



# Scaling Technologies



Remarks by Administrator Rajiv Shah to the CGIAR Board of Directors  
Friday, December 7, 2012

Nearly fifty years ago, when USAID Administrator William Gaud coined the term Green Revolution, he was speaking not just about the new varieties of wheat and rice, but about the vast potential of agricultural technology to open new frontiers in development.

It wasn't long before the Consultative Group on International Agricultural Research (CGIAR) was formed. The CGIAR was a response to a growing recognition that a worldwide network of agricultural research centers was needed to carry on the ideals of the Green Revolution.

Within a decade, the CGIAR had grown to include over a dozen centers—from Mexico to Nigeria.

But the ultimate test of an international research system is not the glamor of the inventions, but the impact of its results.

Today, we have technologies that can help farmers grow more productive crops and improve water management. The evidence base is growing around a select number of technologies that—if taken to scale—can impact tens of millions of lives.

But those technologies are not reaching nearly enough farmers.

Tom Hobgood's comments in Dar – “something isn't right.....”



## What do we mean by *Scaling Up*?

Scaling up means expanding, adapting and sustaining successful policies, programs and projects in different places and over time to reach a greater number of people (quoted in Hartmann and Linn, 2008).



## **USAID Support for Scaling Up Technologies**

Develop a Consultation and Learning Agenda around Key Issues

Implementation of G8 New Alliance Enabling Actions

USAID Feed the Future programs



## USAID Support for Scaling Up Technologies

Develop a Consultation and Learning Agenda around key issues

- Role of Private Sector: Support commercial efforts to disseminate publicly funded technologies
- Learn from: IFAD, World Bank, Gates Foundation, DfID and others have studied and organized efforts around scaling through workshops and collaboration
- Mid year USAID “GLEE” on scaling



## Learning Agenda: The World Bank

*Although a substantial body of literature, research, and analysis on scaling up is available, it **generally lacks specific frameworks or practical guidelines** that can be used to identify scalable activities or the factors that drive the scaling up process itself.*

*Without such operationally applicable guidelines, there is a serious knowledge gap.*

Marketa Jonasova and Sanjiva Cooke, Thinking Systematically about Scaling Up: Developing Guidance for Scaling Up World Bank-supported Agriculture and Rural Development Operations. The Case of Competitive Grant Schemes for Agricultural Research and Extension, August 2012.



## Scaling Technologies Learning Agenda: DFID

*In retrospect this “technologies to be put into use” starting point held many of the seeds of the difficulties that Research Into Use (RIU) was to encounter. Perhaps most fundamental was that before the programme began there was already compelling, published evidence that argued **that** research use took place when it was coupled with user demand during the research process itself, and when research and research use were part of a wider network of players **and actions involved in the innovation process.***

Andy Hall, United Nations University Working Paper Series#2011-076. Putting agricultural research into use: Lessons from contested visions of innovation.



## Learning Agenda: IFAD

*For many years, IFAD stressed innovation as the key to success, giving little attention to systematically replicating and building on successful innovations. However, in 2009, IFAD management decided to explore how it could increase its focus on scaling up. It gave a grant to the Brookings Institution to review IFAD's experience with scaling up and to assess its operational strategies, policies and processes with a view to strengthening its approach to scaling up. More generally, IFAD has declared that scaling up is "mission critical," and this scaling-up objective is now firmly embedded in its corporate strategy and planning statements.*



## Learning Agenda: IFAD's Guidelines for Scaling Up

During the **innovation phase** a new idea, model or approach is embedded in a pilot intervention or project which by itself has limited impact.

During the **learning phase** the experience with the design and implementation of the pilot is monitored and evaluated and a knowledge management process ensures that the lessons learned enter into the IFAD-internal knowledge base and through dissemination also contribute to the external knowledge base.

In the **scaling up phase** the original idea, model or approach is brought to scale drawing on the internal and external knowledge base generated by the pilot and on external knowledge where appropriate.

**(Researchers cannot detach themselves – must remain engaged)**



## USAID Support for Scaling Up Technologies

### Implementation of G8 New Alliance Enabling Actions

- **Technology Platform**, to provide data and modeling to assist countries to set technology priorities and yield targets (IFPRI and FARA)
- **Scaling Seeds and Technologies Partnership**, to support programs in seed sector development and adoption of related technologies (AGRA)
- **ICT Extension Challenge**, to design and implement information approaches to support adoption of technologies
- Determining 10 year targets for yields and adoption rates that will improve food security
- Identifying constraints to adoption



## G8 New Alliance Enabling Actions: Technology Platform

- Which CAADP commodities/value chains to focus on?
- What 10 year yield targets are achievable?
- What existing technologies are available to achieve yield targets?
- How best to tune yield targets and technologies to different sub-national conditions (e.g. major agroecosystems)?



## G8 New Alliance Enabling Actions: Technology Platform

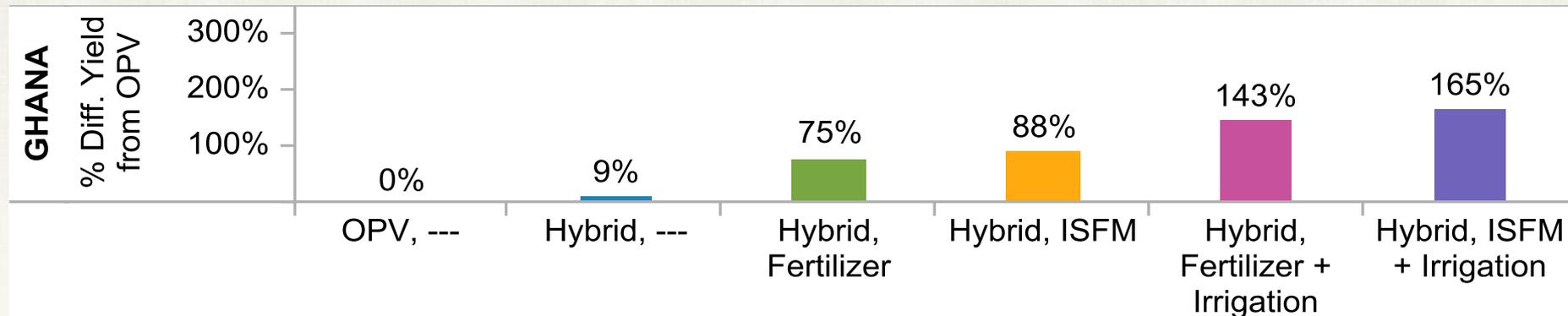
- What policies, strategies, and services are needed to deliver the most appropriate technologies at scale *and* increase the probability of their sustainable adoption?
- How best to facilitate cross-country learning and knowledge spillover (e.g. “Virtual” Technology Platform facilitated by technical support partners – FARA, CGIAR and AGRA)?



## Contribution of Technology Components and Packages to Achieving Improved Yields:

### Average Responses Across Maize Production Areas in Ghana

**Analysis can inform decisions on the mix of interventions that might most cost-effectively achieve yield targets**



#### Technologies/Practice Packages Analysed

**OPV:** Obatanpa

**Hybrid:** FM.6

**Fertilizer:** 50 kg[N] ha<sup>-1</sup>

**ISFM:** No-till, Fertilizer, Manure application, and Residue management

**Irrigation:** 15 mm at 5-day interval for the first two-month period



## USAID Support for Scaling Up Technologies

### USAID Feed the Future programs

- Compile information on current and potential technology priorities through a “Wiki” inventory
- Conduct portfolio reviews including a discussion on constraints and opportunities to scale key technologies
- Develop technology scaling plans



## Innovation Lab Role in Scaling Technologies

- Innovation Labs cannot be responsible for actual scale out
- Mission projects, national extension systems, local ngos, and the private sector accomplish scale out
- Thus the Innovation Lab products have to be better designed and implemented for compatibility with these groups
- Innovation Labs (and other FTF ag research investments) need to invest more time and money at the interface of technology production and scale out
- Not enough to put a highly efficient technology on the shelf, or in the pipeline, and then sit back... or pursue the next technology
- The Labs must have some level of responsibility to facilitate or assist with the scale out – i.e., work at the interface of technology finalization and scale out
- **MUST SOMEHOW TWEAK OUR RESEARCH INVESTMENTS SO THAT TECHNOLOGIES WITH THE HIGHEST POTENTIAL FOR ADOPTION RECEIVE FOCUS.... NEED FRAMEWORK/GUIDELINES**



## HOW?

- Build scaling plan request into USAID solicitations
- Like M&E plans, bids should have a obligatory section on “ideas for scale out’ or a “scale out” plan
- Solicitations should build in some Mission and/or private sector servicing from the start through consultations between Washington and Missions (30-40% of project?) (built-in Associate Awards?)
- Normal Associate Awards should still be pursued after ME awards are issued
- Future Innovation Labs should reserve some budget for “follow up” actions once certain technologies are finalized. Must be able to demonstrate the “value proposition” for uptake by Missions, private sector, extension systems... Must work for awhile with high potential adopters.... “cost-share” initial scale out attempts.... Assist with the business modeling... (IRRI Post Harvest Unit)
- More investments in policy reforms which will help to improve the enabling environment for scaling out



## Food Security Innovation Center Program Areas (= networks for SI and SO)

**Program for Sustainable Intensification** (e.g., CSISA, Africa RISING, SANREM Innovation Lab)

**Program for Climate Resilient Cereals** (e.g., Cereals RFA, DTMA, WEMA, CGIAR Rice, Wheat, Maize, Sorghum/Millet programs.)

**Program for Advanced Research on Animal and Plant Diseases** (e.g., Livestock and Climate Change Innovation Lab, Virus Resistant Cassava)

**Program for Legume Productivity** (e.g., Dry Grain Pulses Innovation Lab, Peanut Innovation lab, CGIAR Legumes Program)

**Program for Safe & Nutritious Foods** (e.g., Nutrition Innovation Labs (Africa/Asia), Aflatoxin under NBCRI, Horticulture Innovation Lab, AVRDC)

**Program for Policy Research & Support** (e.g., Program for Biosafety Systems (PBS), Enabling Agricultural Trade, AMA Innovation Lab)

**Program for Human & Institutional Capacity Development** (e.g., MEAS, InnovATE, AWARD, LEAP)



## Learning Agenda: DFID

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# Feed the Future Partnering for Innovation

New \$67 M program to expand commercial access of technologies to smallholder farmers in order to quickly and sustainably improve productivity and incomes.

- **Pilot Technology Support sub-awards** for field testing of agricultural technology in new markets and will include up to \$400,000 in fixed-price funding support that is based on meeting specific milestones spelled out in each agreement.
- **Commercialization Partnership Support sub-awards** will develop PPPs to support the scaling up of proven agricultural technologies to smallholders.
- **Technical advisory services** in support of commercialization of technologies and partnerships
- Build a **Knowledge Network** that provides a platform for continuous learning, analysis and dialogue about technologies and PPPs.



# Grafting



## International Cooperators' Guide

May 2003  
AVRDC pub #03-051

### *Grafting Tomatoes for Production in the Hot-Wet Season*

L.L. Black, D.L. Wu, J.F. Wang, T. Kaib, D. Abbas and J.H. Chen

- Controls soil-borne diseases
- Provides flood-sensitive vegetable crops ability to tolerate water logging
- Increases plant survival after flooding
- Extends harvest period after high rainfall





# FEED THE FUTURE

The U.S. Government's Global Hunger and Food Security Initiative



- Insert the tomato scion into rubber tubing into the eggplant rootstock



# FEED THE FUTURE

The U.S. Government's Global Hunger and Food Security Initiative



Grafting chamber



Hardening chamber



- After grafting, put the grafted seedlings into the grafting chamber for at least 4-7 days with complete netting.

- After 4-7 days, put the grafted seedlings outside the chamber (inside the hardening chamber or glasshouse)





# FEED THE FUTURE

The U.S. Government's Global Hunger and Food Security Initiative

- Harden the grafted seedlings for at least 7-12 days outside the hardening chamber



- Then, the grafted seedlings are ready for transplanting in the field





**FEED THE FUTURE**  
The U.S. Government's Global Hunger and Food Security Initiative

# Rainshelters







# FEED THE FUTURE

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# FEED THE FUTURE

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## Grafted v. NonGraft

