Returns to Investment in Agricultural Research: Enablers, Disablers, and Policy Implications

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Agricultural Research Benefits

**Economic Returns**
- High 10-30% annually

**Environmental Sustainability**
- Reduces erosion, deforestation, pollution, and pressure on marginal lands
  - 100 million acres saved over 50 years

**Poverty Reduction**
- Direct & Indirect R&D effects
- (Extreme poor reduced by 1 billion people since 1990)

**Nutritional Improvement**
- Severely undernourished have declined by almost 100 million people since 1970, while global population has doubled from 3.6 to 7.2 billion
Enablers of food security

**Agricultural productivity growth** – higher yields, lower cost and *less water* per unit produced

**Inclusive institutions** – property rights; credit, marketing, agr. and research policies; safety nets, etc.

**Education and health** – improves efficiency on and off the farm, lowers birth rates
Disablers of Food security

**Climate change** – drought, floods, extreme weather events,

**Evolving agricultural pests** – resistant to treatment, move geographically

**Non-inclusive institutions and conflict** – cause productivity loss
Implications for agricultural research policy

• Increase agricultural research investments, including maintenance research

• Pursue innovative programs for scaling up useful innovations
Path to improved food security

• Favorable institutional environment and relative price changes create incentives for agricultural innovation
• Innovation and institutional changes raise productivity and efficiency, leading to higher incomes
• Income growth leads to improved health and nutrition, larger non-farm sector, and smaller families
• Smaller families stimulate investment, as fewer resources are spent on dependents
• This demographic-led investment leads to higher labor productivity and income growth
• This income growth reduces poverty and improves food security where institutions are inclusive
Example of Hopeful Change
“Readable, thought provoking... a must read for teachers...”
- Greg Traxler
Bill and Melinda Gates Foundation

“touching and enlightening, ...I will have my own children and students read it.”
- Chris Barrett
Cornell University

“Explains complex development concepts in non-technical terms...”
- Robert Thompson
Chicago Council on Global Affairs

179 pages, Available from Waveland Press at www.waveland.com and at Amazon.com; For more information: http://hungerandhope.agecon.vt.edu/