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ARTICLE DE RECHERCHE / RESEARCH ARTICLE — OPEN ACCESS

Learning through monitoring, evaluation and adaptations of the "*Outcome Harvesting*" tool

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Abstract – This paper analyses a monitoring, evaluation and learning (MEL) system developed within an agricultural research for development institution. The system applies aspects of the *Outcome Harvesting* tool and focuses on learning for adaptation and improvement of innovation processes. Developmental evaluation principles are applied to discuss its application. The MEL system provides insight into the processes and interactions with next users that generate outcomes. MEL systems that use customized *Outcome Harvesting* aspects appear promising for adaptive management and to improve how research interacts with next users to achieve developmental outcomes.

Keywords: monitoring and evaluation / learning / agricultural research for development / adaptive management / outcome harvesting / developmental evaluation

Résumé – L'apprentissage par le suivi–évaluation et les adaptations de l'outil « *Outcome Harvesting* ». Cet article analyse un système de suivi–évaluation et apprentissage (SEA) mis en place par une institution de recherche agricole pour le développement. Le système est basé sur l'application de certains éléments de l'outil *Outcome Harvesting* (collecte des résultats). Il est axé sur l'apprentissage pour adapter et améliorer les processus d'innovation. Les principes de l'évaluation du développement sont utilisés pour discuter son application. Le système SEA contribue ainsi à la compréhension des processus et des interactions avec les acteurs qui génèrent des résultats. Les systèmes SEA qui utilisent et adaptent des éléments de l'outil *Outcome Harvesting* sont prometteurs pour une gestion flexible et pour améliorer l'interaction de la recherche avec ses utilisateurs afin de produire des résultats utiles pour le développement.

Mots clés : suivi–évaluation / apprentissage / recherche agricole pour le développement / gestion adaptative / collecte des résultats / évaluation du développement

1 Introduction

Agricultural research for development organizations are under pressure to provide evidence of developmental outcomes in light of global environmental and developmental concerns. Understanding the processes through which research contributes to outcomes is important to enhance this contribution (Horton and Mackay, 2003). This implies the implementation of robust monitoring and evaluation systems. The CGIAR (formerly the Consultative Group on International Agricultural Research) underwent a strategical reorganization in 2002 requiring required adapted Monitoring, Evaluation and Learning (MEL) systems (Thornton *et al.*, 2017) to encourage institutional reflection on durable outcomes (Springer-Heinze *et al.*, 2003). Such outcomes can be defined as the changes in knowledge, attitudes, skills and practice resulting by the use of research outputs (Thornton *et al.*, 2017). Intended users include researchers, extension services, farmers or their organizations, but also policy-makers and development practitioners.

A variety of approaches and methods are available to capture the contribution of research to outcomes, including Developmental Evaluation (Patton, 1994; Patton *et al.*, 2016), which aims to learn from outcome generation processes.

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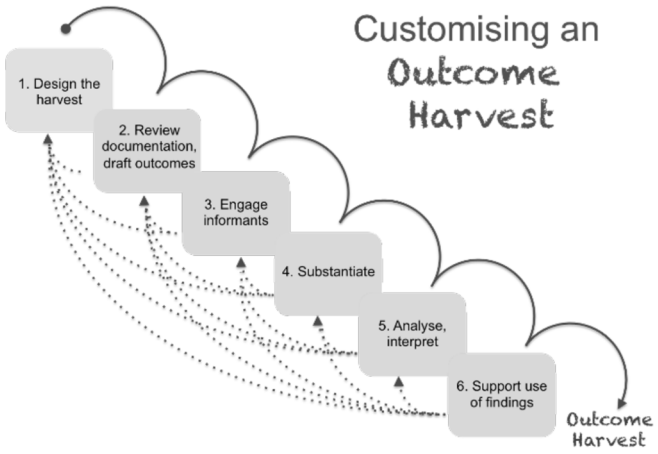

Fig. 1. Customizing an outcome harvest. Source: Ricardo Wilson-Grau.
Fig. 1. *Personnalisation de la récolte de résultats. Source : Ricardo Wilson-Grau.*

Developmental Evaluation embraces the complexity of social innovation, focusing on users and utilization of innovations (Gamble, 2008). Outcome Mapping (Earl *et al.*, 2001) and Participatory Impact Pathways Analysis (Douthwaite *et al.*, 2007) can be ascribed to this approach. Outcome Harvesting has emerged as a Developmental Evaluation inquiry tool, which identifies, formulates, verifies and evaluates, or makes sense of, outcomes (Wilson-Grau and Britt, 2012).

The Outcome Harvest is the identification, formulation, analysis, and interpretation of outcomes, which can be positive, negative, intended, unintended, planned or unplanned. The evaluation process involves six iterative steps:

- design the harvest by identifying useful questions and collection methods with the users of the evaluation;
- review documentation, draft potential outcome descriptions of who changed their behaviour and how the intervention contributed to this change;
- engage change agents who participated actively and contributed to the outcome to revise and formulate additional outcome descriptions (who changed what, when and where, and how the change agent contributed to the outcome);
- substantiate the accuracy of information and veracity of the outcome description with independent and knowledgeable third parties;
- analyse and interpret the data to answer useful evaluation questions;
- support the use of findings through recommendations and discussion points.

Outcome Harvesting must be customized to each evaluation (Fig. 1) and appears appropriate to assess and learn from social change in complex and dynamic environments, such as that of agricultural research for development. Several customized applications exist (*e.g.*, World Bank, 2014a).

This paper analyses a MEL system which adapts aspects of Outcome Harvesting. Since 2014, the CGIAR Research Program on Climate Change, Agriculture and Food Security (hereafter Research Program on Climate Change), led by the International Center for Tropical Agriculture (CIAT) adopted an outcome-focused MEL system (Schuetz *et al.*, 2017). Within this effort, CIAT set up a MEL system based on periodic feedback and yearly collection of outcomes, applying aspects of Outcome Harvesting. The customization was initiated with the support of Ricardo Wilson-Grau. CIAT chose this evaluative tool to collect and validate planned outcomes, enable the understanding of unexpected and emerging ones, learn from and improve interaction with next users. The paper presents three case studies from collections of outcomes carried out in 2014, 2015, and 2016.

2 Methods

The MEL system relied on the planning and reporting platform of the Research Program on Climate Change, combined with four tools purposely developed:

- a progress towards outcomes table;
- a meeting monitoring template;
- a file to track potential outcomes;
- yearly adaptations of Outcome Harvesting.

The first tool provided quarterly rapid appraisal on whether outcomes planned were being achieved, different actors were engaged, and other changes.

The second tool tracked meetings of a policy influence project, which involved frequent direct interaction with policymakers. The template monitored objectives, outputs, decisions, and challenges arising from these interactions and to report learning points and steering actions taken.

The third tool recorded information from the first two and from formal and informal feedback with researchers, including status of the outcome, contact person, next user, countries, and type of outcome.

Tools one to three had an explicit monitoring purpose, but offered learning on specific challenges and decisions researchers took with different actors.

The three tools fed information into the yearly outcome collection, aimed at validation, learning from intended, unintended and emerging outcomes and the processes that generated them, and supporting adaptive management. An impact assessment researcher would collect evidence and write the outcome story, which external evaluators would validate. The collection began by identifying most promising outcomes according to project leaders and included iterative discussions with researchers involved in outcome generation. The outcome story included an outcome statement; research outputs and activities that contributed to the outcome; partners; output users; how the output was used; evidence of the outcome. Once complete, CIAT would hire an external evaluator for substantiation and validation of the outcome.

3 Results

3.1 Case study 1 (CS1): science to support climate change policies

The first case study was carried out in 2014. CIAT staff prepared the story of governmental policy outcomes influenced by CIAT science. Based on the internal collection of research outputs, Wilson-Grau substantiated the outcome story (https://cgspace.cgiar.org/rest/bitstreams/52681/retrieve).

3.1.1 Initial outcome story

Between 2011 and 2014, CIAT climate change related science (CIAT and UNDP, 2011; Ramirez-Villegas *et al.*, 2012), including a study (World Bank, 2014b) on reduction of carbon emissions in Colombia, contributed to the evidence base for the agricultural section of the Colombian Low Emission Development Strategy. In 2014, these studies contributed to the decision of the Ministry of Agriculture and Rural Development and the Ministry of Environment, Housing and Territorial Development to prioritize two Nationally Appropriate Mitigation Actions for fruit plantations and silvo-pastoral systems. To support the decision-making process, CIAT researchers worked closely with the Colombian government to identify and prioritize most efficient mitigation measures in local and national workshops with producers, technicians, experts and policy-makers.

3.1.2 The substantiation

The substantiation questions were:

- To what extent do informants in the ministries agree on how they used CIAT science to prioritize mitigation actions for the agriculture and livestock sector?
- What do the informants consider were the changes in knowledge, attitude, skills and practice that explain why the ministries' decision-makers took the action described to mitigate or adapt to climate change?
- What do these key informants consider could be possible new outcomes flowing from those mitigation actions?

CIAT researchers suggested six knowledgeable, authoritative and independent informants (not the protagonists of CIAT science with a vested interest in CIAT's achievement of outcomes). The evaluator was able to consult three: the former supervisor of the cooperation agreement with CIAT in the Ministry of Agriculture; the coordinator for environmental sustainability and climate change at Ministry of Agriculture; the person responsible for mitigation in agriculture at Ministry of Environment.

3.1.3 Validated outcome story

The three informants' on-the-record answers confirmed that the two ministries had made a commitment to prioritize the reconversion of pastures into fruit crops, but within one mitigation action instead of two. CIAT science supported the acquisition of new knowledge: the Ministry of Agriculture climate change team developed technical abilities and were able "to speak with more authority... about climate change". They were better able to identify and structure national mitigation actions critical to enable the ministry to propose an action plan. They also specified that findings from other sources including the ministry itself, Corporación Colombiana de Investigación Agropecuaria, Universidad Nacional and Universidad de la Amazonía, complemented CIAT research. The collaboration with CIAT enabled greater inter-institutional coordination and helped position the Ministry of Agriculture closer to producers' associations. A key contribution was CIAT role as an information broker with the latter – Fedearroz (rice), Fenalce (cereals) and Fedepalma (oil palm) – and with the Global Environmental Facility.

Other potential outcomes included likely adoption of site-specific soil analysis by the rice producers association, and incorporation of a climate component in production planning of national associations.

The informants highlighted other contributing factors, including increasing awareness of greenhouse gas impact of the livestock sector, innovation interest of organized fruit producers, and international donors' support to sustainability initiatives.

3.2 Case study 2 (CS2): science to support international investment for farmers' resilience

The evaluator Julius Nyangaga validated and substantiated the 2015 outcome story (https://cgspace.cgiar.org/rest/bitstreams/79790/retrieve).

3.2.1 Initial outcome story

Projects of the Adaptation for Smallholder Agriculture Programme (ASAP) of the International Fund for Agricultural Development (hereafter the fund) increasingly adopt CIAT science (*e.g.*, Baca *et al.*, 2014; Schroth *et al.*, 2016) in project design, implementation and prioritization of sites and agricultural practices. CIAT climate and environmental assessments directly informed resilience projects in Comoros and Liberia. A project on rural livelihoods approved by Ugandan Parliament drew on CIAT science. A project on climate change impacts on coffee in Nicaragua used CIAT data for its design and to implement adaptation recommendations.

3.2.2 The substantiation

The substantiation questions were:

- To what extent do you agree that you used CIAT research on climate change? When and how did you use it?
- What are the reasons to use the information that way?
- What have been the changes in knowledge, attitude, skills and practice in your organization and others you interact with (including foreseeable changes)?
- In what ways did you or your organization relate with CIAT to obtain the information?

Key informants included a climate change specialist from the ASAP program; an ASAP country manager; the fund's Climate and Environment regional director for East and Southern Africa; a fund Country program officer, and a Portfolio Officer of the fund's Environment and Climate Division.

3.3.1 Validated outcome story

The validation found that CIAT research supported strategic prioritization of investments by providing demand-driven information through institutional collaboration and contractual approaches. CIAT research findings were being incorporated in the fund's approach to program design. In Liberia, the fund focused investment on technological options of a cocoa value chain that would be less affected by climate change. In Uganda, CIAT's provided background information

and a framework for implementation (understanding of farming system, define interventions for scaling out based on pilots). CIAT's modelling maps justified specific climatic resilience activities for coffee and cocoa value chains in Nicaragua.

The co-development of knowledge based on the needs of users, especially through contracts to develop research that centred the partner's interest, appeared to be a successful approach.

3.4 Case study 3 (CS3): science to increase reach and impacts of agroclimatic information

The evaluator Kemly Camacho validated and substantiated the 2016 outcome story.

3.4.1 Initial outcome story

The story focused on the use and dissemination of agroclimatic forecasts through a network of local and national actors in the Colombian agricultural sector, who participate in Technical Agroclimatic Committees. The committees serve as a platform to collect and share monthly forecasts and climate predictions through the National Agroclimatic Bulletin, co-developed with CIAT. Sector actors applied bulletin recommendations to make crop production decisions. The facilitation of data dissemination increased capacities for committees' members to make decisions through timely and local data, and changed how actors interacted and shared information.

3.4.2 The substantiation

The substantiation focused on:
- general background of the organization of the actor and his/her role;
- narration of if and how they participate in the process of assembling the bulletin;
- identification of where transformations occurred as a result of the committees and national bulletins;
- suggestions to improve the agroclimatic bulletins.

The evaluator interviewed 16 informants from 14 institutions who participated in the committees and received the bulletin.

3.4.3 Validated outcome story

CIAT agroclimatic prediction science and the committees changed how agricultural sector organizations generate, discuss, share, and integrate knowledge to tackle climate variability in selected regions. The National Agroclimatic Bulletin: democratized the availability of climate prediction data, strengthened the capacity of farmer associations and other production actors to make agronomic predictions, and helped transform local productive practices to adapt to climatic variability. The bulletins allowed committee institutions to systematically collect, synthesize, and distribute information through their networks. Information is shared through monthly meetings, committee website, email, and chat rooms. Constructing the bulletin collectively provides space to discuss problems and solutions from other sectors. The bulletins provided multiple actors a better understanding of agroclimatology, generating useful data, predictions and recommendations. Locally generated meteorological information likewise improved the climatic forecasts.

The key informants proposed better integration of small and medium farmers in the MTAs, and more targeted and adapted bulletins.

CS3 involved a larger number of key informants through different data collection methods and provided the most complete information on the achieved and emerging outcomes related to different stakeholders.

4 Discussion

The MEL system produced three *ad hoc* applications of Outcome Harvesting. As a Developmental Evaluation inquiry tool, lessons learned from the customized outcome harvests are discussed through the eight principles of this approach.

4.1 Developmental purpose: support innovation development by identifying the nature and patterns of development and their implications

Through yearly systematization and assessment, the MEL system adapting Outcome Harvesting aspects broadened understanding of how next users took action related to research outputs (*e.g.*, mitigation measures, agroclimatic forecasts) and activities (*e.g.*, trainings, co-construction of bulletins). The system supports and informs research institutions by exploring what is achieved and how innovation processes unfold. In CS1, it highlighted wave effects on agricultural actors likely to take action because of knowledge changes of policy-makers and farmer organizations. As outcomes were potentially wider than expected, it showed the need to improve monitoring at CIAT, which led to ameliorate the MEL system. It also showed what other factors influenced the achievement of outcomes and their possible further effects (CS1, CS2, CS3).

4.2 Evaluation rigor: ask probing questions, think evaluatively, question assumptions, apply evaluation logic, use appropriate methods, and stay empirically grounded

Qualitative evaluation methods face criticism about robustness and bias, but this can be overcome through transparency, systematic application of robust frameworks and ensuring rigor (*e.g.*, Shenton, 2004; Patton, 2014). The case studies presented addressed rigor by following Outcome Harvesting principles, using clear guiding questions and hypotheses, a transparent methodology, and evaluative thinking step by step. The substantiations addressed subjectivity and possible bias of informants to verify the accuracy of their information. The informants, who went on the record with their opinions, included government officials (CS1), international organization's officers (CS2), technicians and producer organization members (CS3) knowledgeable about the outcome story but independent of CIAT. CS1 and CS3 better defined a transparent, theory-based but empirically driven evaluation methodology. CS1 and CS2 better outlined the limitations of the study.

The complementary tools that allowed to track the potential uses of research outputs throughout the year facilitated the yearly outcome story write up. However, the process requires back and forth interactions with researchers involved in the outcome to clearly identify the who, what, when and how of the story. While more than one potential outcomes per year were monitored, they were substantiated only when robust evidence was available.

4.3 Utilization focus: focus on intended use by intended users

The operational purpose was reporting validated outcomes to the Research Program on Climate Change, but the MEL system focused on learning to improve the use of research, obtain indications of further outcomes, better understand partner's needs, and support adaptive management and process improvement. The direct intended users were CIAT staff and managers, and indirectly partners and donors. The steering actions adopted on the basis of these results, partly affected how CIAT engages with partners. Results from CS1 were used to improve the MEL system, but also CIAT support to policy-makers, fostering better understanding of their needs and capacity building for key actors. CS2 showed the value of collaborating with governments and international funds on the basis of a needs-based model. CS3 showed that providing relevant information sparked further initiatives, which are currently being monitored, and gave impulse to the dissemination of locally adapted agroclimatic bulletins.

4.4 Innovation niche: interpret process and outcomes of innovation and adaptation

CIAT's specific means of contributing to innovation outcomes and processes were multipronged. They included training of government staff based on their needs and interests (CS1), events (CS1, CS3), direct work with national producer associations (CS1, CS3), providing scientific results for climate policy (CS1) and investment finance (CS2), and creating platforms to exchange agroclimatic information and identify knowledge needs (CS3). South-South exchanges were key to generate research outcomes (CS1), along with international networking and knowledge brokering (CS1, CS2).

4.5 Complexity perspective: understand nonlinear, unpredictable and multidimensional changes in the innovation process, guide innovation, adaptation and system change strategies

The dynamic and complex systems in which some innovation processes happen need approaches that reflect different views about whether and how change is achieved. Outcome Harvesting supports this understanding through customization to specific needs and context of each evaluation, which can evolve as the process unfolds. Users and uses may change during the harvest, while new outcomes and informants might emerge. The MEL system allowed understanding of nonlinear pathways by identifying factors that enabled outcomes, beyond those identified by researchers (CS1, CS3). New initiatives adapting research results or technical abilities emerged. Results also showed the importance of building trust with next users for the success of the innovation process, through delivery of robust scientific results, understanding of next users' needs, timely information, and appropriate communication and partnerships. In CS3, the evaluator further navigated complexity by identifying an emerging theory of change based on the Agroclimatic Technical Bulletin process (Fig. 2), which could be added as a learning output and tool of the MEL system.

4.6 Systems thinking: focus on inter-relationships, perspectives and boundaries in a system rather than on discrete components

Thinking systemically is often a misused and abused term in evaluation, while pinning down the concept is not straightforward. It is about inter-relationships, perspectives and boundaries. The MEL system only provides clues into these concepts. The boundaries of outcomes were defined by the moment when the outcome was achieved, determining its relevance and the contribution of research to its generation. Researchers engaged in the first write up, before external evaluators substantiated it with knowledgeable and independent informants identified by CIAT staff. This introduces a potential bias, as boundaries of the outcome are limited by their knowledge. The MEL system aimed to overcome this through multiple perspectives, combining researchers', partners' and stakeholders' views. Triangulation of evidence from documents, interviews, or fieldwork also yielded different perspectives. Through the MEL system, project managers learned that researchers acted as intermediaries incentivizing inter-institutional cooperation, a key bridging contribution that enhanced research uptake (CS1, CS3) also through informal relationships.

4.7 Co-creation: develop the innovation and evaluation together so that developmental evaluation becomes part of the change process

Co-creation in the MEL system focuses on the evaluation process, although the learning can improve innovation processes and how researchers interact with next users. Interactive feedback with CIAT staff during and after the validation supported their use of findings based on what appeared to work best.

Operationally, the system involved the presence of an impact assessment officer collecting, analysing, interpreting and disseminating data for the climate change research portfolio. Budgeting such a position is recommended to allow smooth and systematic implementation that reduces the burden on researchers. Moreover, communication products on learning from this system, such as feedback reports, learning notes (https://cgspace.cgiar.org/handle/10568/71132) or blogs (http://blog.ciat.cgiar.org/es/analisis-de-politicas/), provided an incentive to contribute actively to MEL.

4.8 Timely feedback to inform ongoing adaptation

The MEL system provides timely insight into the process of outcome generation. A key lesson in CS1 was that

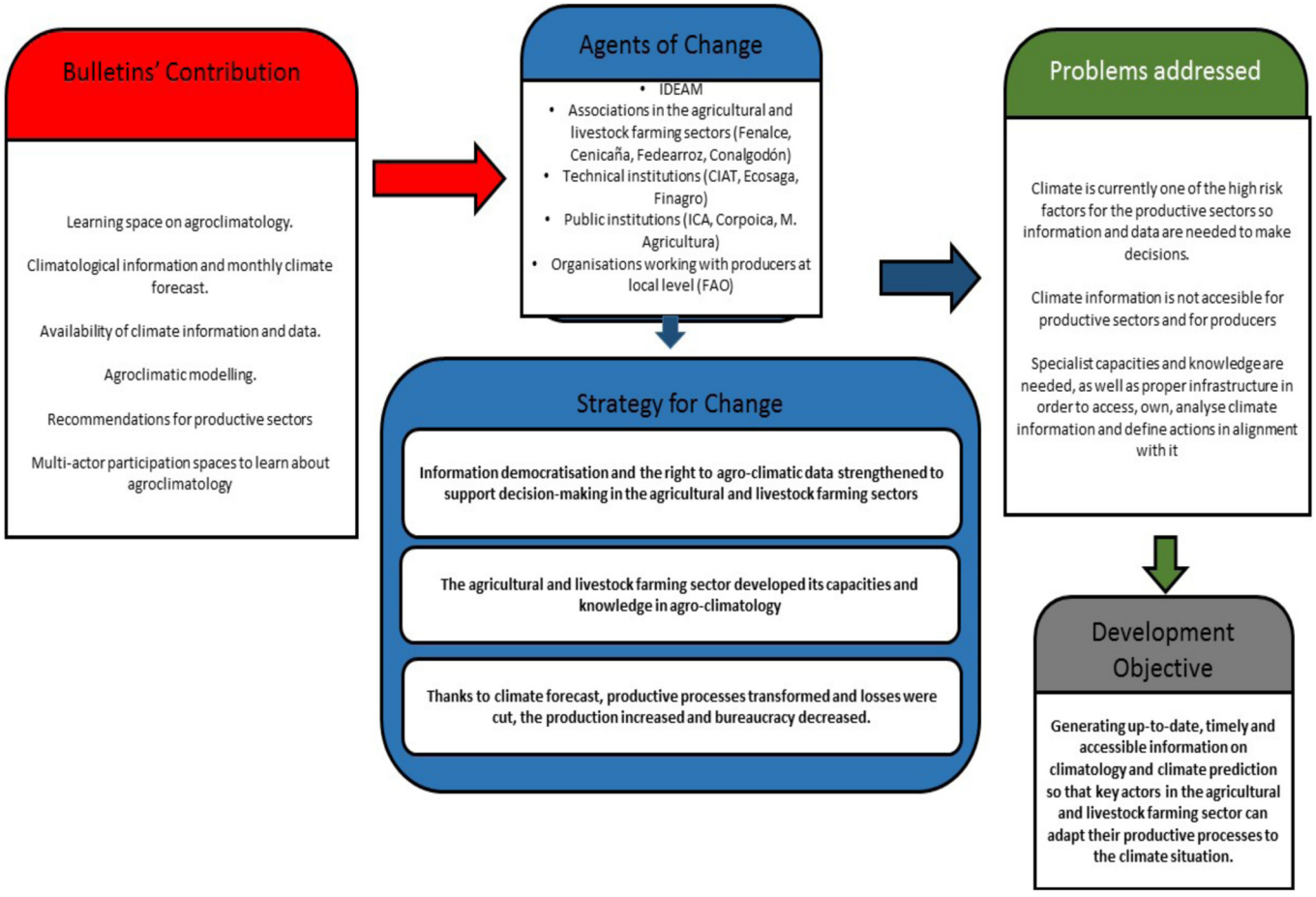

Fig. 2. Theory of change (agroclimatic bulletins).
Fig. 2. *Théorie du changement (bulletins agroclimatiques).*

ramifications and size of the outcomes to which CIAT contributed were not adequately monitored. This led CIAT to systematize the monitoring process and discuss incentives for researchers to better monitor the use of research outputs. Moreover, systematic follow up with next users and provision of timely information when requested appears key for research uptake. CS3 recommended the implementation of a collaborative process that allows meteorological stations of different producers' associations to generate locally-specific information, currently being developed.

5 Conclusions

This paper aims to inform research for development managers and researchers on the application and learning potential of customised Monitoring, Evaluation and Learning systems that adapt aspects of Outcome Harvesting. The system presented contributes to understand processes and interactions with next users that lead to outcome generation, analysing how science is used and why. It also supports adaptive management and corrective measures. The system was developed for agricultural research for development interventions, which are often complex and involve diverse actors who interact with research outputs in a multiplicity of ways. The MEL system appears particularly fitting for such dynamic and uncertain processes, but applications in different research fields could be devised.

The combination of periodic feedback tools and systematic outcome validation based on Outcome Harvesting principles, beyond improving the reporting cycle, supports institutional learning into processes and enabling factors that generate research uptake, and on emerging, unplanned or unexpected outcomes. The identification of outcomes generated independently of whether researchers planned or identified them is a key contribution of the MEL system.

Yearly validations are based on engagement of knowledgeable and independent informants about what has been achieved and how. This implies that the system is based on the existence of such informants and on their motivation to share what they know. However, the system may not trace unintended, negative consequences if not tangibly recognized and captured by the informants. Further applications could benefit from widening the pool of knowledgeable informants.

Finally, working with an outcome rather than output oriented focus requires flexibility and some level of opportunistic strategies as development and research processes do not progress at the same pace. Adaptive management requires monitoring and evaluation systems that allow flexibility and focus on learning to guide the research process

at the same time. The system herewith outlined is an attempt to support actions and reactions to contextual opportunities in agricultural research for development and the identification of emerging theories of change. In order to ameliorate and fully exploit the advantages of such a system, comparative institutional learning on process and outcome-based research is needed, opening research opportunities in monitoring and evaluation of agricultural research for development institutions.

References

Baca M, Läderach P, Haggar J, Schroth G, Ovalle O. 2014. An integrated framework for assessing vulnerability to climate change and developing adaptation strategies for coffee growing families in Mesoamerica. *PLoS One* 9(2): e88463. DOI: 10.1371/journal.pone.0088463.

CIAT, UNDP. 2011. Evaluación de flujos de inversión y financiamiento para acciones de mitigación y adaptación en el Sector Agropecuario. Bogotá: Programa de las Naciones Unidas para el Desarrollo. http://www.undpcc.org/docs/Investment%20and%20Financial%20flows/Results%20flyers/Colombia/Colombia_Summary_sp.pdf.

Douthwaite B, Alvarez S, Cook S, Davies R, George P, Howell J, *et al.* 2007. Participatory impact pathways analysis: A practical application of program theory in research-for-development. *Can J Progr Eval* 22: 127–159.

Earl S, Carden F, Smutylo T. 2001. Outcome mapping: building learning and reflection into development programs. Ottawa: International Development Research Centre.

Gamble JAA. 2008. A Developmental Evaluation Primer. Montreal: The J.W. McConnell Family Foundation.

Horton D, Mackay R, 2003. Using evaluation to enhance institutional learning and change: Recent experiences with agricultural research and development. *Agric Syst* 78: 127–142.

Patton MQ. 1994. Developmental evaluation. *Eval Pract* 15: 311–319.

Patton MQ. 2014. Qualitative Research & Evaluation Methods, 4th ed. Chicago: Sage Pubns.

Patton MQ, McKegg K, Wehipeihana N. 2016. Developmental evaluation exemplars. Principles in practice. New York: Gilford Publications.

Ramirez-Villegas J, Salazar M, Jarvis A, Navarro-Racines CE. 2012. A way forward on adaptation to climate change in Colombian agriculture: Perspectives towards 2050. *Clim Change* 115: 611–628.

Schroth G, Läderach P, Martinez-Valle AI, Bunn C, Jassogne L. 2016. Vulnerability to climate change of cocoa in West Africa: Patterns, opportunities and limits to adaptation. *Sci Total Environ* 556: 231–241.

Schuetz T, Förch W, Thornton P, Vasileiou I. 2017. Pathway to impact: supporting and evaluating enabling environments for research for development. In: Uitto JI, Puri J, van den Berg RD, eds. *Evaluating Climate Change for Sustainable Development*. Dordrecht: Springer.

Shenton AK. 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Educ Inf* 22: 63–75.

Springer-Heinze A, Hartwich F, Simon Henderson J, Horton D, Minde I. 2003. Impact pathway analysis: An approach to strengthening the impact orientation of agricultural research. *Agric Syst* 78: 267–285.

Thornton P, Schuetz T, Förch W, Cramer L, Abreu D, Vermeulen S, *et al.* 2017. Responding to global change: A theory of change approach to making agricultural research for development outcome-based. *Agric Syst* 152: 145–153.

Wilson-Grau R, Britt H. 2012. "Outcome Harvesting". Cairo: Ford Foundation. http://www.managingforimpact.org/sites/default/files/resource/outome_harvesting_brief_final_2012-05-2-1.pdf.

World Bank. 2014a. Cases in Outcome Harvesting. D.C. Washington: The World Bank.

World Bank. 2014b. Low Carbon Development for Colombia. D.C. Washington: The World Bank.

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