

Attachment 7: Knowledge Transfer and Research Dissemination: White paper

Prepared for the DFID funded KNOWFOR
Programme

26 August 2014



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Acronyms

ACIAR	Australian Centre for International Agricultural Research
CIFOR	Center for International Forestry Research
CoPs	Communities of Practice
DFID	United Kingdom Department for International Development
IDRC	International Development Research Centre
IUCN	International Union for Conservation of Nature
KEQ	Key Evaluation Question
KNOWFOR	Improving the way knowledge on forests is understood and used internationally
M&E	Monitoring and Evaluation
MEF	Monitoring and Evaluation Framework
ODI	Overseas Development Institute
PROFOR	Program on Forests

1. Introduction

This white paper has been undertaken to support the development of a monitoring and evaluation (M&E) framework for the DFID funded programme named “Improving the way knowledge on forests is understood and used internationally” (KNOWFOR). The aim of the KNOWFOR programme is:

“to increase the value and impact of forest and tree-related knowledge by improving dissemination, strengthening knowledge pathways and increasing uptake by key forest stakeholders such as policy makers and practitioners.” (CIFOR, 2013).

KNOWFOR is implemented through a partnership of three diverse organisations. The partners are the Centre for International Forestry Research (CIFOR); the International Union for Conservation of Nature (IUCN) and the Program of Forests (PROFOR).

There are two main areas where literature can be of value to the development this M&E framework. Firstly it can help us unpack some of the issues around knowledge uptake models that pose challenges to M&E. Secondly literature about how programmes such as KNOWFOR are best monitored and evaluated can provide practical guidance to selecting appropriate tools and approaches. To reflect this need this review has the following purposes:

- to investigate approaches used for knowledge transfer and dissemination of research in order to identify the characteristics and issues of these activities and process that are likely to affect their monitoring and evaluation. As such, this is not a comprehensive review of the literature addressing knowledge transfer and research dissemination.
- to investigate approaches to M&E for similar research activities seeking knowledge transfer and uptake to ensure that the monitoring and evaluation framework that is developed is in line with current thinking and best practice.

1.1. About KNOWFOR

While there is considerable research and a well-developed knowledge base on forests, trees and land-use, there is still a gap between the supply and uptake of knowledge by practitioners and decision makers in the forestry sector. KNOWFOR seeks to address this gap between research and practice by improving the pathways for disseminating research products, tools and advice to policy makers and forestry and land-use practitioners. More specifically, KNOWFOR seeks to equip policy makers and practitioners in developing countries with strategic knowledge, comparable evidence, reliable tools and systematic analysis on forests and climate. Figure 2 illustrates the basic theory of change model for the KNOWFOR programme, showing how the partners work directly and indirectly to enable decision makers to be equipped with the knowledge to implement changes in policy and practice.

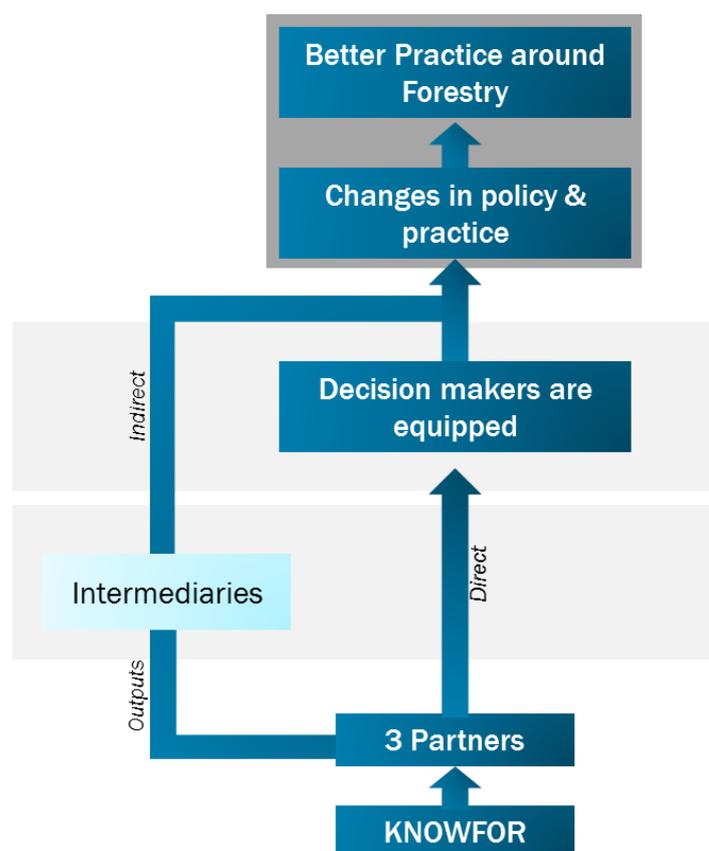


Figure 1 Simplified KNOWFOR Theory of Change Model

1.2. Scope of the white paper and sources of data

The review has a narrowly defined scope and was undertaken as a time-bound task to inform the development of the M&E framework for KNOWFOR. It is not a systematic review or meta-analysis of the literature. Nonetheless it may well be of value to those developing M&E frameworks for similar programmes.

There is a substantial amount of literature focusing on research communications or dissemination - from research organisations towards the potential users of the information. However, there is limited discussion in the literature about the ways research is used by policy

makers or practitioners and how or why they might respond to or seek out research-generated knowledge. This is particularly the case for research in an international development context.

There appears to be a greater focus on knowledge uptake for policy making rather than practice. This is also true of the attention given to monitoring and evaluating uptake work, particularly in the international development context, which is the focus of the Overseas Development Institute (ODI) and the International Development Research Centre (IDRC). However, there are some examples of M&E approaches that have a focus on 'extension' activities directed at practitioners, particularly from Australian sources such as the Australian Centre for International Agricultural Research (ACIAR).¹

Monitoring is a continuous function that uses the systematic collection of data to provide management and the main stakeholders of a programme with indications of the extent of progress and achievement of objectives. Literature discussing monitoring activities is very limited and it is most often included as a process for collecting evidence for evaluation rather than having a stand-alone function.

Sources used in this review include both peer reviewed literature and grey literature. Academic and research literature reviews are generally limited to peer reviewed literature. For such purposes, this specification is valid and understandable (for example, studies of forestry treatments). However, monitoring and evaluation are management tools and it is frequently the case that the practicalities and challenges of M&E are discussed largely in grey literature. However, there are peer reviewed journals in evaluation² as well as authoritative monographs. These have been reviewed and included where relevant.

1.3. Structure of the white paper

In Section 2 we present three characteristics of research uptake programmes that have implications for M&E. In Section 3 we then present some of the scholarly theories around how knowledge utilisation is defined and conceptualised as well as some of the contemporary theories around ways to maximise knowledge usage. Section 4 offers a model of five performance areas for M&E of knowledge uptake programmes and explores some frequently used approaches and methods for monitoring and evaluating each performance area. Throughout the paper text boxes offer implications for the development of the M&E framework for KNOWFOR. The final section summarises all the implications and offers recommendations for suitable approaches for the Framework.

¹ Extension in the agricultural context has been described as “the process of enabling change in individuals, communities and industries involved in the primary industry sector and in natural resource management” (State Extension Leaders Network (SELN) 2006 'Enabling Change in Rural and Regional Australia: The role of extension in achieving sustainable and productive futures', retrieved from www.seln.org.au.)

² Peer review journals include Evaluation (Sage Publications); American Journal of Evaluation (Sage Publications); New Directions for Evaluation (Jossey-Bass and the American Evaluation Association).

2. Characteristics of research uptake programmes that have implications for M&E

This section highlights three characteristics of research uptake programmes that have a fundamental influence on the approaches to knowledge transfer and research dissemination and also affect monitoring and evaluation. These are: the complex and variable environment in which research is disseminated and taken up, the challenges of attribution and the importance of relationships and networks.

2.1. The complex and variable environment

Bringing about policy or practice change has been described as a variable, complex, non-linear process with multiple factors and stakeholders involved at any one time (Barnett & Gregorowski, 2013; Jones, 2011). The literature identifies challenges for both planning the communications and dissemination of research knowledge and tracing back from the changes observed to the influences that have contributed to those changes.

As a result of this complexity it is considered crucial to have some understanding of the cause and effect relationships between the activities of a research programme and the subsequent outputs, outcomes and impact (Jones, 2011). Without this understanding, it is difficult to know if the intended result has been achieved by the programme's dissemination activities, if changes are necessary to achieve the results and if it is possible to make credible claims about the impact of the research programme. Mayne and Stern (2013, p. 18) list a number of characteristics that serve to distance research from the impacts sought including:

- a long and complex causal sequence between immediate results and impacts, often with a long timescale
- events and conditions outside the programme can influence the extent to which impacts are brought about
- there are likely to be a number of causes and coexisting programmes and interventions that contribute to the desired impact
- the direction and strength of the causal path can change over time, with factors providing a positive influence at one point of time and an obstruction at others
- in complex environments, similar results can be achieved by different interventions, while there may be different outcomes from the same type of intervention in different circumstances and at different times.

Implication 1

The M&E framework for KNOWFOR needs to unpack the intended causal path for the program. Given the level of complexity of the program, a logical framework, while important, is unlikely to be sufficient and a more stepped out visual theory of change model should be articulated. As there is significant diversity across partners, this should be done for each partner organisation. These theory of change models should not be seen as static, but be allowed to evolve over time to incorporate learning.

2.2. Difficulties associated with attributing impact

The long and complex causal sequence between immediate results and impacts associated with uptake of research presents considerable challenges in terms of attributing results to the activities of the programme.

Causation is a primary consideration in monitoring and evaluation (Patton, 2012). Funders, programme staff and stakeholders want to know what outcomes have been achieved and if those outcomes resulted from the programme intervention. In evaluation literature, a distinction is made between *attribution* and *contribution* when considering causation.

When attribution is emphasised, there is an assumption that a direct link can be established between a cause (which can also be described in medical terms as a ‘treatment’) and an effect. Such definitions assume that experimental and quasi experimental methods are the best and default methods—the ‘gold standard’. In these scenarios, there is a reliance on counterfactual logic when making a causal inference (Stern et al 2012, p. 6).

Challenges to this approach have come from at least two directions. Firstly, there has been a greater recognition that different forms of evidence exist and that they have credibility: including scientific, lay/practitioner, and from policy-makers themselves. Many of these do not reach or respect the gold standard (Stern et al 2012). Secondly, as discussed above, the contexts and environments in which policymakers and practitioners receive and integrate knowledge are increasingly complex. There may be multiple programmes or initiatives designed to support each other; the programmes may not operate in short timeframes where causal relationships can be traced; and the end-users are likely to be influenced by a number of sources. In these complex environments, the diverse and dynamic variables cannot be isolated, manipulated or measured, which makes it difficult to show attribution. The term *contribution* is applied where the programme was one of multiple factors that helped to cause the observed results (Mayne , 2012).

When it is not possible to isolate the effect of a programme from other interventions to determine if it has made a difference, evaluators have turned to theory-based design approaches. These approaches fall into two broad categories: causal process designs and causal mechanism designs (Stern et al 2012):

Causal process designs use the identification or confirmation of causal processes or ‘chains as the basis for causal inference. Approaches that focus on causal process include theory of change, impact pathways (Douthwaite, Alvarez, & Mackay, 2008) and contribution analysis.

Causal mechanism designs focus on identifying the supporting factors and mechanisms at work in a particular context. Approaches that focus on the examination of causal mechanisms include Realist Evaluation (Pawson, 2002) and congruence analysis (Blatter, 2012).

It is often the case that these two approaches are combined by practitioners in order to bridge the gaps between causes and effects (Funnell & Rogers, 2011).

Implication 2

M&E framework needs to focus on measuring with the aim of understanding the contribution made, not proving attribution.

2.3. Importance of relationships and networks

Academic and non-academic research tends to differ in their conceptualisation and evaluation of uptake. It has been the practice to evaluate conventional academic research through academic peer reviews and the number of citations in peer-reviewed publications. These are not considered adequate for capturing some of the broader aims of research for a non-academic audience where policy impact, changes in behaviour, and relationship building are some of the types of impact sought (Hovland, 2007).

Davies, Nutley and Walter (2005, p. 11) identified two broad objectives of non-academic research dissemination:

- *instrumental*, where research findings are aimed at influencing policy, managerial and professional practices, social behaviour or public discourse; and
- *conceptual*, which aims to change people's knowledge, understanding and attitudes towards social issues.

Achieving either of these objectives relies to some degree on understanding and maintaining relationships and networks. They are considered necessary to disseminate knowledge and provide a means of translating that knowledge to influence on policies and practices. In this context research does not speak for itself; it requires translation and interpretation of its meaning and implications in order to be useful to policy makers and to enable practitioners to apply the knowledge through technologies, training, etc. Policy makers and practitioners often turn to trusted peers and intermediaries for this translation. Identifying the right translators and creating productive conditions for translation are critical for achieving uptake (Tseng, 2012).

Further, Jones et al (2013) identify four common dimensions that influence the interface between knowledge and policy—the political context; the interests, values and beliefs of the actors; the salience of the knowledge generated and sought and the processes of knowledge interaction. Each of these dimensions involve relationships and networks that may have a role to play in knowledge uptake.

Implication 3

The M&E framework needs to pay attention to relationships and networks. It needs to distinguish between different types of use, different roles of actors and relationships between them.

3. Scholarly theories around dissemination of research and knowledge uptake or use

The focus of this section is to present some of the scholarly theories around how knowledge utilisation is defined and conceptualised. It will also canvas some of the contemporary theories around ways to maximise knowledge usage. Rather than a comprehensive review of the literature which is substantial and long standing, it is a focused review aimed at identifying what is special about the dissemination and uptake of knowledge in KNOWFOR that creates challenges for M&E.

3.1. 'Knowledge for action' theories

The Winter 2009 edition of *New Directions for Evaluation* published on behalf of the American Evaluation Association was dedicated to 'Knowledge Utilization, Diffusion, Implementation, Transfer and Translation: Implications for Evaluation'. The title refers to five theories or processes relating to knowledge and change that are broadly accepted across a range of disciplines. Drawing on the summaries of these theories (Ottoson, 2009, pp. 7-12), two theories have particular relevance for research uptake in KNOWFOR: Knowledge Utilisation and Translation.

Theories around Knowledge Utilisation

Recognising that research requires translation and interpretation by policy makers and practitioners, it is helpful to understand the ways in which research may be used.

Research influences policy best when researchers adjust to the prevailing realities of place and time—doing research that explicitly answers specific policy problems, engaging the policy community and activating political interest in their endeavours (O'Neill 2009:xv)

In her 2012 paper, 'The uses of research in policy and practice', Vivien Tseng claims that, despite their "attempts to make research more usable and to communicate it more effectively" researchers run the risk of missing the mark without a better understanding about how research is used.

Knowledge Utilisation is described as having its roots at the intersection of science and philosophy, and as a body of work grapples with translating theoretical constructs into applied systems and processes. Knowledge utilisation theories identify two considerations that shape the parameters of knowledge use: what counts as knowledge and what counts as use (Blake and Ottoson 2009).

- *What counts as knowledge:* While indicating the knowledge utilisation theories have a primary focus on "knowledge that derives from systematic research and analysis" (Weiss, 1972), these theories also acknowledge that there are multiple types of knowledge (such as practical, intellectual, spiritual, unwanted), and that the knowledge can be explicit (formal and easily communicated) or tacit (unorganised, personal, context driven and difficult to communicate) (Ottoson, 2009).
- *What counts as use:* Ottoson (2009) point out that there are numerous ways of conceptualising use and in order to trace the use of knowledge, evaluators need to make assumptions about use explicit.

One of the most influential ways of conceptualising use in a policy making context was provided by Carole Weiss in 1979 (Weiss, 1979). Weiss identified seven ways in which research is utilised in a policy making context, five of which continue to be accepted:

- *Knowledge-driven* model – which follows a linear pathway from basic research to applied research to development and finally application as part of the policy process
- *Problem-solving* model, considered the most common model – where research provides the missing knowledge about a particular issue and assists in finding a solution for a practitioner or supports a policy decision.³
- *Interactive* model – in this model researchers are one type of actor amongst many who help policymakers arrive at a policy decision
- *Political* model – where policymakers draw on research to support their established position
- *Tactical* model – here the substance of the research is not as relevant as the fact that it is being done and even who is doing it. (Weiss 1972).

Landry et al (2001) build on and complement Weiss's work by suggesting it be categorised in terms of four models:

- *Push* model: which follows a linear sequence where knowledge utilisation rests on research supply to decision makers and practitioners
- *Economic demand pull* model: which has a similar linear sequence where knowledge users define the problems and ask researchers to find solutions
- *Institutional dissemination* model: which has two additional steps - the adaptation of research products and dissemination to intended users
- *Social interaction* model: which posits a non-linear sequence where knowledge utilisation is explained by sustained and intense interaction between researchers and users.

Landry et al point out that the simple reception by users does not imply the 'use' of knowledge. They propose a ladder of utilisation that involves six stages which are cumulative in their effects: transmission, cognition, reference, influence and application (2001: 399-400). Table 1 illustrates how this ladder of utilisation corresponds with both the outputs of research and the uptake of research.

³ This is also referred to as "instrumental use" (Tseng 2012, p. 7)

Table 1 Ladder of knowledge utilisation and how it relates to research outputs and uptake

Key Performance Area	Ladder of Knowledge Utilisation
Output	<ul style="list-style-type: none"> • Transmission • Cognition (Research reports read and understood)
Uptake	<ul style="list-style-type: none"> • Reference (citation in reports, studies etc) • Effort (efforts made to adopt the results) • Influence (research results have influenced the choice and decision of practitioners and professionals) • Application (Research results have given rise to applications and extension activities)

While providing a useful way to conceptualise uptake, the ladder of utilisation relates mostly to those models with a more linear sequence such as the Push or Pull models. A model has been proposed more recently around ‘process’ in which ‘use’ refers to what practitioners learn from participating in the research process rather than the actual research findings (Tseng 2012, p. 7). With reference to the ladder of knowledge utilisation, process use can lead to all the dimensions of uptake (reference, effort, influence, application), yet the description of ‘transmission’ fails to include participation in the research process.

Co-production model

One contemporary model that incorporates the concept of ‘process use’ by establishing effective engagement is associated with the concept of *co-production* (this model is used in some of the work carried out by KNOWFOR partners). This has become recognised as a way of including the end users in the development and implementation of research as a potential way to increase uptake (Jung, Harrow, & Pharoah, 2012).

Co-production in research aims to put principles of empowerment into practice, working ‘with’ communities and offering communities greater control over the research process and providing opportunities to learn and reflect from their experience (Durose, Beebeejaun, & Rees, n.d.)

Co-production is also understood as a way of recognising the importance of tacit knowledge—the mix of experiences, values, contextual information and intuition that provides a framework by which people evaluate and incorporate new experiences and information. Roux et al (2006) argue for a move away from notions of knowledge transfer to collaborative learning between ‘experts’ and ‘users’.

In the policy context, one way of enabling such a process is through ‘communities of practice,’ described by Wenger et al. (2002) as:

a group of people who share a concern, a set of problems or a passion about a topic, and who deepen their knowledge and expertise by interacting on an ongoing basis’ (quoted in Hearn and White 2009).

Hearn and White (2009) suggest that communities of practice (CoPs) can provide a social container for learning between practitioners, knowledge producers and policy process to analyse, address and explore issues and possible solutions. They point out that the flow of information must be two ways—not only from the researcher but also from the practitioners and policy makers. This enables the researchers to go beyond dissemination and to think about the application of the knowledge they are producing.

Knowledge broking

Another contemporary approach to maximising knowledge uptake is ‘knowledge broking’. Knowledge broking has been recognised as an effective way of facilitating the links between knowledge producers and knowledge users in complex contexts. Knowledge broking involves:

working as neutral intermediaries to translate and ‘broker’ different types of knowledge so that current policy [and practice] decisions are based on the best available knowledge (Shaxson, Gwyn, & al, 2010).

Sarah Michaels (2009) identifies six different knowledge brokering strategies which have been adapted by Shaxson and Gwyn to reflect different roles of knowledge brokers. These are shown in Figure 2 below and reflect increasing receipt and uptake of knowledge by policy makers and practitioners:

- Informing: disseminating content
- Linking: linking expertise to need for a particular policy [or practice] area
- Matchmaking: matching expertise to need across issues and disciplines
- Focused collaboration: beginning to construct formal relationships to focus on a particular issue
- Strategic collaboration: strengthening and broadening relationships
- Building sustainable institutions: broadening capacity of institutions to respond to several issues simultaneously, focusing on co-production of knowledge and joint learning from doing (Shaxson and Gwyn 2010, p. 3)

Implication 4

The M&E framework needs to accommodate different types of use, including “process use” seen in the co-production model. The different knowledge brokering strategies can usefully be applied in the ME framework to describe the different roles of actors.

The six functions of knowledge brokering

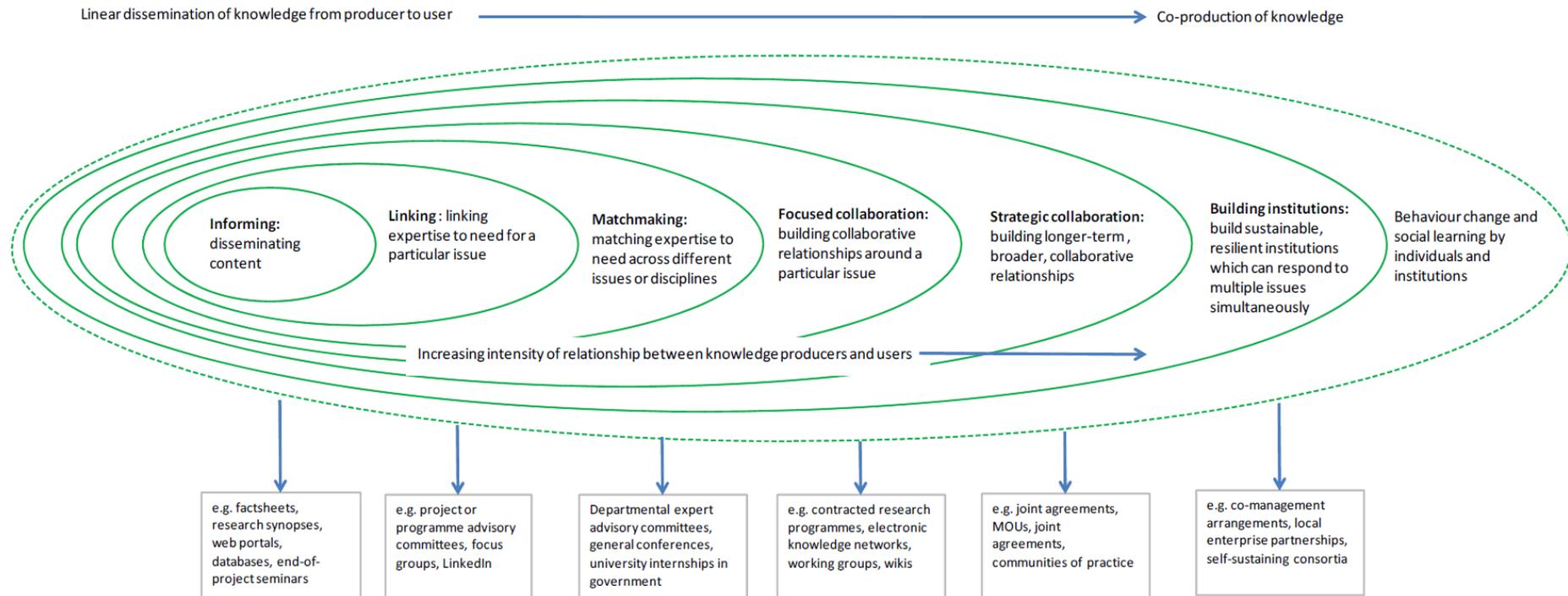


Figure 2 The six functions of knowledge brokering (Source: Shaxson and Gwyn 2010)

Adoption pathways

The Australian Centre for International Agricultural Research (ACIAR) takes a broad view of its monitoring and evaluation activities with a focus on ‘adoption’ rather than uptake and identifies three categories of outputs to report project achievements, one of which specifically captures policy uptake:

- new technologies or practical approaches (practice)
- new scientific knowledge or basic understanding (product)
- knowledge, models and frameworks for policymakers (policy) (Davis, Gordon, Pearce, & Templeton, 2008).

Adoption pathways reflect the dual focus of achieving uptake by both practitioners and policymakers and differentiate the types of users—initial, next, penultimate and final users⁴:

- **Commercialisation** – engaging the market for the distribution of the product or practice.
- **Communication** – disseminating information directly or indirectly to the final user, and/or the organisations such as extension services that provide information to the final users.
- **Capacity building** – the transfer of knowledge and skills to enable adoption as part of the research and development project by:
 - directly targeting final users by including them in research (action or participatory research)
 - including policy makers in the R & D to gain their understanding and promote a supportive environment for adoption
 - indirectly, through developing and promoting the delivery of training packages.
- **Regulation** – which enforces or encourages adoption through compulsory (government) or voluntary (industry or co-operative) regulation. (Davis et al 2008, p. 37).

Implication 5

KNOWFOR’s outcomes include both policy and practice change. The M&E framework for KNOWFOR may need to develop a classification of types of ‘outcomes’ that include reference to adoption and some of the distinctions seen in ACIAR’s adoption pathway approach.

⁴ For example, for policy outcomes:

- Initial users are the policy research groups or university academics who provide policy advice
- Next users are the departmental staff formulating draft policies and advice
- Penultimate users are the implementers of the policy, after ministerial approval
- Final users (consumers or producers) are those who change their practice, process or product in response to a change in policy (Davis et al 2008, p. 42)

4. Monitoring and Evaluation Approaches to Knowledge and Research Dissemination

This section begins by offering a model of five performance areas for M&E of knowledge uptake programmes. It then uses this structure to explore different approaches and methods for monitoring and evaluating each performance area.

4.1. Key performance areas for knowledge uptake programmes

Inge Hovland (2007) identifies five key performance areas that the monitoring and evaluation of policy research should focus on:

- Strategy and direction
- Management
- Outputs
- Uptake
- Outcomes and impacts.

This schema, while very useful, fails to accommodate some of the ‘process use’ dimensions of knowledge utilisation identified in the previous section. To accommodate for this, one could take a somewhat broader view of outputs to include different types of interaction and collaboration in the research process itself. Table 2 provides the five areas of performance, explains each level and offers a range of different tools and methods that can be applied at each level. Following this we explore the literature around each performance area in more depth.

Table 2 Key performance areas that M&E of knowledge uptake should focus on and corresponding tools

Key Performance Area	Performance Focus	M & E Approaches
1. Strategy and direction	The basic plan that the research project/programme/institution is following in order to reach its intended goals.	tools for articulating strategy include: Logframes; theory of change, outcomes mapping and Impact Pathway Tools for testing robustness of the strategy include: evaluability assessment, expert review.
2. Management	The enabling systems and processes that the project/programme/institution has in place to ensure that the overall strategy is carried out and high-quality policy research is produced (e.g. systems of peer/user review, quality assurance, planning cycles, etc).	Self-assessment process; ‘Fit for Purpose’ Reviews; ‘Lighter touch’ Quality Audits; Horizontal Evaluations.

3a. Outputs	<p>The tangible goods and services that a research project/programme/ institution produce (e.g. Working Papers, journal articles, policy briefs)</p> <p>as well as efforts to engage others website, meetings, events, networks, etc).</p> <p>The interactions between different actors.</p>	<p>Evaluating the quality and quantity of knowledge products: academic articles and research reports; policy and briefing papers</p> <p>Evaluating the reach and quality of engagement: websites; workshops; and capacity building; After action reviews, etc.</p>
3. Uptake	<p>Direct responses to the research programme's outputs and interactions (e.g. its research is mentioned in a government policy paper, on a range of websites, referred to in a newspaper article, etc).</p>	<p>SNA</p> <p>Impact logs; citation analysis; User surveys</p>
4. Outcomes and impacts	<p>Changes in behaviour, knowledge, policies, capacities and/or practices that the research has contributed to, directly or indirectly (e.g. a change in government policy implementation, a change in working practices among NGO practitioners, a reduction of poverty in a certain area, strengthened livelihoods, strengthened civil society input into policy processes, etc).</p>	<p>Outcome mapping; RAPID outcome assessment; Most significant change; Innovation Histories; Episode studies, Case studies.</p>

Source: Modified from Hovland (2007)

Brief comments about each of these key performance areas and common methodologies uses are discussed below.

4.2. Strategy and direction

There has been considerable attention and emphasis given to the development and use of various frameworks for planning and articulating the expected results of research projects, programmes and institutions. Various frameworks are in use and include: the logical framework, theory of change/ programme logic; impact pathways; social network analysis; outcomes mapping. Each of these frameworks (which are described below) provides a means to articulate the expected outputs, outcomes and impacts of a research programme. As discussed in Section 2 there is considerable reference in the literature about the importance of having some sort of clear articulation of the expected cause and effect chain (Jones, 2011), although there are considerable differences in how different authors believe this is best achieved.

There are also various approaches for evaluating the robustness and feasibility of frameworks that articulate the expected results of a programme including: evaluability assessment, expert review of the programme logic and feasibility studies. These processes involve interrogating the cause and effect chains and testing to see whether the assumptions are realistic and based on evidence.

So it is important to note that tools for this performance level include both frameworks for articulating results and tools (such as a logical framework) as well as tools to evaluate the robustness and feasibility of these frameworks (such as expert review of the programme logic)

The logical framework

The Logical Framework Approach and its diagrammatic representation, the logical framework matrix (often referred to as the logframe) is the most commonly recognised approach used for M&E within international development. It is often a requirement of donors (including DfID). While a logframe can be constructed on its own, the Logical Framework Approach includes the development of a problems tree, objectives tree and an objectives hierarchy, as well as undertaking a stakeholder analysis (Hovland 2007, pp. 4-6).

Criticisms and concerns about the use of the logical framework approach include:

- they assume that complex social systems can be predicted in advance and issues reduced to a single problem statement
- they assume a close causal relationship between the outputs and outcomes
- a focus on the abstract change process at the expense of identifying who is involved (Davies R. , Bond Quality Group - Debate on logrames, posted by Rick Davies, 2009).
- in practice they can be inflexible: objectives formulated at the outset of research dissemination may not be the best yardstick against which to judge its progress if a logframe and baseline is constantly being re-worked (Jones, 2011).

The limitations of a simple linear cause-effect approach to promoting change, based on certainty, rationality and predictability (as is depicted in the logical framework) is being increasingly challenged in the aid arena. At the heart of this is the recognition that the development process is made up of a complex web of inter-relationships which are sensitive to context, and when subject to interventions act in unpredictable ways (Eyben, 2007; Guijt, 2008) This development has been accompanied by attempts to look at the implications of non-linear change for design and monitoring and evaluation (Reeler, 2007; Eoyang, Yellowthunder, & Ward, 1998). Doug Reeler (2007), for example, suggests that linear forms of 'projectable' change are the exception rather than rule. As a result, the application of orthodox M&E (based on the use of logical frameworks and time-bound indicators) is inappropriate for many programmes.

Implication 6

The logframe does not provide sufficient conceptual clarity around cause and effect for the development of the M&E framework for KNOWFOR. As it is a mandatory requirement of DFID it should be used in conjunction with theory of change. As theory of change models often include "intermediate outcomes" these will be added to the logframe to ensure consistency.

Theory of change (ToC) or programme logic

ToC is generally depicted as a diagram and an accompanying narrative. The diagrams may include multiple pathways, several levels of intermediate outcomes and are generally thought to be more able to depict complex change than a logframe. Harry Jones (2011, p. 3) points out that a theory of change is an essential tool for the M&E of policy influence, for both improvement to policy influencing projects and to enable accountability and reporting to stakeholders.

In complex situations, project and programme staff are likely to face ambiguity and there is potential to develop several different and contradictory interpretations of the same information. A theory of change provides a framework to gain a more shared understanding of what is being aimed for and makes this sufficiently clear to enable people to question the underlying assumptions and the continued relevance of goals and adaptively improve the programme. The development of a clear statement of strategy and direction is a central requirement of accountability, and takes on increased importance for policy influence where a key ingredient of

success comes from having explicit objectives and strategies.(Jones 2011, p. 3-4). Jones identifies three common types of theories of change:

- **Causal chain:** a succession of elements and the logical connections between them, including activities, outputs, outcomes and impact.
- **Dimensions of impact:** sets of areas of outcomes presumed to be important contributing factors towards policy influence such as the political and policy context, the key actors and relationships and their networks and external factors.
- **Actor-centred theories:** These focus on the behaviour change of actors. Outcomes mapping and people-centred programme logic are examples of this type of theory.

Jones suggests that, when developing a theory of change, the emphasis should be on trying to provide a realistic and intuitive model that clearly sets out assumptions and ideas about change.

In a 2013 paper, Barnett and Gregorowski at the Institute of Development Studies (IDS) caution that a theory of change tool is likely to be inadequate for the research-to-policy process if used in a static manner. Rather than trying to capture the entire change process from the outset (for which theories of change often are inadequate), their true value lies in ‘providing an “organising framework” against which to explore and better understand complexity during implementation’ (Barnett & Gregorowski, 2013, p. 1). The paper points to the following key lessons:

- locate the theory of change within the broader understanding of policy
- do not overly focus on the higher-end processes
- move beyond diagrams and simple intervention logics
- accept imperfection, but revisit the theory of change often (Barnett & Gregorowski, 2013, p. 8).

Outcome mapping: Developed by the International Development Research Centre (IDRC), Outcome Mapping focuses on behaviour change outcomes including changes in relationships, activities, or actions of the people, groups, and organisations that are engaged directly through a project or programme: its ‘boundary partners’. While the outcomes that are mapped can be logically linked to the activities of the project or programme, the outcome mapping is based on the premise that there are likely to be multiple interventions contributing to those outcomes. Thus, the process focuses on identifying its contributions to those outcomes (Earl, Carden, & Smutylo, 2001).

The Outcomes Mapping method explicitly acknowledges the projects lack control over downstream impacts. The method therefore focuses on clearly identifying priority outcomes and the behavioural changes among boundary partners that are expected to lead to those outcomes. (CIFOR, 2012)

Outcome mapping has three stages: design, performance monitoring, and evaluation. It can therefore be applied to the strategy and direction performance area, but also at the outcomes and impact performance area.

Participatory Impact Pathway Analysis (PIPA): Douthwaite et al. (2008) describe this approach as ‘the construction of impact pathways and their subsequent use through a participatory process’. They suggest PIPA goes beyond outcome mapping by stretching participants to predict how project outcomes can lead to social, economic and environmental impacts. Impact Pathway models combine two core elements:

- A logical model, to map the causal chains from activities and outputs to outcomes and goals
- A network model, such as Social Network Analysis to show evolving relationships between programme organisations and other partners and stakeholders that are necessary to achieve impacts (Hovland, 2007, p. 8).

Implication 7

It is important that the M&E includes a focus on the strategy and direction setting area of performance. It needs to monitor whether individual projects are being planned out with reference to the uses and users of the research, and articulate a clear model of how this influence is expected to happen.

Implication 8

Given the relational nature of KNOWFOR program actor-centred approach to theory of change (or outcomes mapping) is appropriate. It is also important that the resultant theories of change are not seen as static but rather used as an organising framework to be revisited as required.

4.3. Management

The focus of this performance area is the internal systems and processes that are in place to ensure quality work is produced by an organisation, programme or project.

Self-assessment processes: can be applied to review the organisation, project or programme against a set of standards or benchmarks for good practice.

Fit for purpose reviews: These are externally conducted reviews of a programme's processes to determine if they are 'fit for purpose'. They often combine literature and project document reviews with interviews with donors and programme staff (Hovland, 2007, p. 16). This type of review is often conducted at the programme level as part of an external mid-term review conducted by programme evaluators

'Lighter touch' Quality Audits and Horizontal Evaluations: These techniques require the institution under review to carry out a self-assessment and present their findings to the evaluators. They differ in who makes the assessment, with external auditors or evaluators responsible for audit findings and internal staff, including those from other programmes responsible for evaluation findings. This provides a greater focus on learning and improvements (Hovland, 2007, pp. 17-18).

Implication 9

Assessing the extent to which KNOWFOR funded activities adhere to best practice approaches to programme planning and collaboration between partners is important. Therefore monitoring tools for self-assessment should be included in the M&E framework.

4.4. Outputs

These are the tangible goods and services that are produced by a research project/programme or institution such as journal articles, policy briefs, websites, meetings, events, etc. (Linguist, 2001, p. 5) differentiates two types of activities that produce outputs contributing to 'policy inquiry':

- Publication activities which include memos, reports, articles, books and briefs. Hovland would include networks as an output falling within this category (2007, p. 20)
- Convocation activities which include workshops, seminars, conferences, briefings, speeches and e-connections (or social media).

Most typically organisations focus on the quantity of outputs produced. However, the approaches identified by Hovland (2007) also focus on the assessment of the *quality* of the outputs. Different quality standards and criteria apply to the various outputs and each output is likely to require specific approaches and challenges for evaluation.

Academic articles and research reports: there does not appear to be an agreed process for assessing the quality of science of academic articles and research reports measuring them against the quality of publications in referred journals. In a 2005 examination of 1,600 DFID research projects (LTS International; Noragric; Oxford Policy Management, 2005) evaluators chose to go beyond aspects related to the correct formulation of hypotheses, the appropriateness of scientific inputs, research methodologies and processes, research outputs and outcomes. They also made assessments of such aspects as:

- the extent to which a programme contributed to new knowledge
- the extent to which a programme uses existing knowledge creatively in new contexts
- rating the programme in relation to its innovation and scientific risk-taking
- demonstrated awareness of all current knowledge (journals, books, web-based information)
- the extent to which the expected science achievements outlined in the log frame were met
- the extent to which projects and the programme have contributed to science capacity building in the scientific communities in developing countries
- development of long-term institutional relationships between UK institutions and Southern institutions
- rating the overall result knowledge dissemination from the programme to specific policy and practitioner communities (LTS, Noragric and OPM, 2005: 10-11).

The quality of policy and briefing papers: Young and Quinn (2002) suggest that policy and briefing papers should be assessed against three core components:

- problem definition: this requires an assessment how clearly the paper identifies the policy (problem) being addressed through clear titles, introductions and opening sentences, effective use of paragraphs and coherence within the text.
- problem solution: this involves the assessment of how clearly the possible solutions are stated with the preferred policy option highlighted.

- conclusions and recommendations: assessing the synthesis of major findings, clarity of the recommendations into separate measures.

The quality of websites: Guidance on evaluating websites covers a broad range of purposes, from assessing website accessibility to content. For example, most university libraries are likely to have guidelines for student to evaluate the information found on a website.⁵ Common criteria for these guides include authorship, credibility/authority, currency of information, verifiability, and objectivity. A policy briefing paper prepared for the INTRAC-NGO Research Programme in 2001 suggested that websites that aim to communicate research to an international audience can be assessed with reference to their architecture, technology, style, content, strategy and management (Taylor, 2001):

- architecture: the structure of the website and the logic by which the pages interconnect as a way of assessing the site's navigability
- technology: the quality of the code and appropriateness of the technologies used which will determine how accessible the site will be to an international audience with different software and hardware capabilities
- style refers to appearance, layout and display of text and images
- content: including the quality, authority, relevance and timeliness as well as the degree to which user interaction is supported
- strategy: the degree to which the site had met stated objectives in relation to target audience and market
- management: the human and financial resources that the site has available.

Taylor (2001, p. 6-8) suggests that websites can be evaluated through a range of methods including observation, automated tests, user surveys and telephone interviews. He provides an evaluation framework that identifies the component (listed above), the quality being evaluated (such as navigability), the evaluation question to be answered and the suggested method.

Workshops/training/other capability building activities: a number of approaches exist for evaluating one-off or clearly defined capability building activities such as workshops and seminars. The most common form of evaluation is feedback questionnaire provided to participants at the end of an event. However, there are ways of capturing data throughout an event. Five methods were used to evaluate a workshop in 2003 (Bredhauer, 2003) including a wall newspaper, a 'daily star' evaluation, a scrapbook, a reflection tree and final evaluation form.

- Daily newspaper: participants were invited to make comments and observations against the sessions. Some participants wrote up reflections about sessions to share with those not attending the session or workshop.
- Daily star evaluation: Sessions could be rated using three coloured stars – gold for most enjoyable, blue for most useful and green for least useful
- Scrapbook: a private and unstructured way to leave comments
- Reflection Tree: Participants placed scapes recording their reflections on a tree placed in the foyer of the venue.
- Final evaluation form: a short structured questionnaire using Likert scales and spaces for comments.

⁵ For example, John Hopkins University provides online guides to evaluate internet sources and social media (<http://guides.library.jhu.edu/evaluatinginformation>);

With the increasing use of technology, particularly mobile technology, similar tools are becoming more effective and interactive and can be employed throughout conferences and events.

Hovland (2007, p. 24-26) suggests that 'after action reviews' provide a simple tool to facilitate assessments of meetings or events. After action reviews are conducted by bringing together relevant stakeholders to consider three sets of questions. The first set of questions aims to establish a common understanding of the activity under review. The second set of question aim to generate reflection about the successes and failures of the activity. The final question seeks to identify actionable recommendations for the future (Ramalingam, 2006, pp. 64-66).

Implication 10

The M&E framework should differentiate between two types of outputs – knowledge products and engagement activities. A common description of outputs should be developed to enable aggregation of outputs. The quality of outputs should also be included.

Measuring and understanding networks

Social Network Analysis (SNA): is a social research approach and method that can be used to study and represent how social networks and relations are structured (Scott, 2012, p. 38). The focus of SNA is on relations (ties) between entities (nodes). Information collected via network research can be represented graphically (in matrices), visually (as a map or model) and analysed descriptively using quantitative metrics (i.e. centrality), which will then be informed by stakeholder interpretation of networks (i.e. how partners see connections). This final stage of SNA utilises a participatory approach and methods (i.e. workshop) to yield enriched analysis, findings and more relevant implications for the programme.

The use of this technique reflects the importance of understanding and utilising relationships and networks to assist knowledge uptake.

A network model can show the evolving relationships between programme organisations and other partners and stakeholders that are necessary to achieve impacts. It can assist programme staff in identifying boundary partners: "those individuals and organisations that a programme works directly with and aims to influence" (CIFOR, 2012).

A range of methods can be used to collect data about the linkages between people from which a 'map' is constructed (Research to Action, 2012).

Implication 11

The M&E framework should include social network analysis tools.

4.5. Uptake

This performance area focuses on assessing the extent to which research has been taken up. 'Uptake' in this context is defined as direct responses to the research project, programme or institution.

Common methods for collecting evidence on uptake include impact logs; citation analysis and content analysis and user surveys.

Impact logs: This is usually collected via a spread sheet in which practitioners record evidence of uptake by way of: comments made in meetings; quotes; minutes received from people who have used or encountered the research in some way. It is not aimed at assessing perceptions of the research or its impact on policy or practice (Hovland, 2007, p. 26).

Citation Analysis and content analysis: The use of citation analysis to represent 'academic impact' is a well-established practice. However, in order to assess how research influences non-academic actors, there is a need to go beyond an academic citation analysis. Lewison (2005) proposed that five types of documents could be analysed using content analysis to assess the impact of research outputs on policy making:

- international standards
- Government policy documents
- operational guidelines
- training manuals and text books
- newspapers.

Online tools are available for academic citation analysis, such as Publish or Perish⁶, which uses Google Analytics. However, as academic citation can be a lengthy process before citations appear, this is likely to be a long-term activity.

To this list, Hovland has added websites (2007, p. 27) and with the growth in the use and influence of social media, analyses of social media sites and internet activities are becoming important sources of uptake measures. Collecting data about digital media is a fast evolving area and can be time consuming when tracking webpage statistics (Google Analytics is generally accepted as the industry standard, but doesn't track downloads and required another application such as Weblog Expert ⁷); Twitter and Facebook statistics⁸.

Nick Scott (2012) has created an 'ODI M&E dashboard' to digitally capture the successes and failures of ODI communications work. Using Hovland's five assessment levels as a framework, the dashboard identifies the information that can be gleaned from digital systems to contribute to the different assessment levels. These are recorded against ODI's website, publication, blog or article, event, media release, and newsletter activities.

⁶ Publish or Perish: <http://www.harzing.com/pop.htm>

⁷ Google Analytics: <http://www.google.com.au/analytics/>
Weblog Expert: <http://www.weblogexpert.com/>

⁸ Raw statistics for Twitter are available at <http://twittercounter.com/>. klout is able to provide some idea about influence, <http://klout.com/home>; Facebook Insights provides similar information <https://www.facebook.com/help/search/?q=insights>

Implication 12

The M&E framework needs to include a variety of tools to measure uptake such as impact logs; citation analysis and User surveys. Monitoring uptake via new media is also important.

4.6. Outcomes and Impacts

These are defined as changes in behaviour, knowledge policies, capacities and/or practices that the research has contributed to, directly or indirectly.

Outcome mapping: as mentioned in the strategy section, outcome mapping has three stages: design, performance monitoring, and evaluation. It can therefore be applied to the strategy and direction performance area as well as the outcomes and impact performance area. For outcomes and impacts outcome mappings makes use of '*outcome journals*' to track when expected behaviour change has happened for targeted boundary partners.

RAPID Outcome Assessment: The Research in Policy and Development (RAPID) Outcome Assessment (ROA) also focuses on the key actors that are directly influenced by the project or programme and draws significantly from Outcome Mapping. It is a flexible tool that can also draw on other methodologies such as Episode Studies and Most Significant Change (discussed below). (ODI 2012). Rapid Outcome Assessment is essentially a workshop approach where a visual map is created to unpack behavior and policy change over time with different key actors.

The three following approaches provide opportunities to engage with users of the research.

Most significant change (MSC): This methodology involves the collection of significant change stories and the systematic selection of the most significant of these stories by panels of designated stakeholders or staff. This focused attention encourages a form of ongoing and indirect monitoring of the work carried out (Davies & Dart, 2005).

Performance Story reports or Collaborative Outcomes reports (COR): Performance story reports, as first described by John Mayne (Mayne, Reporting on outcomes: setting performance expectations and telling performance stories, 2004) are an evidence-based story about what a research organisation or project did, what outputs it achieved and what difference it made in terms of uptake, and changes in policy and practice. They are structured around the programme logic. Similarly COR (Dart, 2013) builds on Mayne's concept of performance story reports and adds in a participatory process. Both techniques aim to produce short reports that tell a credible story about the contribution of a project/ programme or organisation. They use multiple lines of data to tell these performance stories.

Innovation histories: This approach involves the recording and analysis of innovation events when they occur for use as learning and evaluation tools. People who have been involved in the innovation jointly construct a detailed written account (sometimes referred to as a 'learning history') based on their recollections and on available documents. The process begins with the construction of an actor network matrix and a timeline, tracking the development of the innovation forward. This informs the development of a written account, or 'learning history' (Douthwaite & Ashby, 2005).

Episode Studies: In contrast with innovation histories and performance stories, episode studies track back from the policy changes, creating a historical timeline to enable the identification of key actors and decisions. An assessment of the relative role of research is then made, which may be supported by a literature review and interviews with key actors (Overseas Development Institute (ODI), 2009).

Case Studies: Other types of case studies are commonly used to investigate outcomes and impact. A comprehensive series of case studies was undertaken by the International Development Research Centre (IDRC) “to explore, explain and improve how IDRC’s support for research can influence public policy in developing countries” (Carden, 2009, p. 175). Twenty three in depth case studies were undertaken between 2001 and 2007 to provide a meta-evaluation with the aim of addressing the following questions:

- What constitutes public policy influence in IDRC’s experience?
- To what degrees and in what ways has IDRC supported research influenced public policy?
- What factors and conditions have facilitated or inhibited the public policy influence potential of IDRC supported research projects?

The methodology included background research (scoping interviews and a preliminary review of the literature); case study research including contextual analysis, interviews with decision makers and review of documents; and analytical outputs including regional analysis workshops and cross-case analysis. (Carden 2009, pp. 181-187).

Implication 13

Given the range of tools available to capture outcomes and impacts, it will be important to include narrative based tools such as performance story; and episode studies.

5. Implications for the KNOWFOR M & E Framework

The final section summarises all the implications that have been raised during the paper and groups them under implications about: the way we articulate KNOWFOR; the approach and focus of M&E and the M&E tools to use.

5.1. Implications about the way we articulate KNOWFOR

The logframe does not provide sufficient conceptual clarity around cause and effect for the development of the M&E framework for KNOWFOR. As it is a mandatory requirement of DFID it should be used in conjunction with theory of change. As theory of change models often include 'intermediate outcomes' these will be added to the logframe to ensure consistency. The M&E framework needs to unpack the intended causal path for the programme. As there is significant diversity across partners, this should be done for each partner organisation. Given the relational nature of KNOWFOR, an actor-centred approach to theory of change (or outcomes mapping) is appropriate. It is also important that the resultant theories of change are not seen as static but rather used as an organising framework to be revisited as required.

It is important that the M&E includes a focus on 'management' area of performance. KNOWFOR needs to monitor whether individual projects are being planned out with reference to the uses and users of the research, and articulate a clear model of how this influence is expected to happen. The M&E framework should also differentiate between two types of outputs – knowledge products and engagement activities. A common description of outputs should be developed to enable aggregation of outputs. The quality of outputs should also be included.

5.2. Implications about the approach and focus of M&E

With regard to attribution and contribution, the approach that should be taken is to accept that establishing contribution to change is more realistic, cost-effective and practical than seeking to establish attribution. In light of this and in acknowledgement of the fact that disentangling the impact of KNOWFOR from other influences is challenging, the proposed evaluation approach should draw on '**contribution analysis**' as developed by John Mayne (1999). Mayne suggests that in some programmes we need to accept the fact that what we are doing is measuring with the aim of reducing the uncertainty about the contribution made, not proving the attribution made.

The M&E framework also needs to pay attention to relationships and networks. It needs to distinguish between different types of use, different roles of actors and relationships between them. It needs to accommodate different 'process use' seen in the co-production model. Different knowledge brokering strategies can also be usefully applied in the M&E framework to describe the different roles of actors.

KNOWFOR's outcomes include both policy and *practice change*. The M&E framework for KNOWFOR may need to develop a classification of types of 'outcomes' that include reference to adoption and some of the distinctions seen in ACIAR's adoption pathway approach.

5.3. Implications about the M&E tools to be used

Monitoring tools for self-assessment of project's performance around articulating a clear theory of change and identifying actors should be included in the M&E framework. The M&E framework should include social network analysis tools and a variety of tools to measure uptake such as impact logs; citation analysis and User surveys. Monitoring uptake via new media is also important. Given the range of narrative-based tools commonly used to capture outcomes and impacts, it will be important to include narrative based tools such as performance story and episode studies.

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