



**FEED<sup>THE</sup>FUTURE**

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

# **Overview of current USAID-funded efforts on F&V crops**

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## OUTLINE OF TALK

1. *Overview of Feed the Future*
2. *FTF work overview*
3. *Current hort investments*
4. *Key results of FTF and Hort*
5. *Some “next steps” for hort in FTF (2018-2023)*







## Feed the Future



Photo: Borlaug Foundation

- ✓ Announced in 2009 at G-8 Summit in L'Aquila, Italy, with \$3.5 B investment
- ✓ Presidential Initiative
- ✓ Addresses root causes of hunger and undernutrition
- ✓ Whole of government
- ✓ Food security through staples, **horticulture**, and livestock





## What does Feed the Future Do?

1. *Help farmers produce more*
2. *Help farmers get more food to market*
3. **Support Research & Development to improve smallholder agriculture in a changing climate**
4. *Strengthen Regional Trade*
5. *Create a better Policy Environment*
6. **Improve Access to Nutritious food and Nutrition Services**



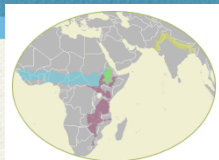




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# FSIC Program Areas



**Program for Sustainable Intensification** (e.g. IPM IL, SANREM IL, CSISA, Africa Rising)

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

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**Program for Advanced Research on Animal and Plant Diseases** (e.g. USDA Partnerships under NBCRI, LCC IL, Virus Resistant Cassava)

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**Program for Productive Legume Research** (e.g. Dry Grain Pulse IL, Peanut /Mycotoxin IL, CGIAR Legumes, NBCRI)

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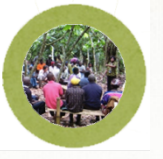
**Program for Nutritious and Safe Foods** (e.g. Horticulture IL, Nutrition IL, Aquafish IL, PHLIL, FPL, AVRDC, Aflatoxin under NBCRI)

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

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





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## Feed the Future Innovation Labs

★ Lead Institution

● Collaborating Institution

### Oregon State University

- Aquaculture and Fisheries

### Washington State University

- Climate Resilient Wheat

### University of Illinois, Urbana-Champaign

- Soybean Value Chain Research

### Michigan State University

- Food Security Policy
- Grain Legumes

### Purdue University

- Food Processing & Post-Harvest Handling

### Tufts University

- Nutrition

### Pennsylvania State University

- Climate Resilient Beans

### Virginia Tech University

- Sustainable Agriculture & Natural Resource Management
- Integrated Pest Management

### University of Georgia

- Peanut & Mycotoxin
- Climate Resilient Sorghum

### Texas A&M University

- Small Scale Irrigation

### University of Texas, El Paso

- Rift Valley Fever Control in Agriculture

### University of California at Riverside

- Climate Resilient Cowpea

### Kansas State University

- Reduction of Post-Harvest Loss
- Applied Wheat Genomics
- Sorghum & Millet

### Colorado State University

- Adapting Livestock Systems to Climate Change

### University of California at Davis

- Assets & Markets Access
- Climate Resilient Millet
- Climate Resilient Chickpea
- Horticulture
- Genomics to Improve Poultry

Hawaii

Puerto Rico

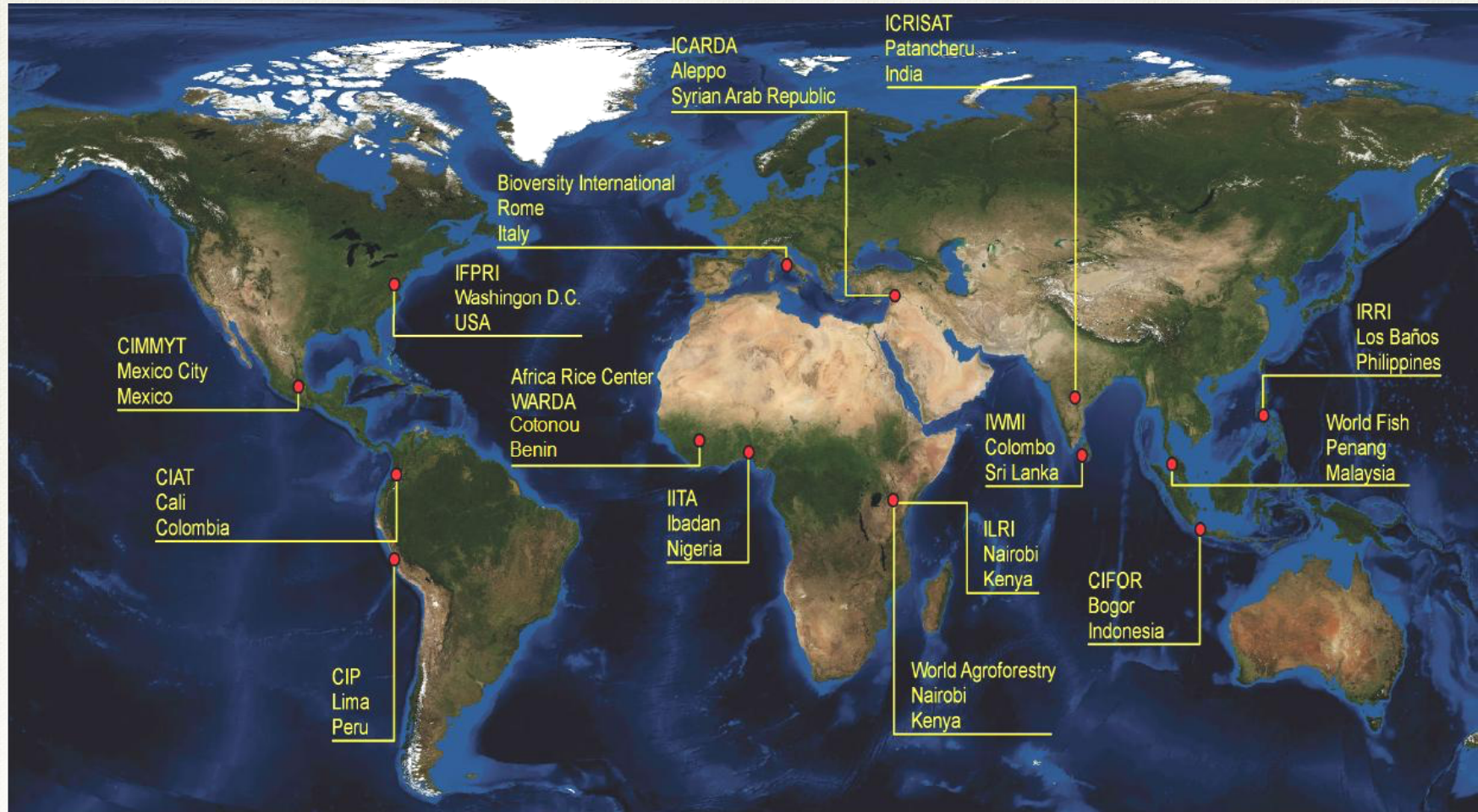




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# CGIAR System: a global partnership



**15 centers, 8,500 scientists and staff**





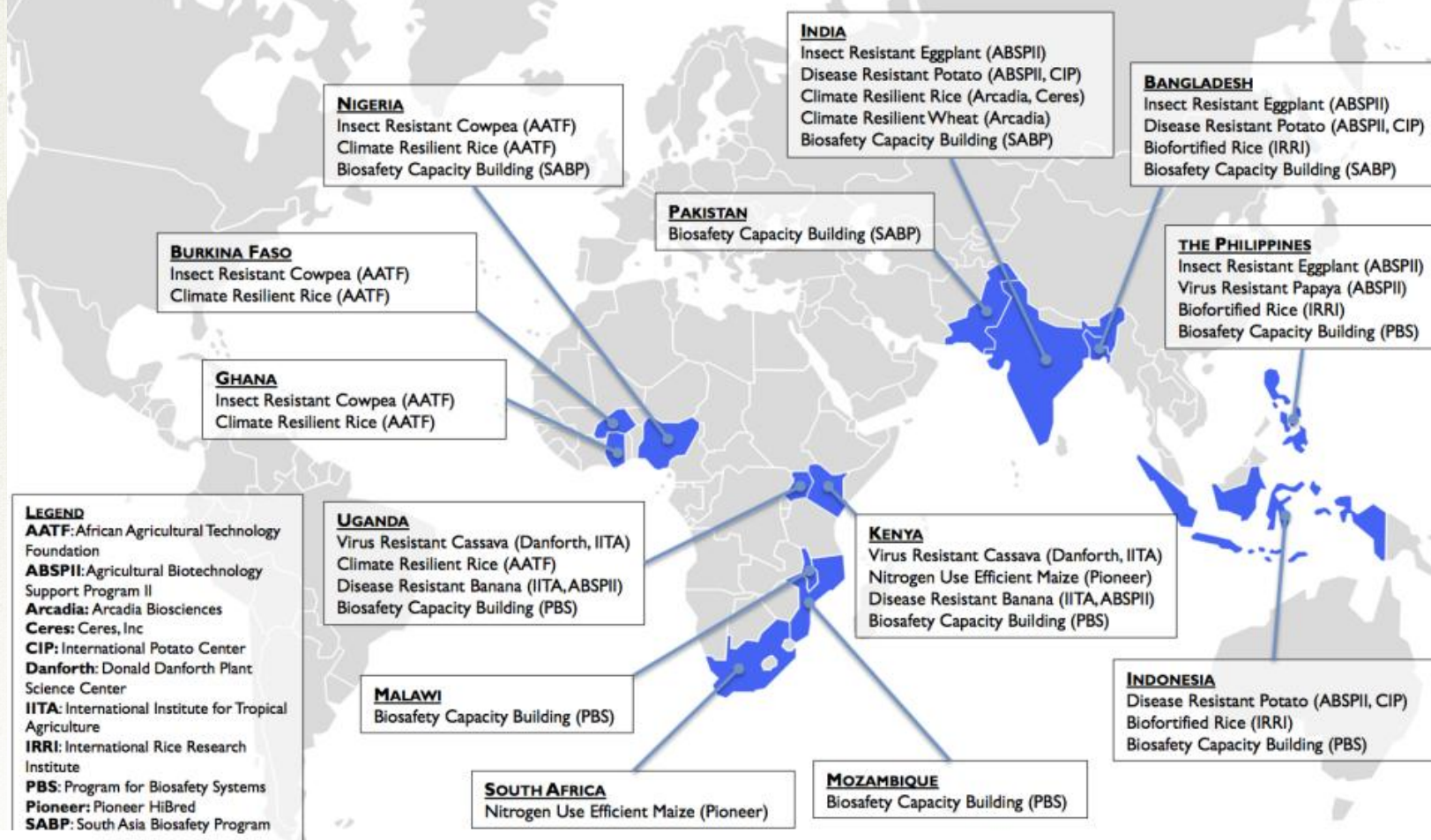
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**USAID**  
FROM THE AMERICAN PEOPLE

## BIOTECHNOLOGY/ BIOSAFETY PROGRAMS







## Major USAID FTF Hort Initiatives

***Run by ARP Office (Wash-DC)***

- 1. IL's/CRSPs (Hort & IPM)***
- 2. AVRDC and CGIARs***
- 3. Biotechnology (Production & Policy)***
- 4. Biofortification (Harvest Plus - OFSP)***

***Run by Field Offices (Missions)***

- 1. VALUE CHAIN PROJECTS***







## Major USAID Hort Value Chain Projects

- Haiti (DAI)
- Honduras/Guate (Fintrac)
- Kenya/Tanzania (Fintrac)
- Liberia (DAI)
- Bangladesh (DAI)
- Nepal (Winrock)
- Cambodia (Fintrac/Abt)







## Hort Research: Horticulture Innovation Lab (UCDavis)

- Guatemala (nematodes, U. Hawaii)
- Guatemala (drip, UCD)
- Guatemala/Honduras (grafting, U. Wisconsin)
- **Honduras (gender, Penn State Univ.)**
- Uganda (irrigation, UCD)
- Burkina Faso (tomato PH, Agri. Assoc.)
- Tanzania (post harvest, Kansas State)
- **Zambia/Kenya (indigenous veg, Rutgers)**
- Kenya (agronets, MSU/CIRAD)
- Rwanda (post harvest, Agribus. Assoc.)
- Guinea (post harvest, youth; UCD)
- Bangladesh (drying beads, Rhino Research)
- **Bangladesh (hort/aquaculture, UCD/Tufts)**
- Tajikistan (apricot PH, Purdue)
- **Cambodia (hort/livestock, Kansas State)**
- Cambodia (“safe” veg value chains, UCD)
- Cambodia (conservation ag, NCAT U.)
- **Regional Technology Centers (Thailand/KU; Honduras/Zamorano; Zambia /Agrismart)**







## Hort Research: IPM Innovation Lab (Virginia Tech)

- Cambodia, Nepal, Bangladesh (veg IPM packages, VT)
- Vietnam (fruit IPM for exports, Govt. of Vietnam)
- Ethiopia, Tanzania, Kenya (veg IPM packages, Ohio State)
- Tomato Leafminer (global, VT)
- Fall Army Worm (Africa, VT)







## Hort Research: Nutrition Innovation Lab (Tufts Univ.)

### Impact pathway: production & consumption of Fruits & Vegetables = less anemia in Uganda

- Households producing fruit & vegetables (F&V) consume more F&V,\*
- are less food insecure,\* and
- Have 12% less anemia\* in women of child-bearing age (21.0% vs 24.2%)

\*  $p < 0.001$

### Measurable, biologically plausible pathway:

Producers of F&V have greater access to F&V, improving food security, and F&V provide essential nutrients needed for red cell production → less anemia.

Comparison of 830 F&V producing households versus 2386 non-producers, 2012 Uganda panel study; Kabunga, Ghosh, & Griffiths 2014





## Research: International Ag Research Centers

- AVRDC/WorldVeg (breeding, germplasm conservation, home garden promotion - global)
- AVRDC/WorldVeg (post harvest gaps – Kenya, Tanzania, Ghana, Cambodia, Bangladesh, Nepal)
- AVRDC/WorldVeg (hort/nutrition/WASH – Mali)
- AVRDC/WorldVeg (improved veg greenhouses – Tajikistan)
- AVRDC/WorldVeg (home garden scaling – Kenya, Uganda, Tanzania, Liberia, Cambodia)
- World AgroForestry Center (fruit in agroforestry buffer zones – Africa)
- IFPRI (veg for nutrition and health, A4NH – global)







## Hort Research: Biotechnology Projects

- BT EGGPLANT (Bangladesh, India, Philippines –Cornell)
- BT COWPEA (Nigeria, Ghana, Burkina Faso – AATF)
- Late Blight Resistant POTATO (India, Bangladesh, Indonesia – MSU/CIP)
- Virus Resistant PAPAYA (Philippines – Cornell)
- Virus Resistant BANANA (Kenya, Uganda – IITA, Cornell)

Eggplant fruit/shoot borer (Bangladesh)







## BUILDING ON FEED THE FUTURE SUCCESS

- July 2016 enactment of the **Global Food Security Act** (GFSA) of 2016 (HIGHLY BIPARTISAN)
  - Global Food Security Strategy (Sept 16)
  - Global Food Security Research Strategy (Sept 17)
  - Next: Research Implementation Plan (2018-23)
  - Next: Country Implementation Plans (2018-23)





## BUILDING ON FEED THE FUTURE SUCCESS

- WHAT IS NEXT FOR **HORTICULTURE?**
  - Need to align with new GFSS (economic growth, resilience, nutrition/health)
  - Need to re-align with new, underlying “hot” trends at USAID
  - Need to convince USAID Missions to include as much hort programming as possible during their re-alignment





## Preliminary FTF Hort Results: Net Income 2007-2016

- FTF beneficiary farmers have earned an average of \$4100/ha/yr in net income from the production of hort related commodities during 2007-2016





## Preliminary FTF Hort Results: Tech Adoption FY2016

- Over 100,000 new farmers applied improved, hort technologies with FTF assistance in FY2016





## Preliminary FTF Hort Results: Hectarage FY2016

- Over 415,000 ha of land were under new, improved hort-related management practice with FTF assistance during FY16





## Preliminary FTF Hort Results: Incremental Sales 2013-2016

- Over \$54M, \$27M, \$95M, and \$80M in smallholder incremental sales were generated through FTF hort assistance in 2013, 2014, 2015, and 2016, respectively.





## Preliminary FTF Hort Results: Export Sales 2012-2016

- Over \$900K, \$173M, \$158M, \$231M, and \$1B of targeted, hort-related commodities have been exported from host countries with FTF assistance during 2012, 2013, 2014, 2015, and 2016, respectively.





## USAID HORT LEARNING OBJECTIVES: URBANIZATION

- Importance of veg consumption for urban poor – preserve nutrient value thru processing, more peri-urban production
- Keep veg prices low through production and marketing efficiencies; supply urban veg thru social safety nets
- More efficient use of recycled urban food waste as fertilizer for urban/peri-urban plots
- Policy work to conserve arable land in urban settings





## USAID HORT LEARNING OBJECTIVES: FOOD SAFETY, HEALTH, ENVIRONMENT

- Find ways to reduce contamination by fecal matter, parasites and pesticides (WASH education, IPM, improved diagnostic services)
- More private sector focused food standards and IPM services
- Protect environment through ICM to reduce fertilizers) and water-use efficiency (drip, conservation ag practice in hort)





## USAID HORT LEARNING OBJECTIVES: RESILIENCE TO CLIMATE CHANGE AND ECONOMIC SHOCKS

- Promote climate smart techniques in veg
- Promote underutilized, indigenous veg with more resilience to climate change
- Promote integration of tree (fruit/nut) crops
- Use of veg in disaster recovery schemes (quick profits and nutrient provision)
- More crop insurance dedicated to veg crops and veg infrastructure (greenhouses, etc.)





## USAID HORT LEARNING OBJECTIVES: YOUTH AND EMPLOYMENT

- Youth unemployment is destabilizing for economic growth, can be a time bomb in developing countries (600M competing for 200M jobs)
- Youth more attracted to high value commodities, with ICT possibilities, impact potential – need for private sector support
- What are the constraints? the non-farm opps? opps to enhance early school curricula?





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## Please See our Feed the Future Website



## Thank You!

[www.feedthefuture.gov](http://www.feedthefuture.gov)





A cross-country analyses on growth and nutrition concluded 4 main points:

1. Per capita growth in income is associated with reducing undernutrition
2. Economic growth is a crucial component in reducing undernourishment, but as undernutrition declines, diversified growth is necessary to continue the decline
3. At the early stages of development, agricultural growth is critical for reducing undernutrition indicating that the structure of growth matters for nutrition outcomes
4. **However, malnutrition among young children seems to be highly unresponsive to national economic growth, *indicating an important difference from the relationship between growth and poverty***





## CONTRIBUTING TO PROMISING REDUCTIONS IN POVERTY (6/11)



BANGLADESH  
(2011-2015)



CAMBODIA  
(2009-2015)



ETHIOPIA  
(2013-2015)



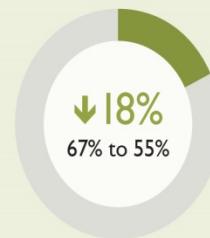
GHANA  
(2012-2015)



GUATEMALA  
(2013-2015)



LIBERIA  
(2012-2015)



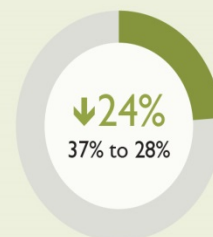
MALAWI  
(2010-2015)



NEPAL  
(2011-2014)



RWANDA  
(2010-2014)



TANZANIA  
(2010-2015)

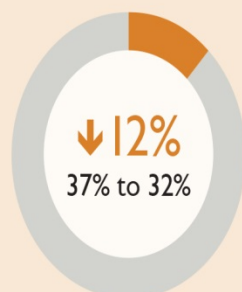


ZAMBIA  
(2010-2015)

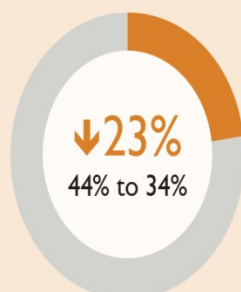




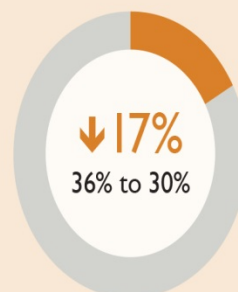
## AND CONTRIBUTING TO PROMISING REDUCTIONS IN CHILD STUNTING (5/8)



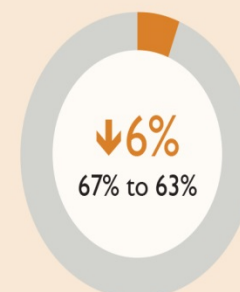
BANGLADESH  
(2011-2014)



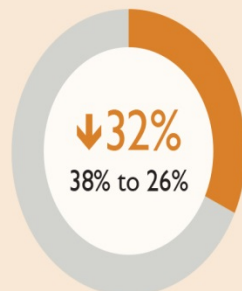
CAMBODIA  
(2011-2014)



GHANA  
(2012-2015)



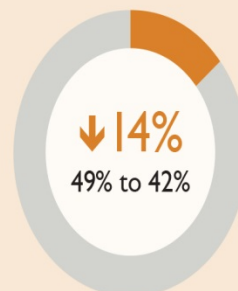
GUATEMALA  
(2013-2015)



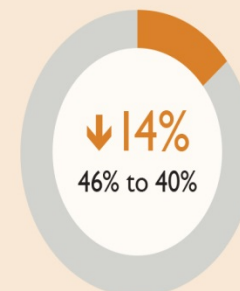
HONDURAS  
(2012-2015)



KENYA<sup>e</sup>  
(2008-2015)



MALAWI  
(2010-2015)



RWANDA  
(2010-2015)