# Policy-making as discourse: a review of recent knowledge-to-policy literature

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## About IKM Emergent

In April 2007, a five year research programme was approved for funding by the Directorate General for International Cooperation (DGIS), part of the Dutch Ministry of Foreign Affairs. The programme, Emergent Issues in Information and Knowledge Management (IKM) and International Development, will be known as the IKM Emergent Research Programme. The objective of the programme is to improve development practice by promoting change in the way the development sector approaches the selection, management and use of knowledge in the formation and implementation of its policies and programmes. It aims to achieve this by:

- raising awareness of the importance of knowledge to development work and its contested nature;
- promoting investment in and use of Southern knowledge production of all types and origins;
- creating an environment for innovation, supported by research on existing and emergent practice, for people working in the development sector to raise and discuss means of addressing these issues; and
- finding, creating, testing and documenting ideas for processes and tools which will illustrate the range of issues which affect how knowledge is used in development work and stimulate thought around possible solutions.

## About RAPID and the Overseas Development Institute (ODI)

The Overseas Development Institute (ODI) is Britain's leading independent think-tank on international development and humanitarian issues. Our mission is to inspire and inform policy and practice which lead to the reduction of poverty, the alleviation of suffering and the achievement of sustainable livelihoods in developing countries. We do this by locking together high-quality applied research, practical policy advice, and policy-focused dissemination and debate. We work with partners in the public and private sectors, in both developing and developed countries.

The Research and Policy in Development (RAPID) programme at ODI works with partners in developing and developed countries at the intersection of research, policy and practice to ensure better outcomes for the poor. We do this by focussing broadly on two main areas: understanding the role of knowledge in policy and practice, and the skills and capacities needed for researchers and organisations to effectively translate knowledge into action. Find out more at www.odi.org.uk/rapid

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## Abbreviations

| | |
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| CHSRF | Canadian Health Services Research Foundation |
| CSO | Civil Society Organisation |
| DFID | UK Department for International Development |
| EADI | European Association of Development Research and Training Institutes |
| EES | European Evaluation Society |
| GDN | Global Development Network |
| IDS | Institute of Development Studies, UK |
| IDRC | International Development Research Centre of Canada |
| IE | Impact assessment and evaluation |
| IFPRI | International Food Policy Research Institute |
| LFA | Logical Framework Approach |
| LSE | London School of Economics |
| NCCSDO | National Co-ordinating Centre for NHS Service Delivery and Organisation |
| ODI | Overseas Development Institute |
| PORIA | Policy Research Impact Assessment |
| RAPID | Research and Policy in Development Programme |

## Executive Summary

This working paper explores the current understanding of the link between knowledge and policy in development. The issue is of relevance for researchers as it will help them make the most of their work and facilitate the changes they would like to see in policy; for policy-makers, it will contribute to a better understanding of the link between knowledge and policy which will in turn help to inform the policy design and implementation process and facilitate a more effective uptake of new knowledge in their work; and for intermediaries who are looking to strengthen the link between knowledge and policy this paper should provide a theoretical overview of the knowledge-policy landscape and some potential avenues for work.

There is a great variety of schools of thought focusing on different aspects of the link between knowledge and policy. Within these diverse fields three paradigms emerge as common sets of basic ideas that frame different approaches to the field:

1) *Rational*: This models the link between knowledge and policy as essentially a knowledge-driven relationship. Knowledge is seen as providing instrumentally useful and essentially 'neutral' inputs that serve to improve policy, and policy-making works in 'problem-solving' mode, according to logic and reason.

2) *Pluralism and opportunism*: This paradigm challenges assumptions about the rationality of the policy process, seeing it as involving pragmatic decisions taken based on multiple factors in the face of uncertainty. The incorporation of knowledge involves often erratic and opportunistic processes, and explicit efforts of various actors. This view retains assumptions that the production of knowledge and its incorporation in policy is generally 'good'.

3) *Politics and legitimisation*: This viewpoint argues that power is infused throughout the knowledge process, from generation to uptake. Knowledge will often reflect and sustain existing power structures, and is used in the policy process in processes of contest, negotiation, legitimisation and marginalisation.

Recent theoretical developments on *the role of knowledge in the policy process* have generally stemmed from the third paradigm. Analysis of the role of power in the policy process has coalesced around three interlocking types of relations:

- *Actors and networks*: this sees the driving force in policy processes as material political economy, with interest groups competing over the allocation of resources and the formulation of rules and regulations. Knowledge is often seen as subordinate to interests, used tactically or as 'ammunition' in adversarial decision-making. Taking a closer look, the effect of actors deploying information and ideas, and the role that knowledge and ideas play in structuring networks, coalitions and 'interests', suggests a more active role for knowledge.

- *Institutions*: this attributes an ongoing force in policy-making to the context and institutions that shape the formal and informal 'rules of the game' such as constitutional rules and cultural norms. Knowledge and ideas are refracted, altered and translated to fit prevailing institutions, or certain types of knowledge may be excluded entirely. It can also play a role through becoming institutionalised, embedded in bureaucratic procedures, laws, or organisational forms.

- *Discourse*: this sees knowledge and power as intertwined, with considerable power held in concepts and ideas seen as relevant for policy, and exerted through interactive processes of communication and policy formulation. There are various

areas of study within this, for example: the role of cognitive paradigms in limiting the range of policy options considered, and the dynamics of 'narratives' in the policy process, simplifying complex situations and driving policy.

As well as these theoretical insights, there are two key areas of practical interest: the production of knowledge, and the processes linking knowledge and policy.

A great deal of work focuses on how the *production of knowledge* can be oriented in order to strengthen the link between knowledge and policy. Key sources of knowledge are:
- *Research*: this can provide useful inputs to policy, especially if explicitly focused on policy problems. However, there are calls to broaden this to recognise the need for critical and advocacy work, as well as more fundamental scientific research.
- *Process*: knowledge generated in the process of implementing development programmes (including, but not restricted to knowledge *of* the processes) is seen as an invaluable resource for policy. There are a number of practical problems in capturing and using this knowledge, however, as well as political barriers.
- *Voice, participation and citizen knowledge*: a great deal of work advocates either for citizens to be directly involved in generating knowledge for policy, or to be invited to participate in policy spaces. Criticisms have highlighted that such processes can function as a 'new tyranny', requiring a move towards 'transformative' participation.
- *Multiple sources and interdisciplinarity*: recognising that problems are complex, multidimensional and dynamic highlights the importance of integrating multiple disciplines and multiple types of knowledge. This would bring a holistic understanding of the problem, however it faces challenges from the way that work is often divided into 'silos'.

*Processes that mediate between the generation and use of knowledge* play a crucial role in the link between knowledge and policy:
- *Communicating and translating ideas and knowledge*: work on research communication highlights making messages 'sticky', short and easy to understand, adapting them to audiences' mindsets. Critics suggest these principles may result in the 'wrong kind of influence'.
- *Interaction and exchange*: This requires stimulating interaction and collaboration in order to take on board the contextual nature of knowledge and the complexities of its use.
- *Social influence and persuasion*: social factors such as face-to-face communication and social networks spread messages through peer influence.
- *Intermediaries and credibility*: Sustaining long-term links between knowledge and policy requires intermediary organisations. As well as communicating and translating knowledge, they must also 'mediate' between different actors and types of knowledge, which needs trust and credibility.
- *Demand for and use of knowledge*: work highlights the importance of the right capacities and incentives for policy actors to use knowledge, as well as political determinants of demand.

## *About the author*

Harry Jones joined the ODI in 2006. He is a research officer in RAPID, looking at the role of knowledge in development policy processes. He has contributed to an important stream of work on complexity theory and a number of ongoing research and capacity building activities. Other areas of focus are the role of different types of knowledge in policy processes, bridging research and policy in different contexts and work on evaluation approaches. This has included an in-depth study into strengthening science-policy dialogue in developing countries, a paper on the production and use of impact evaluations, work applying concepts of social justice and equity to development, and extensive work on the Outcome Mapping Planning, Monitoring and Learning methodology. Harry has a Masters degree in Mathematics and Philosophy from Balliol College, Oxford

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## Introduction

This working paper explores the link between knowledge and policy in development: at stake is the question of how our understanding of the problems faced in development, and the ways in which they can be addressed, are translated into action. The problems in this area are real and hugely significant: despite a great deal of knowledge being generated through formal research, it all too rarely feeds into or informs policies of governments or development agencies; the voices of the poor that have the potential to inform policy with a grounded understanding of the problems they face are infrequently drawn upon; knowledge and learning generated in the course of implementing programmes is rarely shared with those who could use it to improve their work; power imbalances in the development discourse mean that policy-making is dominated by organisations or institutions which lack adequate knowledge of the contexts in which they work. Addressing these issues is fundamental to improving the effectiveness of development work, and improving development agencies' and Southern governments' abilities to tackle the problems with which they are faced.

The ODI's Research and Policy in Development (RAPID) group brought attention to these issues and produced important theoretical and empirical work including the publication of *Bridging Research and Policy in Development* in 2004. While RAPID's work built on the insights of a range of other analysts (e.g. Keeley and Scoones, Lindquist, Lukes, Gaventa), what *Bridging Research and Policy* did was to apply a clear analytical framework to a range of critical policy issues, spanning poverty reduction to natural resource management to humanitarian aid, and examine the relative influence of research-based evidence in that process. Five years on, this review attempts to map the current understanding of the knowledge-policy-practice interface in development. It is hoped that this paper will prove useful for researchers in order to help them make the most of their work and facilitate the changes they would like to see in policy; for policy-makers, to contribute to a better understanding of the link between knowledge and policy that will help to inform the policy design and implementation process and facilitate more effective uptake of new knowledge in their work; and for intermediaries looking to strengthen the link between knowledge and policy this paper should provide a theoretical overview of the knowledge-policy landscape and some potential avenues for work.

This study has been commissioned by Working Group 3 of the IKM Emergent Research Programme, in order to investigate the role of knowledge in the way in which policy is formulated and implemented. It was carried out using a modified form of the systematic review methodology pioneered by the Canadian Health Services Research Foundation (Lomas et al 2005), complemented by a narrative-mapping technique based on Greenhalgh et al's (2004) study. This involved systematic electronic searches and hand-searching of journals and grey literature, complemented by recommendations and sources provided by expert informants, and a mapping of various 'research traditions' relating to the topic. It also incorporates feedback and interviews from experts on the policy process.

Two caveats must be made about the scope of the paper. While the focus of the review was nominally 'post-2004', it proved impossible to adequately map out the terrain without reference to earlier work. The pre-2004 sources were selected for comparison and theoretical grounding, for example the seminal works of different currents or 'paradigms' running through the literature were published pre-2004, and some policy-focused work applies theories developed before this date. Secondly, while every effort was made to find sources focusing on Southern contexts, this was limited by two factors: a large amount of the literature on the link between knowledge and policy focuses on or is grounded in Northern settings, and the author was only able to properly assess work available in English.

The paper is structured as follows. It begins by defining what is meant by knowledge and policy, discusses the various approaches to understanding the link between them and outlines three 'paradigms' that run through the literature (Part 1). Next, it examines the theoretical work on the role of knowledge in policy, bringing together work from the newest paradigm, focusing on power in the

policy process (Part 2). Part 3 tackles one key area of the more practically-focused literature, about generating knowledge for policy. Part 4 looks at the other side of the practical literature, focusing on the various processes which mediate between the generation of knowledge and its use in the policy process, and how they can be improved. The final section concludes, and summarises the key issues and future avenues for research.

# Part 1: Knowledge and policy in development

In order to introduce this review on the link between knowledge and policy in development we will offer broad definitions of knowledge and policy, discuss the various fields of study that relate to the link between the two, and then put forward some of the positions on why the link between knowledge and policy is important.

## *Knowledge and policy: working definitions*

'Knowledge' is an intuitive concept, however it is difficult to give one single definition. The question 'What is knowledge?' has been grappled with by thinkers for centuries, under topics such as epistemology and the philosophy of science. A starting point comes from Perkin and Court (2005, p.2), who define it as "information that has been evaluated and organised so that it can be used purposefully". Some currents in the philosophical debates will serve to further outline some features of knowledge:

- Under one common conception, 'knowledge' is defined in relation to information and data: data are 'facts', 'symbols' or measurements collected about the world, information is data made useful and given structure, and knowledge is information understood and given meaning (Ackoff 1989, Powell 2006). Some argue that 'wisdom' is a progression along this scale, being evaluated understanding, related to making sound judgements. Work on 'expertise' similarly highlights the role that experience and tacit understandings play. This highlights the importance of a 'knower', possessing a deeper understanding of the world.
- One conception that was popular in the 18th Century puts knowledge as true, justified belief. By framing knowledge as a type of belief, this emphasises the intuition that knowledge is something more reliable and stable than other ways in which people relate to the world (such as speculation, 'feeling', etc). This is linked to what is known as a 'positivist' view, which suggested that knowledge primarily functions to 'describe' the world, and justification must involve 'testing' propositions through experiments and direct experience.
- Positivism and the 'true justified belief' perspective has been severely criticised and has generally been abandoned by most philosophers. One important feature of knowledge that goes against it is Quine's insight that individual pieces of knowledge cannot be 'justified' or held as true in isolation, but rather a whole belief system is tested; and related, Kuhn's arguments about how such worldviews or paradigms 'frame' our experience, and shifts in this come about not as straightforward 'rational' decisions but as collective value judgements. This highlights that the source of 'reliability' may be in strong connections to other beliefs, and in the shared nature of these belief systems.
- Wittgenstein demonstrated that the acts of 'meaning' and 'understanding' are inseparable from the practice of using words in language, based on shared practices or 'forms of life'. This emphasises the inseparability of knowledge from action, and suggests that 'understanding' is something that comes about from, and demonstrated through, 'doing'.

While much Western scientific thought is seen to have strong ties to the 'true, justified belief' conception, other views of knowledge resonate with other philosophical ideas, such as the African concept of *Ubuntu*, relating knowledge to something that is collective and shared (Powell 2006). We

have not attempted to settle any debates here, especially since different strands of the literature use different definitions, but hopefully this discussion has served to give this paper a starting point.

 'Policy' typically refers to a deliberate plan of action to guide decisions and achieve desired outcomes. Anderson defines it as:

> *A purposive course of action followed by an actor or set of actors* (Anderson 1975)

One important aspect of this is that policy encompasses not just discrete decisions, but a set of processes, activities or actions (Neilson 2001). 'Purposive' emphasises that it is goal-directed, which includes specific solutions to concrete problems as well as frameworks for action. Many thinkers emphasise that it is inherently political (e.g. Foucault 1991), and some languages (e.g. Spanish) use the same word for 'policy' as for 'politics'.

This study (and a large portion of the literature) focuses on public policy, which is policy that is adopted and implemented by government, that affects or is visible to the public (Court, Hovland and Young 2005). As well as focusing on policy at the municipal, regional and national levels of government, this paper also considers policy that is made by bilateral aid agencies and multilateral organisations, as well as other international organisations and NGOs.

## *Paradigms for understanding the link between knowledge and policy*

There is a great variety of areas of study that look into different aspects of the link between knowledge and policy, and many of them have, to a greater or lesser extent, been applied in developing country contexts. For example, 'bridging research and policy' focuses largely on how to increase the uptake of research in policy-making, based on the conception of a 'gap' between the two based on cultural differences between researcher and policy-maker communities, and resulting in a breakdown of communication, supply and demand of knowledge, etc (Court, Hovland and Young 2005, Livny et al 2006). Innovation systems models focus on how existing knowledge 'flows' around a system (usually looking at the national level), looking at how factors such as infrastructure, networks, intermediary organisations and knowledge users and producers interact to affect how ideas and knowledge diffuse and are taken up in practice (e.g. Rath and Barnett 2006, Jones et al 2009). Political science is relevant for understanding how political behaviour affects the process of making policy, and in turn the role that knowledge has in this behaviour. Knowledge management looks at the processes and practices of the creation, acquisition, capture, sharing and use of knowledge, skills and expertise (Ferguson, Mchombu and Cummings 2008), which represents another perspective on the links between knowledge and policy. There is very little work that has attempted to bring together these perspectives at a theoretical level (Delvaux and Mangez 2007 is a notable exception, surveying twelve key areas, however this still does not cover the whole ground), let alone with a focus on developing countries.

Within these diverse fields three paradigms of the link between knowledge and policy emerge[2]. These involve basic ideas that frame different approaches to the field. They are numbered here in rough chronological order of emergence, and can be distinguished by their basic underlying assumptions about the nature of knowledge and the nature of policy: the first makes assumptions that both knowledge and policy processes are generally 'good', the second problematises the process but

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[2] These conceptions are presented as 'ideal types', and it would be difficult to definitively categorise many fields of study into one or another, or even many particular thinkers. However, they are recognisable 'currents' that run through the literature, and serve as useful sign-posts for understanding the knowledge-policy interface.

retains assumptions about knowledge being generally 'good', then the third problematises the nature of knowledge as well as the functioning of the process.

1) *Rational*: In this view, often described as the 'linear' or 'knowledge-driven' model, knowledge inspires and guides policy. Knowledge is seen as providing instrumentally useful and apolitical inputs that improve policy, and policy-making works in a 'problem-solving' mode, according to reason and logic. A typical study might focus on how 'high quality' scientific inputs feed into different 'stages' of decision-making (setting the agenda, etc). This current ran through many of the early models of the link between knowledge and policy, but it does still influence fields such as work on evidence-based policy, older 'generations' of knowledge management, and the study of research communication (Neilson 2001). For example, DEFRA's (2006) model of the evidence-based policy process primarily proceeds from policy issues to policy options through the assembling and production of evidence, primarily conceived of as research.

2) *Pluralism and opportunism*: The second paradigm challenges the 'rationality' of the policy process. Policy-making does not necessarily proceed as a linear problem-solving enterprise, but rather involves pragmatic decisions taken in uncertainty: the flow of knowledge into policy is not taken as a given, and is opportunistic, and dependent on explicit efforts of various actors. Although this entails a wider view of useful sorts of knowledge, including non-academic producers of knowledge and local populations and civil society, there is still an underlying assumption that the incorporation of knowledge is generally 'good'. For example, work on innovation systems argues for the importance of both supply and demand of knowledge, the need for intermediaries and regulatory framework conditions (Rath and Barnett 2006), but retains an assumption that innovation and the uptake of knowledge will generally be 'good', that promoting such innovation will lead to social and primarily economic benefits (Jones et al 2009). Other work which falls under this paradigm are the practice-centred approaches to KM, and sustainability science.

3) *Politics and legitimisation*: Under this conception, power is infused throughout the knowledge process, from generation to uptake. Rather than being universally instrumentally useful, knowledge will often reflect and sustain existing power structures and imbalances. The policy process is seen as the site of politics, processes of contest, negotiation, marginalisation, etc, with knowledge production and use entwined with these forces: knowledge can serve to add legitimacy to political action often after the decision, and what counts as 'legitimate knowledge' is itself politically determined (Autes 2007). Work in this area might focus on how 'technical' knowledge is used to gloss over contested and political aspects of situations, for example. Various schools in political science, and the study of policy as discourse contain elements of this understanding.

It remains to be seen which approach is more relevant to developing country contexts, or under what circumstances each is most relevant. As such, much of the empirical findings tend to reflect the choice of frame rather than deep insights into the link between knowledge and policy in development: for example, work on the use of evaluations tells us that direct use is rare, and work on bridging research and policy has found that research-based evidence can only be one input into policy decisions.

# Part 2: The role of knowledge in the policy process

This section outlines the broad themes of the theoretical work on the role of knowledge in the policy process since 2004. Earlier theoretical work was informed by the 'rational' paradigm, and then moved to the 'Pluralism and opportunism' approach. However, subsequent theories have increasingly recognised the role of power and politics in the policy process. Therefore, this section focuses on the work coming from the third paradigm of the link between knowledge and policy, politics and legitimisation.

There is now a bewildering array of frameworks for the analysis of power in the policy processes, although there are some commonalities. Sumner and Jones (2008) argue that there are three inter-locking domains of interest based around different types of power relations: actors, institutions and discourses. Using this distinction we briefly outline the different sorts of theories of the policy process, and analyse what they say about the role that knowledge has to play in policy. It should be noted, however, that the distinction between these domains is not clear cut, and different models of the policy process may overlap between them. Two specific areas of overlap are where the 'actors' and 'institutions' literature explicitly deal with the role of knowledge, which becomes increasingly close to work on 'discourse'.

## *Actors and networks*

One approach to understanding policy processes concentrates on policy actors and networks, and their political interests. This view, traditionally associated with some schools of thought in political science (such as rational choice theory, for example Hunter's (1997) work on the shift towards democracy within the political structure of Brazil), argues that the driving force for policy is material political economy, as interest groups compete over the allocation of resources and the formulation of rules and regulations (Keeley and Scoones 1999, KNOTS 2006, Sumner and Jones 2008). Networks, alliances and coalitions of actors form to protect or advance sets of interests, from both state and non-state actors, including: parts of government and bureaucracies, as well as donors, the private sector, civil society organisations such as NGOs and academia. Policy-making involves processes of (re)construction of such groups, and interaction, negotiation and bargaining between them.

Under this view, knowledge is largely subordinate to interests in policy processes: different interests compete openly and the more adept and better resourced win, with knowledge used as 'ammunition' in an adversarial system of decision-making, or tactically, as a resource drawn on to bolster decisions or courses of action (or to stall and deflect pressure for action) (Weiss 1977). In this way, the prevailing knowledge simply reflects the prevailing interests and the dominant networks; actors operate with a 'pragmatic and flexible epistemology', using whatever knowledge serves to best justify their causes ex post, and the powerful may be able to keep certain issues off the agenda.

These dynamics are frequently very relevant for the link between knowledge and policy in the South. For example, recent work shows that the strength of economic interests plays a key role in shaping the policy process on a particular sector or issue, determining the extent and nature of evidence-informed policy dialogue (Pomares and Jones 2009). Recent work on the role of actors in Southern policy processes highlights the formal and informal linkages that members of the legislature often have with researchers, an important counter point to the tendency to focus on executive and legislative branches of government (Datta and Jones 2008).

A number of 'policy network' models offer ways in to better understanding the complexities of the role of knowledge here:

- *Issue networks*: Issue networks form around particular problems, aspects, or issues for public policy (Heclo 1978), such as the issue of the sustainable use of environmental resources (Moffat, Cubbage, Holmes and O'Sullivan 2001). As such, participants do not necessarily share entirely common interests or values, or a common view of policy solutions. In fact, Heclo argues that the issue binds the members in a way that reinforces the issue as their interest (rather than vice versa). They are quite fluid, without very clear boundaries, and knowledge of the policy debate is more important than formal professional training (Stone 1996).
- *Epistemic communities*: are "networks of professionals with recognised expertise in a particular domain…and an authoritative claim to policy-relevant knowledge within that domain" (Haas 1992, p.3). They are bound together by a belief in the value of particular forms of knowledge, and a common set of causal beliefs, and their members frequently have formal training. They play a role shedding light on problems at hand, and in developing policy responses, especially in highly (technically) complex issues such as climate change.
- *Policy communities*: are networks of policy actors who are highly integrated with the policy-making process, specialists inside and outside government such as policy entrepreneurs (Kingdon 1984). They share experience of a particular policy domain, and play a key role in developing, testing and refining policy ideas that make it onto the agenda. Members tend to coalesce around particular institutions and, operating independently of the wider political sphere, tend to be resistant to change (ibid.).
- *Advocacy coalitions*: consist of people from a variety of positions who share a core system of normative and causal beliefs (Sabatier and Jenkins-Smith 1993). Involved in coordinated activity over long time-periods, they are a persistent feature of policy-making. While new information and research may lead to a shift in the coalition's beliefs, this happens over the long-term and they may also resist any evidence that runs counter to their core beliefs (Nutley 2007).

These models illustrate aspects of the flow of knowledge in the policy process, as well as where and by whom it is deployed. Campbell (2002) argues that some of these theories can be used to demonstrate how knowledge and ideas do in fact exert a causal influence in the policy process. One way is through actors carrying ideas into the policy process and effectively use them, for example Keck and Sikkink's (1998) argue that struggles for social justice are in part waged by providing alternative sources of information, and while the information may seem inconsequential in the face of economic, political or military might, interpreting these through a particular set of values inspires political action. Another function is through knowledge and beliefs bringing networks together, holding together networks of experts around shared beliefs, models and policy expertise: as well as being echoed in a number of the policy network models above, there is a variety of work emphasising the role that ideas play in motivating action and 'defining' interests (e.g. Hall 1989).

## *Institutions*

Another focus of the literature on policy processes is the power of formal and informal institutions. The term 'institution' encompasses formal organisations as well as customs, and patterns of behaviour and action. This attributes an ongoing force behind policy-making to the context and institutions that shape the formal and informal 'rules of the game' such as constitutional rules and cultural norms. In this way, work on institutions emphasises the importance of 'structure' in contrast to actor-oriented theory focusing on 'agency'.

By defining who is able to participate in different decision-making processes, shape actors' strategies, and influence what actors believe to be possible and desirable, these rules structure the policy process and the political behaviour of bureaucrats, elected officials, interest groups, and so on

(Steinmo et al., 1992; Steinmo 2001). A number of factors in the socio-economic, political and cultural environment crucially shape policy processes such as the extent of democracy and political freedoms, the level of centralisation/decentralisation, a climate of 'rationality', and academic and media freedoms (Court 2006). There is also a historical dimension, as well-established programmes generate political constraints and opportunities, and previously enacted policies impact on future courses of action generating 'path dependency' (Collier and Collier, 1991, Beland 2005).

The formal and informal institutions thus affect which ideas and whose knowledge is used in the policy process, the degree of openness of various actors to certain sorts of ideas, and through what channels. Schmidt and Radaelli argue that the discursive institutions:

> *…include things such as the political rules of conduct, whether consensual, competitive, or conflictual; the political governance structures, whether unitary, federal, or consociational; the governance processes, whether pluralist, corporatist, or statist; the industrial relations regime, whether individualist, universalist, or family-oriented. These are the institutional norms and arrangements that set the parameters of what people talk about as well as who talks to whom in the process of policy making. They presuppose the cultural norms, historical path dependencies and interest-based behaviours that affect policy-making in a given socio-political setting* (Schmidt and Radaelli 2004).

This means that ideas are 'refracted' or altered as they travel through the policy process, altered and 'translated' in ways that fit with the prevailing institutions (Campbell 2002). One function they can play is keeping certain issues off the agenda (Lukes 1973). Knowledge, beliefs and ideas can also exert effects through becoming institutionalised, embedded in law or within bureaucratic procedures, programmes, departments, etc; this also creates constituencies who will defend the ideas if needed (ibid.). Institutions are also likely to influence the interface between knowledge and policy by directly and indirectly influencing knowledge generation, such as when political institutions commission research to investigate policy problems, and more generally providing funding for research in line with priorities. For example, it has been argued that the Blair administration gave primacy to street crime over corporate crime, leading to stronger research on the former to the detriment of the latter (Sanderson 2004).

## *Discourse*

Approaching policy as discourse involves seeing knowledge and power as intertwined, for example Foucault argues that the act of governing has become interdependent with certain sorts of institutionalised analyses, reflections and knowledge (Foucault 1991). Discourse encompasses the concepts and ideas relevant for policy, and the interactive processes of communication and policy formulation that serve to generate and disseminate these ideas (Schmidt and Radaelli 2004). These discursive structures (concepts, metaphors, linguistic codes, rules of logic, etc), often taken for granted, contain cognitive and normative elements that determine what policy-makers can more easily understand and articulate, and hence which policy ideas they are likely to adopt (Campbell 2002).

This perspective offers an extremely rich way into understanding the link between knowledge and policy in development, and has the potential to bring together elements of the institution- and actor-focused approaches in relation to the role of knowledge. Discourse plays a key role in shaping new institutional structures as a set of ideas about new rules, values and practices, and also as a resource used by actors in the processes of interaction focused on policy formulation and communication; and the policy network theories and discursive institutionalism show how these in turn shape discourse (Schmidt and Radaelli 2004).

There are various types of ideas that play important roles in policy formulation: cognitive paradigms, normative frameworks, frames, categories, policy narratives, programmatic models and ideas, etc. There is a diverse literature which (explicitly or not) examines different ideas and their discursive role, too diverse to map here, however we will use selected themes as illustrations.

- Cognitive paradigms, taken-for granted descriptions and theoretical analyses that specify cause and effect, limit the range of options that policy-makers are likely to perceive as useful (Campbell 2002). This concept of a policy paradigm was first introduced by Hall (1993). A recent study (Krznaric 2007) resonates with the idea, arguing that the theories of change inherent in much development is based on certain disciplinary biases which limit the interventions through (for example) being excessively reformist and insensitive to underlying power relations, and fail to appreciate fully the contextual factors that limit change. Another perspective on this issue comes from Rao and Woolcock (2007) who argue that a 'disciplinary monopoly' of economists at the World Bank dominates much development work and restricts what is studied, delimits how issues are analysed, and thereby promotes a very narrow range of policy options and strategies.

- Policy narratives are stories about change with a beginning, middle and end, which give an interpretation of some physical/social phenomena (Sutton 1999). They define a problem, explain how it comes about, and show what needs to be done to improve the situation; in other words, they contain explicit and implicit ideas about what is 'wrong', and how to put it 'right'. In doing so they also inevitably simplify complex problems, and often come into the ascendency in development discourse in spite of this (KNOTS 2006). Molle (2008) examines, for example, how the 'free water' narrative generated a vast swathe of literature and formed an epistemic community around irrigation price-based incentives, taking on a hegemonic character in the development establishment despite limited evidence of success. The power and value of 'narrative' is discussed by Lewis et al (2005) who advocate for the value of literary fiction in comparison to formal research. They argue that much of the fictional writing on development has considerable narrative authority, and is both better at representing the central issues, and more influential through reaching a wider audience.

The focus on discourse provides a compelling window on understanding the interplay of knowledge and power in policy processes. For example, KNOTS (2006) work on environmental policy processes finds that: narratives of 'crisis' are frequently used as a justification for removing resource control from local users and giving it to national or international authorities; such interventions are frequently predicated on the natural sciences and based on particular visions of the political economy of agriculture. This means that they are framed in such a way that both resonate with research and extension services and donor organisations, and play to the interests of powerful groups such as those in the bureaucracy with commercial priorities.

The shape of the policy discourse is likely to vary greatly from country to country. Jasanoff (2005) argues that debates over policy are refracted by a 'civic epistemology': the institutionalised ways through which members of a particular society understand 'knowledge', entrenched expectations about what authoritative claims should look like and how they should be articulated, represented, and defended. Jasanoff finds considerable divergence between countries in: the dominant participatory styles of decision-making (e.g. interest-based), the methods of ensuring accountability (e.g. legal), the practices of public demonstration (e.g. empirical science), the preferred registers of objectivity (e.g. consultative and negotiated) and the accepted bases of expertise (e.g. experience). Given that this study focused on three rich Western nations, it is highly likely that policy discourses in the South will vary even more extensively. Some efforts have been made to understand the cultural specificities of policy discourse in the South, for example Chinouya (2007) examines the role played by the traditional African concept of *Ubuntu*, which sees knowledge and ways of life as intimately bound up

with people's interdependence and relationships with each other in response to HIV/AIDS in Zimbabwe. She argues that being deeply culturally embedded, the idea of *Ubuntu* serves as a powerful force behind public mobilisation.

It is crucial that these issues are better understood, in order to promote more effective policy. For example, Kelsall (2008) argues that the slow progress of the 'good governance' agenda is due to Western institutions and approaches sitting ill alongside certain traditional core ideas and values in sub-Saharan Africa. He identifies beliefs around power, accountability and social morality such as the role of extended families, and 'big man' paradigms of leadership. He argues that development must 'go with the grain' of African culture by building policies around these ideas.

## The site of the policy process: when and where does knowledge meet policy?

There are a number of models that attempt to put boundaries around parts of the policy process. They serve the purpose of focusing attention on different 'sites' in the making of policy, within which a range of different actors are involved, different institutions, evidence and knowledge is used, and decisions are made. Broadly speaking, they look at *when* policy is made, conceived in terms of ongoing stages of decision-making or converging 'streams' of ideas, and *where* it is made, thought of in terms of spaces and different levels.

### Stages and streams

The rational paradigm of the policy process separates policy-making into different 'stages': agenda-setting, policy formulation, decision-making, implementation and evaluation (Neilson 2001). This model has been criticised for assuming an unrealistically rational and problem-solving mode of policy-making, and for wrongly positing a sequential progress of clearly-defined parts (Porter 1995). However, it has been widely defended as a useful heuristic device which provides an "analytic point of departure" for understanding policy processes by identifying discrete elements that cut across the multitude of actors, institutions, policies and politics, etc, which has subsequently lead to a lot of useful stage-focused research (Sabatier and Jenkins-Smith 1993).

At each stage of the policy process there is a (potential) role for knowledge (Pollard and Court 2005).

- At the agenda-setting stage, knowledge is used to identify new problems or highlight the magnitude of a problem; uptake of knowledge is enhanced if it is crystallised around a policy narrative, and credibility and communication are shown to be important. There has been a lot of work from the third paradigm on agenda-setting: for example, as well as Kingdon's model (below), Cobb and Elder (1972) argue that an unequal distribution of influence generally leads to systematic biases in the range of issues considered, sustained by significant pre-political forces.

- At the formulation stage knowledge plays a role in structuring various alternative policy options, and in suggesting the causal links between the policy and its outcomes; the quantity and credibility of the evidence is important, and analyses of costs and benefits tend to be required.

- At the implementation stage operational knowledge functions to improve the effectiveness of initiatives; it needs to be relevant and generalisable across different contexts, and directly communicated with those implementing policy. Grindle and Thomas (1990) emphasise that in developing countries the implementation phase is often the most crucial aspect of the policy process, with political economy being a central determinant of policy outcomes and implementation.

- Evaluation functions to monitor and assess the process and effects of an intervention; objectivity or independence are important for accountability functions.

Kingdon (1984) offers a model of the agenda-setting process building on the 'garbage can' model of the policy process, where choices seek problems and solutions seek issues, rather than vice versa. The framework is built around three streams of activity that attempt to move alternatives higher on the agenda. The 'problem stream' denotes which issues are recognised as significant social problems; the policy stream involves the ideas about how to solve identified problems; the political stream characterises the political environment with elections, changes in government, changes in public opinion, etc. Policy windows - moments that constitute significant opportunities for influence - occur where there is an opening for new views, often triggered by a major event such as a crisis or international agreement. At this stage there is an opportunity to couple the policy stream with the political or problem stream with the policy stream to produce action.

This framework gives the potential to develop insights into the ways in which knowledge is linked to policy. Some recent work has attempted to investigate this in great depth. Delvaux and Mangez (2008) argue that knowledge plays a particularly important role in defining problems and fabricating policy ideas, during which ideas must pass a series of 'tests', which shape the types of knowledge that must be mobilised. These different types of knowledge are, in turn, most prominently generated by different sets of actors:

- The *problem stream* involves three main cognitive operations: (1) naming: it is necessary to name something (a situation or purpose) that requires attention, (2) describing: that something must be perceived as both problematic and manageable (the purpose must be recognised as legitimate and realistic), and (3) situating: the situation or purpose must be situated within a constellation of problems. This requires knowledge of *associations*, which establish causal links and equivalence, and *comparisons*, which help situate problems and establish urgency or importance.

- The *policy* or *idea stream* involves testing ideas for (1) feasibility: the policies must be realistic and realisable, (2) acceptability: confronting ideas with possible problems and relating them to decision-makers' accountability structures, and (3) relevance: this establishes the effectiveness of an idea. This requires (respectively) knowledge of the *formal rules* and *charting what already exists, opinions* and *associations,* and *external ideas or policies* and *associations*.

- Particular actors have the ability and legitimacy to produce, interpret, translate and disseminate different categories of knowledge: *associations* require scientists and other more academic actors to establish or challenge the links between variables; *comparisons* tend to emanate from and become institutionalised in management organisations, such as ministries or administrations; *policy ideas* are the domain of 'circulators' such as interest groups or epistemic communities, and brokers within organisations; *opinions* tend to be provided by pollsters and consultancy services; charting *formal rules* and *what already exists* is the domain of management structures and legal advisors; and, finally, the various types of knowledge are manipulated circulated and integrated by experts and think-tanks.

### *Places and spaces*

The processes of policy-making can also be framed in terms of where it is made. There are various ways of marking the boundaries within which policy is made, ranging from more literal notions of the 'place' to more conceptual ones. One aspect is the level at which policy is made, such as local, national and international arenas. The actors involved, relevant institutions and prevailing discourse

will significantly differ according to each of these. There are also likely to be complex interactions and power relations between each level, for example some argue that participatory practice must begin locally, while other analyses suggest that power is shifting to globalised actors, and there are important debates on the role of the nation state and the links to the local level through decentralisation (Gaventa 2006). There is a large amount of work looking at the knowledge-policy dynamics at different levels, such as research carried out by the ODI on policy dialogue in multilateral organisations, which emphasises the complexity of such processes and the value of engaging with them through the right networks (Burral et al 2009).

Another approach is to look at the link between knowledge and policy within a particular sector. As with different levels, each sector will involve a particular group of actors, certain institutions, and discursive dynamics. A recent review (Pomares and Jones 2009) highlights key dimensions that shape the linkages between knowledge and policy across sectors:

- The level of technical expertise and exclusivity
- The extent to which a policy area is contested
- The relative strength of economic interests involved
- The level of internationalisation of the policy area

One other way of marking out where policy is made is as a series of 'spaces' in which policy is discussed and negotiated between actors. There are many definitions, and Cornwall and Coelho (2006) define spaces as:

> *Opportunities, moments and channels where citizens can act to potentially affect policies, discourses, decisions and relationships that affect their lives and interests*

There are a number of ways of categorising spaces. Two dimensions are the level and place, (as discussed above), and the forms of power wielded within them (interestingly, Gaventa's (2006) 'visible', 'hidden' and 'invisible' forms of power seem to echo the three dimensions discussed above, with visible linking to actors and networks, hidden to institutions and invisible to discourse). Gaventa (2006) argues that the ways in which spaces are created also play a crucial role: spaces could be closed, made by a set of actors behind closed doors; invited, where efforts are made to widen participation with citizens groups invited to participate; or, claimed, where less powerful actors create spaces or claim them against the power holders, often emerging out of common concerns or identifications. Another typology (KNOTS 2006) categorises spaces according to their functions in the policy process: conceptual spaces (where new ideas are introduced), bureaucratic spaces (formal policymaking led by civil servants), invited spaces (such as consultations), popular spaces (such as protests and social movements), practical spaces (providing opportunities for 'witnessing' by policy makers), and political/electoral spaces (elections).

While these theories of power in the policy process are fairly well established, they have not yet been consistently applied in Southern contexts. As such, it is not possible to say if/when one dimension plays the strongest role in shaping policy in development, which sorts of actors play the more prominent roles, what are the key institutions, or the pertinent discursive structures or practices. Some of the different 'sites' have already proven useful in organising work in the area, however (e.g. stage of the process, level of policy-making), and could function to help cluster future work to increase synergies between research findings.

# Part 3: Generating knowledge for policy

Moving on from the theoretical perspectives, this section and the next will now look at two key areas of practical interest: the production of knowledge, and the processes linking knowledge and policy. While post-structuralist work and perspectives from the 'politics and legitimisation' paradigm would dispute that a clear divide can be posited between the generation of knowledge and its uptake in policy, or between 'knowledge producers' and 'knowledge users', we use this distinction because this reflects the historical organisation of the issue in policy so far.

As the longest established paradigm, the 'rational' paradigm (and increasingly 'Pluralism and opportunism') represents the starting point for understanding government policies aimed at strengthening the link between knowledge and policy (including knowledge generation strategies such as funding for science and research as well as strategies for enhancing the uptake of knowledge in policy such as research communication). Criticisms of this approach come from the 'Pluralism and opportunism' paradigm as well as the 'politics and legitimisation' viewpoint. However, while this has lead to new policy and practical approaches from the 'Pluralism and opportunism' paradigm, the more political conception of knowledge and policy has as yet not systematically informed policy-making. While Livny et al (2006) may overstate the case by speculating that such a paradigm can offer no guidance for action, it is certainly the case that this is a significant challenge as yet unmet in Northern or Southern contexts.

There is a great deal of literature concerned with what knowledge is generated, and how this production of knowledge can be oriented in order to strengthen the link between knowledge and policy. Below we highlight the areas advocated as key sources of knowledge for policy, outline the reasons they are important, the practical steps required to facilitate their link with policy, and the challenges involved in doing so.

## *Research*

A large portion of the literature, coming predominantly from the 'rational' paradigm, advocates the generation of 'high quality' knowledge for policy. This focuses on formal research, and how to promote the production of research in order to more strongly link it to policy. The central argument in this school of thought is that promoting the supply of research, its quality and its relevance will play an important role in greater uptake and use of research in policy (Livny et al 2006, Lavis et al 2006).

This will involve the promotion of policy-oriented research, knowledge produced in order to directly assist decision-makers in dealing with the policy problems they face. This is often produced in a 'consultancy'-type mode, with organisations selling their analytical services to policy-makers. One key element of this is the commissioning of scoping reviews to identify the state of research in priority areas, as well as producing and updating systematic reviews of existing knowledge in priority areas (Lavis et al 2006). In general, the involvement of users in all stages of research is advocated in order to ensure its relevance.

There are a number of key factors that affect the generation of such knowledge, for example: the accumulation of human capital is a large challenge in developing countries, in order to have people who can carry out the research; the capacity at universities and other research institutes is also important for sustainable supply; the capacity and financial sustainability of policy research institutes; the level and regularity of government and public demand for knowledge provision; and whether the funders of research have mandates or incentives to link research to action, and engage potential users (governments, practitioners, etc.) in jointly setting priorities for future work (Livny et al 2006).

Some argue that it is also crucial to promote more fundamental scientific research, which is not necessarily focused on policy problems but rather on more academic questions which rigorously investigate social, political and economic behaviour. It is argued that this affects policy through the

building of human and intellectual capital, with 'spill-over' effects on the 'culture' of policy and government, and that such 'professional' knowledge is specifically needed in development in order to negotiate interdisciplinarity and the development of more holistic policy solutions (Harriss-White 2007, Livny et al 2006).

It is argued that it is more than just policy-focused research that is required in order to create a more healthy link between knowledge and policy. Policy-oriented research has been criticised for overly depoliticising issues, encouraging the 'commodification' of knowledge and making science susceptible to political interference (Jones et al 2008, Harriss-White 2007). This trend, where much work is carried out in 'consultancy' mode, funded (by the government as well as other bodies) in a quasi-commercial manner is seen to be likely to reduce diversity and creativity (Nowotny et al 2003). Worse, it is seen as raising the risk of the 'politicisation of science', where scientific principles may be eroded by political influence: by holding the power of funding decisions, policy-makers can frame questions in ways that may rule out truly independent analysis or 'good science' (Waterston 2005).

Moreover, an overly 'instrumental' approach to policy-oriented research 'decouples' advice from the theoretical and explanatory frameworks that they rely on, meaning that assumptions and value-judgements are hidden, making context-sensitive policy judgements in fact harder to make (Cleaver and Franks 2008). Some evidence points to the conclusion that such 'scientisation of politics' is less prevalent in Southern contexts due to less use of scientific knowledge in general (Jones et al 2008). Another criticism is that evidence-based policy initiatives bias the development discourse. The methods used for systematic reviews tend to be based on a particular view of the types of knowledge provided by research, and the type required by policy-makers. As such, a lot of efforts in evidence-based policy are based on a particular ('successionist') view of causality, most suitable to particular sorts of research methodology, exemplified by randomised control trials (Pawson 2002), which are only relevant for a minority of development research questions (EES 2007).

There is yet to be a firm consensus on how to tackle these problems, although two routes do emerge from the literature as it stands. One way to remedy such 'instrumentalism' is through the promotion of critical and 'reflexive' research and advocacy. These problematise prevailing trends, and discuss values and ideology (Harris-White 2007, Livny et al 2006). Unfortunately, three factors mean that such work may be difficult to carry out in Southern contexts (although this is not just a problem for the South): political freedoms may restrict the operation of organisations that would carry out such work; funding may be more difficult to find; and, the frequently highly unequal distribution of skills and resources in Southern societies may ensure that powerful groups maintain the upper hand in policy debates (ibid.). Capacity building for NGOs and other actors who may work to hold governments accountable for the way knowledge is used may be one way to remedy this (Jones et al 2008). A second theme in the literature argues for greater 'transparency' in public debates, with various institutional measures suggested. For example, bodies are proposed to 'police' the boundary between science and policy (Waterston 2005) or to 'peer review' policy for intellectual content (Choi et al 2005), or to ensure 'buffering' and separation between knowledge producers and users (Jones et al 2009).

## *Process*

As well as research activities, there are many calls to see development interventions as opportunities to generate useful knowledge for policy. The knowledge generated in the process of implementing development projects or programmes (including, but not restricted to knowledge *of* the processes) can be an invaluable resource (Powell 2006). Much work in this area emphasises the need for projects to monitor and evaluate their progress, and to link these activities to learning and accountability mechanisms. Similarly, a lot of work in this area also focuses on the 'causal chain' from 'inputs' (e.g. staff, budget) to 'outputs' (e.g. schools built, training courses held), then 'outcomes' and 'impact' (e.g. greater educational achievement, reduced poverty). This involves using tools such as

the logical framework approach (LFA) and impact assessment and evaluation (IE). Much of this is framed around the need to ensure effectiveness, and stems from a school of thought known as 'new public management' (Pons and van Zanten 2007).

Perspectives emerging largely from the Pluralism and opportunism paradigm emphasise the importance of focusing on the process itself. Recognising the complexity of development work (for more on this see Ramalingam and Jones 2008) highlights the importance of contextual elements, the dynamic and often unpredictable processes of change, and the need for flexibility (Mosse et al 1998). This sort of knowledge can (for example) inform policy-makers about the viability of a generally-applicable development model, or give implementing agencies a means of monitoring progress or generating solutions to a specific problem (Mosse et al 1998). This had led to increased interest in approaches that monitor and document process (for example, see Earl et al 2001). This involves continuous monitoring of the dynamics of the process (rather than ex post evaluation), and is focused on implementation, action-oriented, inductive and open-ended (Mosse et al 1998).

There are two significant obstacles to usefully linking this kind of knowledge with policy, however. Firstly, there are a number of well-documented practical problems. As well as issues such as staff capacity for carrying out monitoring and evaluation, and the time commitments required to carry it out (when project workers may already be under great pressure) there may be issues such as the timing of the results. For example, 'impact' may take years to come about, and hence the knowledge could be available too late to inform the particular intervention that caused it to come about (Jones et al 2009).

Also, it is difficult to 'spread' the knowledge from its locality – project and process information is frequently based heavily on tacit knowledge, which must be formalised or made explicit in order to be shared, and then people who might need it must be aware of it and have access to it. Such processes as formalising knowledge possessed by workers on the ground are central elements of knowledge management strategies (Devlaux 2008). However, information systems in development organisations are often not sensitive to the multiple uses of information, and worse knowledge and learning approaches are often in direct contrast to general approaches to management and frequently marginalised (Ramalingam 2005).

This points to the second sort of barrier: the use of such knowledge may be hindered by the power and incentive structures that exist in development agencies. There are likely to be pressures for staff to fit information into prevailing management processes, to filter and regulate knowledge based on frequently top-down blueprints of how a project works, or what information should be collected about (a criticism often levelled at the LFA, for example see Bakewell and Garbutt, 2005). Similarly, studies on the production and use of impact evaluations find that they tend to be used to legitimise funding rather than learning from experience and improving programmes (Jones et al 2009). Thus staff are often involved in managing a system of representation and interpretation of information as much as the projects themselves (Mosse 2006). Moreover, it is not just management levels that control this, as knowledge and information is a resource to actors at all levels, with power coming from concealing much information in many situations (Mosse et al 1998). Varying aspects of these problems pose challenges for all attempts to learn from development processes, not just the rational paradigm.

### *Voice, participation and citizen knowledge*

There is a great deal of work which advocates for citizens to either be directly involved in generating knowledge for policy or be invited to participate in policy spaces hence incorporating evidence which reflects their voices on policy issues. Jones and Sumner (2009) argue, drawing on concepts of participation from Chambers' Rapid Rural Appraisals and Participatory Poverty Assessments (see Chambers 1997), that in order to properly incorporate citizen or participatory evidence in policy processes they should:

> *[enable] local (rural and urban) people to express, enhance, share and analyse their knowledge of life and conditions, to plan and act within policy processes* (Jones and Sumner 2009).

Much of the literature on participation is framed in terms of accountability, about citizens and local populations holding government or other actors being held responsible for their actions (Goetz and Jenkins 2005). From the perspective of the interests and power of actors in the policy process, the incorporation of this knowledge is a crucial way to attend to power imbalances.

However there are also a number of reasons to value the knowledge generated for policy in an instrumental way as well. A lot of theoretical work examining the foundations for experiential or 'lay' knowledge points to its value. For example, Morgan (2008) argues that citizens experiential knowledge of social issues hold a legitimate and worthwhile perspective, and cannot be lightly dismissed by social scientists (unlike the way that the observations of 'folk-lore' can generally be trumped by the natural sciences). In addition, the voicing of that experiential knowledge and personal perspectives brings a new and autonomous 'discourse' to the policy process, which would allow alternative framings of issues and an exploration of where policy-makers or development agencies may share priorities with local people (Powell 2006, Morgan 2008). Again, this would serve to redress power imbalances in the knowledge represented in policy.

This is not a straightforward task: the validity of local and indigenous knowledge is often disregarded in policy circles. Western scientific knowledge has frequently been applied to the detriment of local priorities and perspectives, which is often viewed as 'imperialist' or 'totalitarian' (Herring 2007). However, integrating these divergent knowledge bases is difficult to implement in practice, with fundamental differences in outlook sometimes a significant obstacle.

There are some challenges to processes for incorporating participatory knowledge into the policy process, however. The initial drive for participation as empowerment, spearheaded by Chambers, received much criticism (largely from a 'politics and legitimisation' perspective) for assuming that 'participatory knowledge' could overcome power relations so easily. Firstly, participation can be more of a cosmetic label, 'performances' with local inputs acquired in a tokenistic manner, or simply as an input to planning particular projects already identified by a donor (Hickey and Mohan 2005); the key issue is one of agency and level of empowerment, which in turn is strongly related to the requisite capacities and capabilities of the poor. Secondly, approaches need to be conscious of existing power dynamics, as the actors involved will have existing interests, networks, and political, economic, social and cultural interactions. These in turn are likely to be entwined with the overall nature of democratic inclusiveness and political culture, as well as existing social capital (Jones and Sumner 2009). This means that participatory techniques will serve to reify 'local culture' and reaffirm the agendas of local elites (Cooke and Kothari 2001).

Taking on board this critique, many authors have reframed participation that captures a more political sense of agency, through the concept of citizen-driven change and participatory citizenship, which links participation in the political, community and social spheres (Hickey and Mohan 2005). This involves working to enhance the political competency of participants so that they can project their agency to a broader arena. National political factors that help enable effective participation include: an overarching political project with ideological commitment to popular participation; legal and constitutional rights to participate; committed bureaucrats; a strong and committed civil society; and, effective institutional designs that include procedures for broad-based CSO organisation (Cornwall and Coelho 2006).

### *Multiple sources and interdisciplinarity*

There is increasing recognition that the problem of development is complex, multidimensional and dynamic (Ramalingam and Jones 2008). Many argue that traditional science and research is not well-equipped to deal with such challenges due to being divided into 'silos' and disciplines, focusing on specific dimensions instead of holistic understandings of the problems faced (Clark 2007). Knowledge generation thus needs to be oriented to the problems it addresses rather than the disciplines it employs. 'Sustainability science' aims to address this problem by working to:

> *Advance basic understanding of the dynamics of human-environment systems; to facilitate the design, implementation, and evaluation of practical interventions that promote sustainability in particular places and contexts; and to improve linkages between relevant research and innovation communities on the one hand, and relevant policy and management communities on the other* (Harvard Sustainability Science Programme).

Sustainability science emphasises multidisciplinary research, and a large portion of literature advocates the need for mixed method research. This is seen to contribute to better knowledge for sustainable policy-making, as well as enhancing the likelihood of policy uptake (Lomas et al 2005, Jones et al 2008, Brown 2009).. Work on 'mode 2 knowledge production' emphasises the need for *trans*-disciplinarity (Nowotny et al 2003), the mobilisation of a range of theoretical perspectives and practical methodologies (which are not necessarily derived from pre-existing disciplines, nor necessarily contribute to the formation of new disciplines).

Even within the significant portion of the literature that focuses on the link between research and policy, it is now universally acknowledged that formal research can only provide one input of many to policy decisions. Lomas et al (2005), for example, argue that decisions must be based not just on 'scientific evidence', knowledge gained through formal research, but also colloquial evidence, which refers to "anything that establishes a fact or gives reason to believe in something". Important sources of knowledge for guiding policy include: values, political judgement, habits and tradition, and professional experience and expertise (ibid.). This is echoed by other authors who emphasise that facing significant uncertainty requires scientific experts to share the field of knowledge production with a variety of actors such as stakeholders, activist groups, think tanks, media professionals or even theologians and philosophers (Funtowicz and Ravetz 1992, Nowotny et al 2003).

The integration, collaboration and coordination of multiple knowledge regimes is a challenging prospect, however. Brown (2007) points out that the components required to be brought together to generate a solution are the same divided compartments of knowledge credited with leading to the problem in the first place. Such divides represent power structures that have been a result of the success of particular approaches to analytic thinking since the eighteenth century, which require the division of knowledge into its constituent parts. Brown (ibid.) argues that there are five key contributors who bring the knowledge necessary for long-term, constructive decisions: key individuals, the affected community, the relevant specialists, the influential organisations, and a shared holistic focus. Solutions require establishing patterns of connection which replace existing hierarchies.

## Part 4: Processes linking knowledge and policy

While the generation of new knowledge is one important factor, the processes that mediate between the generation and use of knowledge play an important role in the link between knowledge and policy. A large portion of the work in this area comes from the rational and Pluralism and opportunism paradigms, looking at the diffusion, transfer, use or uptake of existing knowledge. This is a major focus of the literature on research communication, knowledge transfer, innovation and diffusion, and knowledge management, and of a lot of the empirically-based work, which tends to look at the factors

that increase the 'uptake' and influence of new knowledge and ideas in policy. There are some emerging critiques from the politics and legitimisation perspective, however, although no broad overviews of the problem or coherent frameworks for action.

## *Communicating and 'translating' ideas and knowledge*

A great deal of literature focuses on 'bridging research and policy'. One of the central problems associated with this perspective (and others) is the perceived 'gap' in cultures between researchers and policy-makers (Nielson 2001). This presents the under-utilisation of research in policy-making as the result of differences in values, language, reward systems and professional affiliations between the two groups. This means that while policy-makers may want quick and simple answers from researchers, in short timeframes, and with high levels of certainty, social science research is often inconclusive, ambiguous, contradictory or quickly out of date (ibid.). Recent research shows that such differences such as the time pressures faced by policy-makers are even more acute in Southern contexts due to governance issues (Jones et al 2008).

One part of overcoming these differences lies in communicating, disseminating, and translating knowledge for the appropriate audiences. Policy briefs are emphasised as a key tool for carrying out this task: these must link a persuasive argument, with actionable recommendations, clear language, appealing appearance and design, and evidence-informed opinions (Jones and Walsh 2008). It is also crucial to choose the types of products and communication channels that are most appropriate for the audience. A recent survey on the link between scientific knowledge and policy emphasises that Southern policy makers prefer opinion articles written by experts, news items about approaches taken by other countries, and policy briefs from authoritative sources; also important were short synthesis products such as news items on policy initiatives and policy briefs, and interestingly Southern policy-makers rely on web-based discussion forums to a much greater extent than their Northern counterparts (Jones et al 2008).

There is an emphasis on tailoring the message to the audience, adapting it to their 'mindset' or outlook, for example if speaking to economists it may be useful to frame arguments using economic concepts and language (Pham and Jones 2005). A recent study shows, for example, that science-oriented ministries primarily use scientific knowledge for agenda-setting and policy formulation, while non-science oriented ministries rely on it more at the implementation and evaluation stages (Jones et al 2008). Effective communication between different groups can be aided by 'boundary objects', concepts that are shared by several different communities (although viewed differently by each of them). The literature on Communities of Practice (CoPs) emphasises that such concepts allow knowledge-sharing between them, thanks to their versatility and level of abstraction (Devlaux 2007). Literature on the spread of innovation emphasises the need for potential users of knowledge to be able to 're-invent' the innovation (Greenhalgh et al 2004).

The 'stickiness' of messages is another key factor (Gladwell 2000), and a great deal of work has gone into understanding what makes an idea make an impact (for example in marketing and social marketing). Heath and Heath (2007) argue that memorable ideas must be: simple, unexpected, concrete, credible, emotional, and story-telling. Narratives and story-telling are frequently emphasised as key ingredients for policy influence (Maxwell 2003).

### *Possible problems: the wrong kind of influence?*

Some authors, express a concern at the kind of influence that research might have if the principles and ideals relevant for promoting the uptake of specific pieces of research are promoted. Firstly, the more 'simple' an idea is, the more flexible and abstract, the easier it is for policy-makers to manipulate it to their own ends. McNeill (2006) shows that the more malleable an idea is, the more influential; this is similar to 'the scientisation of politics', where political interests are hidden by cherry-picking

scientific justification of pre-decided policy decisions (Jones et al 2008). This is echoed by wa Goro's (2006) concept of 'traducture' (as opposed to translation), which highlights the power dimensions of translation, whereby dominant discourses can distort reality, reinforcing existing discourses and biases.

Molle (2008) illuminates one example of the downside to 'boundary concepts'. He argues that 'nirvana concepts', broad and malleable visions of ideal policy, are adopted by various actors in order to suit their own ends, often hiding conflicting ideals and practices. Using the example of Integrated Water Resources Management, he traces the discursive history of the concept: conceived in the face of a chaotic situation, it reaffirmed the multiplicity of goals while glossing over the inevitable tensions between them and elements of politics and power struggle. It has henceforth been used by various interests to legitimise their actions (even though they frequently simply carry on doing what they were doing in the past), allowing them to pursue the single goal that most reflects their own interests or ideology. Molle does conclude, however, that there is some value in the concept, through offering a common ground for stakeholders to engage with other parties.

Secondly, emphasising simple messages and easily-actionable recommendations runs the risk of leading to policy being blind to the complexity of change in development, and mistakenly promoting 'blueprints' irrespective of local context (Crewe and Young 2003). Cleaver and Franks (2008), for example, argue that methods such as bullet points and lists implicitly communicate the idea that items can be dealt with in isolation without dealing with the links between them. They argue that this is in tension with the complexity of policy problems. Similarly, the literature on policy narratives shows how they persist thanks to simplifying complex policy issues, often despite substantial evidence calling into question their validity (Sutton 1999). This is seen to lead to 'blueprint development', as a prescribed set of solutions is used at times and in places where it may not be applicable. Unfortunately, it is argued that policy-makers cannot be made to move beyond an inappropriate narrative by being told that the issue is more complex, but rather require another narrative (Nielson 2001). An international perspective is given to this by Weyland (2006) who examines the ways in which policy models diffuse between countries in a geographical 'wave'-like fashion. This is due to the 'bounded rationality' of policy-makers who, rather than thoroughly assessing the costs and benefits of a new model, place excessive weight on ideas that have immediacy and impact, over-extrapolate from spurts of success or failure, and insufficiently adapt new ideas to their own context.

Little or no literature offers short- or long-term solutions to these problems. It is, therefore, unclear whether they represent unavoidable tensions in the link between knowledge and policy or concrete problems that can be addressed.

## *Interaction and exchange*

While the translation and 'transfer' of knowledge have become widespread terms and are the focus of a number of initiatives, some argue that the term is inappropriate. Many point to the complex and contested nature of applied social research, which makes claims to stable, 'objective' and acontextual knowledge, embedded in some paradigms of evidence-based policy and knowledge transfer, less appropriate (e.g. Brown, 2007, Walter et al 2008). Instead, it is important to recognise the contextual nature of knowledge and the complexities of its 'use'. This means looking at 'knowledge interaction', and the messy nature of engagements between actors with diverse types of knowledge.

There is a growing literature advocating 'interaction' and collaboration as key activities to link knowledge and policy (Walters et al 2005). This involves partnerships between the producers and 'users' of knowledge, which helps the two groups establish a shared understanding about the questions to ask, how to answer them, and how to interpret the answers they get (Lavis et al 2006). This is based around an idea of the 'co-construction' of policy knowledge, and due to the cultural

differences between groups and other factors it is likely to require a significant amount of time to establish trust and effective working relationships (Walter et al 2006).

Deliberative processes are advocated as key mechanisms to strengthen the links between knowledge and policy, and to incorporate scientific inputs (Jones et al 2008, Keeley and Scoones 2001, Lomas et al 2006). These involve bringing together key stakeholders so as to combine different types of evidence, to incorporate diverse opinions and to ground decisions in relevant, feasible and implementable advice (Lomas et al 2008). They bring scientists, policy-makers and the public together in order to integrate 'scientific, social, cultural and ethical' knowledge into policy and decision-making (Hove, 2000), providing an opportunity for citizens to challenge and interrogate the positions of expert outsiders and/or domestic elites. This is far from a straightforward task, as different actors may hold radically different epistemologies, values, languages, etc (Brown 2007). Ingredients for success include consultation with or involvement of all parties affected by the outcome of a policy decision, fair representation of scientists and stakeholders, high-quality syntheses of the scientific evidence, and skilful chairing (Lomas et al 2005).

Similar conclusions have been reached by advocates of innovations systems approaches, which highlight the importance of ongoing interaction between a variety of actors in order to produce knowledge that is relevant to the decisions and tasks at hand, with the related concern of fostering this through networks, bringing key players together 'in the same room', and fostering social capital and trust (Jones et al 2009). The importance of these sorts of processes has been recently re-emphasised: in a review of the difficulties affecting science-policy dialogue in developing countries, deliberation and participation were seen as key to effectively feeding scientific and technological knowledge into policy (Jones et al 2008).

## *Social influence and persuasion*

A large portion of the literature highlights the importance of personal and social factors for the uptake of knowledge in policy. Innvaer et al (2002) find that the strongest factor facilitating the use of evidence is face-to-face personal communication. The uptake of new ideas and innovations is strongly influenced by the structure and quality of peoples' social networks, for example horizontal networks are effective for spreading peer influence (e.g. mentoring) and the construction and reframing of meaning while vertical networks are more effective for cascading codified information (e.g. distributing training manuals) (Greenhalgh et al 2004).

There are a number of different roles that people play within their social networks, in facilitating the spread of ideas. Social networks can cause information to spread extremely widely and quickly once a 'tipping point' is reached. Gladwell (2000) argues that the spread of ideas in such 'social epidemics' relies on three types of people: *connectors* are networkers, knowing who to pass information to, and respected hence will influence key players; *mavens* are information specialists, acquiring it and then educating others; and, *salesmen* are powerful, charismatic and persuasive individuals who are trusted, believed and listened to. The literature frequently focuses on 'opinion leaders' who have a particularly strong influence on the beliefs and actions of others (one way or another); interventions to promote the spread of ideas often aims to harness their social influence and are more effective where they have similar background (professional, cultural, educational, etc) with the intended audience, and the importance of identifying where an opinion leader may have influence in relation to a particular area, or across a wide range of issues (Greenhalgh et al 2004). 'Policy champions' (frequently actors within government with a remit to support key areas, encouraging greater use of research) are another category of individual who can facilitate the uptake of knowledge, and interventions utilising such champions can be more effective where individuals can be identified who have significant social ties within an organisation and to external epistemic communities (ibid.).

The overall impact of social influence is called into question by many authors, particularly in looking at the link between scientific knowledge and policy. There is seen to be a need to protect scientific ideals by remaining detached and 'objective', which is in tension with the need to engage with policy-makers (Jones et al 2008). Similarly, Innvaer et al (2002) note that while face-to-face communication may facilitate the use of evidence, it is also likely to serve to increase the likelihood of selective use of evidence and possibly the manipulation of evidence.

Social networks may also have a downside. Through the way they spread knowledge, existing social networks and social capital may often work to perpetuate existing power structures (Jones et al 2009). Also, the 'social epidemic' effect may overcome more rational decision-making, so (for example) 'fashion' or hype may be a driver for the uptake of a new policy model (Weyland 2008).

### *Intermediaries and credibility*

There is a general consensus that establishing strong long-term links between knowledge and policy requires intermediary organisations. There is a great deal of work calling for such actors, who can carry out functions including: generating, interpreting, organising or communicating information (Fisher and Vogel 2008), awareness-raising, capacity building, lobbying, as well as knowledge translation and brokering (Jones et al 2009). Recent work shows a strong consensus among Southern scientists on the need for intermediary organisations to serve as knowledge-brokers and capacity builders for both researchers and policy-makers, who advocated functions such as information dissemination, advocacy for the use of scientific knowledge, and networking between scientists and policy-makers (Jones et al 2008). However despite this widespread consensus from theoretical and empirical results on the need for intermediaries, there is less agreement on the role that such intermediaries should play, and there is limited empirical investigation into the practicalities of managing such an organisation. This points towards the need for piloting and evaluation (Jones et al 2008).

While the majority of work on intermediaries has sprung from the 'Pluralism and opportunism' paradigm, there are some emerging insights from a more political viewpoint. One insight is the way that intermediaries can create platforms and spaces where multiple stakeholders and/or types of knowledge can come together (Fisher and Vogel 2008). It is crucial to recognise that this may involve conflicts: Cash et al (2003) emphasise that as well as communication and translation, the boundary between knowledge and policy requires active mediation. This involves working to retain the perceived legitimacy of a joint decision process or knowledge creation, managing trade-offs between the salience and credibility of the knowledge in the process, through increasing transparency, bringing all the relevant perspectives to the table, providing rules of conduct, and establishing fair criteria for decision-making (ibid.).

This in turn requires actors to trust the process or intermediary; Cash emphasises the need for boundary actors to hold lines of accountability to both sides of the 'divide'. This is related to a central finding about intermediaries: the credibility of the messenger is as important as the message itself. The reputation of researchers and research institutions is a major issue in the impact made by their work (Court and Young 2004, Jones and Walsh 2008). This functions as a 'quality assurance' mechanism, as policy actors not necessarily familiar with all the determinants of good research look to the reputation of the originator of the work as a signal of the importance of its conclusions.

This is illustrated in the recent study of IFPRI's influence in the design and impact of the PROGRESA programme in Mexico: IFPRI's evaluation team were able to contribute to the influence of the programme on national policy-makers in part thanks to its "reputation and credibility for solid scientific analysis of relevant policy-related issues enhanced by the addition of some prominent academic researchers", and its track-record for independent analysis (Behrman 2007).

## *Demand for and use of knowledge*

There are a number of factors that structure the extent to which governments and policy-makers 'demand' knowledge and seek to use it in decision-making. Work from the rational and increasingly the Pluralism and opportunism paradigm highlights the importance of incentives for policy actors around their use of knowledge, and their capacities with dealing with knowledge. While this does include some insights from (e.g.) political science, there is also a stream of work on more political factors shaping the demand for knowledge.

Firstly, policy actors must have the requisite capacities (individual and organisational) and resources for using knowledge. Policy-making will frequently require quite specific or technical capacities, such as having the specialised knowledge for designing and assessing programmes within particular sectors. More generally, policy-makers will need the capacity to gather, understand and use knowledge, and to engage with researchers, skills such as organising research tenders and managing consulting processes (Livny et al 2006). Organisational capacity is also key. One aspect is 'absorptive capacity', defined as the ability for an organisation to identify, capture, interpret, share, re-frame, and re-codify new knowledge, to link it with its own existing knowledge base, and to put it to appropriate use (Greenhalgh et al 2004). More generally, systems for the collection and management of knowledge will be crucial (Ferguson et al 2008). Resources are often an issue, for example in some of the least developed countries governments lack the finances to manage a process of consultation. Resources will be needed in terms of affording training and skilled staff, and having money, materials and time to use knowledge (Walter et al 2006). Staff turnover within policy-making organisations will also play a role, a high level will inhibit capacity building efforts.

Secondly, there will be various incentive structures within policy-making organisations that may help or hinder the use of knowledge. Livny et al (2006) argue that weaknesses in knowledge utilisation can be partially explained by the lack of bureaucratic incentives to innovate, which depend largely on decentralisation, protection from undue political pressures, and a performance and evaluation system that rewards professionalism and innovation. The literature on organisational incentives for using knowledge is extremely broad, and without any obvious consensus. For example, from the literature on knowledge management, for example Lam (2000) argues that bureaucratic organisations, often characterised by a high degree of formalisation and standardisation of models, along with an academic bias in knowledge, in fact limit and inhibit innovation. The level of 'good governance' will also play a key role, with factors facilitating the use of evidence such as: transparent decision-making, accountable decision-making, public availability of information and data, and formal and long-term planning mechanisms.

The nature of the political regime and democratic competition will also play a role, although it is not necessarily the case that 'more democratic' means greater uptake of knowledge. Highly stable or non-competitive regimes have less incentives to be open to new knowledge, but also excessive competitiveness may lead to short time-horizons and instability (Livny et al 2006). Much work emphasises the political role that civil society has in holding government to account for using knowledge in policy (Pollard and Court, 2005). There are also certain dynamics that may differ from issue to issue, or gradually over time. Lindquist argues that governments and other policy-making organisations often operate in (and switch between) different 'decision regimes': *routine* decision-making focus on matching and adapting existing programmes to emerging conditions with little debate on logic and design; *incremental* decision-making deals with selective issues as they emerge, but does not deal comprehensively with all constituent issues; *fundamental* decisions are relatively infrequent opportunities to entirely re-think approaches in particular policy domains; and, emergent regimes occur where a field is new and wide open (Lindquist 2001). The amount and type of knowledge demanded will clearly differ between each of these. Another framework is provided by Wilson, who identifies four types of policy-making, based on the perceived distribution of the costs and benefits: majoritarian politics is characteristic of issues with distributed costs and distributed

benefits; client politics, characteristic of issues with distributed costs but concentrated benefits; entrepreneurial politics, where costs are concentrated but benefits distributed; and, interest group benefits, characteristic of issues with concentrated costs and benefits (Wilson 1980). Again, the amount and type of knowledge demanded will differ greatly between each type of issue.

## Conclusion

There are three broad conclusions that can be drawn on the link between knowledge and policy:

- It is crucial to acknowledge the role of power in shaping the knowledge-policy interface. Policy is produced in the interaction between actors, institutions and discourse at different stages of the policy process and in different spaces; this determines not just what knowledge is 'used' in policy, but how it is used. It is crucial to gain an understanding of these dynamics in order to inform action that helps the powerless.

- There are many types of knowledge which need to be incorporated in order to make effective policy for poverty reduction. As well as policy-focused research, critical and 'reflexive' work should be promoted in order to ensure that policy is based on the right values, systems should be set up in order to take advantage of information generated in the process of implementing development programmes, the voices of the poor should be recognised as valid and instrumentally useful inputs to the policy process, and the importance of integrating these types of knowledge cannot be over-emphasised.

- There are a number of activities that can facilitate the process of incorporating knowledge in policy: communication, translation, interaction and exchange, using social influence and intermediaries. The message that is emphasised over and over again is that these are more of an art than a science, requiring considerable amounts of judgement and luck. Policy approaches which offer longer-term solutions to these need careful planning, but it is important to ensure that 'uptake' is not promoted ahead of getting the 'right kind of influence'.

There are three areas that can be drawn together as constellations of issues that require more research:

### 1) Empirical work on Southern contexts
While there is no shortage of theoretical pieces on the link between knowledge and policy, the empirical research into the Southern contexts has tended to focus on more knowledge-driven approaches. It is crucial to investigate the link between knowledge and policy in development from an open-ended stance that will draw out what the key issues are, and when different models of the link are most appropriate.

The best way to do this is to structure work around common, straightforward and clear analytical categories, such as: different national contexts; different levels of policy-making; different sectors; different stages of the policy process; and so on. Through empirical investigation into the links between knowledge and policy in these areas, further light can be shed on the relevance of the different paradigms, the role of different types and sources of knowledge in development policy making, and the role of different actors. Some recent work is beginning to address these gaps (e.g. Pomares and Jones 2008, Datta and Jones 2008, Jones et al 2009), but more is needed.

### 2) Redressing power imbalances in policy processes
The question of how to redress power imbalances in the link between knowledge and policy remains untackled. A common criticism of the political approaches to the policy process is that they do not

translate into policy (Livny et al 2006), however this remains to be seen. Asking the question 'What makes a policy process pro-poor?' and how to promote this is a crucial task.

In particular, 'discourse' approaches to understanding knowledge and power in development have yet to be adequately applied, and it is important to restate Perkin and Court's call (2005) for the need to explore "how it is that certain ideas come to be adopted as the dominant thinking in international development policy-making bodies".

### 3) Navigating complexity

The challenge of complexity represents a strong but implicit theme running through the literature. Recognising that the problems faced in development are multidimensional, context-specific, dynamic and uncertain, places certain demands on the links between knowledge and policy. In response to these demands, it is argued that policy-makers and practitioners should draw on particular sources of knowledge: knowledge generated in the process of implementation and about these processes; voice and participatory knowledge of those affected by problems; and, integrating multiple disciplines and multiple sources of knowledge. They should also use knowledge in a different way – rather than seeing it as providing answers to 'best practices' it should focus on providing 'good principles' for navigating uncertainty. This presents a number of challenges.

Decision-makers need to be given the practical tools and capacities to help them make interventions adapted to local contexts and to ongoing signals about their effects, rather than applying 'narratives' and blueprints from the top-down. Enabling this is likely to require institutional change and new organisational forms, to facilitate innovation and to put in place feedback mechanisms to make interventions sensitive to ongoing changes. In turn this presents a challenge of power structures: certain interests are served by the *status quo* in knowledge production as well as policy-making, and institutional incentives may make it difficult to voice concerns about prevailing paradigms, or trial new approaches.

Although complexity has been moving up development agendas, and some conceptual headway has been made (Ramalingam and Jones 2008), there is scope for beginning to bring complexity more concretely into the knowledge-policy debate.

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