

## ANNEX C

# Improving the Proof: Impact Assessment in Agricultural Development

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Whether, what, and how agricultural development has had an impact on people's lives have long been topics of inquiry by researchers, development practitioners, investors, and beneficiaries of development interventions. As long as there have been interventions, people have formally or informally, systematically or haphazardly, scientifically or unscientifically assessed, analyzed, measured, estimated, and evaluated their impacts. The motivation to assess impacts arises from the need for accountability (whether and what impacts development efforts have on people and their environment) and interest in institutional learning (how impacts are achieved or not achieved, and what lessons can be derived to improve programs). Assessment of impacts provides the "proof" that development does or does not work, in what contexts, and why.

There are several concepts and terminologies that are closely associated with the field of monitoring, evaluation, and impact assessment. Broadly speaking, these can be grouped into two categories: (1) assessments that occur before or during the project implementation, such as ex ante impact assessment, project appraisal, and monitoring and (2) those that occur retrospectively after an intervention ends or once project outputs have been scaled up. Each has evolved dramatically over the last 50 years in response to changing themes in development, methodological advancements, and demand for documenting rigorous evidence of impacts. The evolution and emerging trends in methodologies offer lessons for best practices to enhance the culture of impact assessment in agricultural development.

## Ex Ante Impact Assessment, Project Appraisal, and Monitoring

Ex ante impact assessments are used to predict the likely consequences of an intervention. The original approach, beginning in the 1950s, was primarily driven by multilateral and bilateral donors who used ex ante analyses of the social and economic costs and benefits to quantify the projected impacts of a project. These analyses were often used as a condition to approve, adjust, or reject funding for development projects. In agriculture, these assessments are still routine (and mandatory, in some instances) for large investments such as irrigation systems, dams, and rural roads. Over time, as a result of rapid increases in computing technologies, modeling tools have joined the ex ante impact assessment family. These models have the capacity to simulate a wide range of market conditions, technology scenarios, likely spillover effects, and alternative trade regimes in order to project the economic benefits of a proposed investment.<sup>1</sup>

In the 1970s, the toolkit for ex ante assessments was augmented by the introduction of logical framework analysis, a planning and appraising tool for development projects. Logical framework analysis provides a clear hierarchy of inputs, activities, and objectives alongside assumptions about the external environment in an effort to more effectively map out how an intervention will have an impact on its intended target population. This addition resulted from rising criticism that investments in large projects were neither involving nor benefitting the poor in any substantial way.

Continued concerns about the involvement and engagement of the poor in development, particularly rural development, acquired more attention in the 1980s with the introduction of new participatory development methods. Tools such as participatory rural appraisal, rapid rural appraisal, participatory action research, participatory impact assessment, and participatory impact pathways analysis sought to make people and communities active participants in development, rather than mere objects of it.<sup>2</sup> Similar participatory tools applied to organizations and sectors known as institutional learning and change have added a further dimension to these types of assessments.<sup>3</sup>

## Retrospective Assessments

The focus of retrospective assessments is to document realized outputs, outcomes, and impacts of an intervention. These types of assessments come closest to providing the proof of development effectiveness. Project evaluation, a type of retrospective assessment, usually occurs at the end of an intervention or soon after its conclusion. Its main objective is to track project inputs, outputs, and immediate outcomes, and to document the processes that led to these effects. These are often distinguished from retrospective assessments that focus on outcomes and impacts. The latter type of retrospective assessment, commonly referred to as simply “impact assessment,” is defined as the systematic analysis of the significant or lasting changes in people’s lives brought about by a given action or series of actions in relation to a counterfactual, or what may have occurred had an intervention not been taken.

Three types of retrospective impact assessments are distinguishable in the agricultural development literature: macro-level assessments that focus on the contribution of developmental efforts to an impact goal aggregated at the sector or system level; micro-level impact evaluations that focus on estimating the average effect of an intervention on outcomes at the beneficiary level; and micro-level ex post impact analysis and assessment that focus on the total effects of a development effort after the outputs are scaled up. In the context of programs that affect large

numbers of people, it is the micro-level impact assessments that are particularly vital to demonstrating what works and why.

Micro-level ex post impact analysis and assessment have evolved and expanded over the decades in both breadth and depth in response to evolving development themes and methodological advancements. In the area of agricultural development, the field of ex post impact assessments was pioneered by Zvi Griliches, who examined the social benefits of investing in hybrid corn technology in the United States.<sup>4</sup> This approach flourished during the Green Revolution (see Chapter 3) in the 1970s, and, over the past five decades, hundreds of studies have documented economic returns on investment in agricultural research.<sup>5</sup> In essence, the approach is to estimate returns on investments in an intervention, expressed as a ratio between the total values of the inputs and the effects generated from those inputs, which are based on a variety of methods and sources of data. In subsequent decades, these methods expanded from their primary focus on assessing the impacts of crop-technology adoption to assessing the impact of interventions in areas such as gender, health, natural-resource management, policy research, and poverty reduction.

Since the 1990s, retrospective assessments (namely, micro-level impact evaluations) that focused on estimating a program’s effects have benefited from two mutually reinforcing developments: the introduction of qualitative methods and the improvement of quantitative methods. In qualitative assessments, the focus is on understanding processes, behaviors, and conditions as they are perceived by the individuals or groups being studied.<sup>6</sup> Qualitative approaches use relatively open-ended data collection and analysis tools, often rely on an evaluation of participants’ knowledge of the conditions surrounding the project or program, and bring participants into the assessment itself by having them determine the objectives of the study and participate in data collection and analysis.

Improvements in quantitative assessments revolve around efforts to improve the rigor with which impacts are identified and measured in relation to a counterfactual. Natural scientists have a long tradition of assessing impact through the

use of experiments that are typically performed under strictly controlled conditions in the laboratory or field, for example, treating one plant with fertilizer and comparing the results against another plant that did not receive fertilizer treatment. But social scientists can rarely apply similar protocols to the study of people, technologies, and policies in a real-world setting. Recent applications in the development field of methods known as experimental and quasi-experimental designs, however, are helping researchers to better establish the causal link between an intervention and its impact in ways that are conceptually similar to those used by natural scientists.<sup>7</sup> There is still debate over these designs, including issues of whether they are relevant beyond the immediate individuals and locations of the investigation. Practical challenges of implementing the field experiments, their high costs, and ethical concerns over withholding an intervention from a control group prohibit the widespread use of these designs as an assessment tool.<sup>8</sup>

## Conclusion

The portfolio of impact assessment has expanded over the last 50 years from measuring the proof of development effectiveness in terms of economic rates of return to measuring it across a range of dimensions using a wide array of tools. This broadening agenda is a result of not only methodological advancements but also the evolution of development ideas that have shifted away from a one-dimensional (that is, economic), top-down view of development to a multi-dimensional, participatory, people-focused development that also

addresses the demand for donor, government, and beneficiary accountability. Despite these developments, it is rare for impact assessments to include an explicit indicator called “food security” that measures the impact of an intervention on this goal. Most studies measure food-security impacts through changes in outcome indicators related to consumption or imply this impact through changes in outcomes related to production, income, and prices.

The emerging concern is that despite billions of dollars being spent on development programs, there is relatively little knowledge about the net impact of most of these programs.<sup>9</sup> The generation of robust knowledge that feeds into making developmental policies requires a hierarchical and cumulative approach to “improving the proof” through rigorous, varied impact assessment methods applied at the project, program, and system level. A good practice guideline is to subject as many ongoing and new development interventions as resources allow to rigorous impact evaluation based on a common framework. This can help build a critical body of evidence on impacts of development interventions and help build a knowledge base on what works and what does not. Until such a critical body of knowledge is developed, however, one way to move closer to both understanding and achieving impact on challenges such as food security, malnutrition, and poverty is to learn from past proven successes in agricultural development. By examining impact assessments of what worked and why, decision-makers can equip themselves with the knowledge to make wise choices about where, when, and how to invest. ■

## NOTES

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