



Reaping economic and environmental benefits of scaling up **nutrient recovery** technologies for sustainable **soil ecosystem services** in Sri Lanka

Dr. Bekchanov Maksud

Center for Development Research (ZEF), Bonn University

1 PROBLEM STATEMENT

- Soil nutrition depletion
- Reliance on imported chemical fertilizers
- Organic waste related pollution

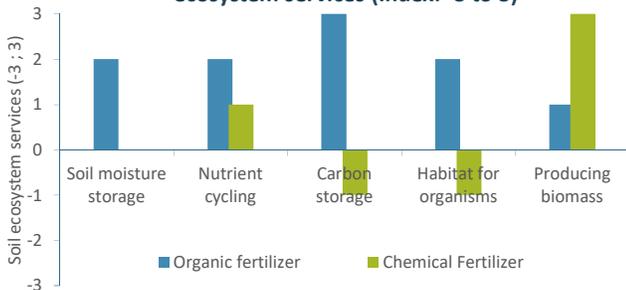
2 RESEARCH QUESTIONS

- Feasibility of organic fertilizer production
- Impact on soil ecosystem services
- Optimal mix of organic and chemical fertilizer uses
- Enabling environment

3 METHOD

- DPSIR/ Impact analysis
- Economic multi-regional optimization
- Waste-to-compost supply chain
- Material Flow Accounting (MFA)
- Institutional (governance) analysis

4 RESULTS: Organic and chemical fertilizer use impacts on soil ecosystem services (Index: -3 to 3)



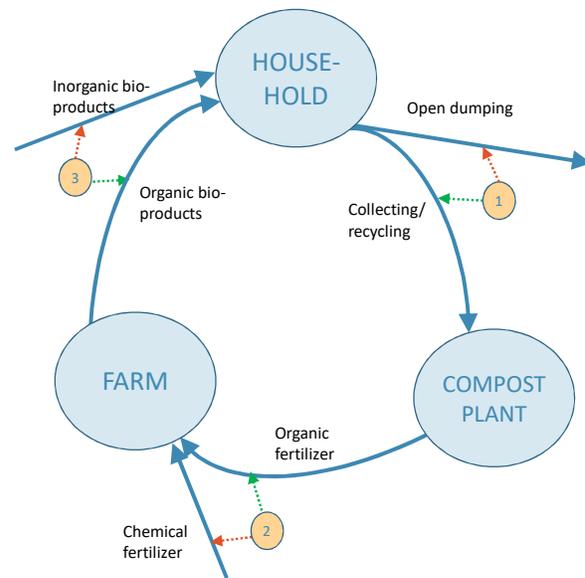
5 RESULTS: Changed costs along waste-to-compost supply chain under composting strategies in Sri Lanka



6 RESULTS: Organic fertilizer share in total nutrient (NPK) consumption in accordance with waste recycling strategy



7 RESULTS: Economic policy instruments to harness nutrient cycle along the waste-to-compost supply chain



Policy instruments	Waste-to-compost supply chain		
	1- Collection/ recycling	2-Fertilizer supply	3- Bio-product supply
'Stick'	<ul style="list-style-type: none"> • Fining illegal open dumping of waste • Enforcement of the regulations 	<ul style="list-style-type: none"> • No subsidies to chemical fertilizers 	<ul style="list-style-type: none"> • Taxing unsustainable agriculture
'Carrot'	<ul style="list-style-type: none"> • Purchasing waste • Land entitlement for compost plants • Maintenance services 	<ul style="list-style-type: none"> • Compost quality monitoring • Certified carbon credits 	<ul style="list-style-type: none"> • Raising public awareness on organic bio-products • Eco-labeling

8 CONCLUSION: Internalizing externalities, raising ecological awareness and stopping subsidize substitutes along the supply chain are important for the success of the 'nutrient recovery from waste' business model in Sri Lanka

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CONTACT:

Address: Center for Development Research (ZEF)
Genscherallee 3, 53111 Bonn
E-mail: Maksud.Bekchanov@yahoo.com

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Circular economy of composting in Sri Lanka: Opportunities and challenges for reducing waste related pollution and improving soil health
M. Bekchanov, A. Mirzabaev