



M&E and Impact Evaluation of Agricultural Research: Challenges and Best Practices

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The Context

- Feed the Future – a strategy of **DEVELOPMENT ASSISTANCE** by U.S. government to achieve developmental goals of:
 - Reduced poverty
 - Increased food and nutritional security
 - While promoting environmental sustainability
- Investment in **RESEARCH** is one of the important **MEANS** to achieve developmental goals
 - It is a means to an end; not an end itself (**R₄D**)
- **Goal of research in the context of FTF is to generate outputs that have positive impact on people's lives**

Examples of impact-oriented research outputs

- New varietal **technologies** that
 - ✓ Increase yield
 - ✓ Reduce risk due to drought, insects, diseases
 - ✓ Reduce inputs and costs
 - ✓ Have traits preferred by consumers
 - ✓ Reduce growing season
- New storage **practices** that reduce crop losses
- New value-added **products** that save labor/improve nutrition
- **Information** on how credit markets function or not that helps introduce institutional innovations
- New **knowledge** and **validation** of results on efficacy of food product X in improving nutritional status of children



Research on Impact in the Development Context

- Whether, what and how development assistance efforts have an impact on people's lives have long been **topics of research and enquiry**
- The motivation:
 - Accountability (whether and what impacts development assistance have on people and their environment)
 - Learning (how impacts are achieved or not achieved and what lessons can be derived to improve programs).



Key Concepts

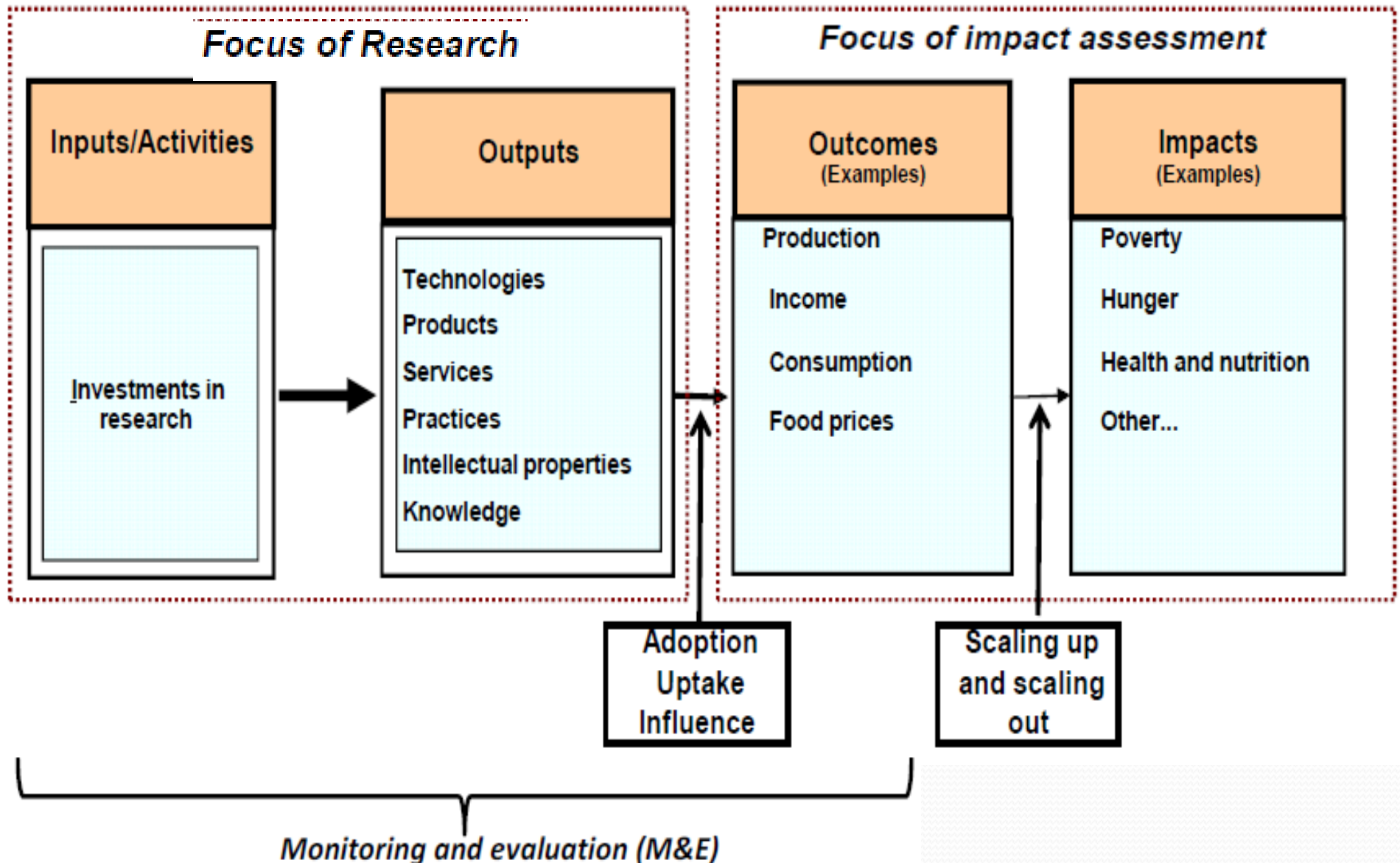
- **Impact:** In the context of **FTF research strategy**, it refers to a wide range of observable changes (or intermediate effects) along the ‘impact pathway’ (attributable to **investments in research**) that contribute to increasing food security or reducing poverty and hunger



Key Concepts (cont'd)

- **Impact pathway:** refers to the continuum along a time and scale dimension from when the research investments start to when changes in higher-level goals are observed.
 - This concept helps guide the identification of broad categories and types of indicators that need to be tracked and monitored along the different nodes of this pathway—inputs, outputs, outcomes and impacts

Impact Pathway-A simplified View



Research in a development context: Take home messages

- Two key parameters determine ‘impacts’ of research
 - Adoption (the use and uptake of research outputs)
 - Effect size (the benefit per unit of adoption of a research output in relation to an existing practice/technology)
- Larger the values of these two parameters, larger will be the ‘impact.’
- If no adoption → No impact
- If zero or low effect size (benefit) per unit of adoption → No adoption → No impact



Enhancing the ‘Effect Size’

- The ‘effect size’ depends on:
 - the science embedded in the research output (i.e., the breakthroughs, the inventions and discoveries, etc.)
 - the reality at the end-user level (i.e., the environment, socio-economic conditions, etc.)
 - existing or alternative practice/technology available at the end-user level (the counterfactual)

Enhancing 'Adoption'

Necessary conditions for adoption:

- **Cost-effective**—must be profitable for end-users to adopt (i.e., benefits > costs)
- **Awareness**—farmers/consumers must know that the technology/product exists
- **Physically accessible**—technology must be available for farmers to adopt
- **Economically accessible**—farmers must have access to cash/labor needed to buy/use it
- **Scaling Up**—technologies must be replicable
- **Sustainability**—must be possible to extend the technology without subsidies

Achieving Impacts: Special Challenges for R&D

From the perspective of investors (donors)

- Fact: Most research funded under 'development assistance' is a time-specific activity (short- to medium-term) but impact of research is a **long-term** phenomenon
 - How to ensure investments in research X Y Z leads to development impacts?
 - How to make researchers 'accountable' for long-term results?
- Fact: The impact pathway consists of disparate partners responsible for specific segments of the impact chain; there is no one entity responsible for the oversight of the whole impact chain
 - How to piece together a coherent and effective M&E and impact assessment strategy for both research and development partners across time and scale dimension?

Achieving Impacts: Special Challenges for R&D (cont'd)

From the perspective of researchers

- Facts:
 - Researchers are best at doing research; not promotion and outreach
 - They have little control over the final processes or steps towards impact. Somebody else may be responsible for working with the final users
- Challenges:
 - How to make researchers focus on long-term goals that depend on so many players and factors beyond their control?



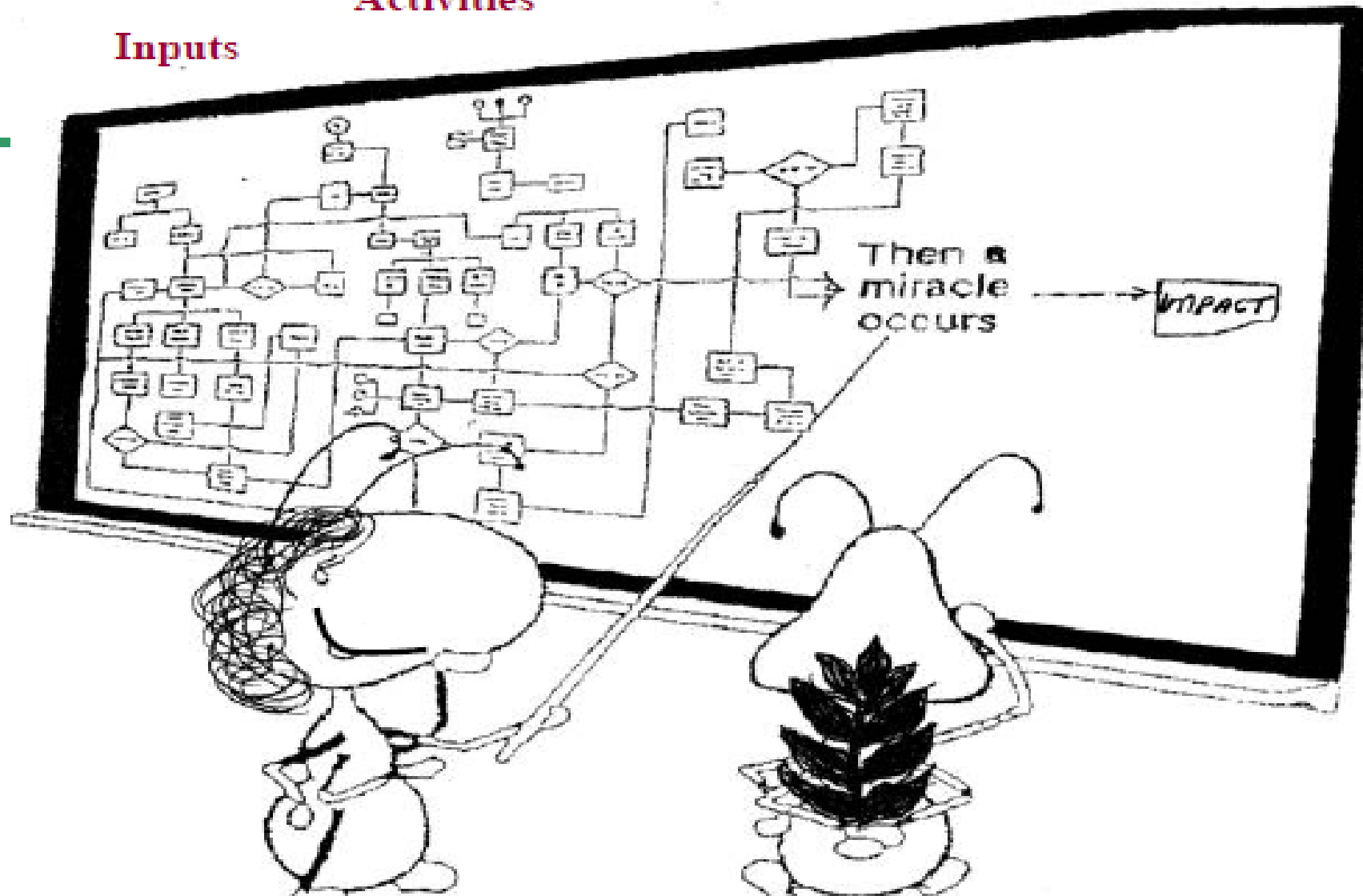
Despite these challenges, a mega-million dollar question is...

- How do we ensure that research to be funded under FTF is impactful?
- Investors, research managers and researchers—all have an important role to play in responding to this question
- M&E and impact evaluation are tools to help address this question

Outputs

Activities

Inputs



That's great, but I think we might need just a *little* more detail right here.



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The challenge of making research more impactful: Role of researchers

- Ensure a positive and large ‘effect size,’
 - The output(s) resulting from a research effort must be superior than existing/alternative practice/technology under the conditions found at the end-user level.
 - This means the importance of assessing the effect size (as part of the research agenda) not only in scientific units (e.g. kg/ha) but also in socio-economic units (e.g. \$/ha, consumer acceptability, market accessibility, availability of labor, etc.)



The challenge of making research more impactful: Role of researchers (cont'd)

- Ensure 'Adoption' of research outputs do take place.
 - Researchers funded under development assistance banner must compensate for institutional underdevelopment
 - Researcher need to devote some efforts on 'outreach' activities
 - Researchers need to have forward-looking vision of the pathway that goes beyond outputs
 - They need to think about creative ways for translating outputs into outcomes and impacts; think about the gaps in pathways to impact, and what they need to plan in order to fill those gaps.



The challenge of making research more impactful: Role of researchers (cont'd)

Good Practice Guidelines

- Define research outputs in clear/concise manner
- Define potential adoption domain of those outputs (who are the next users and final users? What is their profile?)
- Gather information on current practices, constraints and factors that potentially affect adoption (baseline information) from different sources.
 - The methods and sources for baseline information could range from high cost (i.e., farmer consultation, and primary data collection efforts) to low cost (i.e., secondary sources, recently completed studies, key informants, government officials)



The challenge of making research more impactful: Role of researchers (cont'd)

Good Practice Guidelines

- Develop 'impact pathways' to identify potential gaps/constraints and actions required by project teams to ensure the results/findings are passed on to next users and final users so that it results in adoption and impacts.
- M&E tools that can aid in this process include:
 - (Participatory) Impact Pathway Analysis
 - Outcome mapping



The challenge of making research more impactful: Role of research managers

Good Practice Guidelines

- Support, encourage, and provide adequate funding to research teams to play their ‘development’ role in R4D
- Design an effective internal M&E system that tracks and collects the right information at different stages for the research portfolio. The following are some of the tools of M&E:
 - Workplans
 - Progress reports
 - Performance monitoring plan (participatory—end user involvement)
 - Project evaluations



The challenge of making research more impactful: Role of research managers (cont'd)

Good Practice Guidelines

- Consider 'impact evaluation' as part of research mandate
- Methods of impact evaluation can help address questions like (examples):
 - What are the 'effects' of a new technology on end users?
 - As measured by indicators relevant to development goals (i.e., income, consumption, nutrition, vulnerability, risk, gender bias, distributional impacts, etc.)
 - What mechanisms are most effective to increase adoption and uptake of adoption of research outputs?



The challenge of making research more impactful: Role of research managers (cont'd)

Good Practice Guidelines

- New and emerging methods of impact evaluation from development economics can play an important role. Such as,
 - Experimental designs incorporated in a development activity (i.e., dissemination of a new technology)
 - Non-experimental designs based on econometric analysis of panel or cross-sectional data
- As against M&E, which should be internal and a management responsibility, impact evaluation should be designated as a separate research activity
- Questions for impact evaluation research should be jointly determined by researchers, managers and investors.

The challenge of making research more impactful: Role of research investors

Good Practice Guidelines


- Support, encourage, and provide adequate funding to research projects to:
 - Fulfill their accountability role of providing M&E data (benchmarks, indicators of progress, etc.)
- Support ‘impact evaluation’ conducted with a learning motivation (what works, why, how) as part of research strategy and investment plan
- Specifically designate resources to undertake or commission ex-post impact assessment studies to take a longer-term and macro-level perspective on how research contributes to development impacts

M&E and impact assessment of agricultural R4D: Challenges

- Need to inculcate an 'impact culture' in research community
 - Need incentive structures to internalize and integrate M&E data collection and reporting as part of a research implementation plan
 - So that it is not viewed as an 'external' data collection and reporting requirement
- Need to allocate and budget adequate resources for M&E (for reporting), impact evaluation (for learning), and ex post impact assessment (strategic validation of benefits from research)

M&E and impact assessment of agricultural R4D: Challenges

- Need investments to build capacity in developing country research systems to design and implement effective M&E systems, conduct impact evaluation research, and undertake long-term impact assessment studies
- Research community cannot be led ‘off the hook’ on the issue of accountability
 - But acknowledge that ‘research’ is different from ‘development’ activities
- Thus, need different strategies, indicators, methods and tools to meet accountability and learning needs of research investments



M&E and impact assessment of agricultural R4D: Challenges

Implications:

- Standard M&E indicators developed for development projects may not be applicable to all research investments (basic vs. applied vs. technology transfer projects)
- There should be flexibility – need an accountability system adaptable to the nature of R4D projects
- Research “impact pathways” – should guide the M&E and impact assessment plan (identification of benchmarks)
- Need robust and inexpensive metrics to track and monitor impacts of research outputs
- Beware of elephantiasis of ‘M&E’ system and atrophy of ‘research’



Thanks

Questions?