BILL& MELINDA GATES foundation

DEVELOPING A SEED DASHBOARD

Workshop Measuring Seed Sector Performance Abidjan, Ivory Coast 26-28 October 2016

RISE-AG Dashboards

- •Support measurement of BMGF SHF strategy
- •Foster transparency and accountability in agr sector
- •Begin to harmonize agricultural measurement across sectors
- •Support governments to better diagnose their underlying system challenges by identifying where performance is lacking

Initial Dashboards

- Agricultural Transformation
- Agricultural Productivity
- Livestock
- Fertilizer
- Seed Systems
- Extension Systems
- Gender
- Food Security
- Nutrition
- Policy
- Land (planned)
- Infrastructure (planned)
- R&D (planned)

Tanzania: Agricultural Productivity Dashboard

Latort Value

The productivity dashboard indicators capture on-farm productivity among smallholder farmers (defined as operating a holding area of four hectares or less) as it is inclusive productivity growth that will eventually drive faster and larger impacts on national poverty reduction.

Koy Indicators

	Country Data Status Collected and Populated Need to Collect/in Progress Unavailable	Regional Comparison Values Min on Left. Max on Right. Median Tanzania	DRAFT: Not for external circulation June 22, 2016
Growth Rate	Country Comparison		ional Comparison

Key Indicators	Latest Value	Trend Over Time	Growth Rate		Cou	Country Comparison		Regional Comparison
1. Labor Productivity	NA	\$10,000 \$5,000	NA	NA	NA	NA	NA	0 Countries in Sample
Annual value of farm output per FTE adult equivalent farm worker.		\$0						SO
Data Source: Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)	PPP\$/farm worker/yr NA	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17	Absolute	Avg. Annual	ET •	NG	TZ •	V
2. Total Household Income per Capita		\$400			NA	\$821	\$366	2 Countries in Sample
Total real household income from all sources per household member per year; [median].	\$366	\$200	59%	12%			_	• •
Data Source: Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)	PPP\$/hh member/yr 2013	50 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17	Absolute	Avg. Annual 2009 - 2013	ET	NG	TZ	\$0 \$200 \$400 \$600 \$800 \$1,000
3. Crop Production Income		\$600 \$400			NA	\$1,853	\$458	2 Countries in Sample
Total annual farm income from crop production; [median].	\$458	\$200	83%	17%			_	• •
Data Source: Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)	PPP\$/hh/yr 2013	⁵⁰ 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17	Absolute	Avg. Annual 2009 - 2013	ET •	NG	TZ	\$0 \$500 \$1,000 \$1,500 \$2,000
4. Livestock Production Income		\$60			NA	\$0	\$54	2 Countries in Sample
Total annual farm income from livestock production; [median].	\$54	\$20	20%	4%				
Data Source: Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)	PPP\$/hh/yr 2013	⁵⁰ 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17	Absolute	Avg. Annual 2009 - 2013	ET •	NG	TZ	\$0 \$10 \$20 \$30 \$40 \$50 \$60
5. Land Productivity	_	\$600 \$400			\$883	\$2,225	\$571	3 Countries in Sample
Total annual value of crops (staples, cash crops, horticulture, etc.) per hectare of land operated by household (land	\$571	\$200	46%	9%	-			
owned + land rented-in - land rented-out); [median]. Data Source: Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)	PPP\$/ha/yr 2013	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17	Absolute	Avg. Annual 2009 - 2013	ET	NG	TZ	\$0 \$500 \$1,000 \$1,500 \$2,000 \$2,500
6. Area-Weighted Cereal Yield		1500			1,849	2,623	991	3 Countries in Sample
Average annual production per unit of planted area of maize, wheat, and rice; yield estimates are from mono-	991	500	NA	NA				• • • • • •
cropped plots only in order to limit area measurement errors; [mean]. Data Source: Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)	Kg/ha 2013	0 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17	Absolute	Avg. Annual 2009 - 2013	ET	NG	TZ	0 500 1000 1500 2000 2500 3000
7. Crop Production Cost per Hectare		\$200			\$182	\$141	\$76	3 Countries in Sample
Cost of purchased inputs per unit of land operated by household; [median].	\$76	\$100	35%	7%				• • • •
Data Source: Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)	PPP\$/ha/yr 2013	⁵⁰ 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17	Absolute	Avg. Annual 2009 - 2013	ET	NG	TZ	\$0 \$50 \$100 \$150 \$200
8. Cost of Crop Production		50.15			\$0.15	\$0.20	\$0.13	3 Countries in Sample
Cost of purchased inputs per dollar of output; [median].	\$0.13	\$0.05	-6%	-1%				•
Data Source: Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)	Ratio 2013	50.00 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17	Absolute	Avg. Annual 2009 - 2013	ET	NG	TZ	\$0.00 \$0.05 \$0.10 \$0.15 \$0.20 \$0.25
9. Cost of Livestock Production		\$0.60 \$0.40			\$0.08	\$0.03	\$0.24	3 Countries in Sample
Cost of purchased inputs per dollar of output; [median]. Note: value of output does not include value livestock as	\$0.24	\$0.20	-28%	-6%				
assets. Data Source: Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)	Ratio	50.00 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17	Absolute	Avg. Annual	ET	NG	TZ	\$0.00 \$0.05 \$0.10 \$0.15 \$0.20 \$0.25 \$0.30
	2013			2009 - 2013				

Trend Over Time

Tanzania: Agricultural Productivity Dashboard

The productivity dashboard indicators capture on-farm productivity among smallholder farmers (defined as operating a holding area of four hectares or less) as it is inclusive productivity arouth that will event faster and larger impacts on national poverty reduction.

Key Indicator

1. Labor Productivity

Annual value of farm output per FTE adult equivalent farm worker Data Source: Living Standards Measurement Study - Integrated Surv

2. Total Household Income pe

Total real household income from all sources per household member

Data Source: Living Standards Measurement Study - Integrated Surv

3. Crop Production Income

Total annual farm income from crop production; [median] Data Source: Living Standards Measurement Study - Integrated Su

4. Livestock Production Incon

Total annual farm income from livestock production: [median]

Data Source: Living Standards Measurement Study - Integrated Sur

5. Land Productivity

Total annual value of crops (staples, cash crops, horticulture, etc.) p owned + land rented-in - land rented-out); [median] Data Source: Living Standards Measurement Study - Integrated Surv

Average annual production per unit of planted area of maize, whea cropped plots only in order to limit area measurement errors; [measurement errors; [measurement errors] Data Source: Living Standards Measurement Study - Integrated Surv

7. Crop Production Cost per H

Cost of purchased inputs per unit of land operated by household; [n

Data Source: Living Standards Measurement Study - Integrated Surv

8. Cost of Crop Production

Cost of purchased inputs per dollar of output; [median].

Data Source: Living Standards Measurement Study - Integrated Surv

9. Cost of Livestock Productio

Cost of purchased inputs per dollar of output; [median]. No assets Data Source: Livina Standards Measurement Study - Integrated Surv

Labor Productivity

Per Capita Household Income

Crop Production income

ivestock Production Income

Land Productivity

6. Area-Weighted Cereal Yield Area-weighted Cereal Yield

Crop Production Costs/ha



Cost of Livestock Production

Country Data Statu Regional Comparison Values Collected and Populated Min on Left. Max on Right DRAFT: Not for external circulation Need to Collect /In Progress Median lune 22 2016 Regional Compa NΔ NΔ O Countries in Sample NA g. Annual FT NG ΤZ NA \$821 \$366 2 Countries in Sample .2% \$0 \$200 \$400 \$600 \$800 \$1,000 g. Annual ET NG TZ 009 - 2013 NA \$1,853 \$458 2 Countries in Sample .7% \$500 \$1,000 \$1,500 \$2,000 NG g. Annual FT T7 009 - 2013 \$0 \$54 2 Countries in Sample NΔ 4% \$10 \$30 Śſ \$20 \$40 \$60 g. Annual ΕT NG ΤZ 009 - 2013 \$883 \$2,225 \$571 3 Countries in Sample 9% \$5.00 \$1.000 \$1.500 \$2,000 \$2,500 ET TZ NG g Annual 009 - 2013 3 Countries in Sample 1.849 2,623 991 NA 500 1000 1500 2000 2500 3000 g. Annual ET NG TZ 009 - 2013 \$182 \$141 \$76 3 Countries in Sample 7% \$C \$50 \$100 \$150 \$200 g. Annual FT NG T7 009 - 2013 3 Countries in Sample \$0.20 \$0.13 \$0.15 1% \$0.00 \$0.05 \$0.10 \$0.15 \$0.20 \$0.25 NG ΤZ g. Annual FT 009 - 2013 \$0.08 \$0.03 \$0.24 3 Countries in Sample 6% \$0.00 \$0.05 \$0.10 \$0.15 \$0.20 \$0.25 \$0.30 TZ g. Annual ET NG

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METHODS - LOGIC MODEL FOR ASSESSING SEED SECTOR

A. System	B. Inputs	C. Delivery	D. Outputs	E. Outcomes
 Policies & regulation (national) National seed policies Regulations and manuals (e.g. quality assurance, variety release, variety management (protection, release and registration), seed trade etc) Recognition of formal and informal seed systems in policies and regulations Public expenditure allocated to seed sector relevant public goods and services Existence of seed subsidies Systems & processes (national) Public-private partnerships between research organizations, seed companies and producers Existence of structure and organization for early generation seed supply, quality assurance, variety mgmt Existence of public support to seed sector relevant educational programs Research-extension linkages for variety promotion 	 Financing (national) Public expenditure and financial arrangements for public goods and services [breeding, quality assurance, EGS supply, variety management, extension] Financial products targeting seed companies and agro-dealers Infrastructure & institutional resources (national) Quality in performance of structure and organization of breeding, quality assurance, EGS supply, variety management, variety and quality seed promotion) Facilities for breeding, quality assurance, EGS supply, variety management, extension etc. Human resources (national) Performance of technical and higher educational programs in delivering qualified seed professionals Career pathways for breeders, seed inspectors and other regulators, EGS producers, seed inspectors and other regulators and other regul	 Multiplication (by crop/crop type/geography) Number of seed companies and producers and their market shares Ratio of quality seed produced by seed companies and producer/national seed demand/need Ratios for the volumes of quality seed of improved varieties (crop, varieties, age) produced and marketed by seed companies and producers/national seed demand/need Quality (by crop/crop type/geography) Ratio of seed volumes in the various quality classes (certified, quality declared, trusted/informal)/national seed demand/need Ratio and distribution of quality assurance capacity (inspectors)/volume of certified and QDS seed Distribution (geography) Ratio and distribution of number of qualified agro- dealers, traders or other distributors engaged in the seed marketing/number of SHFs Promotion (geography) Ratio and distribution of extension agents engaged in provision of advisory services and promotion of quality seed and improved varieties/number of SHFs Quantity and quality of advisory services relevant to the promotion of quality seed of improved varieties and supporting farmers' seed production 	 Availability and access (by crop/crop type/ geography) SHFs access to a portfolio of new, improved varieties adapted to appropriate agro-ecologies, market and farmers' needs SHFs access to seed (quantity, quality, timeliness, affordability) of a portfolio of new, improved and adapted varieties Ratio of genuine/counterfeit seed accessible to SHF Financing Availability of financial products for SHF to access quality seed 	 SHF use (by crop/crop type/ geography) Average age of varieties in SHFs' fields Average seed replacement rate Average refresh rate SHF's use of quality seed of new, improved and adapted varieties SHFs' use of genuine seed

Draft Short list of Seed Indicators

	C. Delivery	D. Outputs	E. Outcomes		
4. Average performance of	6. Ratio of quality seed	8. Availability of seed	11. Average age of		
top 5 seed companies in	produced of varieties	in small packages	varieties in SHF		
terms of access to seed	released < 15	/crop type	fields/crop type		
index (based on regional	yrs/national seed	9. Weighted ratio of seed volumes in	12. Proportion of		
AtSI)	demand/crop type		SHFs using		
5. Ratio of foundation seed	7. % of seed produced	various quality	improved varieties		
produced by private sector	and sold by private	classes / national			
(operating at	sector (incl. seed	seed demand / crop			
scale)/national supply /	producers) as part of	types			
crop types	the total seed in the market (incl. government and NGOs)/crop type	10. Weighted ratio of farmers' willingness to pay/average seed price / crop types			
	top 5 seed companies in terms of access to seed index (based on regional AtSI) 5. Ratio of foundation seed produced by private sector (operating at scale)/national supply /	 top 5 seed companies in terms of access to seed index (based on regional AtSI) 5. Ratio of foundation seed produced by private sector (operating at scale)/national supply / crop types 7. % of seed produced and sold by private sector (incl. seed producers) as part of the total seed in the market (incl. government and 	 in the second of the total seed of the total seed of the total seed in the market (incl. government and NGOs)/(rep type) in small packages //crop type 9. Weighted ratio of seed volumes in various quality classes / national seed demand / crop type 10. Weighted ratio of seed volumes in various quality classes / national seed demand / crop types 		

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	2013			2009 - 2013				

Trend Over Time

Representative Indicator Scorecard

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Scorecard

Audience: Heads of state

Purpose: Facilitate a rapid triage on the performance of critical agriculture sub-sectors, spur competition, and identify opportunities for shared learning and action by decision-makers.

Topic Dashboards

Audience: Individual line-ministries and departments

Purpose: Deliver actionable sub-sector insights, with a focus on tracking the progress of smallholder farmers.

A	Africa					
		Indicator	Unit	TZ	ET	NG
F	Farm-Level Performance					
	1 Crop (Sector) Performance	Average annual yield growth rate (based on top 5 economically important commodities for a country)	%			
	2 Livestock (Sector) Performance	Average annual productivity growth rate (based on 3 most important livestock products)	%			
	3 Smallholder Economic Wellbeing	Income per capita (for smallholder farming households)	\$/person/yr			
	4 Women's Participation in Agriculture	Gender productivity gap	%			
S	Systems and Services					
	5 Extension and Information Services	Proportion of farm households receiving extension advice from any agent within the last 12 months	%			
	6 Fertilizer Production, Delivery, and Use	Average consumption (NPK) of fertilizer per ha arable land	kg/ha			
ł	7 Seed Production, Delivery, and Use	Proportion of farm households using improved seed	%			
	8 Animal Health Services	Proportion of farm households vaccinating their animals	%			
	9 Research Capacity and Performance	R&D expenditure per 100,000 farm households	\$/100,000hh			
	10 Pest and Disease Surveillance	Quality of pest and disease surveillance systems	Score: 1-5			
	11 Data Systems	Capacity to generate reliable agricultural statistics, based on the Ag Statistical Capacity Index (ASCI)	%			
	12 Financial Services	Proportion of adults with access to financial services, disaggregated by gender	%			
I	Investment and Policy					
	13 Agriculture Budget and Expenditure	Agriculture share of government expenditures	%			
	14 Agriculture/Agribusiness Laws & Regulations	Agribusiness laws and regulations benchmarked against best practices (average EBA score)	Score: 0-100			
	15 Rural Infrastructure	Density of all-weather rural roads	km/100 sq. km			
	16 Water Management and Use	Proportion of farm households reporting irrigated cultivation				
	17 Land Rights and Ownership	Proportion of farm households with ownership of secure land rights, disaggregated by gender	%			
	18 Market Access (prices, trade, etc.)	Share of farm-gate price to wholesale price (for top 5 economically important commodities)	%			

