

DRIVING CHANGE IN AGRICULTURE

The role of research and innovation

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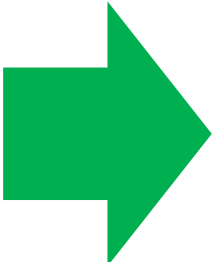
Vice-President,
IFOAM – Organics International
Senior Advisor,
HELVETAS Swiss Intercooperation



Food systems provide a key lever for change

From problem....

- Greenhouse gas emissions
- Soil erosion
- Biodiversity loss
- Water crisis
- Rural poverty
- Noncommunicable diseases



.... to solution

- Carbon sequestration
- Soil fertility
- Agri-biodiversity
- Water retention
- Rural incomes
- Healthy nutrition

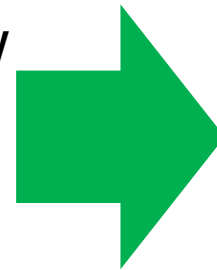
Contributing to the Sustainable Development Goals (SDGs)



What kind of change is needed?



Industrial farming
Monocropping, uniformity
Synthetic pesticides
High fertilizer input
GMOs + Hybrids
Animal factories

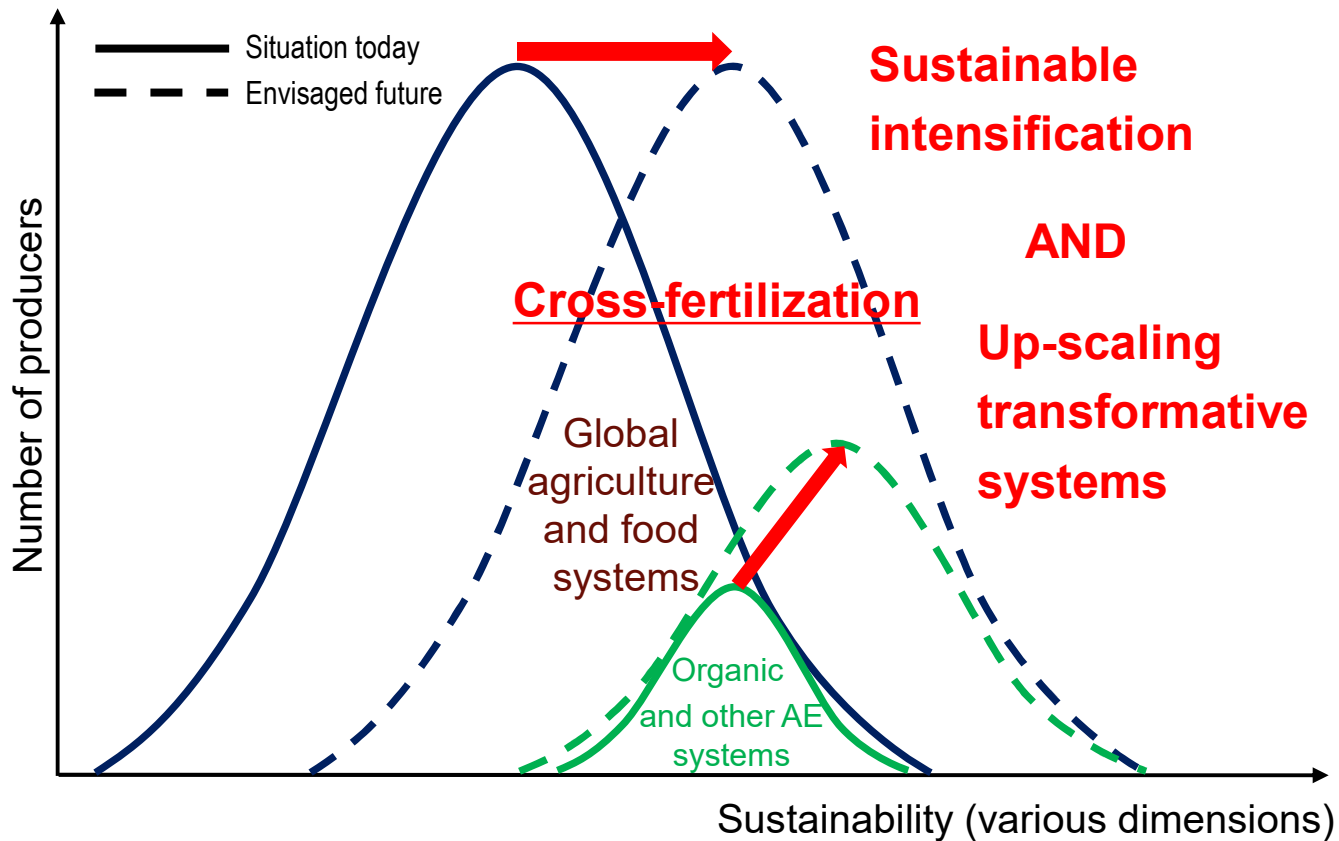


Agroecological systems
Diversity
Biocontrol
Nutrient cycles
Locally adapted varieties
Integrated animal husbandry

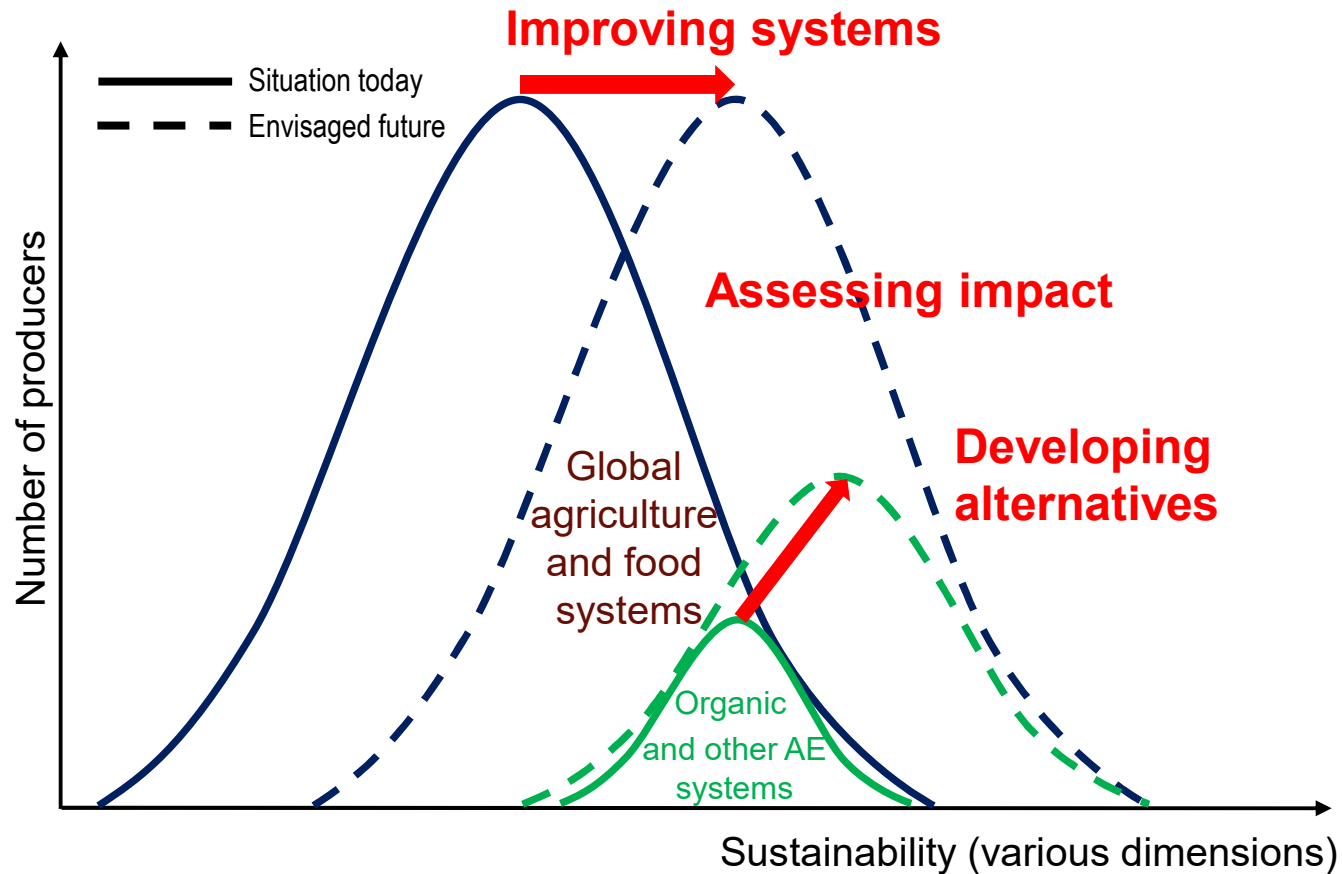


Sustainability (various dimensions)

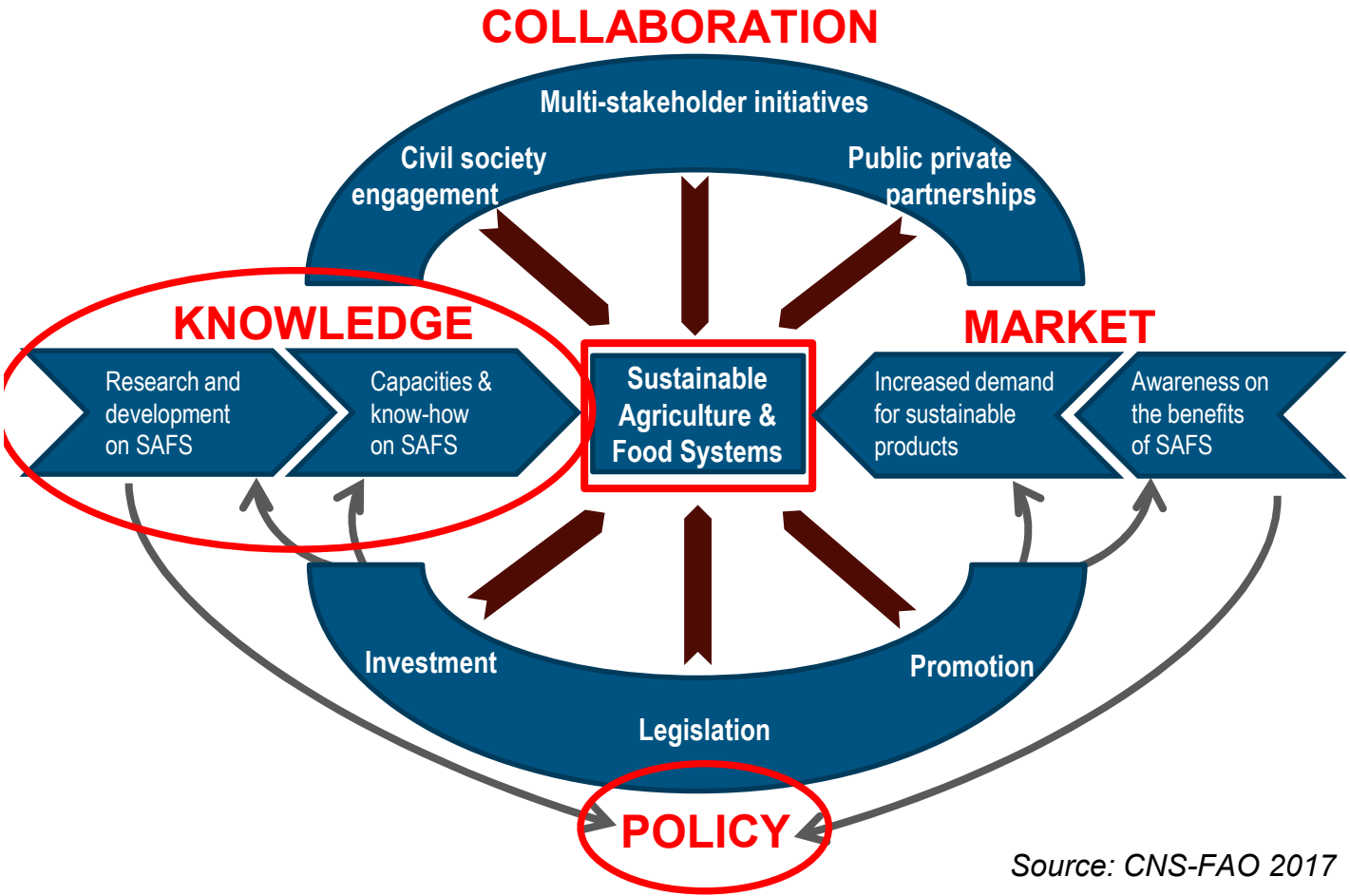
Reconciling competing narratives



The role of research and innovation



Driving change towards Sustainable Agriculture and Food Systems

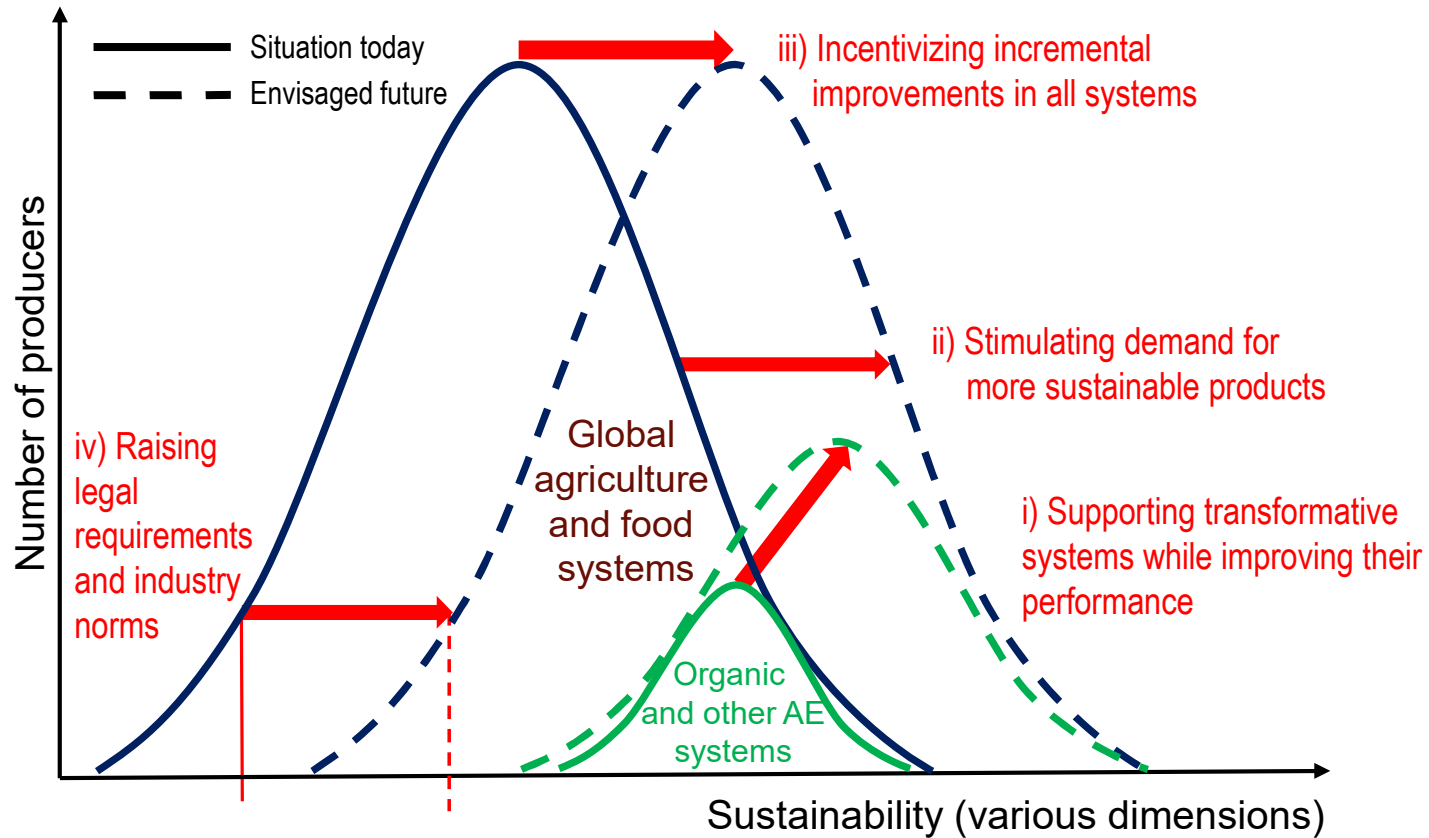


Why policy matters so much



- Defines “the rules of the game”
 - Steers through taxes, subsidies, and support programs
 - Influences business practices and prices
 - Triggers research and innovation
 - Influences public awareness and consumer behaviour
- Perpetuating unsustainable practices and behaviours**
- OR**
- Triggering more sustainable ones?**

Policy levers to drive sustainability



Eyhorn, F., Muller, A., Reganold, J.P., Frison, E., Herren, H.R., Luttikholt, L., Mueller, A., Sanders, J., Scialabba, N., ... Sustainability of global agriculture driven by organic farming. *Nature Sustainability* 2 (2019) 253–255.

Case study: Organic rice project in India



- In collaboration with companies, farmer organizations, NGOs, Research Institutes
- Diversified sustainable production for domestic and export markets
- Improving income, livelihood, environmental performance
- Water stewardship, reducing greenhouse gas emissions, biogas
- Participatory research & development



Participatory Technology Development



On-farm trials of farmers

- Planting system
- Intercropping
- Water management
- Mechanization

- Varieties testing
- Pest & disease control
- Manure input
- Crop rotations

Research station trials



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Enriching people and planet

Cross-fertilization: Organic ↔ Mainstream



Alternate wetting & drying



Line sowing



Farm mechanization

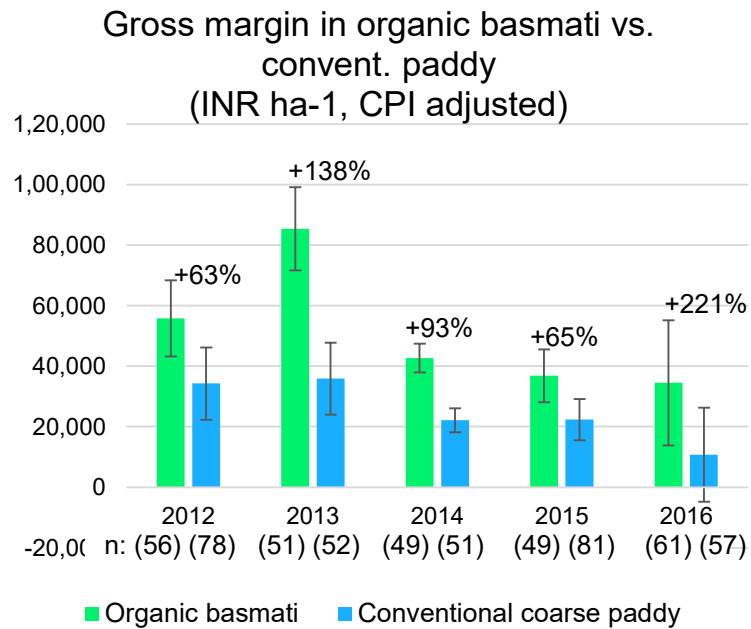


Laser levelling

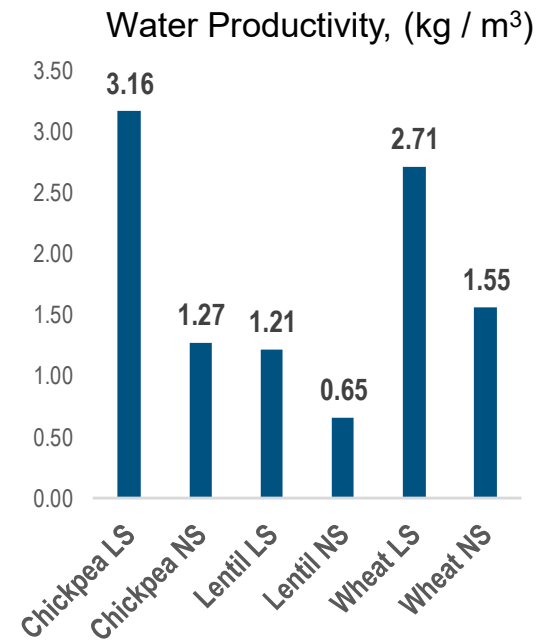


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Income



Water saving



Feeding the data back to farmers



Organic and Fairtrade Rice Project Kharif 2016 Results for individual farms

DD12	Kamla Devi	Nandan Singh	Dhela	Org
Code	Woman farmer name	Husband / Father name	Village	Status

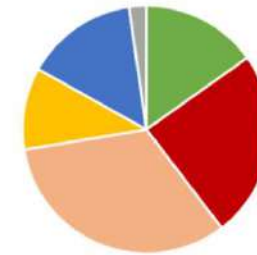
Kharif crop 2016

Land use	Basmati	Paddy	Pulses	Millets	Vegetables & spices	Fodder & others
Crop shares	22%	31%	25%	0%	19%	3%
Average farm (org)	13%	24%	22%	18%	15%	8%

Agronomic performance

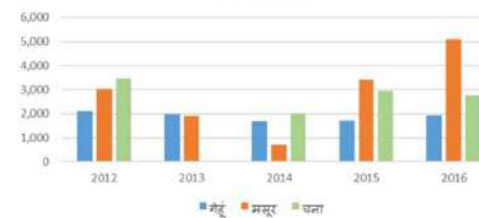
Results	Basmati	Paddy	Soybean
Yield (kg/bigha)	153	102	62
Average yield	122	188	50
Sales price (Rs/kg)	30	14	25
Average price	30	14	31
Revenue (Rs/bigha)	4'577	1'423	1550
Average revenue	3'674	2'564	1'527
Total cost (Rs/bigha)	628	1'252	1783
Average cost	520	1'336	914
Profit (Rs/bigha)	3'949	171	-233
Average profit	3'154	1'227	613

जैविक प्रक्षेत्र में फसलों का अंश
(वर्ष 2012-2016 का औसत)



■ बासमती ■ धान ■ दालें
■ छोटे अनाज ■ सब्जी व मसाले ■ चारा व अन्य


रबी फसलों का शुद्ध लाभ
(रुपया/बीघा)



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Multi-stakeholder approach



 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC



Informing policy making (evidence-based)



At local level...

- Briefing authorities
- Water & Environment Groups
- Infrastructure projects
- Curricula (schools, colleges)

... at national level...

- Policies and programs
- Research agenda
- Training and extension



... and at global level

- Sector platforms
- Public private partnerships
- UN processes



Ways forward – What stakeholders should do

- 1. Apply a systems perspective (beyond farming system)**
- 2. Ensure that policies are coherently aligned with the SDGs**
- 3. Invest in participatory research and technical assistance**
- 4. Collaborate beyond ideological boundaries**
- 5. Share research results with those who provide data**
- 6. Investigate in how far innovations are adopted**
- 7. Inform policy making at local, national and global levels**



**THANK
YOU!**

