in CGIAR through identifying and promoting the use of good practice. More explicit attention from SPIA could also have the effect of raising the profile of qualitative methods within CGIAR.

Action on this recommendation is already underway with SPIA’s recent appointment of a qualitative researcher to the panel. In her presentation at the workshop, Dr. Biradavolu, CEO and Founder of

⁵ Theory-based approaches do not preclude quantitative methods, but the term is often used to refer to studies that rely primarily on non-statistical methods.

QualAnalytics and Scholar-in-Residence at American University, emphasized not only the need to improve the rigor of qualitative research but also that qualitative and quantitative methods answer different impact questions. Developing detailed guidance on what types of questions can be answered with what methods could help to establish a common understanding among IA specialists and users of IA results. In addition, it could also help to shift what has become a debate over the relative merits of different methods – qualitative versus quantitative; theory-based versus experimental – to a discussion about the importance and relevance of different impact questions and the quality of the available evidence.

The potential of remote sensing for impact assessment

Kathy Baylis, economist and professor of geography at the University of California-Santa Barbara, [gave a presentation on advances in geospatial methods and their application in impact assessment](#). Advances in remote sensing now offer the possibility of accessing granular data at large spatial and temporal scales. This can greatly improve options for study design, both in terms of enabling sample selection (not limited to availability of household survey data, for example) and can also help with identification strategies (e.g., by establishing parallel trends). While limited to outcomes and impacts that can be remotely sensed, they are well suited to measuring some of the environmental outcomes that have been missing from many previous impact studies, even of NRM innovations. Thus, while technical challenges remain in the implementation of such approaches – for example, related to the need for costly groundtruthing – remote sensing has the potential to make an important contribution to assessing the impacts of CGIAR landscape research and ISR, and the environmental impacts (positive or negative) of CGIAR research in general.

One potential use of remote sensing that is especially relevant for this workshop is to **complement small-N studies**. For example, comparing long-term trends in key variables before and after the initiation of a landscape-scale intervention can triangulate the results from a theory-based impact evaluation of the intervention in a particular location (SPIA 2018). While qualitative approaches may be most appropriate to answer the small-N question “Did this particular landscape-scale intervention work?”, geospatial methods could be used to answer the complementary large-N question “Do landscape-scale interventions work?” A geospatial-based approach could compare environmental and potential outcomes, depending on available data, across a range of similar interventions, controlling for differences in interventions and contexts.

For this to work, there would need to be a well-defined definition of landscape-scale intervention (which may not yet exist), and all interventions would need to have data on where and when they were implemented and why those locations, as opposed to others, were selected. **Collecting this type of basic project or intervention information, which includes but goes beyond the need for basic geocoding**, should become standard across CGIAR to facilitate future impact assessment. The MELIA community could be well placed to provide guidance on this.

Indigenous evaluation approaches

The workshop included several Canada-based researchers with experience working on ISR along with First Nations people. These researchers raised awareness about indigenous methodologies and evaluation approaches. If this could be a relevant issue for a project, **it was recommended that research teams include or reach out to experts with the capacity to use indigenous methodologies and evaluation approaches and to include them in their proposals**. While the topic of “farmer versus researcher” methods is not new for CGIAR researchers working in participatory projects with local stakeholders, the issue is more widely recognized now, and there are practical examples that can serve as guidance.

MELIA in the research process

Given the timing of the workshop – near the end of the CRPs and coinciding with the submission of the first round of One CGIAR Initiative proposals – it is not surprising that experiences of MELIA in these two types of programs had a strong influence on the workshop design and discussions. Despite their impact orientation, CRPs faced considerable challenges in terms of results-based management and thus evaluation and impact assessment. While valiant efforts by some CRPs led to progress in addressing the challenges – as referred to by many participants and described in presentations on [FTA](#) and [WLE](#) – the extent to which lessons learned from CRPs will be fully incorporated into initiative performance management remains to be seen. Initiative proposal formats called for developing ToC and using them to identify learning questions and end-of-initiative outcomes that are appropriate for assessment after three years. How progress toward projected longer-term benefits, which were also a required part of the proposal, would be documented is not yet clear.

The quality and usefulness of the learning questions depend on the quality of the ToC. **Despite the experience and lessons learned about ToC in CRPs, not all initiative design teams (IDTs) are prepared to use their ToC to identify and prioritize research questions, including around impact assessment.** This may be especially true in landscape research/ISR programs because of the complexity of the ToC and the need for them to be co-developed with stakeholders. IDTs had access to guidance and coaching on ToC development from different sources (CGIAR System Office; Monitoring, Evaluation and Learning (MEL); SPIA; GENDER Platform), and it would be beneficial to consolidate the lessons learned from these different efforts to develop clear, consistent and effective guidance for future use in CGIAR and beyond. A particular area of focus should be about how to manage the trade-offs between developing ToC that are comprehensive in terms of the program vision – often a priority for work with communities and other stakeholders on the ground – and ToC and related metrics that are valid but also practical and useful as program management tools. This may require nested ToC or different ToC specifications for different audiences. Processes for learning and updating ToC are also needed.

The workshop felt strongly that the end-of-initiative outcomes should be well defined and include credible plans for documenting the achievement of the outcome and the contribution of the initiative. They also noted that in the case of ISR, program outcomes would likely be in terms of changes in capacity or in quality of governance that may not have universally recognized definitions or metrics. Work may be needed to develop and test metrics and measures for these outcomes and their links to the longer-term impacts. Whether this is undertaken in initiatives or at some other level in CGIAR needs to be determined.

Lessons learned and achievement of end-of-initiative outcomes are intended to inform possible subsequent phases of initiatives. **While participants understood and appreciated this “stage gating”⁶ in theory, there remain questions about how and by whom it would be applied in practice.** Good specification of learning questions should include the range of potential answers to the questions and what they would mean for the program moving forward. Clarity on this and a commitment on the part of program management could mitigate some of the risk associated with sharing “negative” results related to program performance or impact and thus enhance learning. While this is ultimately a management decision, it is clearly dependent on funding, so uncertainty around how funding decisions will be made could inhibit open sharing and learning. One of the things participants appreciated about the workshop was the extent to which they were willing to speak openly about

⁶ While the term ‘stage gating’ is no longer used in this context, the idea that learning questions and three-year outcomes will be used in decisions about subsequent phases is still anticipated.

challenges and failures, which was likely facilitated by the recognized nature of the problem and the involvement of former and current CGIAR staff.

Influencing CGIAR structures and processes

In his provocative keynote, Holger Meinke highlighted what he saw as the changing nature of CGIAR funders. The shift from “donors” to “investors” has led to changes in expectations about what impact should look like and has implications for the research agenda itself (i.e., Level 1 versus Level 3 innovations). Jeff Sayer, former Director General of CIFOR and currently a professor at the University of British Columbia, commented that he has faced these same questions about the impacts of systems research since the founding of CIFOR. As highlighted by workshop speakers and as noted in the CRP synthesis report (CAS 2021c), there is an inherent tension between the types of outcomes the CGIAR wants to contribute to and the way the system organizes and funds research. Conceptually, ISR should be better accommodated in One CGIAR given its focus on food, land and water systems transformation and the explicit removal of a commodity focus. In practice, however, CGIAR has not always supported and adequately funded system research programs, especially those focused on NRM and participatory approaches (CAS 2021a). The commitment to pre-defined outcome and impact targets also limits the ability of research programs to co-develop projects with and be responsive to the needs of local stakeholders.

There are two responses to this situation and both were explored in the workshop. The first, which was explicitly endorsed by participants, is that **efforts should be made to change the systems and processes that make it difficult to do systems research in CGIAR**. While history suggests this is a hard sell, the reality is that the global challenges that CGIAR is focusing on increasingly require Level 2 and 3 innovations, and the outcomes the system is targeting will require a very different form of engagement between researchers, partners and other stakeholders than has traditionally been the case in CGIAR. Recognizing and reconciling the inherent contradictions within CGIAR around ISR will be particularly important for Action areas 1 (Systems transformation) and 2 (Resilient agrifood systems). Confronting this issue directly may also help to address other issues – from lack of social scientists to the inability of managers to use ToC as a management tool – by changing the incentives around how the research agenda is defined and how programs are designed and implemented.

Another way the group proposed to influence the system was to **lobby funders to support ISR and to influence funders' views on impact assessment**. With regard to support for ISR, efforts would highlight both the nature of the problem, using frameworks like the one presented by Meinke or the Independent Science and Partnership Council’s (ISPC) Quality of Research for Development (QoR4D) Frame of Reference (ISPC 2017), as well as changing societal expectations about the role of science and scientists in society (Belcher and Hughes 2021).

There was support for the idea of engaging donors/investors in a discussion of “how change happens” based on ToC. Despite the need for further work, there has been a vast improvement in how CRPs understand and use ToC. One of the benefits is improved communication with key stakeholders, including but not limited to funders. Many funders have clear ToC and this is the reason that they are, as noted in the workshop, often defining the problem and the solution. This is difficult for researchers who have other ToC and mental models, but if both sides are at least “speaking the same language” it should be possible to highlight where the differences are and to make progress in reconciling these different points of view. Dialogue could also identify areas where evidence might be brought to bear to test alternative hypotheses on causal links or underlying assumptions. Whether donors would have the time or interest to engage in this type of exchange with researchers, at individual, initiative or One CGIAR level, is unclear.

Inspired by Meinke’s reference to *The hitchhiker’s guide to the galaxy* (Adams 1979) – the ultimate answer to everything is 42 – some participants felt that there was scope to push back against what

they viewed as excessive and inappropriate donor demands for quantitative estimates of impact. While some impact questions are appropriate for quantitative assessments, many others are not. In such cases, Meinke argued, the focus should be on developing a convincing narrative and then bridging the gap between qualitative and quantitative assessments. This is consistent with the recommendations made earlier to pay more attention to the quality of qualitative approaches.

As was the case with system research, suggestions that funders need to change how they think about impact assessment are not new. Despite giving continuous attention to the topic, in particular by SPIA, understanding the attitudes of individual donors to impact evidence and what factors influence those attitudes is not clear. SPIA's mandate does not involve changing funder ideas about impact assessment; however, its mandate for [strengthening the culture of IA in CGIAR does involve improving how impact evidence is understood and used across CGIAR](#). One promising way forward might be for ISR researchers and the MELIA community, including SPIA, to agree on a small number of key messages related to assessing the impact of landscape/systems research. One potential topic could be around qualitative methods and their applications in specific areas such as policy influence, which is a key type of outcome in the Systems Transformation agenda. Another could be in identifying and using appropriate metrics for outcomes such as improved governance or capacity, especially of partners.

While not widely discussed at the workshop, there was an implicit recognition that **CGIAR is not the only place to conduct ISR**. [In his presentation on the long-term nature of ISR, Jeff Sayer described how this type of research can fit well in a university](#), where the goals of building student capacity and experience can align well with the need on the ground for a responsive research agenda with different types of disciplinary expertise within an overall transdisciplinary approach. In an example provided by Meinke on how evidence from climate research was used to justify policy support to peanut growers in Australia, it was clearly within the mandate of the national university to conduct that kind of research and to engage in that policy process. There is a need for reflection on what the appropriate role for international research organizations in these processes is, based not only on the constraints placed on researchers by CGIAR structures and processes but also on the need for these processes to be locally owned and driven.

Finally, while One CGIAR funding structures and processes may present challenges for ISR, there are funders that specifically seek to support work focused on systems change and whose MELIA processes are designed with that goal in mind (e.g., co-impact). Some of the most successful research programs in CGIAR have benefited from long-term bilateral funding and it appears that One CGIAR will provide incentives for CGIAR researchers, most likely in close cooperation with their partners, to seek support for ISR from additional sources.

Conclusions

The workshop addressed a longstanding challenge facing CGIAR and others who work on ISR, particularly in the context of NRM at the landscape scale.

In terms of methods for assessing the impact of ISR, the ability of geospatial approaches to measure environmental outcomes and to be used at relevant scales makes them particularly appropriate for use in impact evaluation of this type of research. This is already happening, but more work is needed to raise awareness and to address remaining technical challenges. Workshop participants also identified qualitative methods as a promising approach that deserve more investment, both in improving methods and in increasing qualitative skills within research teams.

The group recognized that CGIAR is moving toward integrating MELIA in the research process through greater use of ToC; however, there is still scope for improving how ToC is understood and used, in particular in terms of managing programs and incentivizing learning. There is also a need for identifying meaningful outcomes, with validated metrics, for some of the key intermediate outcomes in ISR, such as capacity development or improved governance.

Beyond identifying opportunities for improvements in MEL and IA methods and approaches, it was also recognized that there are inherent tensions within CGIAR about ISR and that addressing them could be key to the success of the new One CGIAR agenda. The One CGIAR agenda is squarely focused on transforming food, land and water systems for the benefit of the poorest and most vulnerable, yet in the past, CGIAR has struggled to fund and support the types of systems research programs that sought to do exactly that. Identifying the reasons for this lack of support and taking steps to change the systems and processes that make it difficult to conduct ISR in CGIAR will require work across the systems and at different levels. Addressing this issue goes beyond the MELIA community; however, the MELIA community has an important role to play and workshop participants identified some starting points.

References

- Adams, D. 1979. *The hitchhiker's guide to the galaxy*. London, UK: Pan Books.
- Allenby, B.R.; Sarewitz, D. 2011. *The techno-human condition*. London, UK: MIT Press. 240p.
- Barrett, C.B.; Agrawal, A.; Coomes, O.T.; Platteau, J.-P. 2009. *Stripe review of social sciences in the CGIAR*. Available at <https://ssrn.com/abstract=1844803> or <http://dx.doi.org/10.2139/ssrn.1844803> (accessed on December 7, 2021).
- Belcher, B. 2021. *Theory-based approaches for assessing the impact of integrated systems research*. Abstract. Presentation to the WLE-FTA-PIM-SPIA workshop: Measuring the impact of integrated systems research, September 27–30, 2021.
- Belcher, B.; Hughes, K. 2021. Understanding and evaluating the impact of integrated problem-oriented research programmes: Concepts and considerations. *Research Evaluation* 30(2): 154–168. <https://doi.org/10.1093/reseval/rvaa024>
- CAS (CGIAR Advisory Services). 2021a. *Synthesis learning from a decade of CGIAR research programs – Action Area 1: Systems transformation*. Brief 1. Rome, Italy: CGIAR Advisory Services. Available at [https://cas.cgiar.org/sites/default/files/images/Publications/2021_Synthesis_AA1_Brief_Systems_Transformation\(1\).pdf](https://cas.cgiar.org/sites/default/files/images/Publications/2021_Synthesis_AA1_Brief_Systems_Transformation(1).pdf) (accessed on December 7, 2021).
- CAS. 2021b. *Synthesis learning from a decade of CGIAR research programs – Action Area 2: Resilient agrifood systems*. Brief 2. Available at [https://cas.cgiar.org/sites/default/files/images/Publications/2021_Synthesis_AA2_Brief_Resilient_Agrifood_Systems\(1\).pdf](https://cas.cgiar.org/sites/default/files/images/Publications/2021_Synthesis_AA2_Brief_Resilient_Agrifood_Systems(1).pdf) (accessed on December 7, 2021).
- CAS. 2021c. *Synthesis of learning from a decade of CGIAR research programs*. Rome: CAS Secretariat Evaluation Function. Available at <https://cas.cgiar.org/evaluation/publications/2021-Synthesis> (accessed on December 10, 2021).
- Flintan, F.; Ebro, A.; Eba, B.; Assefa, A.; Getahun, Y.; Reytar, K.; Irwin, B.; Yehualashet, H.; Abdulahi, M.; Gebreyohannes, Z.T.; Awgichew, S.; Gudina, D. 2019. *Review of participatory rangeland management (PRM) process and implementation*. Rangelands Research Report 2. Nairobi, Kenya: International Livestock Research Institute (ILRI). <https://hdl.handle.net/10568/106017>
- ISPC (CGIAR Independent Science and Partnership Council). 2012. *A stripe review of natural resources management research in the CGIAR*. Rome, Italy: Independent Science and Partnership Council (ISPC) Secretariat. Available at https://cas.cgiar.org/sites/default/files/ISPC_StrategyTrends_NRM_StripeReview_0.pdf (accessed on December 7, 2021).
- ISPC. 2017. *Quality of research for development in the CGIAR context*. Brief number 62. Rome, Italy: Independent Science and Partnership Council (ISPC) Secretariat. Available at <https://cas.cgiar.org/isdc/publications/quality-research-development-cgiar-context> (accessed on January 19, 2022).
- Meinke, H. 2021. *Integrated systems research – oxymoron, pleonasm or tautology? Who cares?* Invited keynote at the WLE-FTA-PIM-SPIA workshop: Measuring the impact of integrated systems research, September 27–30, 2021.
- Meinzen-Dick, R.S.; Janssen, M.A.; Kandikuppa, S.; Chaturvedi, R.; Rao, K.; Theis, S. 2018. Playing games to save water: Collective action games for groundwater management in Andhra Pradesh, India. *World Development* 107(July 2018): 40–53. <https://doi.org/10.1016/j.worlddev.2018.02.006>
- Sarmiento Barletti, J.P.; Larson, A.M. 2021. Multi-stakeholder forums and the promise of more equitable and sustainable land and resource use: Perspectives from Brazil, Ethiopia, Indonesia, and Peru. *International Forestry Review* 23(Supplement 1, July 2021): 1–8(8). <https://doi.org/10.1505/146554821833466086>
- Savedoff, W.D.; Levine, R.; Birdsall, N. 2006. *When will we ever learn? Improving lives through impact evaluation*. Washington, DC, USA: Center for Global Development.

- Sayer, J.A.; Margules, C.; Boedhihartono, A.K.; Sunderland, T.; Langston, J.D.; Reed, J.; Riggs, R.; Buck, L.E.; Campbell, B.M.; Kusters, K.; Elliott, C.; Minang, P.A.; Dale, A.; Purnomo, H.; Stevenson, J.R.; Gunarso, P.; Purnomo, A. 2017. Measuring the effectiveness of landscape approaches to conservation and development. *Sustainability Science* 12: 465–476.
<https://doi.org/10.1007/s11625-016-0415-z>
- SPIA (Standing Panel on Impact Assessment). 2018. *Impacts of co-management activities on forests and households in Guinea*. Brief number 65. Rome, Italy: Standing Panel on Impact Assessment (SPIA), CGIAR Independent Science and Partnership Council (ISPC) Secretariat. Available at
https://cas.cgiar.org/sites/default/files/pdf/ispc_brief_65_comanagement_forests_guinea.pdf (accessed on December 7, 2021).
- SPIA. 2019. *Impact of CGIAR’s agricultural research for development: Findings and lessons from the Strengthening Impact Assessment in CGIAR (SIAC) program*. Rome, Italy: Standing Panel on Impact Assessment (SPIA), CGIAR Independent Science and Partnership Council (ISPC) Secretariat.
- Stevenson, J.; Macours, K.; Gollin, D. 2018. *The rigor revolution in impact assessment: Implications for CGIAR*. Rome, Italy: Independent Science and Partnership Council (ISPC). Available at
<https://cas.cgiar.org/spia/publications/rigor-revolution-impact-assessment-implications-cgiar> (accessed on January 19, 2022).
- Stevenson, J.R.; Vlek, P. 2018. *Assessing the adoption and diffusion of natural resource management practices: Synthesis of a new set of empirical studies*. Rome, Italy: Independent Science and Partnership Council (ISPC). Available at
<https://cas.cgiar.org/spia/publications/assessing-adoption-and-diffusion-natural-resource-management-practices-synthesis> (accessed on December 7, 2021).
- Stevenson, J.; Vanlauwe, B.; Macours, K.; Johnson, N.; Krishnan, L.; Place, F.; Spielman, D.; Hughes, K.; Vlek, P. 2019. Farmer adoption of plot- and farm-level natural resource management practices: Between rhetoric and reality. *Global Food Security* 20: 101–104. Available at
<https://doi.org/10.1016/j.gfs.2019.01.003> (accessed on December 7, 2021).
- Waibel, H.; Zilberman, D. (Eds.). 2007. *International research on natural resource management: Advances in impact assessment*. Wallingford, UK: CAB International (CABI).
- White, H.; Phillips, D. 2012. *Addressing attribution of cause and effect in small n impact evaluations: Towards an integrated framework*. New Delhi, India: International Initiative for Impact Evaluation (3ie). (3ie Working Paper 15). Available at
https://3ieimpact.org/sites/default/files/2019-01/working_paper_15.pdf (accessed on December 7, 2021).



RESEARCH PROGRAM ON
Water, Land and
Ecosystems

LED BY:

IWMI
International Water
Management Institute



Photo: Neil Palmer / CGIAR

CGIAR Research Program on Water, Land and Ecosystems (WLE)

The **CGIAR Research Program on Water, Land and Ecosystems (WLE)** is a global research-for-development program connecting partners to deliver sustainable agriculture solutions that enhance our natural resources – and the lives of people that rely on them. WLE brings together 11 CGIAR centers, the Food and Agriculture Organization of the United Nations (FAO), the RUAF Global Partnership and national, regional and international partners to deliver solutions that change agriculture from a driver of environmental degradation to part of the solution. WLE is led by the International Water Management Institute (IWMI) and partners as part of CGIAR, a global research partnership for a food-secure future.

CGIAR Research Program on Water, Land and Ecosystems

International Water Management Institute (IWMI)

127 Sunil Mawatha, Pelawatta

Battaramulla, Sri Lanka

Email: wle@cgiar.org

Website: wle.cgiar.org

Thrive blog: <https://wle.cgiar.org/thrive>

ISBN 978-92-9090-936-1

LED BY:



IN PARTNERSHIP WITH:

