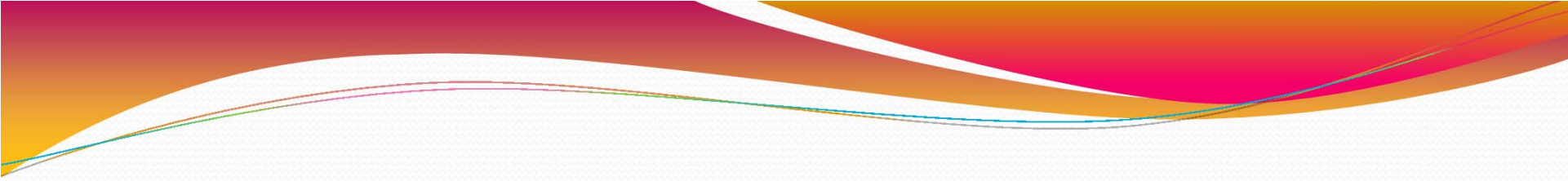




**Refocusing and Positioning the CRSP to  
Achieve Development Outcomes:  
Lessons Learned from Past Bean/Cowpea  
and Pulse CRSP Investments in Research**

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**Global Pulse CRSP Meeting, Kigali, Rwanda, February 13-17, 2012**



*“Those who cannot remember the past are condemned to repeat it.”*

George Santayana, *The Life of Reason*, 1905

So first, let's look at the past  
before we focus on the future...



# Outline

- Past 30+ years
  - CRSP investments in the pulse sector research
  - Research outputs
  - Evidence of impacts
- Lessons learned
- Way forward



# CRSP Investments (1980-2012)

## Source:

- USAID
- Collaborating partners
- Total

(Nominal US \$)

~\$90 million

~\$10 million

~\$100 million

## Crop focus:

- Beans
- Cowpeas

(Percentage)

60%

40%

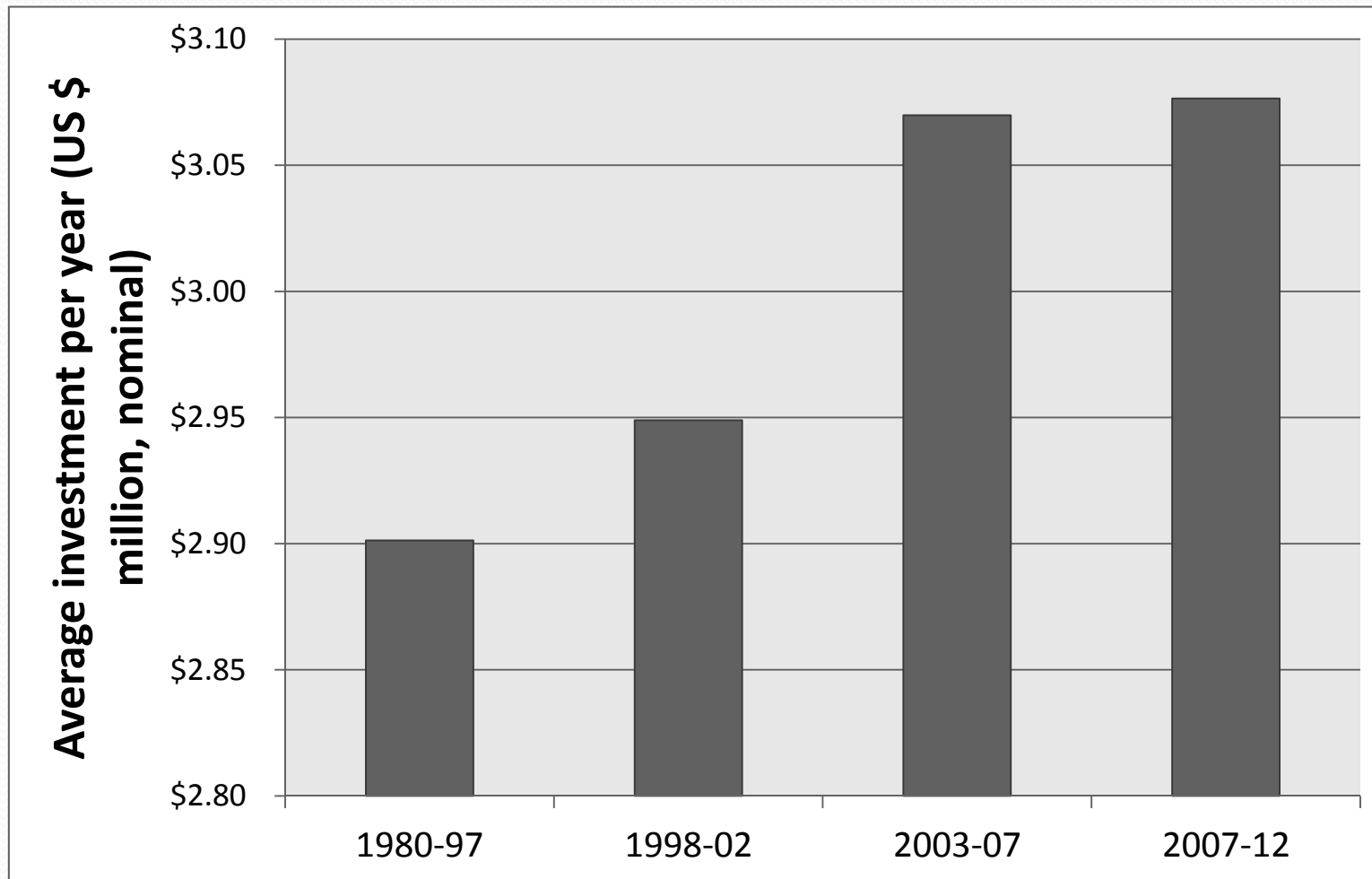
## Regional focus:

- Africa
- Latin America & Caribbean

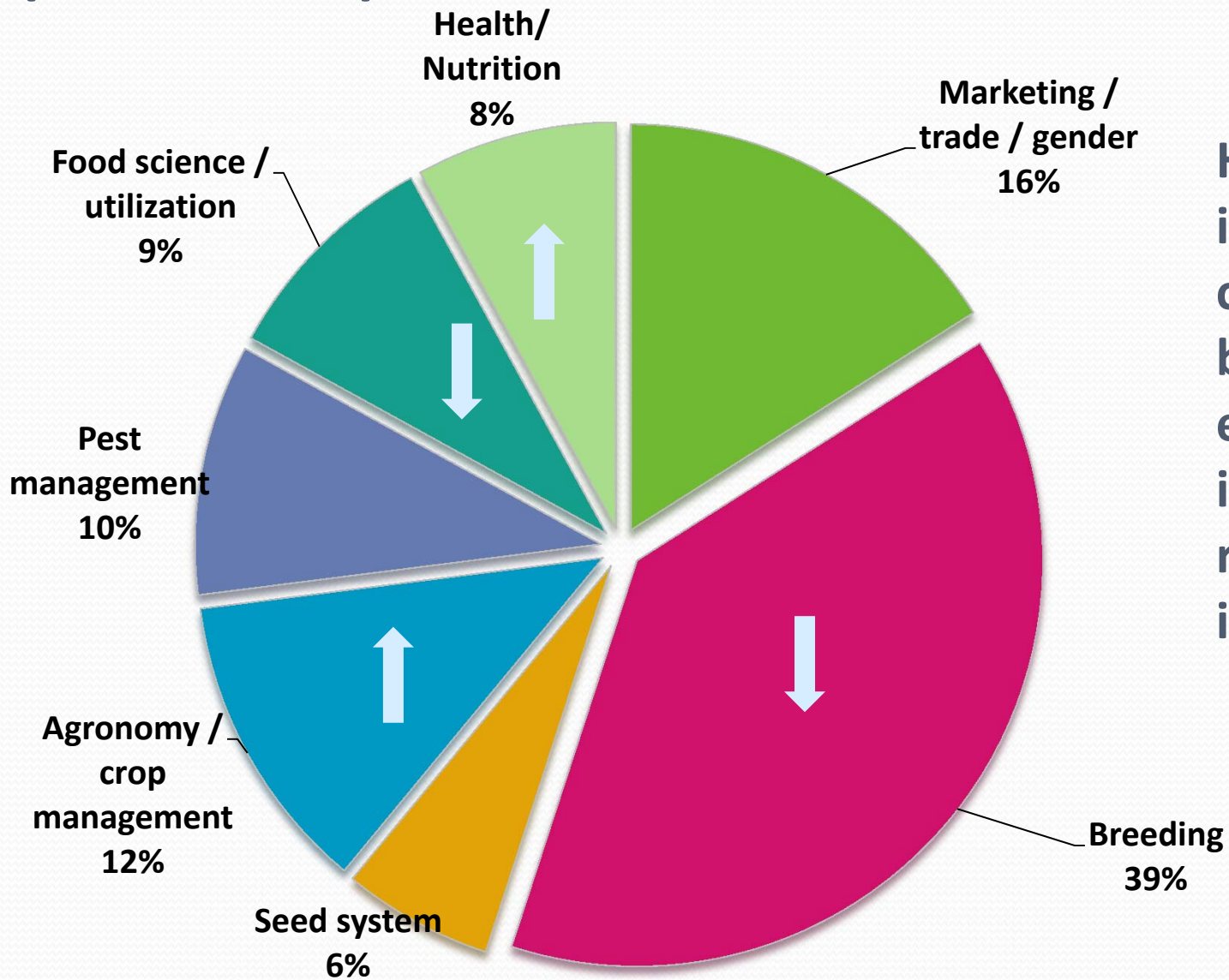
66% (>80% in recent years)

34%

# CRSP Investment in Pulse Research: Average per year over the past four grant periods



# Types of CRSP Investments (1997-2012)



Human and institutional capacity building is embedded and integrated in all research investments



# CRSP Research Outputs and Achievements (Highlights)

Breeding (incl.,  
molecular and  
biotech tools, PPB) +  
Seed system

- Over the past 30 years, a total of 145 improved bean varieties and 25 improved cowpea varieties released in the U.S and many HCs is attributed as outputs of CRSP funded research. These varieties have enhanced levels of pest resistance and tolerance to abiotic stresses
- Novel methods to detect molecular markers for resistance genes; gene mapping ; RILs
- Multiplication and distribution of seeds, post-natural disasters

Agronomy/Crop  
management

- Integrated management practices, improved NRM practices (e.g., tied ridging), optimum plant spacing, fertilization practices, and Rhizobium inoculation
- Seed-applied biocontrol treatments

# CRSP Research Outputs and Achievements (Highlights)

## Pest management

- Neem extraction & application protocols
- Maps of cowpea insect pest hot spots and areas of predominance
- IPM packages; biocontrol agents; outreach materials
- Pest resistance management plan
- Storage technologies
- Hydrothermal treatment of cowpea
- Disease screening methods & mngmt. practices

## Marketing/ trade /gender

- Studies/publications on production, marketing and trade analysis of pulse crops
- Cost of production analysis to identify strategies for enhancing smallholder profitability
- Analysis of processing industry to gain insights into the structure and potential market opportunities for small scale farmers



# CRSP Research Outputs and Achievements (Highlights)

## Food science / utilization

- New bean and cowpea based products and ingredients
- Protocols for preparing fortified traditional foods with beans and cowpeas to enhance their nutritional value
- Knowledge on the effect of micronization on cooking characteristics of hard-to-cook beans and cowpeas
- Bean and cowpea based weaning foods, snack foods
- Evaluation of cooking properties

## Health/Nutrition

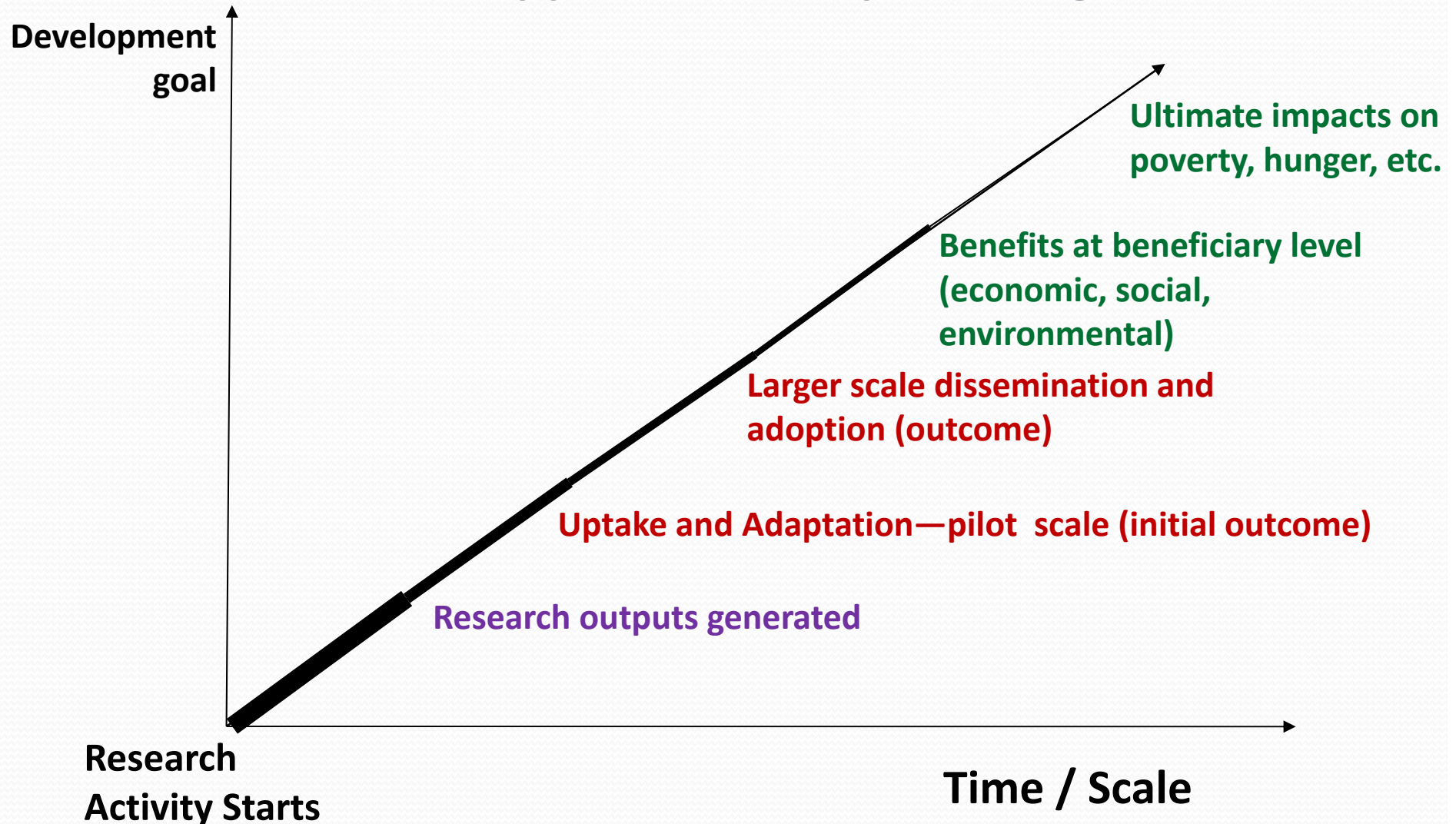
- Studies demonstrating the impact of bean consumption on reducing the incidence of chronic diseases (cancer) and in increasing the immune system of children infected with HIV/AIDS

## Human resource dev. / capacity building

- Trained human resources with advanced degrees in agricultural science and technology (more than 650)
- Infrastructure development and training of bean/cowpea research and administrative staff in more than 15 HC institutions

# Refresher: Research to Impact pathway – On a Time and Scale Dimension

What needs to happen after outputs are generated?



# Refresher: What determines impactful research?

- 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



# Evidence of outcomes and impacts

Breeding (incl.,  
molecular and  
biotech tools, PPB)  
+ Seed system

- Adoption of varieties with improved traits of economic importance (higher yield, better quality, requiring less inputs) on thousands of ha and by thousands of farmers in Central America and West Africa
- Impacts documented in several impact studies

Agronomy/Crop  
management

- Adoption on a small-scale
- No documented impacts

## Evidence of outcomes and impacts (cont'd)

### Pest management

- Mixed results
  - Cowpea storage technologies—widely promoted and adopted by farmers (PICS project). Impacts documented in impact studies
  - Disease screening methods & management practices in beans—used in bean breeding programs to develop disease resistant beans (but no documented impacts)
  - Other outputs—no evidence of large scale adoption or documented impacts

### Marketing/ trade /gender

- Indirect impacts through influence on breeding and crop management research
- Influence on policies (e.g., change in IDB's policy towards DR as a result of the bean sector study)
- No documented impacts

## Evidence of outcomes and impacts (cont'd)

### Food science / utilization

- Expression of interest from a private company to develop and market cowpea based fritters in the U.S. (plan to introduce it in the California school lunch program)
- No evidence of noticeable adoption/uptake of other outputs in host countries
- No impacts documented on increased demand / utilization of beans/cowpeas or value-added products

### Health/Nutrition

- Greater awareness of the health impacts of bean consumption leading to the formation of the Bean Health Alliance (a public-private sector partnership)
- However, no impacts documented of this awareness creation and health messages on pulse consumption



# In summary, what are the lessons learned from the past 30+ years of CRSP experience?

1. All 'research' leads to knowledge creation—but measured on an 'impact' yardstick, 'research' is a risky investment

➤ Some lead to success and bring huge dividends (as measured and documented by large scale adoption/uptake of research outputs at the beneficiary level), and

➤ Some have not brought huge dividends (or impacts have not been highly evident or documented)

## **CRSP Example:**

Crop improvement  
Storage technology

Product development /  
utilization  
Crop management  
Marketing/trade/gender



## Lessons learned (cont'd)

2. The time lag between 'research' and 'impact' is long and unpredictable...
  - Change is usually complex and depends on a number of factors
  - Researchers have little control over the final processes or steps towards impact
3. Impactful research requires long-term, sustainable commitment of resources
  - Short-term research projects have zero or only short-term returns



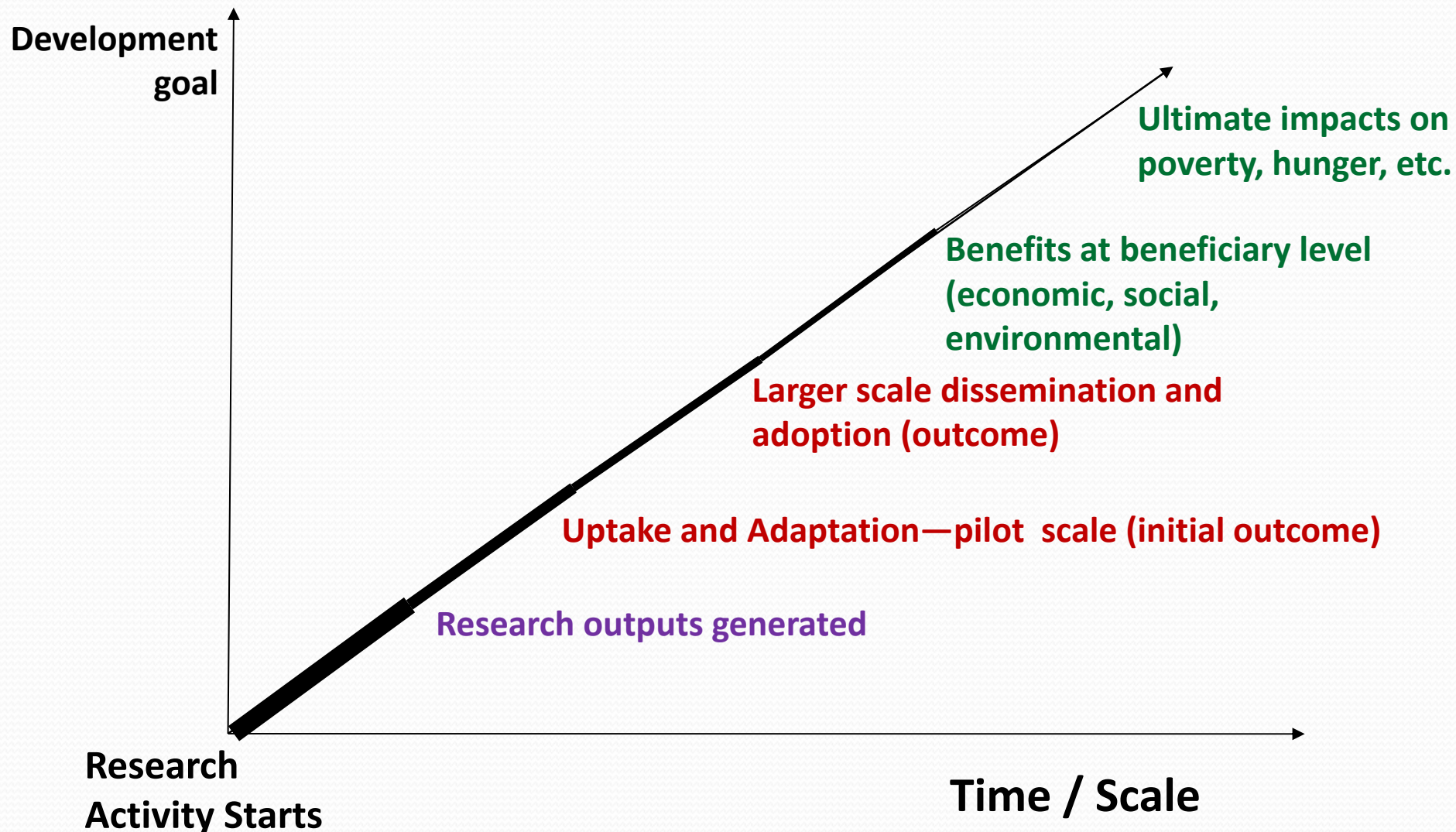


## Lessons learned (cont'd)

4. Impactful research requires coordination and feedback loop among players across the whole impact chain
  - 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 and with whom to partner in order to fill those gaps



# Revisiting the Research to Impact Pathway





# Looking towards the future, the multi-million dollar question is...

How do we ensure that CRSP research is impactful?

How can the past experience guide us towards an impactful future?





# Way Forward: Guiding Principles

for Refocusing and Positioning the CRSP to Achieve Development Outcomes

## For CRSP Management and Decision Making Team:

- 1. Prioritize:** Focus on activities that will bring dividends.  
That means,
  - Research that generates outputs and outcomes
  - Let go of research that is technically and scientifically sound, but the necessary conditions for adoption of outputs/technologies are not present in targeted countries
  - Invest in a few but focused activities that are ‘game changers’
- 2. Identify “best-bet” technologies/information** based on the following criteria:
  - Greatest potential for adoption by large number of people
  - Most value to producers, processors, traders, policy makers
  - Scalability and transferability





# Way Forward: Guiding Principles

for Refocusing and Positioning the CRSP to Achieve Development Outcomes

## For CRSP Management and Decision Making Team:

### 3. Make research decisions based on a **forward looking vision**

- Anticipate tomorrow's problems and invest in research to solve those problems (e.g., climate change, urbanization, increasing role of markets, changing diets)

### 4. Expand **direct collaborative partnerships** beyond academic and research community

- Network, build partnerships, directly fund and actively seek opportunities to promote research outputs to the right audience, the right agencies and networks, and in the right venues

# Way Forward: Guiding Principles (cont'd)

## For researchers:

- a. **Broad adaptability:** Think beyond the boundaries of research stations and project sites (representative sampling)
- b. Use **science as a means to an end**—not an end itself
- c. Remember, impactful research depends not only on the science embedded in the research output, but also
  - the **reality at the end-user** level (i.e., the environment, socio-economic conditions, their needs) (multi-disciplinary teams)
  - existing or alternative technology available at the end-user level



# Way Forward: Guiding Principles (cont'd)

## For researchers:

- d. For research to have an impact, the outputs / results / recommendations must be adopted and adapted by end users (in large numbers). Remember the necessary conditions for adoption:
- **Cost-effectiveness**—must be profitable for end-users to adopt (i.e., benefits > costs)
  - **Awareness**—farmers/consumers must know that the technology/product/information exists and use it effectively
  - **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 based on market forces (without public support)





**Thank you**

Comments/Discussion