# Mechanisms for Strengthening Evidence-Based Policy and Practice: A Review

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**Abstract.** Evidence-based policymaking helps people make well informed decisions about policies, programmes and projects by putting the best available evidence from research at the heart of policy development and implementation. Research has the potential to influence policy at any stage of the policy cycle. However, many factors limit evidence-based decision-making both at individual and organisational levels. Nevertheless, it is imperative not only for policymakers, but also for researchers, to improve the availability and dissemination of sound research. Fundamentally, there needs to be increased communication and interaction between the research and policy worlds to strengthen the integration of policy and evidence. This will be achieved by setting up mechanisms which will facilitate greater use of evidence by policymakers. This paper reviews the strengths and weaknesses of some research-policy bridging models and draws lessons for advancing the quest to bridge research-policy gap particularly in the science, technology and innovation, and agricultural sectors.

**Keywords:** Evidence-based policy · Evidence-based practice
Research-policy gap · Research dissemination · Bridging models

## 1 Introduction

Evidence-based policymaking is an approach that helps people make well informed decisions about policies, programmes and projects by putting the best available evidence from research at the heart of policy development and implementation. It uses the best available research and information on program results to guide decisions at all stages of the policy process and in each branch of government. It identifies what works, highlights gaps where evidence of program effectiveness is lacking, enables policymakers to use evidence in budget and policy decisions, and relies on systems to monitor implementation and measure key outcomes, and using the information to continually improve program performance.

The word "policy" is not a tightly defined concept but a highly flexible one, used in diverse ways on various occasions. Webster's dictionary has several closely related definitions. They are:


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- A definite course or method of action selected (by government, institution, group or individual) from among alternatives and in the light of given conditions to guide and, usually, to determine present and future decisions.
- A specific decision or set of decisions designed to carry out such a course of action.
- Such a specific decision or set of decisions together with the related actions designed to implement them.
- A projected programme consisting of desired objectives and the means to achieve them.

In English usage, policies are "made" and "implemented" in the same way that decisions are made and implemented. Yet it is possible to have policies that are not or cannot be implemented, so that, conceptually, actions that implement policies need not necessarily be part of policy itself [1]. A policy is a set of coherent decisions with a common long-term purpose. Government policies are often supported by special legislation. Policies are usually national policies (not district or provincial) and are not normally limited in time [1].

In fact, policy and practice, which are based on research evidence, are seen to produce better outcomes, e.g. saving lives and improving development performance. However, policy development and implementation are still often weakly informed by research evidence thus creating a wide gap between research and policy. On the one hand, research aims to investigate, learn and produce knowledge by gathering information, contemplation, trial, and/or synthesis. In development context, that may involve action-research or academic study ranging, as examples, from a pilot project, to a laboratory experiment, a consultation exercise, a quantitative survey, a literature review, participant observation or a participatory evaluation. It might be led by beneficiaries, development practitioners or academics from scientific and social science disciplines. On the other hand, policy aims for continuity or change of a practice, including plans and their evolution when put into practice (that is, the 'how' as well as the 'what' of decisions [2].

The objective of this review is to understand mechanisms for bridging research-policy gap so as to identify effective ways of enhancing research-policy and research-practice linkages particularly in the science, technology and innovation (STI) and agricultural sectors. It has been established that public research institutions and their interactions with policy makers and users of research results play a significant role in the creation and diffusion of knowledge in any system of innovation [3, 4]. The research and development (R&D) institutions are expected to provide the structured application of STI to boost the competitiveness of STI, agricultural and other economic sectors. Therefore, deploying R&D is critical for raising agricultural productivity and value chain development for improved socio-economic development especially in Africa. STI and agricultural research and development are the driving forces behind the industrial and agricultural revolutions that have helped to transform the economies of developed and some emerging countries such as Brazil, China, India and Thailand. However, this has not been the case in Ghana because a wide gap still exists between research and policy and research and practice. Bridging the gap between the national research system and policy and practice has become crucial in this globally competitive era. Research-policy and research-practice linkages allow for exchanges that enhance understanding of the technological needs among local industries, and capitalise on innovative options

to harness and exploit local research outputs for business solutions. In addition, such interactions encourage research and innovation in areas of relevance for the STI and agricultural sectors and private sector growth.

## 2 Why Bridge Research-Policy Gap?

The uptake of research evidence in the policy making process has become the front burner of global discourses on approaches and strategies for development. It is therefore not surprising that international development agencies and other research funders are placing increasing emphasis on the need to communicate research evidence to policy makers. This has resulted in a flurry of activities aimed at supporting the communication of research evidence to policy makers. For example, a study commissioned by UNESCO in Tanzania in 2002 assessed the research–policy linkages of science-related ministries and their research organizations with the objective to understand mechanisms for interacting with policymakers and users of research outputs. In the agricultural sector in Ghana, the USAID Agriculture Policy Support Project is being implemented with the purpose of increasing the capacity of the Government of Ghana (GOG), the private sector, and Civil Society Organizations to implement evidence-based policy formation, implementation, research, and advocacy, and perform rigorous monitoring and evaluation of agricultural programs implemented under the Medium-Term Agriculture Sector Investment Plan (METASIP).

Furthermore, several international development organisations have research programmes aimed at understanding the links between research and policy. An example is the Global Development Network that recently started a three-year international research programme to explore research-policy linkages.

While efforts are being made to devise mechanisms for bridging research-policy gap, it should be noted that policymaking is inherently a political process. Hence, many factors jostle with evidence to take centre stage in policy formation both at an individual level and at an organisational level. For example, time constraints will affect the mechanisms available to mobilize evidence – urgent issues require different approaches than processes to develop strategic policy directions. Thus, clearly, the onus lies not only with policymakers, but also with researchers, to improve the availability and dissemination of sound research to influence policy.

## 3 Models for Bridging Research-Policy Gap

To overcome the stumbling block for linking evidence into policy, innovative models are needed. This paper reviews some models taking a cue from Weiss [3] who proposed seven models of research-policy linkage, which have been adapted by writers such as Nutley et al. [4], Nutley and Webb [5], and Young et al. [6]. Other authors have adopted a simpler framework contrasting the two ‘ideal types’ of research utilisation: the engineering model and the enlightenment model [5, 7]. Landry et al. [8] propose a different approach involving four models. While these models have their strengths and weaknesses, Jones and Seelig [9] distinguished three broad models namely engineering,

engagement and enlightenment models. These three models present alternative conceptions both of how research actually links to policy and of how it should link that is, they are both explanatory and normative models. A brief description of each the of the three models is provided below.

The *engineering model* of research-policy relations encompasses the 'knowledge-driven' and 'problem-solving' models in Weiss's [3] typology, and the 'technological' model in the formulation by Landry et al. [8]. In this model, the link between research and policy is essentially linear: 'a problem exists; information or understanding is lacking either to generate a solution to the problem or to select among alternative solutions; research provides the missing knowledge; and a solution is reached' [7]. The purpose of research is primarily to assist in solving policy problems by providing relevant empirical evidence and conclusions [3]. The definition of the policy problem is mainly the responsibility of the policy or decision-maker. The assumption is that decision makers have a clear idea of their goals and their information needs, and they engage scientists to provide data, analysis and interpretation of research findings. In the engineering model, the focus is on applied research, that is, the research is driven primarily by the needs of the intended users, and is centred on a specific problem or set of problems. In this model, the role of the researchers is primarily technical, that is, providing the evidence and conclusions to help solve a policy problem. The policy-maker commissions the research to fill knowledge gaps and is the end-user of research findings. Thus, the relations between researchers and policy-makers are often contractual. The model demonstrates clearly how policy-makers seek 'answers' from research for the development of evidence-based policy however, it is widely criticised as simplistic and wildly optimistic [9].

The *engagement model* of research-policy relations encompasses the 'interactive', 'political' and 'tactical' models in Weiss's typology. In this model, the linkages between researchers and policy-makers are portrayed as interactive, complex and multi-dimensional. In this model, the purpose of research is to bring the distinctive knowledge, skills and values to bear on policy issues, through ongoing engagement and interaction of researchers and policy-makers. The type of research can be basic or applied, but is characterised above all by its commitment to policy-relevance. The engagement model is inherently political hence researchers need to understand and take account of this political environment. This model clearly demonstrates that research can play a key role in policy development, but this is contingent on many factors and circumstances, including the political skills of researchers who can themselves sometimes become influential figures [4]. Thus, policy-makers interact with researchers out of a commitment to research-informed policy. While researchers and policy makers have distinctive roles and positions in policy processes, their relations are often characterised by collaboration and partnership, and moderate to high levels of consensus on policy goals. Researchers also seek to develop links with interest groups and the media, as these groups are important in bringing research findings to the attention of policy-makers [10]. Researchers need to be both committed to the values and methods of research and capable of engaging effectively in the world of policy and politics. Policy makers need to be not only responsive to the political environment but also receptive and open to the findings and implications of policy research [9]. The major criticism of this model is the

dangers of the politicisation of research and the development of somewhat complacent 'policy communities' comprising researchers and policy-makers of similar views.

The *enlightenment model* encompasses the 'enlightenment' and 'intellectual enterprise' models in Weiss's typology, and reflects the longstanding liberal-democratic tradition that emphasises the importance of the independence of academic research [11]. In this model of research-policy linkages, relations between researchers and policy-makers are indirect, and research is undertaken for the benefit not of policy-makers as such but of the entire society. Research tends to be driven by the theoretical and conceptual framework of academic disciplines rather than by specific policy questions. Research provides the 'intellectual background of concepts, orientations and empirical generalisations that inform policy' [7]. Proponents point to evidence suggesting that policy-makers often welcome research that challenges prevailing frames of reference and makes them rethink comfortable assumptions [7]. However, the model pays little attention to the processes linking research and policy. It suggests no strategies for ensuring that the findings of scientific research are utilised by decision-makers.

## 4 Other Means of Facilitating Research-Policy Linkages

The models described earlier all lead to the generation of knowledge or evidence. However, the way the evidence is presented matters when policy needs to be influenced. An understanding of how several types of research evidence make their way to policy makers would make communications strategies far more effective. Berkout and Scoones [12], identifies two processes: 'snowballs' (the accumulation of research impacts within policy elites) and 'whispers' (the reinterpretation of research findings in broader constituencies). Saywell and Cotton [13] have described the process in terms of the *limestone model* (information trickles like water through porous rock), the *gadfly model* (information gets through because dissemination is prioritised as much as research itself), and insider model (researchers exploit links with policy-makers). The 'limestone' model is essentially passive requiring nothing more of the researcher than to conduct the research and present findings in a readable way. It is hoped that the findings will gradually seep into the consciousness of the public and decision-makers. The 'gadfly' model involves sporadic, but enthusiastic participation in policy processes, based on a strong commitment to policy and social change. The '*insider' model* involves close, continuous engagement with policy processes, and identification with the goals and needs of decision-makers.

## 5 Conclusion

No single model may be adequate in effectively bridging research-policy gap hence it may be prudent for researchers to consider which model or combination of models represents their stance with respect to policy processes. Whatever approach is adopted, there is a need to acknowledge the complexity of the policy process: it often takes time and patience and multiple messages conveyed through multiple channels before science has an impact.

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