



Food and Agriculture Organization
of the United Nations

Socioeconomic opportunity cost of not repurposing public support in food and agriculture: *FAO policy optimization modelling tool and its future environmental extensions*

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UN Environmental Management Group
Nexus Dialogues on Harmful Subsidies – Webinar Series Dialogue II
September 17, 2024



The case for repurposing harmful public policy support has been made

A MULTI-BILLION-DOLLAR OPPORTUNITY
Repurposing agricultural support to transform food systems

REPURPOSING AGRICULTURAL POLICIES AND SUPPORT
JANUARY 2022

OECD publishing
THE IMPACTS OF AGRICULTURAL TRADE AND SUPPORT POLICY REFORM ON CLIMATE CHANGE ADAPTATION AND ENVIRONMENTAL PERFORMANCE
A MODEL-BASED ANALYSIS
OECD FOOD, AGRICULTURE AND FISHERIES PAPER
June 2022 n°180

unicef **IFAD** **2022**
THE STATE OF FOOD SECURITY AND NUTRITION IN THE WORLD
REPURPOSING FOOD AND AGRICULTURAL POLICIES TO MAKE HEALTHY DIETS MORE AFFORDABLE

World Agroforestry Centre
REPURPOSING AGRICULTURAL SUBSIDIES TO RESTORE DEGRADED FARMLAND AND GROW RURAL PROSPERITY

Agricultural Policy Monitoring and Evaluation 2022
REFORMING AGRICULTURAL POLICIES FOR CLIMATE CHANGE MITIGATION

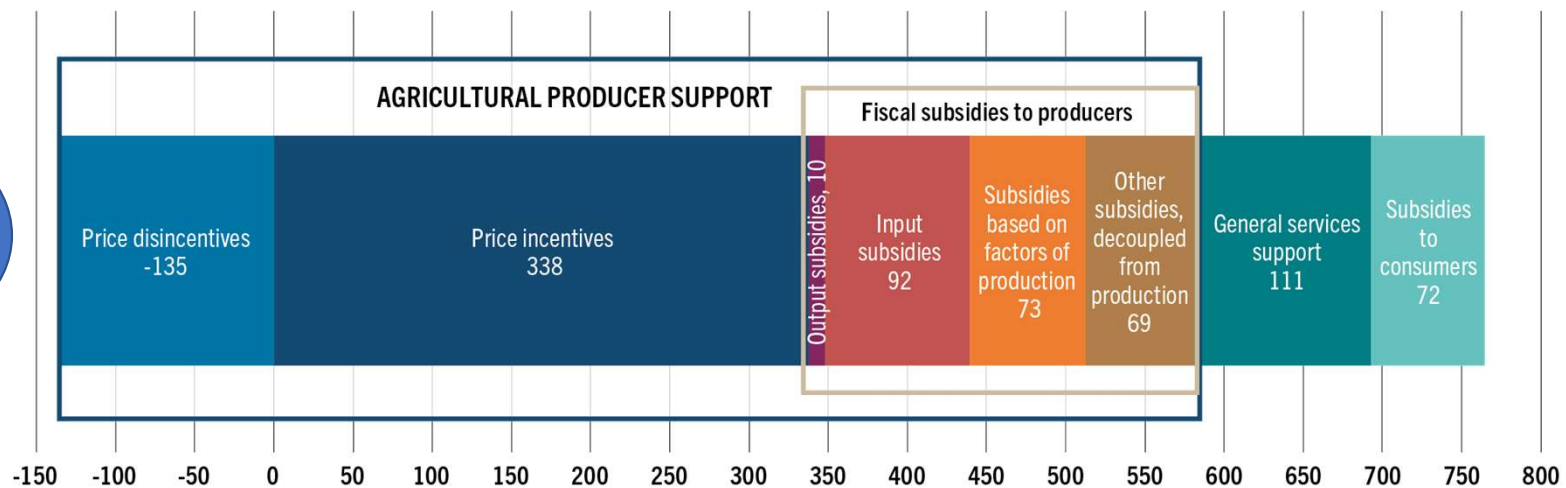
OECD

TECHNICAL BRIEF No. 4 | September 2022
Exploring Potential Benefits of Repurposing Agricultural Subsidies in sub-Saharan Africa

And many others more!

Billions of USD allocated by governments to support food and agriculture, and not just through subsidies!

THE LEVEL AND COMPOSITION OF GLOBAL SUPPORT TO FOOD AND AGRICULTURE
(USD billion, average 2013–2018)



Source: FAO, IFAD, UNICEF, WFP and WHO. (2022) *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable.*

Low in low! – Little space to repurpose in LICs



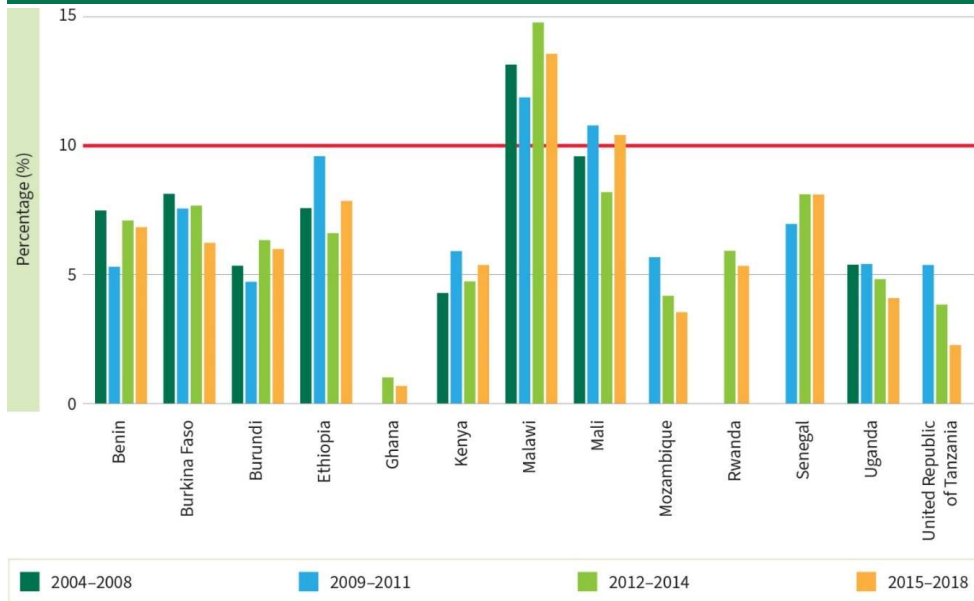
POLICY SUPPORT TO FOOD AND AGRICULTURE DIFFERS ACROSS COUNTRY INCOME GROUP
(as a share of value of production, average 2013–2018)

Country income group	Price incentives	Fiscal support (public expenditure)		
		Subsidies to producers	General services	Consumer subsidies
High-income countries	9.5%	12.6%	3.9%	4.6%
Upper-middle-income countries	10.8%	4.9%	3.0%	0.2%
Lower-middle-income countries	-7.6%	4.1%	2.5%	2.6%
Low-income countries	-9.5%	0.6%	2.3%	0.6%

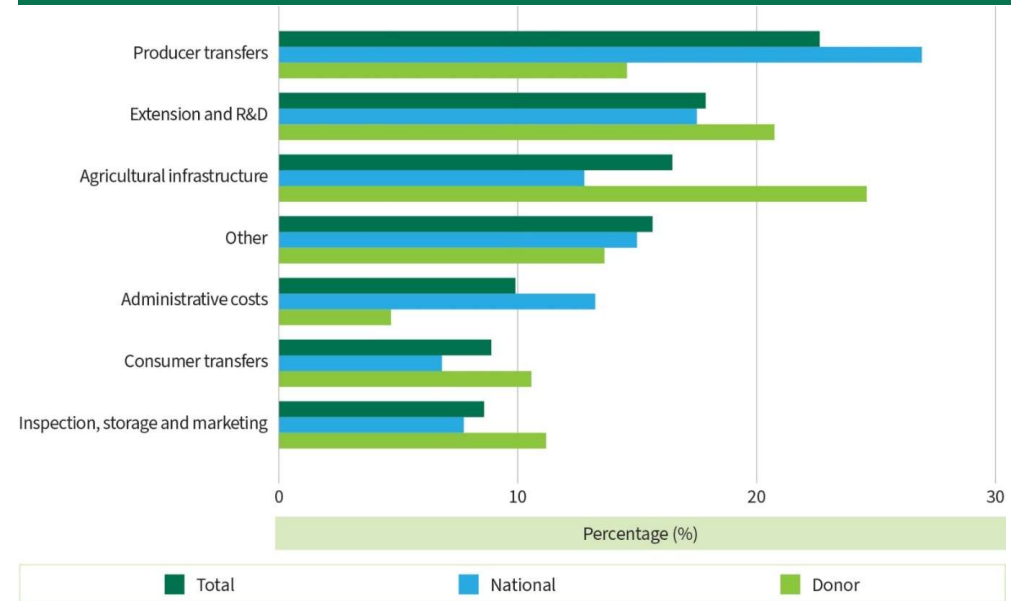
Source: FAO, IFAD, UNICEF, WFP and WHO. (2022) *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable.*

Low level of spending in SSA countries and, is it spent well?

SHARE OF ACTUAL PUBLIC EXPENDITURE ON FOOD AND AGRICULTURE (NARROW DEFINITION) OVER TOTAL BUDGET



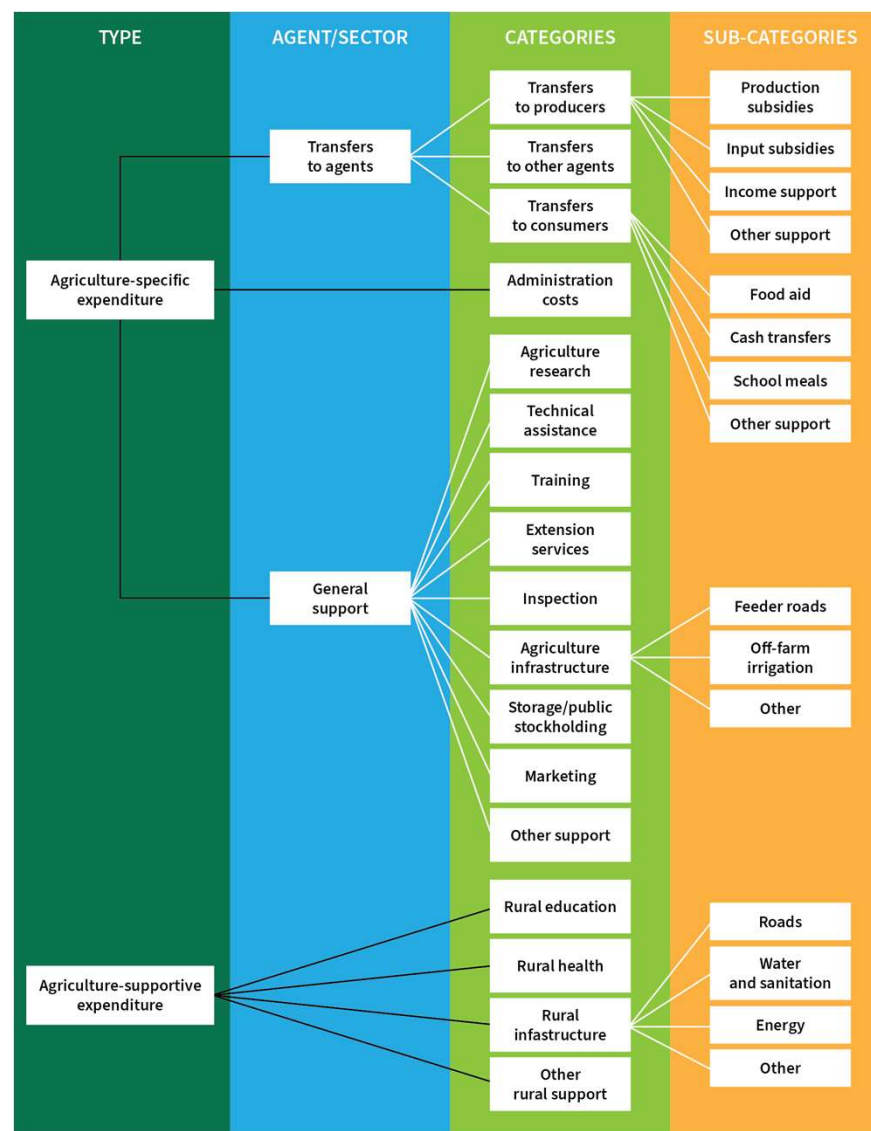
SHARE OF EXPENDITURE OVER TOTAL EXPENDITURE ON FOOD AND AGRICULTURE, AVERAGE FOR SELECTED COUNTRIES 2004-2018



Source: Pernechele, V., Fontes, F., Baborska, R., Nkuingoua Nana, J. C., Pan, X., and Tuyishime, C. (2021). Public expenditure on food and agriculture in sub-Saharan Africa: Trends, challenges and priorities. FAO

FAO's Monitoring and Analyzing Food and Agricultural Policy (MAFAP) programme

- A highly-recognized methodology to monitor public expenditure on food and agriculture.
- In-country capacity development training.
- In-depth classification analysis:
 - **Level of spending** and funding gaps
 - **Expenditure composition** (by type, sector, commodity, geographic area, etc.)
 - **Execution** vis-à-vis budget
 - **Coherence** vis-à-vis objectives and policies



Policy support instruments “space” in Ethiopia

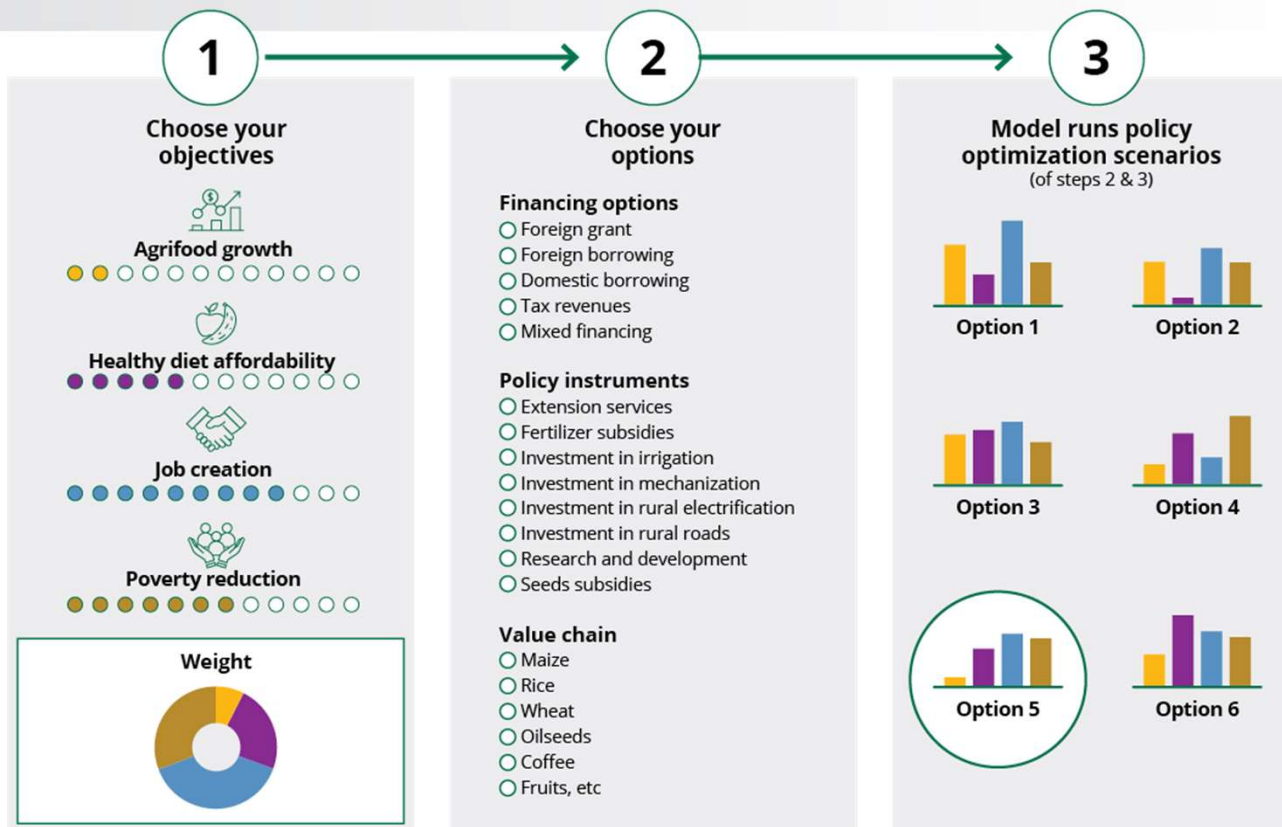
(289 policy measures + financing options)

	Commodity taxes (including tariffs) to promote production/consumption of a given commodity	Commodity subsidy		Government consumption		Government investment				Government transfers
		Fertilizers	Seeds	Extension	R&D	Rural roads	Irrigation	Mechanization	Rural electricity	Cash transfers
Sugar cane	X	X	X	X	X	X	X	X	X	
Tobacco	X	X	X	X	X	X	X	X	X	
Cotton	X	X	X	X	X	X	X	X	X	
Flowers	X	X	X	X	X	X	X	X	X	
Cocoa	X	X	X	X	X	X	X	X	X	
Coffee	X	X	X	X	X	X	X	X	X	
Tea	X	X	X	X	X	X	X	X	X	
Vanilla	X	X	X	X	X	X	X	X	X	
Other cash crops	X	X	X	X	X	X	X	X	X	
Wheat	X	X	X	X	X	X	X	X	X	
Maize	X	X	X	X	X	X	X	X	X	
Rice	X	X	X	X	X	X	X	X	X	
Sorghum	X	X	X	X	X	X	X	X	X	
Millet	X	X	X	X	X	X	X	X	X	
Other cereal crops	X	X	X	X	X	X	X	X	X	
Vegetables	X	X	X	X	X	X	X	X	X	
Soybeans	X	X	X	X	X	X	X	X	X	
Groundnuts	X	X	X	X	X	X	X	X	X	
Sesame	X	X	X	X	X	X	X	X	X	
Sunflower	X	X	X	X	X	X	X	X	X	
Potatoes	X	X	X	X	X	X	X	X	X	
Cassava	X	X	X	X	X	X	X	X	X	
Other tubers	X	X	X	X	X	X	X	X	X	
Legumes	X	X	X	X	X	X	X	X	X	
Bananas	X	X	X	X	X	X	X	X	X	
Other fruits	X	X	X	X	X	X	X	X	X	
Cattle and buffaloes	X			X	X	X		X	X	
Goats	X			X	X	X		X	X	
Sheeps	X			X	X	X		X	X	
Swine/pigs	X			X	X	X		X	X	
Poultry	X			X	X	X		X	X	
Bee and natural honey	X			X	X	X		X	X	
Other animal products	X			X	X	X		X	X	
Forestry	X			X	X	X		X	X	
Fisheries	X			X	X	X		X	X	
Households										X

FINANCING SOURCES

- indirect and/or direct taxation
- domestic borrowing
- foreign borrowing
- foreign grants
- reallocation of government budget
- mixed of the above

FAO's policy optimization modelling tool— Scenarios for current budgets, developed and validated alongside policymakers



Sánchez, Marco V. & Martín Cicowiez. 2023. "Optimal allocation of agriculture's public budget can improve transformation and healthy diets access in Ethiopia". *Journal of Policy Modelling*, Vol. 45, No. 6. <https://doi.org/10.1016/j.jpoimod.2023.09.005>

Sánchez, Marco V. and Martín Cicowiez. 2022. Optimising policies to achieve agricultural transformation objectives: an application for Ethiopia, *Journal of Applied Economics*, Vol. 25, No. 1, 765–783. <https://doi.org/10.1080/15140326.2022.2056407>

Policy objectives (scenarios) and their weights

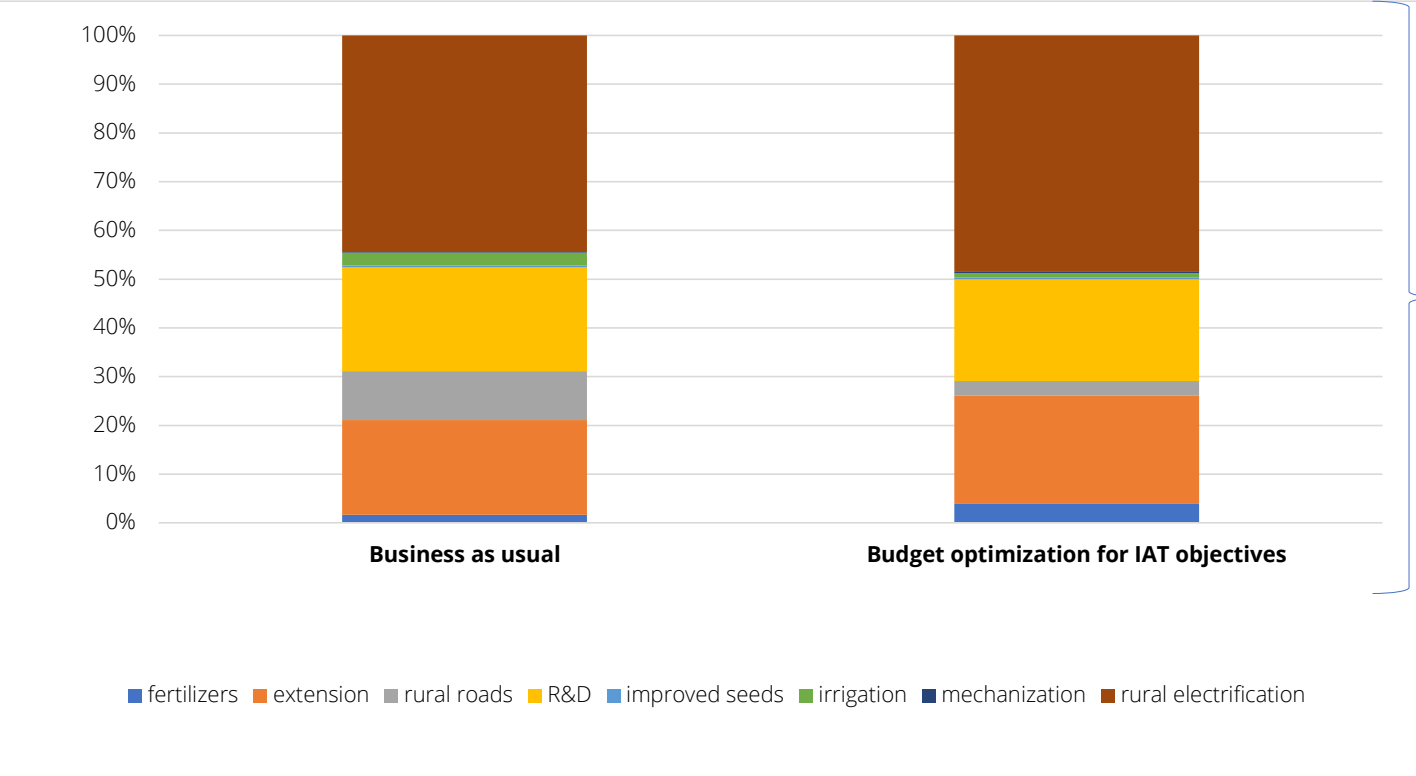
Inclusive agricultural transformation (IAT) objectives

	MAXIMIZE AGRIFOOD GDP	MINIMIZE RURAL POVERTY	MAXIMIZE RURAL OFF-FARM EMPLOYMENT	MINIMIZE THE COST OF A HEALTHY DIET
Weights	0.33	0.33	0.33	0
Weights	0.25	0.25	0.25	0.25

Other policy objectives used:

- minimize imports for selected agrifood commodities (note: related to selected food security indicators)
- maximize exports for selected agrifood commodities

Uganda's public expenditure by type of policy support measure in two alternative scenarios, 2025



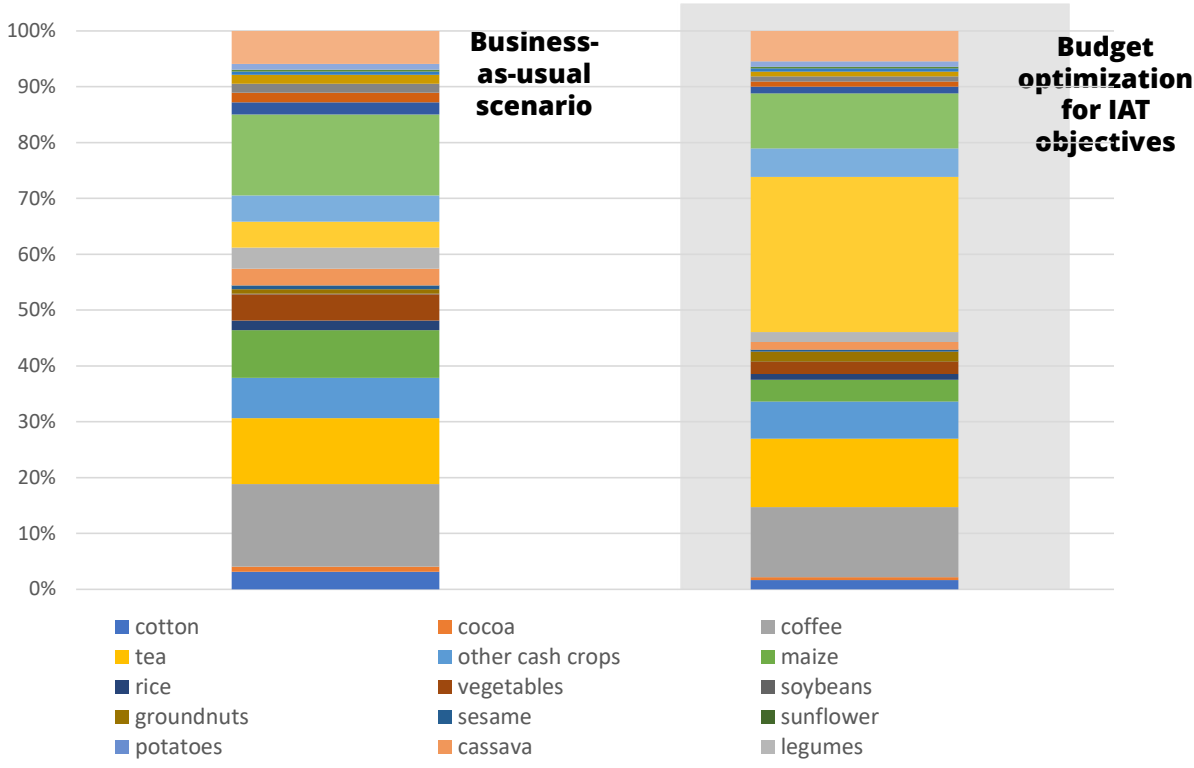
Optimal reallocation of public expenditures to pursue IAT objectives



- Maximize agrifood GDP
- Maximize rural off-farm employment
- Minimize rural poverty

Source: FAO, MAFAP
 Note: preliminary estimates, not for quotation

Uganda's public expenditure by commodity supported in two alternative scenarios, 2025



Optimal reallocation of public expenditures to pursue IAT objectives



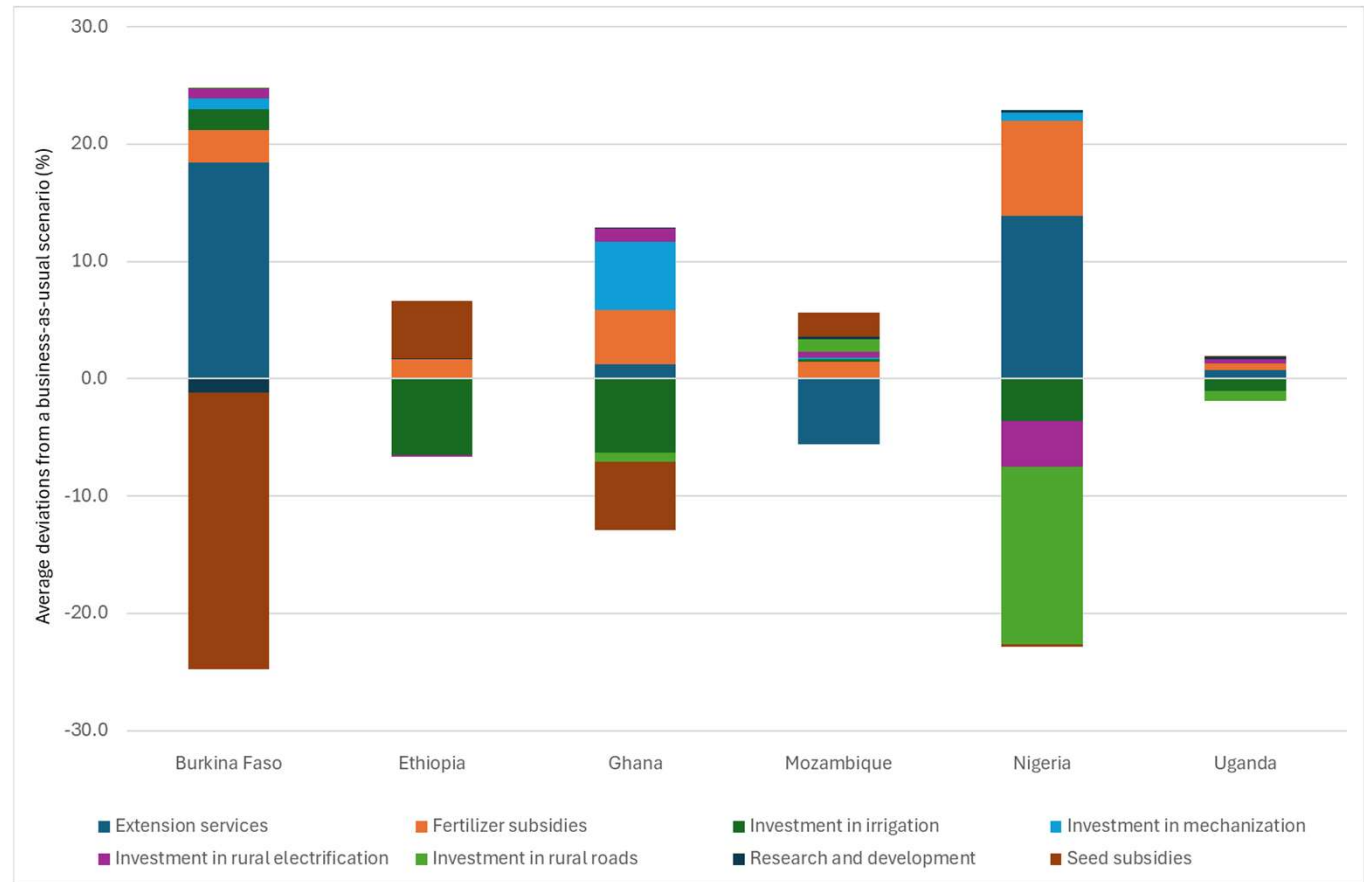
- Maximize agrifood GDP
- Maximize rural off-farm employment
- Minimize rural poverty

Public expenditure by policy support measure in the crops and livestock sectors, 2025–2030 (average deviations between optimal reallocation to pursue the four socio-economic objectives and a business-as-usual scenario)

Optimal reallocation of public expenditures to pursue:







- Maximize agrifood GDP
- Maximize rural off-farm employment
- Minimize rural poverty
- Minimize cost of healthy diet



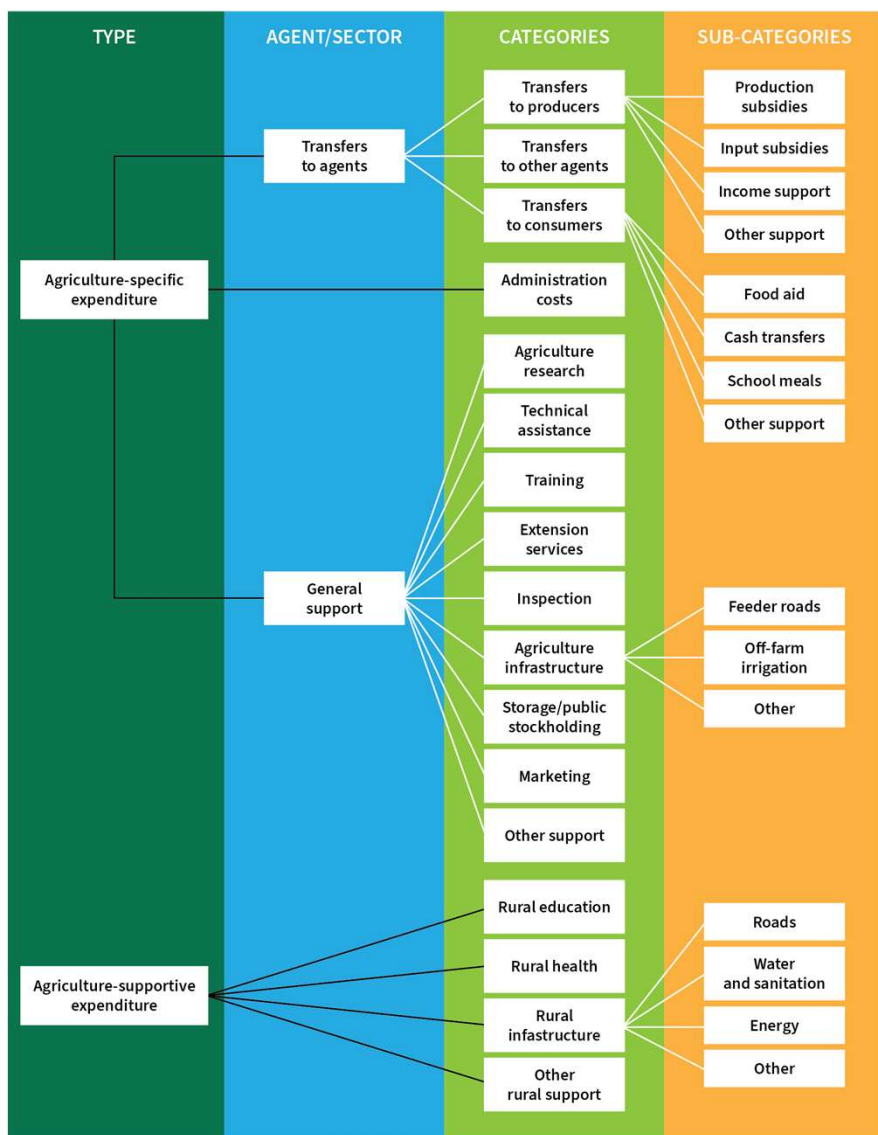
SOURCE: Sánchez, M.V., Cicowiez, M., Pernechele, V. & Battaglia, L. (forthcoming). The opportunity cost of not optimally repurposing public expenditure in food and agriculture in sub-Saharan African countries – Background paper for The State of Food Security and Nutrition in the World 2024. FAO Agricultural Development Economics Working Paper. Rome, FAO.



Potential benefits from optimizing existing public expenditures to pursue the four objectives, 2025 and by 2030 → **the socio-economic opportunity cost**

	Burkina Faso		Ghana		Ethiopia		Mozambique		Nigeria		Uganda		
	2025	2030	2025	2030	2025	2030	2025	2030	2025	2030	2025	2030	
People lifted out of poverty 	185,214	616,717	236,992	275,699	596,802	728,939	321,955	555,336	427,166	460,287	250,120	139,049	2,776,027
Off-farm jobs created in rural areas 	54,800	182,709	133,310	181,503	46,371	66,256	90,095	150,914	183,819	213,092	81,954	57,988	852,461
More people who can afford a healthy diet 	337,621	1,448,952	4,216,027	5,383,325	3,186,681	5,254,814	661,723	1,265,444	1,023,286	1,857,148	1,043,022	939,929	16,149,612
Agrifood GDP increase 	2%	8%	6%	8%	2%	2%	9%	11%	1%	1%	3%	2%	

SOURCE: Sánchez, M.V., Cicowiez, M., Pernechele, V. & Battaglia, L. (forthcoming). The opportunity cost of not optimally repurposing public expenditure in food and agriculture in sub-Saharan African countries – Background paper for The State of Food Security and Nutrition in the World 2024. FAO Agricultural Development Economics Working Paper. Rome, FAO.



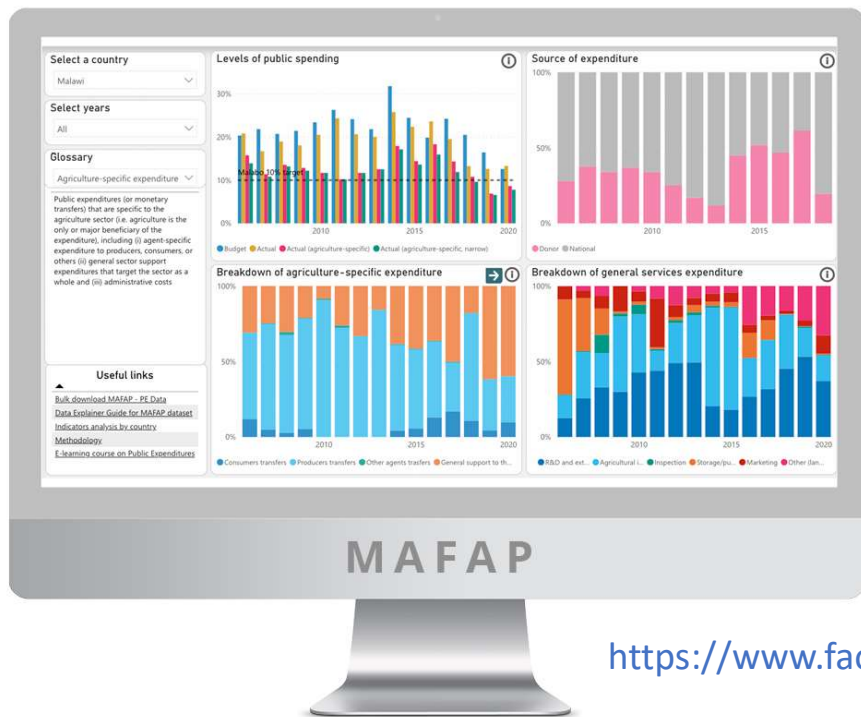
Monitoring public expenditure with nutrition, climate and biodiversity lenses



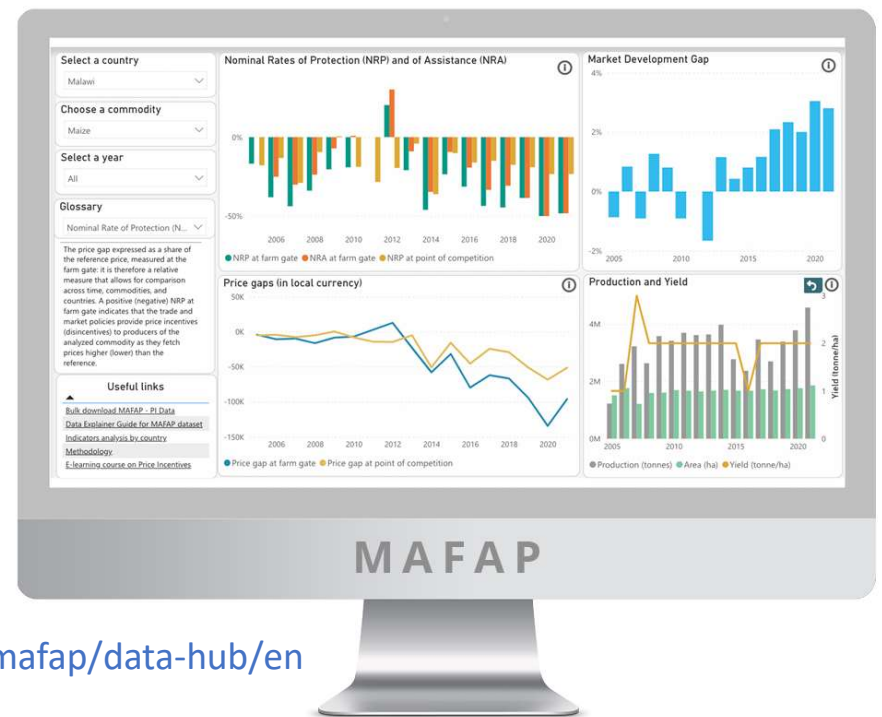
Thank you!

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Public expenditure data



Commodity price incentives data



<https://www.fao.org/in-action/mafap/data-hub/en>