Building on an earlier exploratory study, in 2007–2008 the CGIAR's Standing Panel on Impact Assessment (SPIA) undertook an initiative in collaboration with seven CGIAR centers to augment the evidence of policy-oriented research (POR) impacts within the CGIAR system and to further the development of methodologies in this challenging area of impact assessment. Seven case studies were commissioned. This impact brief describes the major results that emerged from the overall study. For the full version see: CGIAR Science Council. 2008. *Impact Assessment of Policy-Oriented Research in the CGIAR: Evidence and Insights from Case Studies*. A study commissioned by the Science Council Standing Panel on Impact Assessment CGIAR Science Council Secretariat: Rome, Italy. (Available at http://impact.cgiar.org/)

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Policy-oriented Research in the CGIAR: Assessing the Impact

Policy-oriented research (POR) is research that aims to influence the decisions made by governments or other institutions that are embodied in laws, regulations, or activities that affect people's lives and livelihoods. POR has recently accounted for an increasing share of research expenditures in the CGIAR, rising from 9 percent in 1995 to about 18 percent currently. Yet it is a theme where evidence of impacts is scant. There are usually many simultaneous and complementary sources of information, influence, and advocacy behind policy shifts, and objective indicators of the origins of these shifts are seldom easy to identify. Given the number of intermediate diffusion, uptake and adaptation steps involved in policy development and implementation, attributing impact of POR can be particularly difficult. This is especially the case when 'impact' is defined as benefits for the livelihoods of the poor created by improved policies, or from the maintenance of existing policies, as a result of the research.

The Science Council's study of POR was conducted at the request of several members of the CGIAR, starting with a formal request made at the Annual General Meeting in 2003. The CGIAR and its stakeholders wanted evidence of impact from their growing level of investment in the policy arena. In 2005 the Standing Panel on Impact Assessment (SPIA) initiated a scoping study to assess the extent and nature of documented policy-oriented research impact assessments (PORIA) within the CGIAR system. That study found that only three of the 24 PORIA studies identified provided estimates of the economic impacts of the POR involved, and that the combined benefits of these three cases, amounting to US$200 million, represented only 25 percent of the cumulative CGIAR investment in POR of around US$800 million (up to 2004).

SPIA concluded from the scoping study that there was a need to commission additional case studies to assess the impact of POR in the centers, both to augment the evidence of impact, and to further the development of methodologies in this challenging area of impact assessment. After a competitive call for proposals from the centers, seven of the 14 submissions were selected for support from SPIA (Table 1). For these, research

Table 1.
The seven PORIA case studies

Center case study	Geographic scope	Constraint/ problem identified	Research (related) output	New policy / practice adopted	Impact pathway description
Bioversity	Global	Exercising national sovereignty over crop germplasm, potentially restricting geneflows	'Trusteeship' model for genebanks; facilitation and honest brokering role; advocacy	An In-Trust Agreement reached and signed	Crop germplasm flows continue; breeders have easy access to unique sources of genes
CIFOR	Indonesia	High environmental costs due to policies and corruption encouraging large forest clearing	Research and communication exposing the political economy of the pulp and paper sector, links between fiber sourcing practices and deforestation	Ministerial Decree adopted requiring mills to source all wood from plantations by 2009	Improvements in sustainability of pulp production practices; regulation of the pulp and paper sector; and due diligence for forestry investments
ICARDA	Syria	Policies restricting fertilizer use (allocation) on barley in arid zones	Research showing benefits of fertilizer in arid zone; recommendation about fertilizer applications in different zones; initiating policy dialogue; advocacy	New fertilizer policy (with credit extended to Zone 2) adopted in 1989	Benefits derived from fertilizer now used on barley in Zones 2 and 3 in Syria
IFPRI	Mexico	Risk of dropping a cash transfer program deemed effective at keeping children in school longer	Evaluation of PROGRESA program of conditional cash transfers for efficacy and impact	Mexican Government continued with PROGRESA program in basically the same form	Faster program implementation; improved program evaluation and project manager training; program continuation beyond political regime changes; spillover to programs in other countries
ILRI	Kenya	Colonial dairy policy protected interests of large-scale dairy producers; criminalized activities of small-scale milk vendors (SSMVs)	SDP produced evidence supporting policy and institutional reform, e.g., vast numbers of SSMV depending on dairying for livelihood	Revised Kenyan dairy policy adopted in 2004; training and licensing of SSMVs	Welfare benefits captured through consumer (via lower milk prices) and producer surplus as well as to SSMVs
IRRI	Philippines	Indiscriminate use of pesticides on rice with harmful effects on health and ecology	Research evidence on the economic health costs from pesticide use in rice	1992–1996 policies regulating highly toxic insecticides in rice; training of health officers	Private health cost savings resulting from pesticide use policies estimated
WorldFish	Bangladesh	Current policy of leasing water bodies to highest bidder results in over-exploitation and exclusion of poor fishers	Research-derived improved inland fisheries management policies and practices tested and extended to 116 water bodies	Awareness of and attitudes towards community-based fisheries management spreading amongst key stakeholders	Higher incomes amongst poor fishing communities and more sustainable production and increased biodiversity

Acronyms: Bioversity – Bioversity International; CIFOR – Center for International Forestry Research; ICARDA – International Center for Agricultural Research in Dry Areas; IFPRI – International Food Policy Research Institute; ILRI – International Livestock Research Institute; IRRI – International Rice Research Institute; WorldFish – WorldFish Center.

was undertaken to explore the impact pathways whereby POR outputs were used in policy processes, the influence they had, the impact of associated policy changes on welfare, and how much of this could be attributed to the POR.

An emphasis on POR uptake and influence

A hallmark of these studies is the documentation of uptake and influence of POR, in order to evaluate the case for the attribution of policy impact to the research. All the authors expended considerable effort evaluating the degree to which policy changes could be attributed to the centers' research and outputs. The full extent of this effort is demonstrated by the unabridged reports of the case studies, exemplified by the extensive documentation of key informant interview responses provided in the IFPRI study. In most studies the authors went beyond key informant interviews to document POR influence, and used primary and secondary data sources and reports to validate and supplement interview results. Together these sources permitted the construction of convincing counterfactuals, which aimed to establish what would have happened had the POR carried out by a center not occurred, yet all the other players in the policy arena remained the same. This allows the identification of the proportion of the benefits that should be attributed to the POR.

Methodological issues

The seven case studies have highlighted a number of issues in the conduct of PORIA studies. Five of the seven studies incorporated an *ex post* impact assessment (epIA) using cost–benefit analysis to estimate the welfare effect of policy change. However, most of these studies focused on 'young' policies, requiring the projection of benefits into the future: several were thus a blend of *ex post* and *ex ante* assessments.

The approach taken by the case studies was determined by several key considerations. These included the need for a precise definition of the policy intervention being studied, the need to establish a persuasive counterfactual, and the need for an informative sensitivity analysis of the results, making explicit the assumptions that would affect the results of the research. The authors of the case studies found some of these requirements more challenging than others, and while some authors could draw on past research, others were working without the benefit of previous empirical results on which to base their cost–benefit analyses. The construction of an appropriate counterfactual was found to be a particularly challenging issue in several of the case studies.

The case studies demonstrated a variety of good practices. For example, realized versus projected benefits of the POR were explicitly identified in the IRRI and CIFOR studies, thereby acknowledging the partial *ex ante* character of the cost–benefit analysis. Most case studies provided a range of scenarios in the cost–benefit analysis, and the majority took pains to adopt a conservative posture in estimating benefits.

Key conditions for generating policy influence and impact

IFPRI had previously identified a number of key conditions that are conducive to the generation of influence and impact, based on its earlier work on the impact of its POR[1]. The PORIA case studies illustrate the importance of several of these conditions. Of the seven studies, six featured the long-term in-country presence of researchers. CIFOR, ILRI, IRRI, and ICARDA all report on research-related policy change that took place in the countries where their headquarters are located. WorldFish has had a country program in Bangladesh for many years, and Bioversity carried out its work on In-Trust Agreements at its headquarters in Rome in close association with the Food and Agriculture Organization of the United Nations (FAO).

But it is not just being in the same country for many years that matters: the case studies suggest that good research is most influential when researchers partner closely with non-researchers in the policy community, such as NGOs and donor agencies. As the CIFOR study demonstrates, working closely with NGOs can be an effective way to bring about policy changes.

The value of high-quality, independent research is another theme that weaves its way through several of the studies. The positive role of the center as an 'honest broker' was highlighted in most case studies, as a determinant of POR influence. In some cases, such as the Bioversity study, the honest broker or advocacy role seemed to dominate the research role. Success can also be attributed to a national policy environment conducive to the assimilation of research results. The importance of an enabling policy environment was underscored in the IRRI case study, for example. The authors of this study note that if the research on the health costs of pesticide use had been conducted during the Marcos regime, the odds are that the results would have fallen on sterile ground.

Finally, the need to find the right institutional partner – or partners – was highlighted, for example by the WorldFish case study. This demonstrated that effective policy action may involve more than one governmental institution. In Bangladesh, the Ministry of Fisheries and Livestock was well versed in the research that had been conducted on inland fisheries, but the Ministry of Land, which is responsible for leasing strategies for water bodies, had not been sufficiently involved in the research and did not actively support community-based fisheries management. The absence of a strong line agency or an effective ministry may lead to a disabling policy environment, delaying or preventing change.

Returns to investment and the value of research

The modal estimated internal rates of return (IRR) in these policy-oriented studies as a group are significantly higher than comparable estimates for typical epIAs of technology-oriented research. For the four studies that estimated them, IRRs ranged between 55 and 65 percent.

In general, the case studies support the view that successful research at country level tends to be more immediate in its impact than equally successful agricultural research, such as genetic improvement. Gestation periods between the initial research investment and

the availability of outputs for diffusion and uptake appear to be shorter. Shorter investment periods and usually lower costs relative to other types of agricultural research can result in very high IRRs that would be at the top end of the continuum in a meta-analysis of rates of return to agricultural research.

However, this observation might need to be qualified if the PORIA studies had been designed to include the full costs of the relevant antecedent research. For example, the IFPRI study shows that findings from IFPRI's past research had contributed to the design of the Mexican PROGRESA conditional cash transfer program. If that research started at the time of IFPRI's founding in 1978, the lengthening of the gestation period between research initiation and the delivery of the program's first benefits would have meant that the high rates of return attributed to the program would no longer be apparent. Yet such research may have yielded multiple benefit streams in many countries over time that are not fully described by the impact on the PROGRESA program in Mexico alone. Those benefits should also appear in a more comprehensive impact assessment. Hence, in both technology- and policy-oriented research, the choice of a start date is not as simple as might at first be thought.

Another feature peculiar to these policy-related, cost–benefit analyses is the relatively small size of the net present values (NPVs). For the five case studies that estimated NPV, using the base or conservative scenario in each case, NPV was: CIFOR US$130 million; ICARDA US$73 million; IFPRI US$73 million; ILRI US$230 million; and IRRI US$248 million. These are more akin to those associated with natural resource management success stories than to those associated with technological change from crop genetic improvement. The latter seems to have more of an international, multi-country, public goods character than does POR. Based on estimated NPV in a true *ex post* setting, none of these impact assessments would rank in the top 15–20 success stories attributed to CGIAR-related research[2]. Nevertheless, the IRRI study demonstrates that the potential for large benefits exists if the research focuses on issues of widespread economic importance, while the CIFOR study makes the same point but in another ecological setting – forests rather than fields. More than anything, the size of economic benefits of POR is constrained by the single-country setting of the research.

Looking to the future

Summing up, the PORIA study emphasized the documentation of influence and impact of policy research and, in so doing, has significantly expanded the number of POR impact assessment case studies in which there is convincing evidence of impact. Five of the seven case studies were able to measure the economic impacts of the policy changes associated with the POR and the returns on the POR investments themselves, although none was able to translate these impacts into quantified effects of poverty reduction or food security. In this respect, these impact assessments are not so different from most others undertaken in the CGIAR. The CIFOR study did assess the environmental benefits in addition to the direct economic benefits, representing a significant advance in the scope of PORIA.

Adding together the estimated economic impacts of POR from the five relevant case studies gives us a cumulative NPV of about US$750 million. If we add this amount to the US$200 million in benefits estimated for the three cases cited in the scoping study report[3], we arrive at a current estimate of US$950 million as the NPV of documented benefits from POR in the CGIAR system. These benefits – from only eight documented case studies – stand in comparison with the US$800 million of cumulative investment in POR in the CGIAR to 2004, a figure which has probably surpassed US$900 million in 2008. However, if donors are to be convinced that the CGIAR's increasing emphasis on POR over the past 20 years is justified, further PORIA studies are needed to provide a more comprehensive estimate of the benefits of POR across the entire CGIAR system.

Notes

1 Ryan, J.G. and Garrett, J.L. 2003. *The Impact of Economic Policy Research: Lessons on Attribution and Evaluation from IFPRI.* Impact Assessment Discussion Paper No. 20. International Food Policy Research Institute (IFPRI): Washington DC, USA.

2 See for example: Raitzer, D.A. 2003. *Benefit–Cost Meta-Analysis of Investment in the International Agricultural Research Centers of the CGIAR.* Report prepared on behalf of the CGIAR Standing Panel on Impact Assessment. CGIAR Science Council Secretariat: Rome, Italy; Raitzer, D.A. and Kelley, T.G. 2008b. Benefit–cost meta-analysis of investment in the international agricultural research centres of the CGIAR. *Agricultural Systems*, 96, 108–123.

3 CGIAR Science Council. 2006. *Impact Assessment of Policy-Oriented Research in the CGIAR: A Scoping Study Report.* CGIAR Science Council Secretariat: Rome, Italy.

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