Impact Pathways and Relevance to Legume Innovation Lab Projects

SO4.1 Project Team
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Project Planning Meetings, May-June 2013
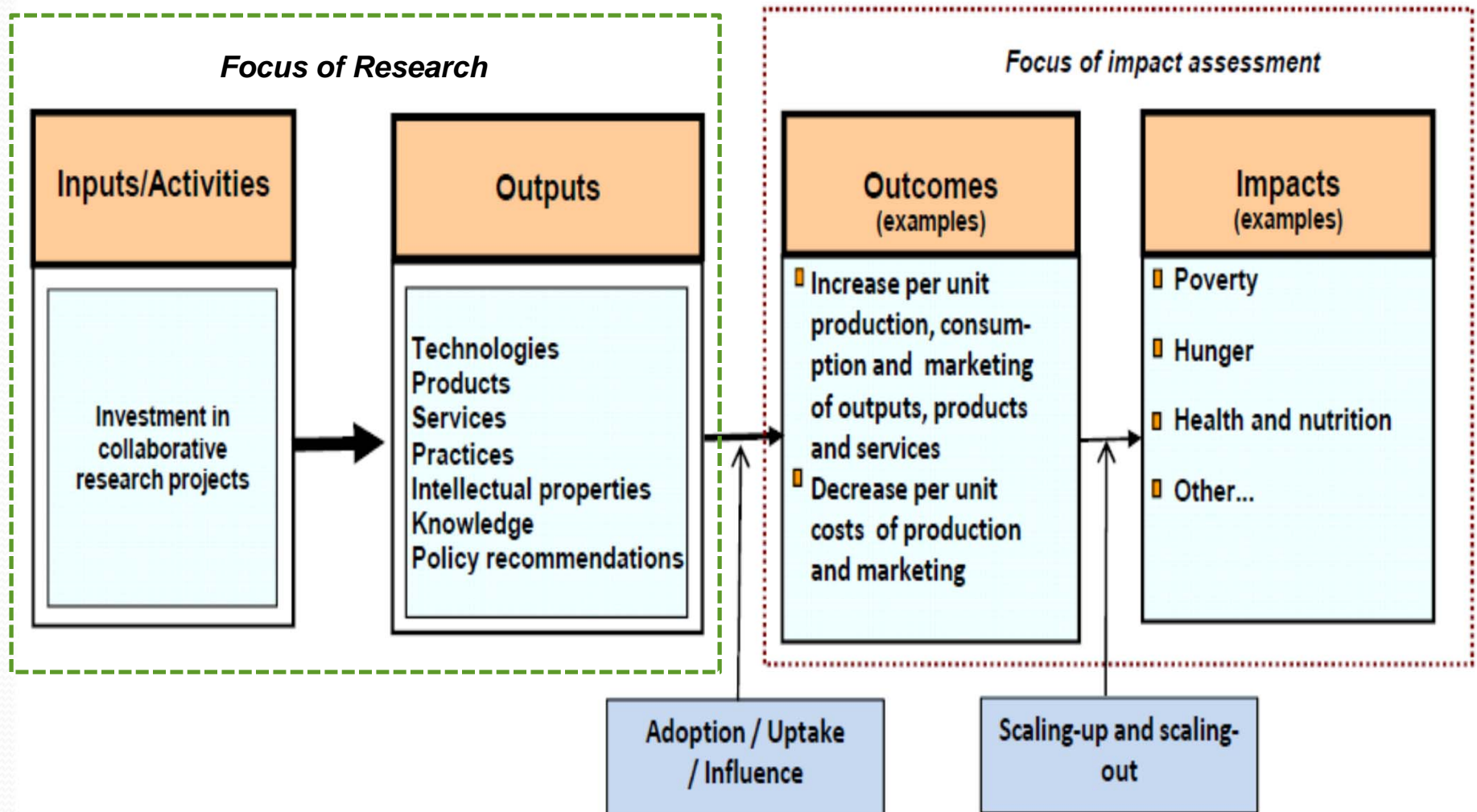
Objectives and Outputs

- Objectives:
  - ✓ To present concepts related to impact pathway and bring out key messages on how to enhance impacts of outputs of Innovation Lab research, training and technology transfer programs
  - ✓ To encourage project teams to envision what the impact pathway for their project looks like to integrate these concepts in their workplan development
- Output: A completed impact pathway worksheet to be incorporated in the Project Description

Key Concepts

- *Inputs:* Investments and activities
  - ✓ The financial, human, and material resources used for the research intervention (experiments, surveys, analysis).
- *Outputs:* direct project deliverables
  - ✓ Changes resulting from the research which are <u>relevant</u> to the achievement of outcomes; manifested in technologies, products, capital goods, services, practices, knowledge, policies and information.
- *Outcomes:* Initial changes due to actions
  - ✓ The likely or achieved short-term and medium-term effects of research outputs at the beneficiary level (farmers, individuals, consumers).
- *Impacts:* Ultimate changes in indicators related to the welfare of individuals & society
  - ✓ Positive and negative, intended or unintended , primary and secondary <u>long-term effects</u> produced by research outputs.

Impact Pathway-A simplified View

Focus of Research

Focus of impact assessment

Inputs/Activities	Outputs	Outcomes (examples)	Impacts (examples)
Investment in collaborative research projects	Technologies Products Services Practices Intellectual properties Knowledge Policy recommendations	▪ Increase per unit production, consumption and marketing of outputs, products and services ▪ Decrease per unit costs of production and marketing	▪ Poverty ▪ Hunger ▪ Health and nutrition ▪ Other...

Adoption / Uptake / Influence
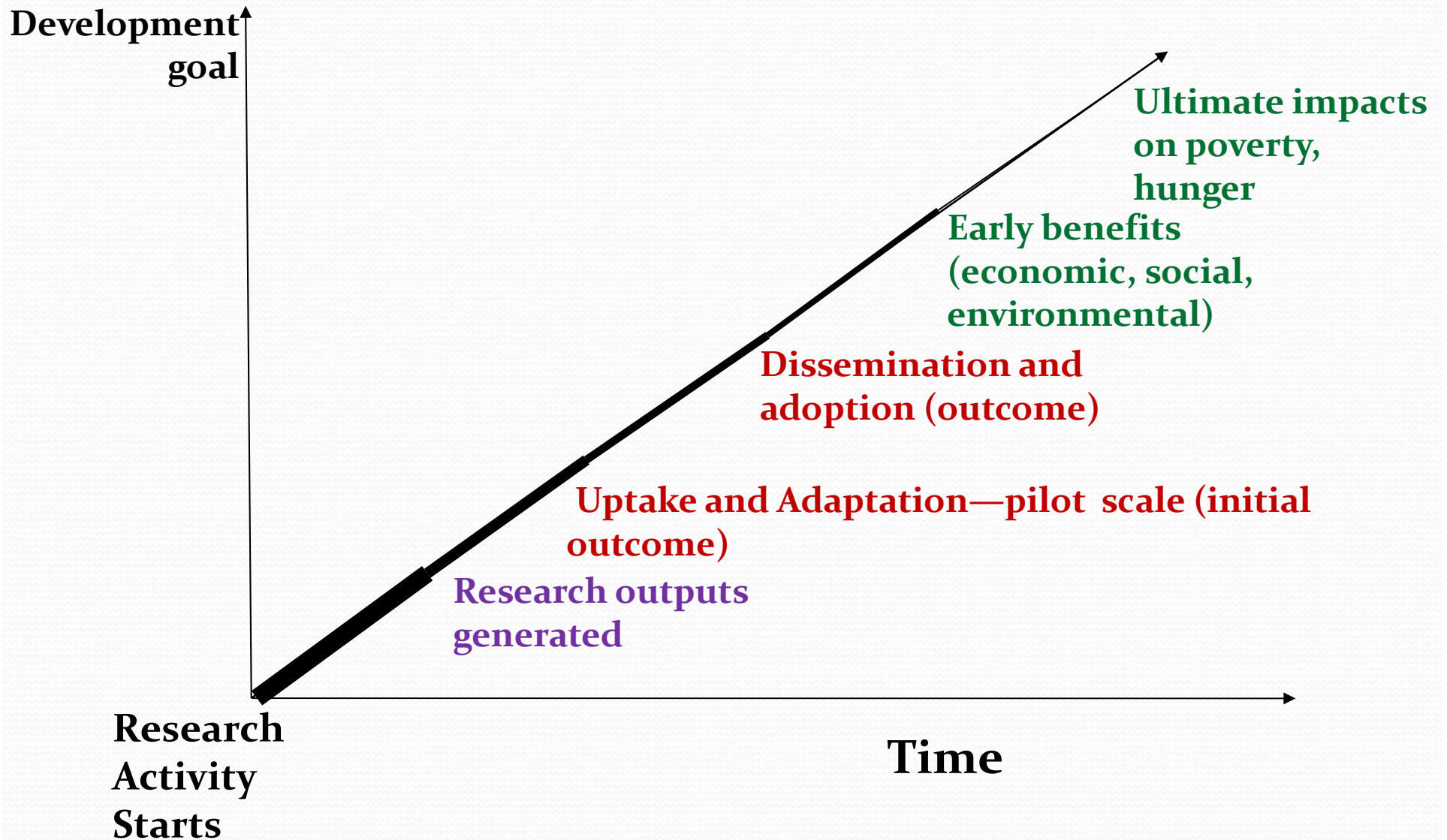
Scaling-up and scaling-out

Arrows in the impact chain indicate the direction of influence and its thickness indicates level/degree of influence on an effect

Examples of impact-oriented research outputs

- New varieties that
  - ✓ Increase yield
  - ✓ Reduce risk due to drought, insects, diseases
  - ✓ Reduce inputs and costs
  - ✓ Have traits preferred by consumers
  - ✓ Reduce growing season
- New storage technologies 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
- Validation of results on efficacy of beans in improving nutritional status in HIV-infected children
- New bean lines with desirable root traits and architecture

Research to Impact pathway – On a Time Dimension

Development goal

Ultimate impacts on poverty, hunger

Early benefits (economic, social, environmental)

Dissemination and adoption (outcome)

Uptake and Adaptation—pilot scale (initial outcome)

Research outputs generated

Research Activity Starts

Time
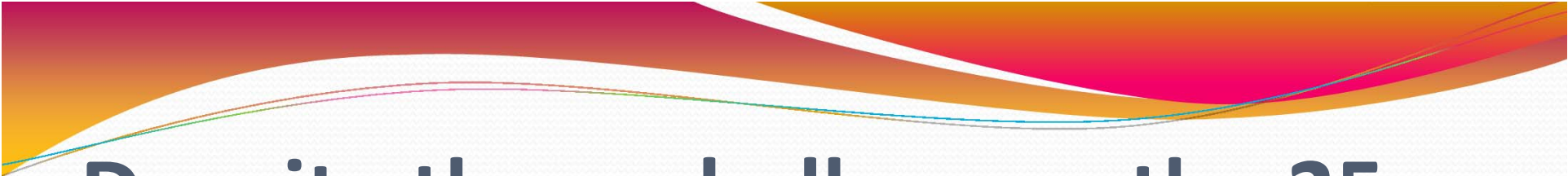
Take home messages

- Two key parameters determine 'impacts' of research
  - ✓ <u>Adoption</u> (the use and uptake of research outputs)
  - ✓ <u>Effect size</u> (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

Achieving Impacts: Special Challenges for R&D

- Impact is a long-term phenomenon (usually occurs after the research project is finished)

- Researchers have little control over the final processes or steps towards impact

- Somebody else may be responsible for working with the final users

- Change is usually complex and can depend on a number of factors

Despite these challenges, the 25 million dollar question is...

How do we ensure that the Legume Innovation Lab research is impactful?

Important clarification

- This session is not about 'impact assessment'
  - ✓ It is about 'enhancing impacts' by enhancing the 'effect size' and 'adoption' of your research outputs

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)

Effect size (cont'd)

- To ensure <u>a positive and large 'effect size,'</u> the output(s) resulting from a research effort must be superior than existing/alternative practice/technology <u>under the conditions</u> found at the end-user level.

  - ✓ This means the importance of assessing the effect size 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.)

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

How adoption occurs in a perfect world (mature R&D environment)

- Scientists develop technologies/information

- Private firms/farmers & public sector seek/utilize/extend information/technologies

    - ✓ Scientific results reported in scientific literature, at conferences , policy forums

    - ✓ New information is distributed via extension bulletins

    - ✓ Educated/literate farmers seek new information:

        - Contact scientists

        - Read extension bulletins

    - ✓ Farmers have access to market information (i.e., crop prices, grades & standards)

How adoption occurs (or does not occur) in a Legume Innovation Lab world (institutional underdevelopment)

- Private sector?
  - ✓ Seed multiplication weak
  - ✓ Seed marketing weak
  - ✓ Value-added firms weak

- Extension services?
  - ✓ Poorly funded or non-existent

- Farmers?
  - ✓ Illiterate
  - ✓ Small holding & widely dispersed

- Market
  - ✓ Farmers lack access to market information (e.g., crop prices, grades & standards)

Coming back to the 25 million dollar question: How can we increase impact?

- To <u>ensure 'Adoption' of research outputs</u> do take place, a Legume Innovation Lab researcher must compensate for institutional underdevelopment

- Researcher will need to devote some efforts on 'outreach' activities

  ✓ This does not mean researchers themselves get involved in extension/outreach, but it means: networking, building partnerships and actively seeking opportunities to promote the research outputs to the right audience, the right agencies and networks, and in the right venues.

Take home messages

- Researchers need to have <u>forward-looking vision</u> of the pathway that goes beyond outputs

- They need to think about <u>creative ways</u> for translating outputs into outcomes and impacts; think about the gaps in pathways to impact, and what they need to <u>plan</u> in order to fill those gaps.

- <u>Host country PIs</u> and collaborators play <u>key role</u> in these efforts

Implications for the design and implementation of Legume Innovation Lab projects

Good Practice Guidelines

- <u>For the MO:</u> Designing an effective M&E system that tracks and collects the right information at different stages. For e.g.:

  - ✓ Workplans

  - ✓ Progress reports

  - ✓ Report on performance indicators

  - ✓ Project evaluations

Implications for the design and implementation of Innovation Lab projects

Good Practice Guidelines (Cont'd)

- For the project teams
  - ✓ 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)
  - ✓ Develop 'impact pathways' to identify potential gaps/constraints and <u>actions</u> 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.
  - ✓ Implement the plan

So what is our role in this planning meeting?

Inputs Activities Outputs IMPACTS

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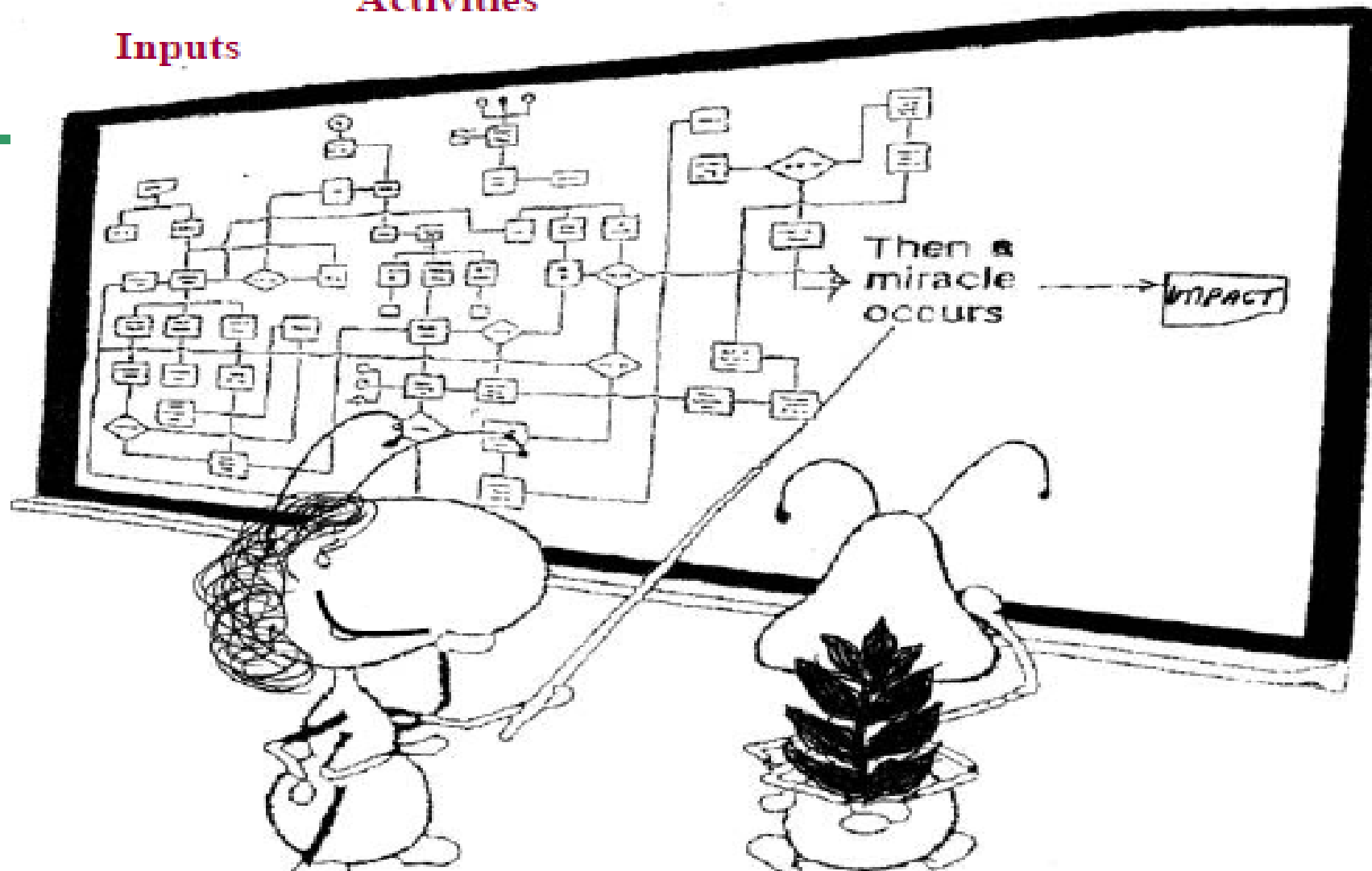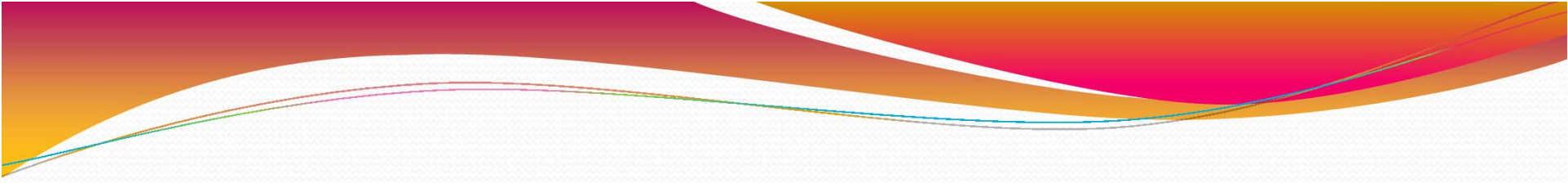
That's great, but I think we might need just a *little* more detail right here.

Our role is to serve as a resource person to help you think about what YOU need to PLAN so the miracle does happen...

The worksheet: A tool to help build the bridge between research OUTPUTS and IMPACTS

- *Given to each Lead PI as an e-file (excel) with a hard copy available as a reference for group discussion*

Guidelines for Completing the Worksheet

- **Step 1**: List project outputs to be generated with a time frame

- **Step 2**: Identify the 'next users' and 'final users' of each output (they could be the same)

- **Step 3**: Define what 'success' looks like for your project (give size, scale, geographic scope) with a time frame of when this vision could be accomplished (could be beyond FY 2017)

Guidelines for Completing the Worksheet (2)

- **Step** 4: Once the vision of success is established, develop the program logic. A program logic:

  - ✓ Is a hypothesis of how your project will achieve its ultimate goals (i.e., the vision of success)

  - ✓ Depicts cause-and-effect relationships

  - ✓ Shows a series of expected consequences, not just a sequence of events

- **For each step**, give a time frame of when it will be accomplished and <u>identify strategies and action plan your project will undertake over the next 4.5 years</u> to 'connect the dots' in the program logic.

About this Handbook

- Under FTF, policymakers have stressed the need for measurement of activities & accountability

- Standardized reporting system was developed (FTFMS)

- All USAID-funded activities under FTF (e.g. Lab) need to provide performance indicators using this system

- The MO has developed this 'Performance Indicators Handbook,' to make process as efficient as possible

- This Handbook:

  ✓ Complements the 'Performance Indicators / Target spreadsheet template (Excel file) given to you & discussed later

  ✓ Describes each of the eight indicators relevant to the Lab Project

  ✓ Provides guidelines for their measurement

Instructions for estimating/reporting performance indicators

- The information should be reported in the 'Performance Indicators spreadsheet template (Excel file)

- Use this handbook to guide you through the process

- Identify and report only indicators relevant to your project

- For each indicator, disaggregate the information at the level included in the indicator description (i.e. in the Handbook) -- TOTALS WILL NOT BE ACCEPTED

Instructions for estimating/reporting performance indicators (2)

- Please report numbers (in units specified)... **do not** report percentages

- US Lead PIs are also required to disaggregate information for each institution with formal sub-contracts >> use one worksheet per institution

- Information about institutions with no formal contract >> Under US or HC institution

- If activities overlap across several institutions, if difficult to separate >> list under US institution OR a worksheet labeled "JOINT"

Indicator # 1

SPS LOCATION: Program Area 4.5: Agriculture **Program Element 4.5.2: Agricultural Sector Productivity** **INITIATIVE AFFILIATION: FTF-IR 1: Improved Agricultural Productivity / Sub IR 1.1: Enhanced human and institutional capacity development for increased sustainable agriculture sector productivity**
INDICATOR TITLE: 4.5.2(6) Number of individuals who have received USG (i.e. Legume Innovation Lab) supported long-term agricultural sector productivity or food security training
DEFINITION: The number of people who are currently enrolled in or graduated in the current fiscal year from a bachelor's, master's or Ph.D. program or are currently participating in or have completed in the current fiscal year a long term (degree-seeking) advanced training program such as a fellowship program or a post-doctoral studies program. An example is a USDA Borlaug Leadership Enhancement Program. A person completing one long term training program in the fiscal year and currently participating in another long term training program should be counted only once. This indicator is to count *individuals* receiving training.
RATIONALE: This indicator measures enhanced human capacity for policy formulation and implementation, which is key to transformational development.

Indicator # 1 (cont.)

UNIT:	DISAGGREGATED BY:
Number	*Sex*: Male, Female
Legume Innovation Lab Note: Please provide additional information for each individual, as described in the 'Measurement notes' section.	

TYPE:	DIRECTION OF CHANGE:
Output	Higher is better.

DATA SOURCES:

Program documents provided by PIs. These documents will contain information that allows tracking individuals in long-term training programs.

MEASUREMENT NOTES:

For Legume Innovation Lab's data quality assurance purpose, please keep a record of each trainee's Full Name, gender, citizenship, Institution where degree was/is being obtained, type of degree obtained/being obtained, and status (i.e. currently enrolled or graduated). Names of trainees reflected in the indicator number should be included in the comments column.

- LEVEL OF COLLECTION: Project-level; individuals targeted by USG (i.e. Legume Innovation Lab) program.
- WHO COLLECTS DATA FOR THIS INDICATOR: All principal investigators.
- HOW SHOULD IT BE COLLECTED: Program training records, provided by all PIs.
- FREQUENCY OF REPORTING: Annually reported.

SPS LOCATION: Program Area 4.5: Agriculture
Program Element 4.5.2: Agricultural Sector Productivity
INITIATIVE AFFILIATION: FTF-IR 1: Improve agricultural productivity / Sub IR 1.2: Enhanced Technology Development, Dissemination, Management and Innovation

INDICATOR TITLE: 4.5.2(2) Number of hectares under improved technologies or management practices as a result of USG (i.e. Legume Innovation Lab) assistance

DEFINITION:
This indicator measures the new and continuing area (in hectares) of land under new technology during the current reporting year. Any technology that was first adopted in a previous reporting year and continues to be applied should be marked as 'Continuing' (see disaggregation notes below).

Technologies to be counted here are agriculture-related technologies and innovations including those that address climate change adaptation and mitigation (e.g. carbon sequestration, clean energy, and energy efficiency as related to agriculture). Relevant technologies include:

- Mechanical and physical: irrigation, new land preparation, harvesting, processing and product handling technologies, including biodegradable packaging;
- Biological: new germplasm (varieties, breeds, etc.) that could be higher-yielding or higher in nutritional content and/or more resilient to climate impacts (e.g. drought tolerance); affordable food-based nutritional supplementation such as vitamin A-rich sweet potatoes or rice, or high-protein maize; and soil management practices that increase biotic activity and soil organic matter levels;
- Chemical: fertilizers, insecticides, and pesticides safe storage application and disposal of agricultural chemicals, effluent and wastes, and soil amendments that increase fertilizer-use efficiency (e.g. soil organic matter);
- Management and cultural practices: information technology, conservation agriculture, improved/sustainable agricultural production and marketing practices, increased use of climate information for planning disaster risk strategies in place, climate change mitigation and energy efficiency and natural resource management practices that increase productivity (e.g. upstream watershed conservation or bio-diesel fueled farm equipment) and/or resilience to climate change including soil and water conservation and management practices (e.g. erosion control, water harvesting, low or no-till); Integrated Pest Management (IPM), and Integrated Soil Fertility Management (ISFM), and Post-Harvest Handling (PHH) related to agriculture should all be included as improved technologies or management practices. Significant improvements to existing technologies should be counted.

If a hectare is under more than one improved technology type (e.g. improved seed (crop genetics) and IPM (pest management)), count the hectare under each technology type (i.e. double count). In addition, count the hectare under the 'total w/one or more improved technology' category. Since it is very common that more than one improved technology is disseminated and applied, this approach allows FTF to accurately count the uptake of different technology types, and to accurately count the total number of hectares under improved technologies.

If a hectare is under more than one improved technology, some of which continue to be applied from the previous year and some of which were newly applied in the reporting year, count the hectare under the relevant technology type as new or continuing, depending on the technology, and under new for the 'total w/one or more improved technology' category (i.e. any new application of an improved technology categorizes a hectare as new, even if other technologies being applied are continuing).

Indicator # 6 (cont.)

RATIONALE: This indicator tracks successful adoption of technologies and management practices in an effort to improve agricultural productivity, agricultural water productivity, sustainability, and resilience to climate impacts.	
UNIT: Number of hectares	**DISAGGREGATED BY:** *Technology type*: Include the technologies in one of the following types: Crop genetics (including nutritional enhancement), pest management, soil-related (fertility and conservation, including tillage), post-harvest handling and storage, processing, climate mitigation or adaptation, other, total w/one or more improved technology. *Duration*: New, Continuing • New = this is the first year the hectare came under improved technologies or management practices. If the technology type is in the 'total w/one or more improved technology' category, and one of the technologies being applied in the hectare is new (while others are continuing), count this hectare as new. • Continuing = the hectare being counted continues to be under improved technologies or management practices from the previous year. *Sex of person managing the hectare*: • Male • Female • Association-applied (when the land is owned by groups of farmers / associations / organizations rather than individual households)

Indicator # 6 (cont.)

TYPE: Outcome	DIRECTION OF CHANGE: Higher is better.

DATA SOURCES:
Implementing partners will collect these data through census (small projects) or survey (large projects) of program participants, direct observations of land, and report into program documents. The HC PI will be responsible for providing this information in a consolidated way. The partners should cite records (data source) that support this information (e.g. field visits schedules/plans, reports, publications, expert elicitation) in the comments column. In addition to this, some projects will be selected to collaborate with the Legume Innovation Lab's Impact Assessment project to conduct baseline and end line primary data collection to statistically estimate this outcome indicator.

MEASUREMENT NOTES:

- LEVEL OF COLLECTION: Project-level; only those hectares affected by USG (i.e. Legume Innovation Lab) assistance, and only those brought or continuing under new technologies/management during the current reporting year.
- WHO COLLECTS DATA FOR THIS INDICATOR: Host Country Partner/PI, implementing partners, with supporting documentation. Appropriate resources should be budgeted for data collection by the projects that will have impact on this indicator and will be reporting it. The Legume Innovation Lab's Impact Assessment project will provide technical input and assist the projects with data collection, data analysis and reporting of this indicator.
- HOW SHOULD IT BE COLLECTED: Household surveys, key informant interviews, or other novelty and applicable methods.
- FREQUENCY OF REPORTING: Annually reported.

"Disaggregated by" vs. "Measurement Notes"

- Sometimes, it is specified to provide disaggregated information at levels different than the ones included in the "Disaggregated by" section... this additional information should be recorded and provided in the "comments/explanation/data source" column

- Why this? Because the MO is interested in obtaining additional information for quality assurance purposes in these cases.

PERFORMANCE INDICATORS SPREADSHEET TEMPLATE

LEGUME INNOVATION LAB PROJECTS

It looks like this!

Feed the Future Innovation Lab for Collaborative Research on Grain Legumes

PERFORMANCE INDICATORS / TARGETS SPREADSHEET for FY 13 (Second Semester only), FY 14, and FY 15

Project Name:

Summary of all institutions

Indic. number	Output Indicators	FY 13 Target	FY 13 Revised	FY 13 Actual	FY 14 Target	FY 14 Revised	FY 14 Actual	FY 15 Target	FY 15 Revised	FY 15 Actual
		(only April 1, 2013 - September 30, 2013)			(October 1, 2013 - September 30, 2014)			(October 1, 2014 - September 30, 2015)		
1	4.5.2(6) Degree Training: Number of individuals who have received degree training	0	0	0	0	0	0	0	0	0
	Number of women	0	0	0	0	0	0	0	0	0
	Number of men	0	0	0	0	0	0	0	0	0
2	4.5.2(7) Short-term Training: Number of individuals who have received short-term training									
	Total number	0	0	0	0	0	0	0	0	0
	Number of women	0	0	0	0	0	0	0	0	0
	Number of men	0	0	0	0	0	0	0	0	0
	Numbers by Type of individual									
	Producers	0	0	0	0	0	0	0	0	0
	People in government	0	0	0	0	0	0	0	0	0
	People in private sector firms	0	0	0	0	0	0	0	0	0
	People in civil society	0	0	0	0	0	0	0	0	0
3	4.5.2(13) Beneficiaries: (numbers of households)									
	New/Continuing (total)	0	0	0	0	0	0	0	0	0
	New	0	0	0	0	0	0	0	0	0
	Continuing	0	0	0	0	0	0	0	0	0
	Gendered Household Type									
	Adult Female no Adult Male (FNM)	0	0	0	0	0	0	0	0	0
	Adult Male no Adult Female (MNF)	0	0	0	0	0	0	0	0	0
	Male and Female Adults (M&F)	0	0	0	0	0	0	0	0	0
	Child No Adults (CNA)	0	0	0	0	0	0	0	0	0

Considerations

- Use this 'spreadsheet template' to report your indicators (target, revised, actual), following the Handbook guidelines

- It has spaces to record information for FY13-FY15

- This 'spreadsheet template' will automatically add all the information into the first sheet: **DO NOT** enter information in sheet labeled '*Indicators overall*'!

- This 'spreadsheet template' has one sheet per institution, up to 6 -- add more if needed but <u>update formulas</u> in the first sheet!

- Disaggregation is the same as required by FTFMS

Thanks
Questions?