



Tracking Investments in CAADP's Pillar IV

Public agricultural R&D spending trends in Africa South of the Sahara

Nienke Beintema and Gert-Jan Stads
International Food Policy Research Institute

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ASTI Agricultural Science
& Technology Indicators
Led by IFPRI

Why monitor agricultural R&D resources? (1)

- Many challenges in Africa south of the Sahara (SSA):
 - Food insecurity / malnutrition
 - Population growth
 - Climate change
 - Degradation of land and water resources
 - Food price volatility
- Agricultural R&D is a major contributor to productivity growth, food security, and poverty reduction

Why monitor agricultural R&D resources? (2)

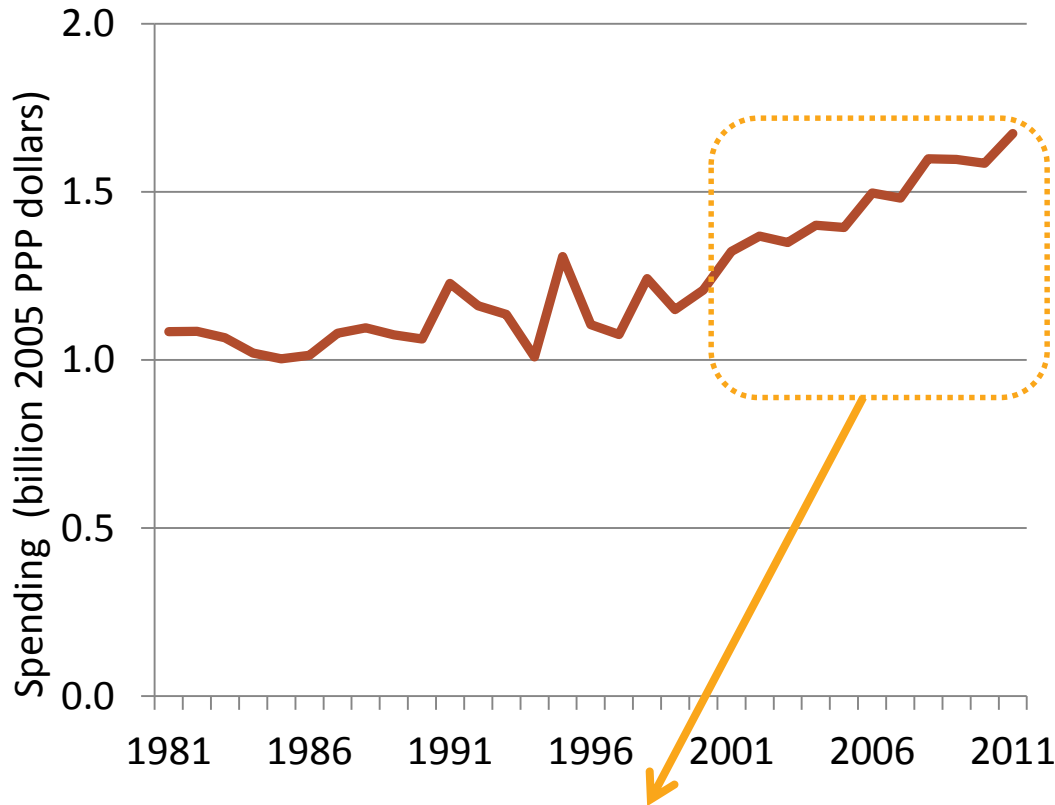
- Quantitative data are essential for agricultural R&D stakeholders to be able to analyze trends in agricultural R&D investments; identify gaps; set future investment priorities; and better coordinate agricultural R&D across institutes, regions, and commodities
- R&D indicators are also an indispensable tool when assessing the contribution of agricultural R&D to agricultural growth and to economic growth more generally

Agricultural S&T Indicators (ASTI) initiative



- Collects national-level investment and human resource capacity data as well as institutional developments in agricultural R&D:
 - Focus on low- and middle-income countries; incl. 40 SSA countries
 - Through institutional survey rounds (primary data)
- Large network of national, regional and international partners; led by IFPRI
- Provides:
 - Trends over time at country / regional levels
 - Comparisons within and across countries / regions

Public agricultural R&D investments, 1981–2011



- In 2011, spending totaled \$1.7 billion (in 2005 PPP prices)
- Spending increased by more than one third during 2000–2011
- Growth is driven by a handful of countries

2000-2011 growth



Nigeria
Uganda



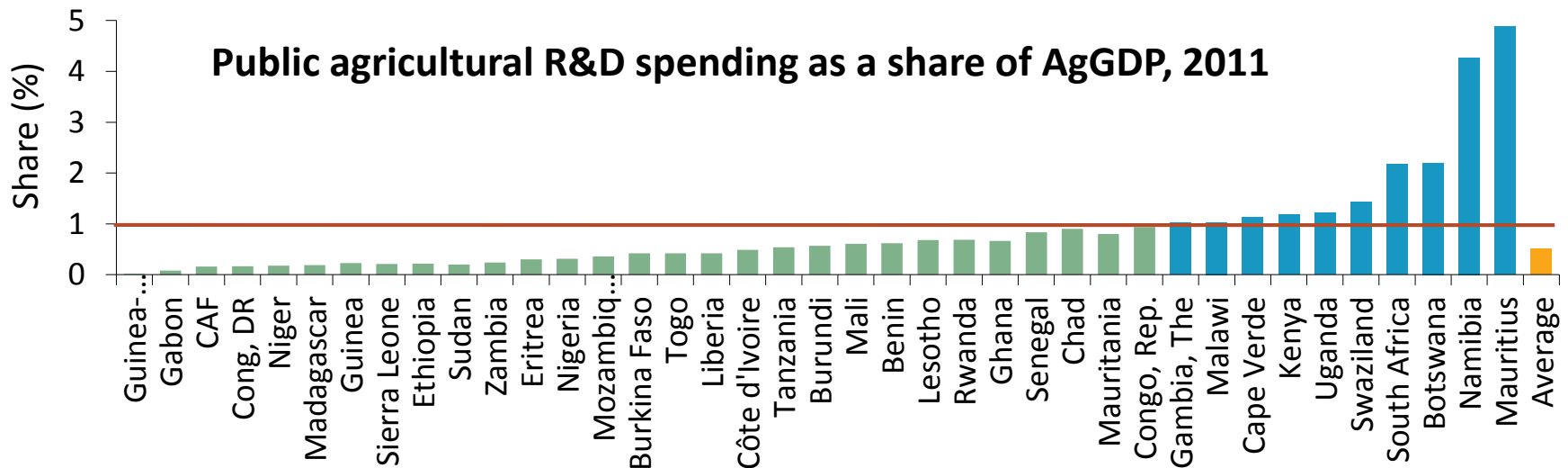
Ethiopia
Ghana
Kenya
Tanzania

(Public = government, higher education, nonprofit)

Challenge: Underinvestment

Target (UN/NEPAD): Allocation of at least 1% of GDP to R&D

- On average, 0.5% of SSA's AgGDP was spent on public agricultural R&D in 2011
- Declined since 2008 due to relative stronger AgGDP growth
- Caution when analyzing intensity ratios

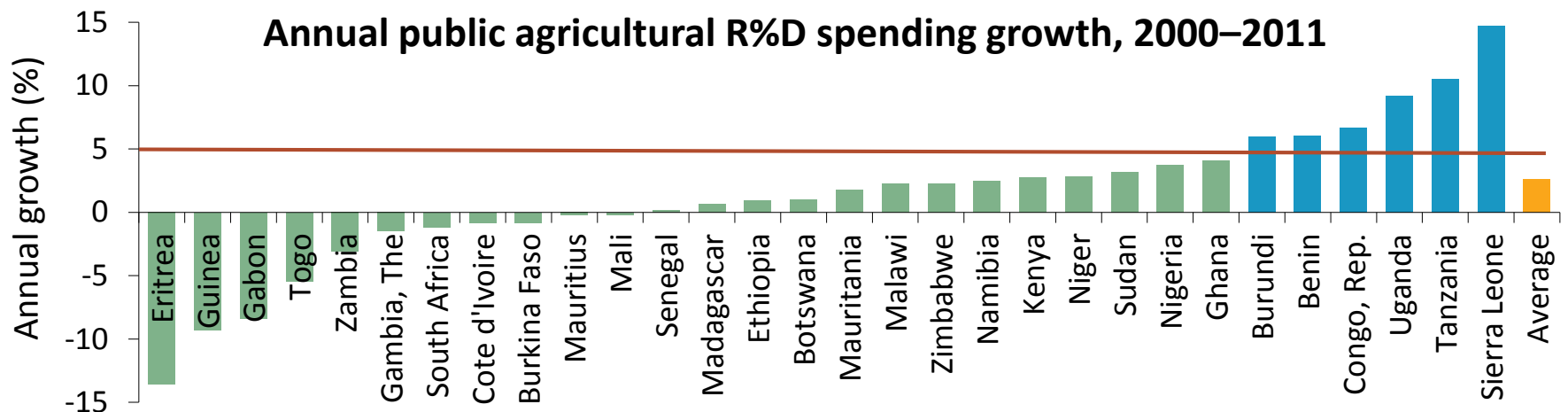


Preliminary data for some countries

Challenge: Uneven investment growth

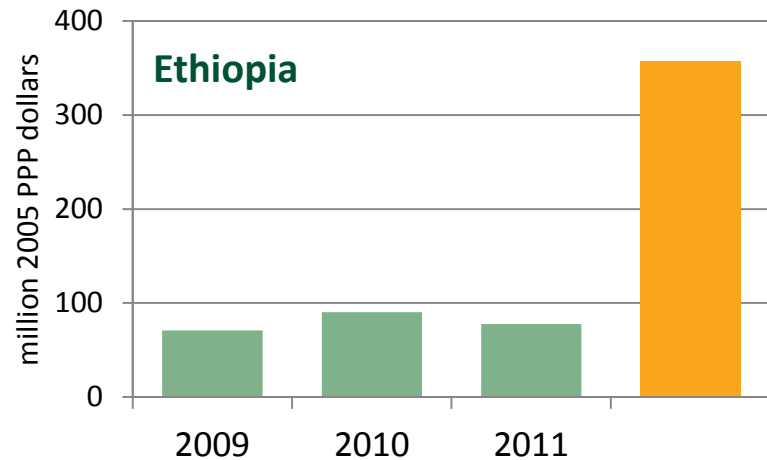
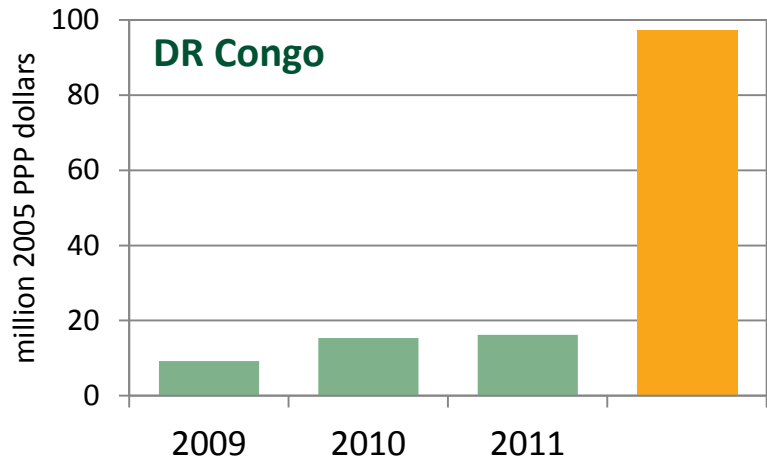
Target (UN expert group): 5% annual spending growth over the next decade

- 2000–2011 marked by spending decline or stagnation in about half of the 30 countries with timeseries data
- However, about two thirds of the 30 countries experienced increased agricultural R&D spending during 2008–2011



Preliminary data for some countries

Country examples of underinvestment



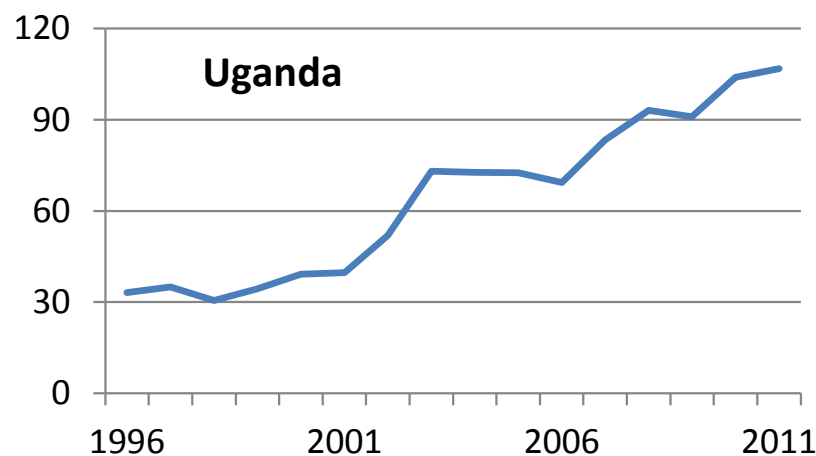
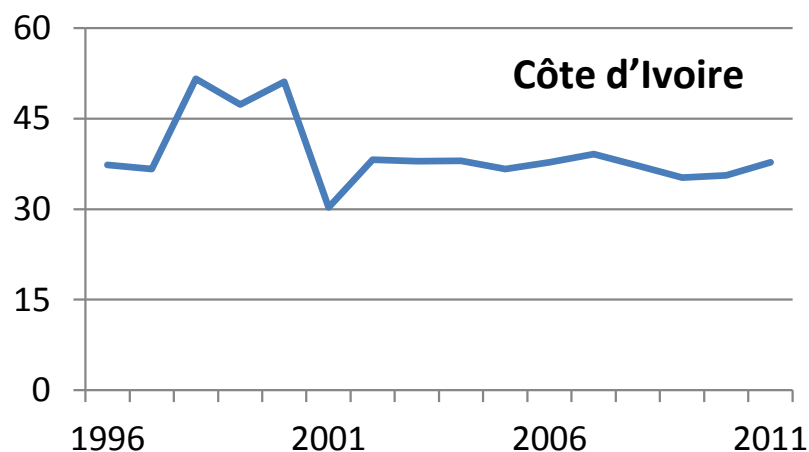
- Actual public agricultural R&D spending
- Required spending to reach 1% target

- DR Congo spent \$16 million or 0.17% of AgGDP on agricultural R&D in 2011
- Ethiopia spent \$78 million or 0.22% of AgGDP on agricultural R&D in 2011
- These levels are extremely low considering population levels (SSA's 2nd and 3rd largest countries)
- Spending needs to increase **sixfold** in DR Congo and **fivefold** in Ethiopia to reach the UN/NEPAD 1% target

Country examples of sustainable investment

- Uganda: High and continued government commitments to agricultural research combined with donor support
- Côte d'Ivoire: Unique funding mechanism involving private sector funding, which has resulted in stable research investment levels over time

Total public agricultural R&D spending trends, 1996-2011

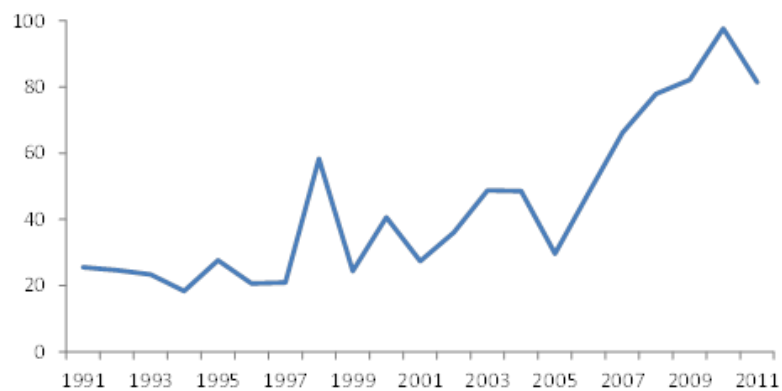


Challenge: Investment volatility

Burkina Faso

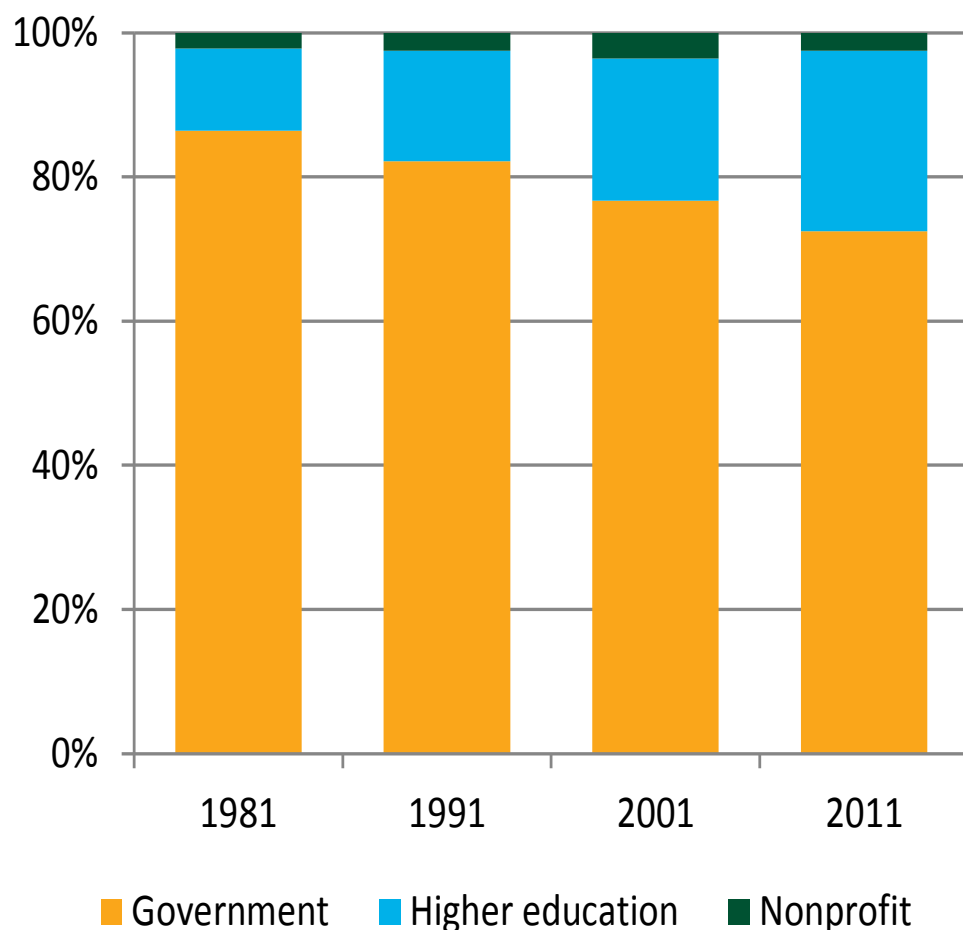


Tanzania



- Annual agricultural R&D spending in SSA has been considerably more volatile than in other developing regions
- Volatility is more pronounced in donor-dependent low-income countries
- Donor/development bank funding is generally short-term and ad-hoc (and 2-3 times more volatile than government funding)

Challenge: Fragmentation



- More than 600 agricultural R&D agencies scattered across the region
- Enhanced role of universities
- ...but increased fragmentation of agricultural R&D
- Economies of scale are lower than in other (developing) regions

Challenge: Staff turnover and composition

- Number of researchers (in full-time equivalents) increased by about 50%:
 - Initially driven by recruitment of junior BSc holders
 - Since 2008, increase in MSc holders too
 - Increased role of universities (Nigeria, Sudan)
- Many small countries lack a critical mass of researchers (especially PhD holders)
- In about half of the sample countries more than 50% of PhD holders is 50 or older; more pronounced in West Africa
- Urgent need to recruit and train next generation of scientists in these countries

- To achieve future growth targets, national governments will need to provide sufficient and stable financial resources, adequate human resources in terms of numbers and quality, and support institutional improvements in agricultural R&D
- There are encouraging signs that SSA is moving (although slowly) in the right direction in terms of agricultural R&D
 - Expansion in its agricultural investment and capacity
 - A number of countries are putting measurements in place to address current investment and capacity challenges
 - Enhanced recognition of the importance of agricultural R&D by national governments and international community
 - Latter resulted in the development of the Science Agenda for Agriculture in Africa



Coming soon

- New series of country fact sheets
- Regional publications
- Various enhancements to www.asti.cgiar.org
- Dissemination and outreach activities



CROSS-COUNTRY COMPARISONS OF KEY INDICATORS			
	Total number of researchers, 2011 (FTEs)	Growth in number of researchers, 2008-2011 (FTEs)	Share of Ph.D researchers (FTEs)
Tanzania	814.8	18%	20%
Kenya	1,130.6	11%	31%
Uganda	353.9	13%	31%
Ethiopia	1,883.2	34%	9%