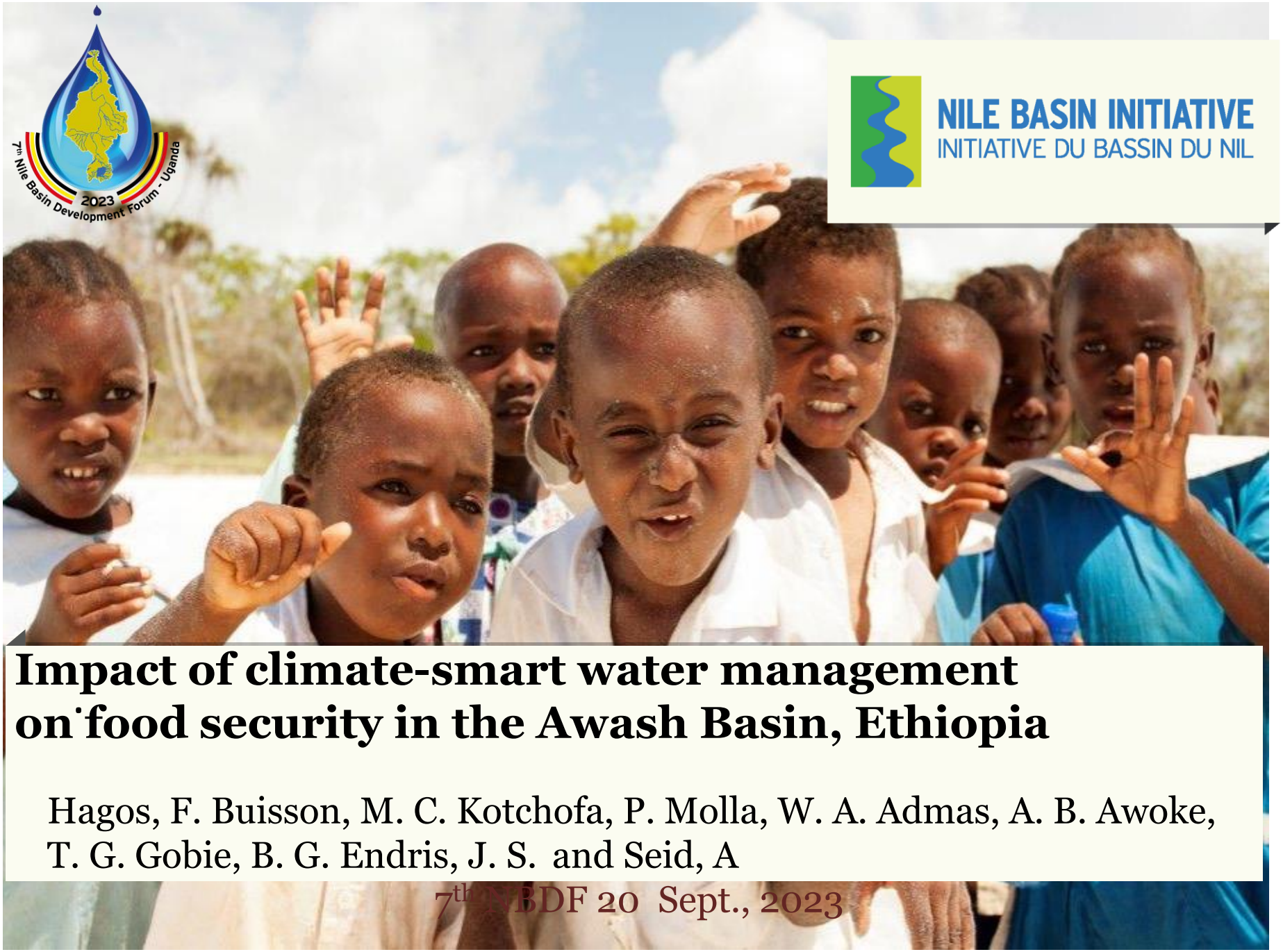


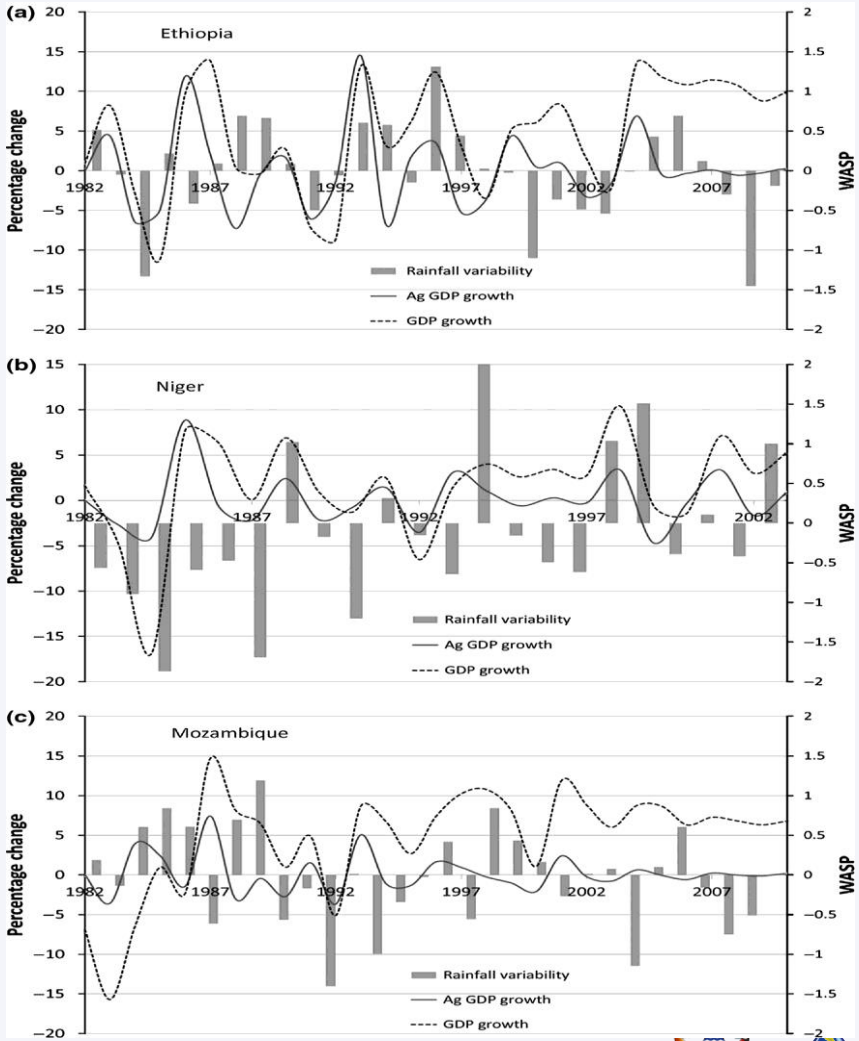
Impact of climate-smart water management on food security in the Awash Basin, Ethiopia

Hagos, F. Buisson, M. C. Kotchofa, P. Molla, W. A. Admas, A. B. Awoke, T. G. Gobie, B. G. Endris, J. S. and Seid, A

7th NBDF 20 Sept., 2023

1. Introduction

- Rainfed agriculture is vulnerable to the impacts of **climate change**.
- CC and **rural poverty and food insecurity**, **weakened resilience**.
- Investing in **resilient agriculture and agricultural water management**



Objectives and empirical methodology

Objectives

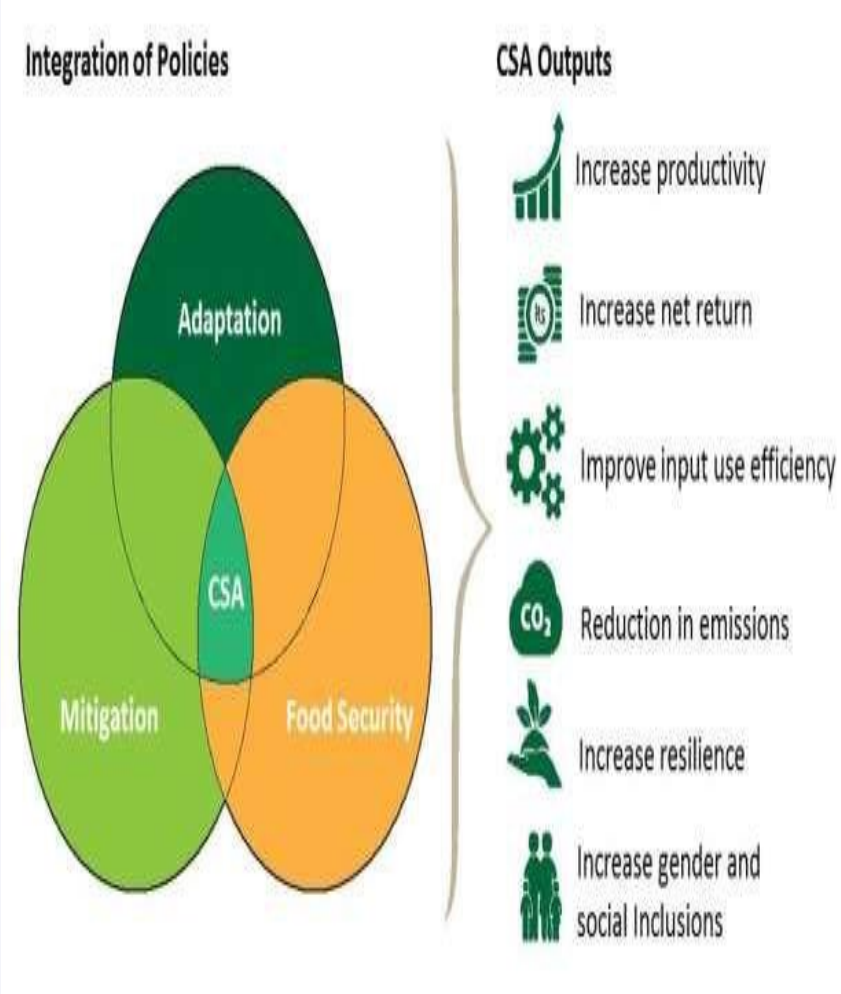
- Explore dominant AWM technologies & their association in the sample area, and
- Assess their effect on yield and impacts on food security

Food security indices

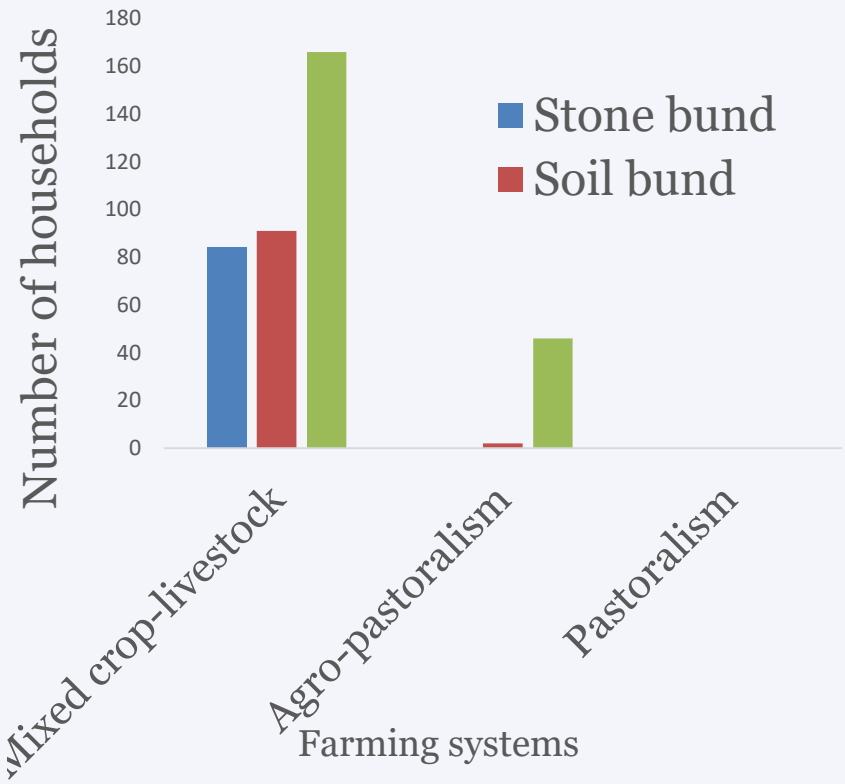
- Caloric intake - HFCS,
- Diet diversity - HDDS, and
- Perception of insufficient qlt and qty consumption - HFIAS

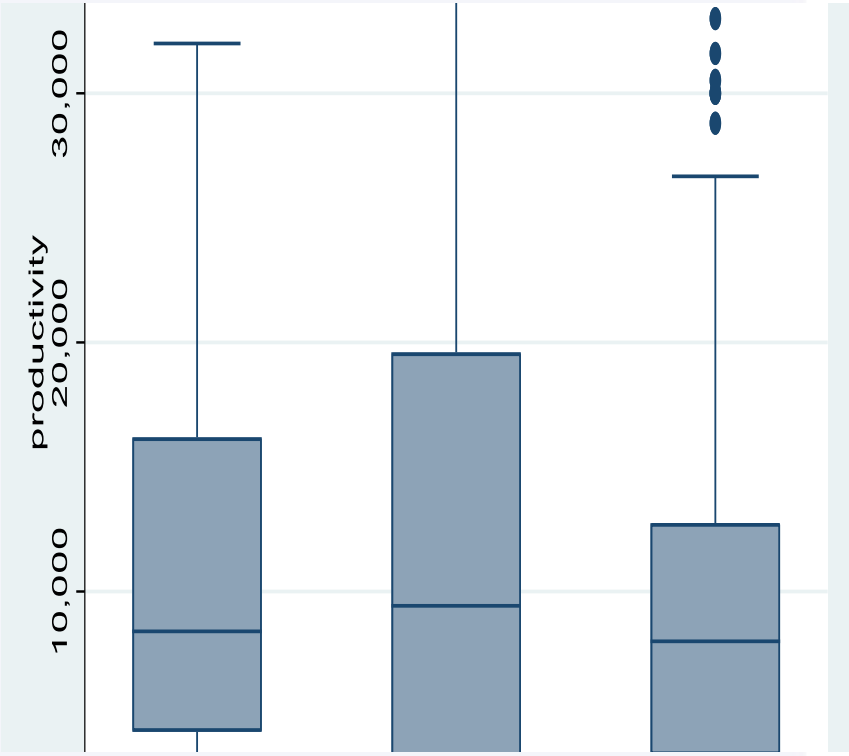
Methodology

Multivariate Endogenous Switching Regression Model



3. Results and discussions





Average land productivity (ETB) per hectare for different AWM practices: 1= Soil bund, 2= SSI 3= Stone bund

Results (2)

- Adopter of SSI are more likely to have higher caloric intake,
- Nonadopters of SSI, would increase the potential gains in caloric intake,
- SSI adopters are more likely to consume nutritionally diverse foods,
- Potential gains if access to SSI

AWM technology	HFCS	
	ATT	ATU
Stone bund	-15.81 (-14.96) ***	-12.12 (-22.71)***
Soil Bund	-9.73 (-11.36)***	-3.82 (-6.18) ***
SSI	10.82 (18.56)***	4.46 (6.64)***

AWM technology	HDDS	
	ATT	ATU
Stone bund	-1.88 (-21.67)***	0.16 (3.29)***
Soil Bund	-1.28 (-11.17)***	-0.43 (-6.38)***
Irrigation	1.73 (26.16)***	0.74 (11.77)***

Results (3)

- Significantly different b/n adopters and non-adopters
- Stone bunds and SSI have significant impact in lowering HFIAS,
- Potential gains of stone bunds and SSI,
- Soil bunds increase the perception of food insecurity

AWM technology	HFIAS	
	ATT	ATU
Stone bund	-9.32 (-4.65) ***	-0.55 (0.39)***
Soil Bund	7.94 (1.93)***	15.74 (6.85)***
Irrigation	-22.01 (-25.51)***	-20.96 (-22.57)***

Conclusions

- SSI implies higher productivity and food security and nutrition,
- Potential food security and nutrition gains for non-adopters of SSI,
- Promoting new technologies and scaling promising technologies needs policy support,
- Bundling of practices instead of promotion each practice independently, and
- Will foster achieving SDG2, SDG5, and SDG13 goals.

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