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Research Benefits Heavily Outweigh Costs

Success stories have followed one after another in the decades since the Consultative Group on International Agricultural Research (CGIAR) became a focus for global investment in research for development. Funding for the CGIAR nevertheless began to stagnate in real terms in 1988, with some Members' apparently disturbed that "cherry picking" successes sidestepped the question of the CGIAR's overall productivity and value for money.

The CGIAR Science Council's Standing Panel on Impact Assessment responded by commissioning an independent study to weigh the measurable benefits of CGIAR research against the total cost of operating the whole System up to 2001. The analysis, delivered in 2003,¹ found that the value of documented benefits generated by the CGIAR surpasses the total investment in the System. The analysts did not calculate a single benefit-cost ratio for all potential audiences, some of whom demand unassailable evidence while others willingly sacrifice a measure of precision for comprehensiveness. Instead, they offered five different versions of the benefit-cost ratio to allow for its sensitivity to different assumptions regarding the credibility of the values derived for key measures of benefit.

The most restrictive assessment yields a benefit-cost ratio of 1.9. In other words, the CGIAR has generated an indisputable (and respectable) return of nearly 2 dollars in benefits for every dollar invested. The most inclusive estimate puts the benefit-cost ratio nearly nine times higher, at 17.3.

Why is the spread of results so wide? One side of the equation, the total investment in the System since it began was easily calculated at US\$7 billion. The devil was in documenting and measuring the benefits of research. However widely recognized the beneficial outcomes may be, precisely attributing them to individual contributing factors is exceedingly difficult, especially when the factor of interest is the collaborative research input of one partner. Consequently, a survey of hundreds of impact

assessments found that only a few of them rigorously quantified broad economic impacts. The other studies were not necessarily questionable, just insufficiently precise or too narrow, or they did not use economic methods that were reliable.

The analysis found four assessments that transparently demonstrated a causal relationship and empirically attributed the benefits to research by specific CGIAR Centers. Adding them up yielded the benefit-cost ratio of 1.9. This most stringent analysis proved that the CGIAR is cost effective in sum but excluded many credible impacts.

For the next analysis, the criteria were relaxed to accept studies that demonstrated a causal relationship but without explicitly attributing the benefit to the specific

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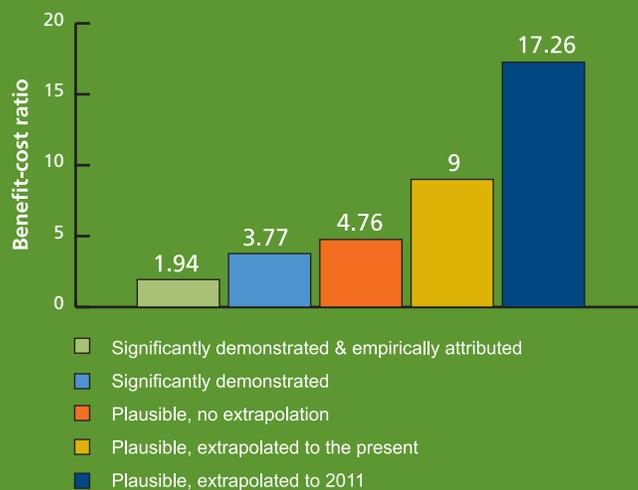
Center. This allowed adding three more studies, for which the analysts assumed half

of the documented benefit coming from the Center and half from its mainly national partners. The innovations thus available from seven studies happened to fall almost entirely within three areas: rice improvement, wheat improvement and, in Africa, bio-control of cassava mealybug. Yet this highly restricted selection of successes from the CGIAR's broad portfolio nevertheless documented a benefit-cost ratio of 3.8 when the benefits are weighed against the System's total investment. Accepting another eight studies in which causality was plausible but incompletely demonstrated raised the number of included studies to 15 and the benefit-cost ratio to 4.8.

Up to this point, the analysts had considered only those benefits that had accrued early enough to be cited in the original studies, most of which had been completed in the 1990s, and many of which covered only a single year. Extrapolating the benefits documented in the 15 studies to 2001 almost doubled their value, bringing the benefit-cost ratio to 9.0. Giving the benefits from existing investments another decade, until 2011, to further percolate through farm communities and garner additional returns almost doubled the benefit-cost ratio again to 17.3.

Calculated in 1990 dollars, this most generous estimate converts the \$7 billion in investments up to

Benefit-cost ratios of investments in the Consultative Group on International Agricultural Research, weighing benefits selected according to different criteria against total costs over the history of the System



2001 into \$123 billion in benefits by 2011. Yet, as the report points out, even this highly favorable result probably understates the total return on investment. Significantly, it does not include the following:

- benefits from the CGIAR's many research areas that are inadequately documented and/or inherently difficult to attribute or value, such as impacts from research on policy and natural resource management;
- the multiplier effect, by which every dollar of farm income contributes an additional 50 cents to 1 dollar to the local non-farm economy through higher demand for products and services; and
- land savings, and their invaluable contribution to protecting biodiversity and watersheds, gained from the intensified cropping of existing farmland in lieu of clearing of new lands.

The bottom line remains that investment in the CGIAR has paid off handsomely, even when analyzed from the most conservative perspective. The report's other key conclusion is that the CGIAR can and should do more to document how it improves the welfare of poor farmers and consumers in the developing world.

Notes

- 1 Raitzer DA. 2003. Benefit-Cost Meta-Analysis of Investment in the International Agricultural Research Centres of the CGIAR. CGIAR Science Council Secretariat, Washington, and FAO, Rome. 45 p. online at <http://impact.cgiar.org>