Bridging Research, Policy, and Practice in African Agriculture

Steven Were Omamo
Research Fellow and East Africa Food Policy Network Coordinator
International Food Policy Research Institute
18 KAR Drive Lower Kololo, P. O. Box 28565, Kampala, Uganda
Tel: 256-41-234613. Fax: 256-41-234614. Email: w.omamo@cgiar.org.

Selected Paper prepared for presentation at the American Agricultural Economics Association Annual Meeting, Denver, Colorado, August 1-4, 2004

*

Bridging Research, Policy, and Practice in African Agriculture

Abstract

Policy research on African agriculture is long on prescriptions on *what* needs to be done to reverse negative growth trends but short on *how* such prescriptions might be implemented in practice. This paper addresses this state of affairs, focusing on the role and impact of research in agricultural policy processes.

Bridging Research, Policy, and Practice in African Agriculture

The current relationship between agricultural research and agricultural policy in Africa is disturbing. Research capacity has been both pushed and pulled out of government. It has been pushed out by pitiful terms of employment and lack of basic resources for productive work. Increasing donor support for quasi-private research institutes and for policy advocacy NGOs has pulled it out. Interactions between agricultural policy makers and agricultural researchers are increasingly marked less by cooperation and restraint and more by self-indulgence and arms-length critique. Policy research on African agriculture is therefore progressively long on prescriptions for *what* needs to be done to spur agricultural growth but short on *how* such prescriptions might be implemented in practice (Omamo, 2003). Anecdotal evidence points to little use of research output by African agricultural policy makers, and thus limited policy influence for research. What explains this state of affairs? What might be done to correct it, and, most important, how?

In addressing these questions, this paper does not seek to provide an exhaustive country-by-country description of agricultural policy formulation and implementation in Africa. Rather, through a review and assessment of the literature on the role and impact of research in policy processes, the paper identifies concepts and actions that hold promise for improving research-policy linkages in African agricultural policy contexts.

Agricultural policy processes in Africa have yet to be systematically described. To build understanding of the central features of some of these processes, the next section develops a policy fable set in Uganda, where the author currently lives and works. While purely fictional, the fable captures the social and political context within which

agricultural policies are debated, formulated, and implemented in many African countries. The results of a comprehensive review of major schools of thought on how research enters into policy processes are then presented. The review suggests high potential returns to fundamental reconceptualizations of how research enters policy processes; interactions among the nature of research-based evidence, the context within which policy is made, and available facilitation mechanisms appear to be decisive. Implications for research and capacity strengthening are then drawn.

Background Conditions: A Policy Fable From Uganda and Beyond

The Washington, DC-based International Agricultural Development Research Institute was in trouble. The Board of Trustees wanted someone's blood—Phil Henman's blood. As Director General of IADRI, Henman had presided over a third straight year marked by major budget cuts. Once again, lofty promises from donors had proved to be just that—promises, most of which were broken almost as soon as they were made. Henman knew the source of the problem. IADRI had run out of ideas. The place had gone stale. It had happened so quickly, though. Suddenly, IADRI was no longer an opinion leader, an innovator, a pacesetter. Nobody invited Henman to deliver keynote addresses anymore. He did not have anything new to say. He knew that he needed new staff. More than half of IADRI's senior staff was over 60 years old. These were men who were well past their best, and all earning large salaries. He needed younger, hungrier people; more women; more from developing countries. Without those kinds of changes in personnel, without the new ideas such changes would inject, nobody would give IADRI any new money—not on the scale needed to turn things around. But Henman could not

simply dismiss his aging staff members… not all at the same time. That would be too disruptive, and it might scare away some of IADRI's more conservative but reliable donors, with whom the older staff members had strong ties. He was stuck.

So when Simon Bailey of USAID called to say that he wanted IADRI to provide technical and organizational backstopping for a major USAID project in Africa, Henman agreed right away. It would mean that each year at least $5 million would pass through IADRI. That would yield roughly $800,000 from overhead charges. In addition, the costs of three senior staff members would be covered by the project. That would silence some people on the Board's Finance Committee. The project's coverage of ten African countries would help address the Program Committee's criticism that IADRI had become too Latin America- and Asia-focused, at the expense of Africa. The only complication was that proposed project would be driven by the low-external-input sustainable agriculture (LEISA) concept. Simon Bailey of USAID was much taken by the LEISA idea. Henman had his doubts. He was not aware of any country in the world that had managed to transform its economy based on low-input agriculture. But on the other hand, Henman was also aware that extant constellations of output and input prices in most African countries rendered most high-input practices unprofitable. There was clearly scope for LEISA-type solutions to poverty in Africa, but how much was far from clear. On balance, Henman felt there was enough in the LEISA idea to build a fairly comprehensive program around.

Henman's first instinct was to name a relatively new arrival from Cornell, Miriam Moyo, as Project Leader. A Zimbabwean by birth, Moyo had studied LEISA systems in Burkina Faso and had developed a balanced view of the subject. Henman had also heard

that the International Food Policy Research Institute was courting her. He could not afford to lose her. To keep her, he would have to give her more opportunities to grow. Leading the LEISA-Africa would be ideal. But USAID's Bailey had made it clear that he wanted a Project Leader with whom he could easily relate. So Henman gave the project to Stan Jensen—60 years old, ex-Peace Corps (Gambia, 1970-72), ex-World Bank, 12 years at IADRI.

* * *

When Stan Jensen called with the offer to participate as Uganda Team Leader in a 5-year, 10-country project, Dr. Kodet Martin, a senior lecturer in the Department of Agricultural Economics at Makerere University in Kampala was immediately interested. Kodet had met Jensen during a visit to Washington to present a project report at the World Bank. They had immediately struck up a good relationship. Jensen reminded Kodet of one of his former professors at the University of Wisconsin. Kodet's quick mind and direct speech were like a breath of fresh air to Jensen, whose time at the World Bank had made him forever wary of what he saw as Africa's overly critical and pretentious educated classes.

"Martin, we want to change the way people view and talk about agricultural development in Africa," said Jensen as he concluded his LEISA-Africa pitch to Kodet. "African solutions to Africa's problems—that's the only way forward. It'll be excellent to have you on board as the Uganda Team Leader."

"Yes, yes," said Kodet. "It certainly sounds like an attractive project. I would be happy to play that role."

"That's great!" said Jensen. "Simon Bailey and I will be coming that way next month. We can talk more then. Now, listen. We need to promote high-level buy in. Do you think you could set up some meetings in Uganda for us?"

"Certainly. What kinds of people do you want to meet?"

"We'd love to meet senior officials in all the relevant ministries."

"Like Directors and heads of department?"

"Yes, that would be fine. But I was thinking more in terms of Ministers and Permanent Secretaries."

"Oh… I see. OK. I'll work on it."

"Please do. We are trying to put together a donor coordination meeting in The Hague, right before the trip to Africa. The more donors who contribute, the better. It'll be nice to be able to say to them that we'll be meeting with Ministers and Permanent Secretaries when we're in Africa."

* * *

Honorable Adupa Antonia, Uganda's Minister of Rural Development, was an uncompromising workaholic, not well liked by her cabinet colleagues for her bluntness and dismissive attitude to protocol and social niceties. Three years into her second cabinet assignment—after four years in the Tourism and Trade docket—Honorable Adupa (or "Double-A" as she was popularly known) had hosted many such delegations. They always gave her a headache. She did not like the way Dr. Kodet was behaving—grinning like a hyena. The meeting was already three minutes old and he was still introducing people. The Minister was not sure about this LEISA-Africa project. Something about it did not sound right. She had instructed her Permanent Secretary,

Prof. Tumwebage Caiphas, to take on the visiting team—press them a bit. She wanted to hear all sides. When Dr. Kodet paused to catch his breath, Double-A shot an impatient look at Tumwebage, who quickly stood up and thanked the guests for coming, gesturing to Kodet that he should stop and sit down.

"How can I help you?" the Minister asked Bailey. She could tell he was the real leader of the delegation. "Please be brief and to the point."

"Thank you, Honorable Minister. In short, we would like your support for our initiative, which I believe you know about, so I will not go into the details."

"Yes. OK. What do you want to achieve through this project? Why is it good for Uganda? Why not operate like other donors and support the Uganda government's Plan for Modernization of Agriculture, which I am sure you know about? Why not simply support the PMA? Again, be brief please."

Bailey handled the first two questions with ease. He had been thinking about the answers for a long time. The PMA question was harder.

"We just concluded a very successful meeting in The Hague with a range of bilateral and multilateral donors to Uganda and other African countries. From that meeting, you can be confident that the LEISA-Africa initiative is not a USAID-only affair. We intend to work very closely with other donors. I am sure you will agree that there are many constraints facing Uganda's rural sector. Some of those will be addressed under the PMA, but many will not. We fully support the aims of the PMA and view the LEISA-Africa initiative to be wholly in line with the PMA's goals."

"Was there a Uganda government representative at this meeting in The Hague? I did not hear about it. Did you, Professor?" asked the Minister, looking at the PS, who shook his head. Only he could tell how irritated she was.

"Um… no," said Bailey, wishing he had not mentioned the donor meeting. "It was a donor coordination meeting… to exchange notes on our various plans for Uganda, and so on."

"I see. We have a donor coordination group here in Uganda, under the PMA. You should have begun there. Anyway, let us move on. Professor Tumwebage, do you have any reactions to what Mr. Bailey has told us?"

"Yes please," said the PS, turning to address Dr. Kodet whom he held in high regard based on their past work together. "Dr. Kodet, to us this is a very peculiar project. Why are you advocating continued subsistence-oriented agriculture at a time when we want to modernize our economy via a modernized agriculture? In your own report to the PMA Agricultural Sector Task Force—the one you prepared last January—you made the point that we should be aiming for a structural transformation of the economy driven by ever-increasing degrees of specialization in all economic activity, leading to trade-based growth. We valued that report very highly and refer to it very often. It gave us hope since the signs of a transformation are there. For instance, demand for fertilizer is increasing rapidly. Imports almost doubled between 1997 and 2001. Again, this is something you pointed out to us. So this LEISA-Africa project is confusing. It seems to be heading in the exact opposite direction to where we want to go under the PMA."

Sensing danger, Bailey gestured toward Jensen, encouraging him to respond, effectively silencing Kodet, who had been collecting himself for a response.

"Actually, there's more to it than that," Jensen began. "I think a key thing to remember is that there are large numbers of highly impoverished people for whom specialization and all that it entails are simply beyond reach. While the PMA—with its emphasis on promoting commercial agriculture—might be able to reach some of these people, most of them will fall outside its ambit. Such people will be the focus of concern for the LEISA-Africa project. So there is really no conflict at all between the ideas underpinning the PMA and those driving the LEISA-Africa initiative."

"That is not quite right," countered Double-A. "The PMA has many pro-poor features built into it. But even if that were not the case, why not add such components to the PMA? Why do you want to develop a whole new initiative that will place added administrative burdens on our government?"

Jensen was silent and studiously avoiding Bailey's eyes. Bailey could think of no immediate response.

"Honorable Minister, you know last weekend I went home to Karamoja to see my mother who has been unwell. On my way back, about 25 kilometers from my village—which is in a very remote area—I got a puncture. As I was changing the wheel, a fellow appeared from a nearby homestead to help. It was quick work after that, and soon we were finished. My hands were dirty, so this fellow suggested that I accompany him to his home, where he would give me some water for washing. I was not keen to leave my car there, but he had been so kind, and he was so eager for me to go with him, I agreed. His homestead was only about 200 meters from the road so we got there quickly. What I found there was stunning. The man was growing all kinds of things—vegetables, fruits, potatoes and so on… right there in that dry and desolate place. It was like an oasis… or

at least how I imagine an oasis must appear. I couldn't believe it and said as much. He was of course very proud and pleased and eager to talk about his achievements. So I sat there for about an hour, eating his fruits, while he lectured me about water management in water-scarce farming systems like his. The goal, he explained, was to minimize disturbance to the soil while simultaneously opening it up to allow rainfall infiltration. So he had abandoned the plough and invested instead in an animal drawn ripper and sub-soiler. The rest, he said, was down to timing of operations, weeding, mulching, and using *Dolicos lablab* as a cover crop—yes, *Dolicos lablab*! Can you imagine! Anyway, every drop of water is used. Rainfall is caught where it drops. He uses no fertilizer, no improved seed. But using these techniques—which he learned from an NGO whose name I have forgotten—he has been able to turn his life around. This fellow will never be a commercial farmer. There is no market anywhere near him. And I don't think there will be any market there for 10 or even 20 years. But he is now food secure and no longer a burden to society, or to the government. That is what the LEISA-*Uganda* project will be about."

"OK, Dr. Kodet," said the Minister, nodding, half-smiling. "That is a very interesting story; a very wise story, under the circumstances."

Kodet had known that the story would resonate deeply with Double-A. She, too, hailed from one of Uganda's dry northerly regions. Any project that sought to improve conditions in those marginalized areas was good news to her.

"OK," continued the Minister. "I will support this. But to ensure that there is no wasteful duplication or canceling out of effort, I want you to commit to full participation in the relevant PMA sub-committees. Let me also offer some words of caution. Under

the PMA, we are struggling to translate good concepts into effective actions. I wonder if you appreciate how complicated this project of yours will be. How are you going to reach all those impoverished farmers? Do you think we haven't also been trying to do that? If you really take this LEISA idea seriously, you will encounter great challenges in implementation. I certainly wish you well, and, again, I will support you as appropriate. Please continue with your preparations. You will now please excuse us. Thank you very much for coming."

Research in Policy Processes: Major Schools of Thought

By definition, the fable deliberately overstates and stylizes, but only to sharpen a point, which in this case is that food and agricultural policy in Africa is developed under conditions of high ambiguity, poorly established and ambiguous knowledge bases, and high numbers of possible choices facing decision makers. These conditions therefore also define the content and conduct of agricultural policy processes. Numerous anecdotes about agricultural policy formulation suggest similar conclusions. Yet little is known either about agricultural policy processes, or about the roles, if any, played by research and researchers within them. To bring structure to such considerations, and to set the stage for efforts aiming to fill knowledge gaps, this section describes six schools of thought on how research enters into policy processes and thus about research-policy linkages: the rational model; pragmatism under bounded rationality; innovation diffusion; knowledge management; impact assessment; and evidence-based-practice.

The Rational Model

In the dominant model of how research enters into policy processes—and of the role played by research in these processes—policy making proceeds rationally via a series of logical ordered phases. Policy makers comprehensively canvas, assess, and compare all options, calculating all social, political, and economic costs and benefits of alternative public policy options and then choose the best one. Policymaking is therefore framed as problem solving, implying the need for extensive communication and consultation in which experts and expert opinion are decisive. Research—i.e., data collection and analysis—is central, aiming to provide policy makers with certainty by examining all policy options and presenting their assessments of the best (Stone et al., 2001; Sutton, 1999). This model—the so-called rational (or rational-comprehensive) model—suggests a natural partnership between policy makers and researchers. Policy makers are confronted with problems they need to resolve. But lacking the information needed to make progress, they turn to researchers for solutions. Researchers undertake the required analyses and present policy makers with the answers. Policy makers receive the expert advice, digest it, design the suggested policy measures, and implement them accordingly.

The rational model therefore assumes a balanced, objective, and analysis-based process involving at least three phases: an *agenda-setting* phase in which key problems are placed on the policy agenda; a *decision* phase in which research is central; and an *implementation* phase. Agenda setting involves recognizing and defining the nature of the issue to be dealt with, and identifying possible courses of action. Decisions are based on assessments of the relative advantages and disadvantages of these alternatives. Implementation involves action, including evaluation of outcomes.

But what if policies do not achieve their intended impacts? The rational school explains this very common outcome as arising from lack of political will, poor management during implementation, insufficient resources, or other such departures from the assumed logical, ordered, and well-endowed process. While these explanations for policy failure or inadequacy may be intuitively appealing, they are also troubling. For, as signaled in the fable from Uganda, they also define current conditions in most policy environments in Africa. A model of policy making that explains policy failure purely in terms of exogenous factors clearly suffers from important conceptual limitations. Several such limitations have been identified. As illustrated in the fable, knowledge is never neutral, apolitical, or uncontested. Experts disagree among themselves on data, methods, and conclusions. The expert opinion that emerges as decisive is not always the most objective or scientifically unassailable. Even then, as the fable demonstrates, science-based advice is not necessarily palatable or paramount to policy makers, whose aims are often limited to satisfying immediate public demands expressed via political processes, not maximizing long-run social gains as assumed by many analysts (Nielson, 2001; Stone et al., 2001).

The rational model also departs from reality in its assumption that researchers take implementation seriously. Seldom are researchers' so-called "policy options" submitted to a feasibility test of any sort. Lapses into ideal but operationally irrelevant reasoning are therefore common (Omamo, 2003). In the rare cases where operationally feasible alternatives to existing arrangements are identified, seldom do analysts attempt to ascertain their *real* net gains to society if introduced—i.e., as opposed to *hypothetical* net gains that arise from comparisons of actual conditions with hypothetical ones? Clearly,

large disparities between actual and hypothetical gains signal opportunities. But preoccupation with hypotheticals comes at the cost of operational irrelevance (Williamson, 2000). These facts combine with resilient existing policies, high information acquisition and processing costs, and the generally low predictive power of social science in leading to policies that are more parochial and myopic than would be expected were the rational model an accurate portrayal of the world.

Pragmatism Under Bounded Rationality

A sharply contrasting view of the role of research in policy processes springs from the observation that uncertainty is a central fact of all human activity. As with all decision makers operating in uncertain environments, policy makers likely spend the bulk of their time looking for ways to address the problems posed by that uncertainty. To the extent, therefore, that policy makers identify any solution at all to a given problem, that solution is likely not an optimal one, nor was it intended to be (Heiner, 1988, 1989, 1992, 1993).

Two kinds of uncertainty are relevant: substantive uncertainty—which is related to lack of relevant information about environmental events—and procedural uncertainty—which concerns gaps in requisite problem-solving abilities (Dosi and Egidi, 1991). The rational model considers only the former kind of uncertainty. The implicit assumption is substantive uncertainty but procedural certainty. Specifically, policy makers are viewed to be unaware of all possible realizations of states of the world. But they are assumed to be able to make the best possible use of the information available to them. Where possible, they transform uncertainty into risk and act according to the relevant probability distribution of a specific set of outcomes. Where such a

transformation is not possible, indecision and non-action may result. The possibility of gaps in policy makers' "information processing" abilities is not admitted, whether they are assumed to face familiar or unfamiliar situations. But as illustrated in the fable, new problems are unfamiliar by definition. In considering whether and how to overcome these problems, policy makers face conditions that require that they imagine situations that have never occurred before and thus require of them abilities and attributes that they likely have never had cause to build up. Successful design and implementation of new policy measures are therefore far from trivial, as implicitly assumed in the rational model.

The key recognition is that understanding alternative (competing) policy options implies *both* substantive and procedural uncertainty for policy makers. They may indeed respond "rationally" to these two kinds of uncertainty. But this "rational" behavior does not necessarily mean "most robust" or "most efficient" in an optimizing sense. Rather, procedural uncertainty and competence limitations mean that these responses will represent "institutionalized" behavior—institutionalized in the sense that policy makers will bounded-rationally settle on relatively stable "rules" or "routines" that are context-specific but to some extent event-independent (Winter, 1982). Routines thus are specific to particular classes of problems, and to the people and the organizations who have developed them. The transferability of these routines across people or organizations is defined by their degrees of tacitness and the nature of the knowledge involved in their original generation and implementation. Routinized behavior is not only efficient; under both substantive and procedural uncertainty it is likely more so than behavior emerging from optimizing procedures (Dosi and Nelson, 1994; Heiner, 1993; March and Simon, 1993).

In this schema, substantive and procedural uncertainties (and the routinized behavior that they elicit) are viewed to lead to policymaking that is inherently conservative and incremental. Rarely do policy makers have the time, resources, or inclinations to consult with researchers. Civil servants and politicians are entirely pragmatic. They aim to ensure that government can function, cope with demands from pressure groups, and respond to crises. Pragmatic, rule-based policy making therefore tends toward avoidance of potentially costly innovation or departures from routine practice, and either marginal alteration of existing policies or reactive policies that aim to address problems that have already arisen (Sutton, 1999).

This is a compelling viewpoint. It certainly provides more insight into the outcome in the fable than does the rational model. But with its prediction of conservative policy making, this viewpoint would struggle to explain the upheavals in agricultural policy witnessed over the last two decades in Africa.

Innovation Diffusion

Lying behind the rational model is the image of a "policy cycle" comprising problem definition and agenda setting, formal decision making, policy implementation, evaluation, and then back to problem definition and agenda setting, and so on. The policy cycle metaphor suggests that the central question to be answered in efforts to bridge the research-policy divide is, "How can research be transported from the research sphere to the policy sphere?" The search for answers concentrates on the form and content of the "message" and the nature of research-policy interactions. However, the large literature on diffusion of innovations suggests that a more powerful metaphor is that

of a "policy journey" in which the central question is, "Why are some ideas that circulate in research and policy communities picked up and acted upon while others are ignored and disappear?" The search for answers to this question concentrates on patterns of innovation attributes that influence adopters, on how organizational structures affect potential adopters' capacities to innovate, and on stages in innovation processes (Crewe and Young, 2002; Nielson, 2001; Nutley et al., 2002).

An innovation is an idea, practice, or object perceived as new by an individual or other unit of adoption (Rogers, 1995). Perceptions and persuasion are therefore crucial. Two kinds of knowledge are distinguished: first, the knowledge that defines the nature of the innovation; second, the knowledge held by potential adopters. The process of diffusion is considered to revolve around four elements: an idea or innovation; channels of communication to spread knowledge about the innovation; time during which diffusion takes place; and a social system of potential adopters (Rogers, 1995; Walter et al., 2003b).

Why, then, are some ideas that circulate in research and policy communities picked up and acted upon while others are ignored and disappear? This literature identifies five attributes of innovations as decisive in their diffusion and uptake: *relative advantage* – the extent to which an innovation is perceived to have significant advantage over current alternatives; *compatibility* – the degree to which an innovation is seen as being consistent with past practices, current values, and existing needs; *complexity* – the extent to which an innovation can readily be understood and easily implemented; *trialability* – the extent to (and associated cost with) which a new idea can be tried out prior to being taken up; and *observability* – the degree to which the uses and benefits of

an innovation are visible to others, and therefore the degree to which such uses and benefits can act as stimuli to uptake by others (Stone et al., 2001). The underlying hypothesis would therefore be that the greater an innovation's relative advantage, the greater its compatibility, the lower its complexity, the greater its trialability, and the greater its observability, the greater its chances of adoption and rapid diffusion. The fable from Uganda suggests grounds to support such an hypothesis. But consider the agricultural market reform agenda that was swallowed whole by government after government in Africa. The reform agenda was certainly simple to explain and implement; governments simply washed their hands of the agricultural sector. But what was its relative advantage? How compatible was it with prior policy practices, values, and needs? Recent reversals of key market reform policies suggest both low relative advantage and low compatibility (Jayne et al., 2002). Yet across Africa, policy prescriptions that spring simplistically from the market mantra continue to be put forward and accepted (Omamo, 2003; World Bank, 2000).

Knowledge Management

Companies, industries, and countries with efficient and effective decision making systems can gain decisive advantages, and vice versa. The field of enquiry examining knowledge management has developed in response to that recognition, focusing on processes for creating, acquiring, storing, transferring, and applying knowledge, and on processes of organizational learning and change. A key notion in this literature is that competitive advantage resides in knowledge application rather than in knowledge

possession. The ultimate aim of knowledge management is therefore better use of knowledge to improve organizational performance (Nutley et al., 2003a).

Two kinds of knowledge are typically distinguished: explicit and tacit. Explicit knowledge is codified (written down)—e.g., in documents and databases. Tacit knowledge accumulates from experience, is intangible, and is concerned largely with "how things get done." Also typically distinguished in the knowledge management literature are knowledge-push (supply-driven) and knowledge-pull (demand-driven) approaches. Knowledge-push approaches identify knowledge and information flows as key therefore target improved structures and processes for capturing, codifying, and transmitting knowledge. Knowledge-pull approaches identify stakeholder engagement as paramount and focus instead on reward systems and other mechanisms to encourage stakeholders to share, search for, and apply knowledge (Court and Young, 2003).

The interplay of tacit and explicit knowledge is viewed to be crucial in decision-making processes. Four modes of knowledge conversion between explicit and tacit knowledge have been identified, resulting in four potential knowledge-driven collective outcomes: *socialization* – where individual tacit knowledge is converted to group tacit knowledge to produce *sympathetic knowledge*; *externalization* – where tacit knowledge is converted to explicit knowledge to produce *conceptual knowledge*; *internalization* – where explicit knowledge is converted to tacit knowledge to produce *operational knowledge*; and *combination* – where separate explicit knowledge is combined to produce *systemic knowledge*. Socialization starts with building a field of interaction. Externalization is triggered by meaningful dialogue or collective reflection. Networking

triggers combination. Internalization is triggered by learning-by-doing (Nutley et al., 2003a).

With increasing recognition of the need for greater attention to knowledge-pull, issues in social capital development are growing in importance. Increasing attention is therefore being paid to structures and processes that might promote social capital accumulation—such as the numerous agricultural research and policy networks that have been formed in Africa in recent years. Most of these networks explicitly or implicitly aim to build social capital as a bridge to socialization, externalization, internalization, and combination (and thus to sympathetic knowledge, conceptual knowledge, operational knowledge, and systemic knowledge). The fable illustrates the importance of such networks and the social capital they generate and sustain in policy processes. The fable also illuminates the potentially decisive roles of tacit knowledge and social capital in policy processes.

Given the prominence of the rational model and the envisioned role of research in the policy cycle, knowledge-push models and techniques dominate the literature. Criticisms leveled at the rational model therefore also apply here, in addition to objections to over-preoccupation with codification of explicit knowledge, and corresponding lack of attention to the tacit knowledge so crucial to coping with the uncertainty deeply embedded in policy systems.

Impact Assessment

Influencing policy and, by extension, policy makers is often an explicit aim of researchers. Donors and research commissioners are increasingly concerned about the

impact of the research that they fund and commission. A large number of researchers have therefore devoted considerable effort to building understanding of how research outputs are utilized or otherwise, and to measuring any impacts from that utilization. The resulting literature on impact assessment of research initiatives therefore attempts to answer such questions as these: What constitutes policy influence? To what degree and in what ways does research influence policy? What factors and conditions facilitate or inhibit the policy impact potential of given research-based initiatives? (Nielson, 2001; Walter et al., 2003a and 2003b).

Conceptual use of research (which brings about changes in levels of understanding, awareness, and attitudes) is often distinguished from *instrumental* or *direct* use of research (which results in changes in practice and policymaking). Research impact therefore forms a continuum, from raising awareness of findings, through understanding of impacts, to changes in behavior. Strategies to enhance research impact may address any point on this continuum. Comprehensive research impact assessments thus should address various forms of impact including: changes in access to research; changes in the extent to which research is considered, referred to, or read; citations in documents; changes in awareness and understanding; changes in attitudes and beliefs; and changes in behavior. Most research impact assessments focus on the most demanding levels of impact—i.e., objective behavior-based measures of impact—but fail to address the extent of impact at the subjective conceptual end of the spectrum (Walter et al., 2003a).

Interventions to enhance research impact fall into eight broad categories: *dissemination* – presenting and circulating research findings in finished and tailored

forms; *education* – increasing knowledge and understanding of research findings; *social influence* – changing norms and values as a route to changing behavior; *collaboration* – improving flows of information and ideas among researchers and potential users by strengthening linkages; *incentives* – encouraging and rewarding activities that enhance research impact, or that conform to best practices; *reinforcement* – peer affirmation of impact-enhancing behavior and attitudes; *facilitation* – providing means to support and enable research-based policy and practice; and *multifaceted initiatives* – measures with two or more of the above mechanisms, seeking multiple integrated and mutually reinforcing impacts (Walter et al, 2003b). The fable illustrates a multifaceted approach involving education, social influence, collaboration, and facilitation.

This literature clearly harbors great promise for identifying research impact-enhancing institutional innovations. However, beyond narrowly defined quantitative analyses of net welfare gains accruing from investments in public research, systematic studies of research impact that address both conceptual and instrumental impacts are essentially non-existent for agriculture in Africa.

Evidence-Based-Practice

A relatively new field of inquiry has emerged driven by recognition that designing better mechanisms for pushing research information out (dissemination) is having only limited success in improving public policy. This has led to a search for more effective ways of integrating evidence into policy, and encouraging utilization of evidence in practice, where "evidence" is taken to mean the results of systematic investigation toward increasing the sum of knowledge (i.e., research). This agenda has focused not only on

the question of what works, and what interventions or strategies should be used to meet specified policy goals and identified client needs. It has also addressed broader questions on know-how, know-who, and know-why that hinge more on tacit knowledge than they do on explicit knowledge.

A major focus of attention in this literature is therefore on challenges facing practitioners concerned with policy implementation (Crewe and Young, 2002; Nutley et al., 2003b). In addition to the familiar research-policy gap, two other gaps are identified: research-practice gaps; and policy-practice gaps. Growing disillusionment over a lack of deep-rooted impact of research despite heavy investments in "policy outreach" by researchers and research organizations highlights the importance of these two largely unrecognized gaps in policy processes. The research-practice gap pertains to lack of appropriate translation of evidence on what works in a particular field into actual practice. In this context, research findings may be under-used, over-used, or misused. The policy-practice gap refers to poor translation of policy decisions into practice—e.g., moving from a policy to privatize state owned agencies to, say, open franchise bidding as the implementation approach. Research findings may fail to inform policy, guide practice, or both.

Bridging all three kinds of gaps hinges in the first instance on a fundamental reconceptualization of the role and aim of research in policy processes. As noted earlier, in the traditional rational model, the assumed path followed by research in policy processes is linear: from creation through dissemination to utilization. The rational model pays little attention to implementation, or to the practitioners charged with implementation. By recognizing practitioners and placing the search for understanding of

their problems on par with examinations of challenges facing researchers and policy makers, the evidence-based-practice approach implies a shift in focus from a "researcher-as-disseminator" paradigm to a "practitioner-as-learner" paradigm. The former paradigm assigns a privileged position to research and researchers; the latter one assigns that status to practice and practitioners. Interactions among: (1) the nature of available evidence; (2) the context within which that evidence is sourced and utilized (or otherwise) in implementation; and (3) the facilitative mechanisms available to various policy stakeholders are decisive. Whether a particular piece of research-based evidence is pivotal or not in a given policy process is therefore a purely empirical matter, defined by the conduciveness (or otherwise) of extant contextual infrastructures and available facilitation mechanisms. The fable from Uganda illustrates that research cannot be separated from its social and political context, and especially not from power relations that define facilitative (and convening) capabilities. Processes with thin evidential foundations but deep facilitating powers (e.g,. the donor-driven processes in many African countries) may prevail over research-based ones.

However appealing and compelling the ideas behind the evidence-based-practice school may be, they are still long on theory and short on empirical verification. Indeed, even the extent to which policy processes can be evidence-based (vs. "evidence-influenced" or "evidence-aware") is controversial (Nutley, 2003; Nutley et al., 2003b).

Implications

Clearly, apart from the much-maligned rational model, a unified portable framework representing all policy processes and capturing all possible choices and tradeoffs faced in

bridging research, policy, and practice does not currently exist. Each of the other five schools relaxes certain assumptions embedded within the rational model—e.g., wholly rational policy makers, procedural certainty, well-defined research questions, well-defined user groups, well-defined channels of communication. In so doing, the five other schools achieve greater realism but at the cost of clarity and tractability. A unified portable framework is unlikely ever to emerge. Its absence is a logical outcome of the context-specificity and social embeddedness of knowledge. Contingent approaches that recognize and respond to that context-specificity and social embeddedness are required. As suggested by the evidence-based practice school, rewarding strategies will likely vary with opportunities and capacities for producing research-based evidence, for influencing context, and for designing facilitation mechanisms. These conclusions are not sector-, or region-, or country-specific. Rather, they spring from the nature of public policy in organized societies and from the functions that all political systems must perforce perform.

Several implications for research and capacity strengthening emerge. The fable and literature review suggest that the challenge is to identify institutional innovations that yield new bridging mechanisms.

Research

The eight categories of potential research impact-enhancing mechanisms listed earlier (dissemination, education, social influence, collaboration, incentives, reinforcement, facilitation, and multifaceted initiatives) suggest that the range of choice in potential interventions is wide, in theory. In practice, that range is likely to be quite limited.

Ascertaining the factors that circumscribe the selection domain requires careful diagnostic analysis in the three dimensions proposed by the evidence-based practice school: first, the nature of the available evidence (both current and potential); second, the social and political context within which research and policy are practiced and embedded; and, third, the resources, structures, and processes available for facilitating change. Nothing works all the time. Practitioners do not work in isolation. Local circumstances always mediate implementation strategies. Every initiative aiming to influence policy should therefore begin with such a diagnostic analysis.

The fable from Uganda demonstrates that evidence bases, social and political contexts, and facilitation capabilities are likely diverse and complex. Developing frameworks, working hypotheses, and protocols to guide the diagnostic analyses are immediate priorities. The literature review reveals that such work is already underway, but not yet for agriculture, and not yet for agriculture in Africa. Developing typologies of agricultural policy systems and processes in Africa based on theory and outcomes of several diagnostic analyses are longer-term aims. The need for such typologies—which would capture particular evidence-context-facilitation scenarios (realizations)—is especially pressing for agriculture, given the complexity of the institutional and political environments within which agricultural policies are formulated and implemented, as derived from agriculture's cross-sectoral (horizontal) imperative (Bonnen et al, 1997).

Capacity Strengthening

Ideally, the above-mentioned diagnostic analyses of agricultural policy processes would include assessments of key capacity gaps, again taking into account agricultural policy's

horizontal imperative and the obvious need for priority setting. The eight dimensions of potential research impact-enhancing interventions might define the relevant terrain.

Continued investment in programs aiming to build individual capacities for generating explicit knowledge is crucial. But the proposed conceptual shift from a "research-as-disseminator" framework to a "practitioner-as-learner" framework points to the need for initiatives aimed at groups (e.g, networks or clusters) of policy stakeholders in which producers of explicit knowledge (i.e., researchers) are neither leaders nor accorded privileged positions *a priori*.

At bottom, the issue is how to promote "evidence-readiness" among inherently conservative and pragmatic policy makers and practitioners and "user-readiness" among inherently abstraction-oriented researchers. The innovation diffusion and knowledge management literatures suggest that *individual* policy makers and practitioners will never be evidence-ready, and that *individual* researchers will never be user-ready, in the sense of being able to send and receive signals to and from one another. These literatures suggest that individuals might *become* evidence-ready and user-ready, but only in tandem with others, and only if the incentives embedded in the contextual and facilitative infrastructures within which they operate are conducive to investment in risky, knowledge-intensive initiatives. These conclusions raise tremendous challenges for capacity strengthening—challenges to which, as currently constituted, most agricultural research and policy systems in Africa would be unable to respond. A graduated, contingent approach based on piloting initiatives would therefore be advisable.

References

Bonnen, J., Hedley, D., and Schweikhardt, D. 1997. "Agriculture and the Changing Nation-State: Implications for Policy and Political Economy." *American Journal of Agricultural Economics*, **79**: 1419-1428.

Crewe, E. and J. Young. 2002. "Bridging Research and Policy: Context, Evidence, and Links." Overseas Development Institute Working Paper 173.

Court, J. and J. Young. 2003. "Bridging Research and Policy: Insights from the ODI Case Studies." Overseas Development Institute.

Dosi, G. and M. Egidi. 1991. "Substantive and Procedural Uncertainty." Journal of Evolutionary Economics, 1(2): 45-168.

Heiner, R. 1988. "Imperfect Decisions in Organizations: Toward and Theory of Internal Structure." *Journal of Economic Behavior and Organization*, **9**(1): 25-44.

Heiner, R. 1989. "The Origin of Predictable Dynamic Behavior." *Journal of Economic Behavior and Organization*, **12**(2): 233-57

Heiner, R. 1992. "Adaptive Stability with Limited Structural Knowledge." *Journal of Economic Behavior and Organization*, 18(1): 123-26.

Heiner, R. 1993. “Imperfect Choice and Rule-Governed Behavior.” In *Markets and Democarcy: Participation, Accountability and Efficiency*, S. Bowles, H. Gintis, and B. Gustafsson (eds.). Cambridge: Cambridge University Press.

Jayne, T. S., J. Govereh, A. Mwanaumo, J. Nyoro, and A. Chapoto. 2002. False Promise or False Premise: The Experience of Food and Input Market Reform in Eastern and Southern Africa. *World Development*, Vol. 30, No. 11 (November).

Kherallah, M., C. Delgado, E. Gabre-Madhin, N. Minot, and M. Johnson. 2002. *Reforming Agricultural Markets in Africa*. Baltimore: Johns Hopkins University Press for the International Food Policy Research Institute.

March, J. and H. Simon. 1993. *Organizations*. Oxford: Basil Blackwell.

Nielson, S. 2001. “Knowledge Utilization and Public Policy Processes: A Literature Review.” Evaluation Unit, International Development Research Centre.

Nutley, S, H. Davies, and I. Walter. 2002. “Learning from the Diffusion of Innovations.” Conceptual Synthesis 1. Research Unit for Research Utilization. University of St. Andrews.

Nutley, S, H. Davies, and I. Walter. 2003a. “Learning from Knowledge Management.” Conceptual Synthesis 2. Research Unit for Research Utilization. University of St. Andrews.

Nutley, S, I. Walter and H. Davies. 2003b. “From Knowing to Doing: A Framework for Understanding the Evidence-into-Practice Agenda.” *Evaluation,* **9**: 125-148.

Nutley, S. 2003. “Bridging the Policy-Research Divide: Reflections and Lessons from the UK.” *Canberra Bulletin of Public Administration,* **108**: 19-28.

Omamo, S. W. 2003. *Policy Research on African Agriculture: Trends, Gaps, and Challenges*. ISNAR Research Report 21. The Hague: International Service for National Agricultural Research.

Rogers, E. M. 1995. *Diffusion of Innovations*. New York: Free Press.

Ryan, J. 1999. “Assessing the Impact of Rice Policy Changes in Vietnam and the Contribution of Policy Research.” IFPRI Impact Assessment Discussion Paper No. 8. Washington DC: International Food Policy Research Institute.

Stone, D., S. Maxwell, and M. Keating. 2001. “Bridging Research and Policy.” Paper presented at an international workshop funded by the UK Department for International Development, Radcliffe House, Warwick University, 16-17 July, 2001.

Sutton, R. 1999. “The Policy Process.” Overseas Development Institute.

Walter, I., S. Nutley, S., and H. Davies. 2003a. “Developing a Taxonomy of Interventions Used to Increase the Impact of Research.” Research Unit for Research Utilization. University of St. Andrews.

Walter, I., S. Nutley, S., and H. Davies. 2003b. “Research Impact: A Cross Sector Review.” Research Unit for Research Utilization. University of St. Andrews.

Williamson, O. 2000. “The New Institutional Economics: Taking Stock, Looking Ahead.” *Journal of Economic Literature*, 38(3): pp. 595-613.

Winter, S. 1982. “An Essay on the Theory of Production.” In *Economics and the World Around It*, S. Hymans (ed). Ann Arbor: University of Michigan Press.

World Bank. 2000. Uganda-National Agricultural Advisory Services Program. Project Description. Washington DC: World Bank. www.worldbank.org/pics/pid/ug44695.txt