



# Trade-offs and Synergies among the SDGs

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# The Sustainable Development Goals (SDGs)



- ✓ In 2015, the 8 Millennium Development Goals (MDGs) running out
- ✓ Support for new comprehensive global goals - social, political, environmental
- ✓ Agreed upon by 193 countries
- ✓ 17 goals, 169 targets
- ✓ “universal”; “comprehensive”; “No one left behind”

# 17 Sustainable Development Goals (SDGs)

## Linkages

### **Sustainable Development Goals to be attained by 2030**

1. End poverty everywhere
2. End hunger, improve nutrition and promote sustainable agriculture
3. Attain healthy lives for all
4. Provide quality education and life-long learning opportunities for all
5. Attain gender equality, empower women and girls everywhere
6. Ensure availability and sustainable use of water and sanitation for all
7. Ensure sustainable energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Promote sustainable infrastructure and industrialization and foster innovation
10. Reduce inequality within and between countries
11. Make cities and human settlements inclusive, safe and sustainable
12. Promote sustainable consumption and production patterns
13. Tackle climate change and its impacts
14. Conserve and promote sustainable use of oceans, seas and marine resources
15. Protect and promote sustainable use of terrestrial ecosystems, halt desertification, land degradation and biodiversity loss
16. Achieve peaceful and inclusive societies, access to justice for all, and effective and capable institutions
17. Strengthen the means of implementation and the global partnership for sustainable development

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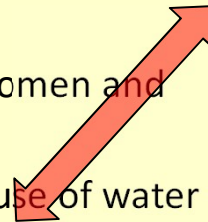
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# Types of interactions

Trade-off: A condition by which an action to achieve one goal or target makes it more difficult to achieve one or more other goals or targets.



Irrigation → More food production

→ More water pollution

Goal for Zero hunger ↑

Goal for Clean Water ↓

Synergy: A condition by which an action to achieve one goal or target helps achieve one or more other goals or targets.



Sustainable agriculture → Increased food production

→ Reduced pollutant runoff, greenhouse gases, ...

Goal for End Hunger ↑

Goal for Clean Water ↑

Goal for Climate Action ↑



# Advantages of exploiting synergies and minimizing trade-offs: The high costs of the SDGs



## Costs of achieving the SDGs:

‘Good health’ goal: \$371 billion/yr (WHO)

‘Clean water’ goal: \$114 billion/yr (World Bank)

Total  $\approx$  \$5-7 trillion /yr (UNCTAD)

**Strong motivation for “efficient implementation of SDGs” → More than a “tick-box” exercise**

**A *stronger* motivation: “Leave no one behind”  
→ enhancing ‘equity’ and advancing social justice**



# Efficient SDG implementation: *An Integrative approach to SDGs*



## How is an integrative approach efficient?

1) **Minimizing trade-offs** – Minimize inadvertent losses

2) **Maximizing synergies** – multiple goals, same action

- Fewer resources needed
- Fewer overlaps, duplications
- More opportunities for collaboration across sectors



## How to apply an integrative approach?

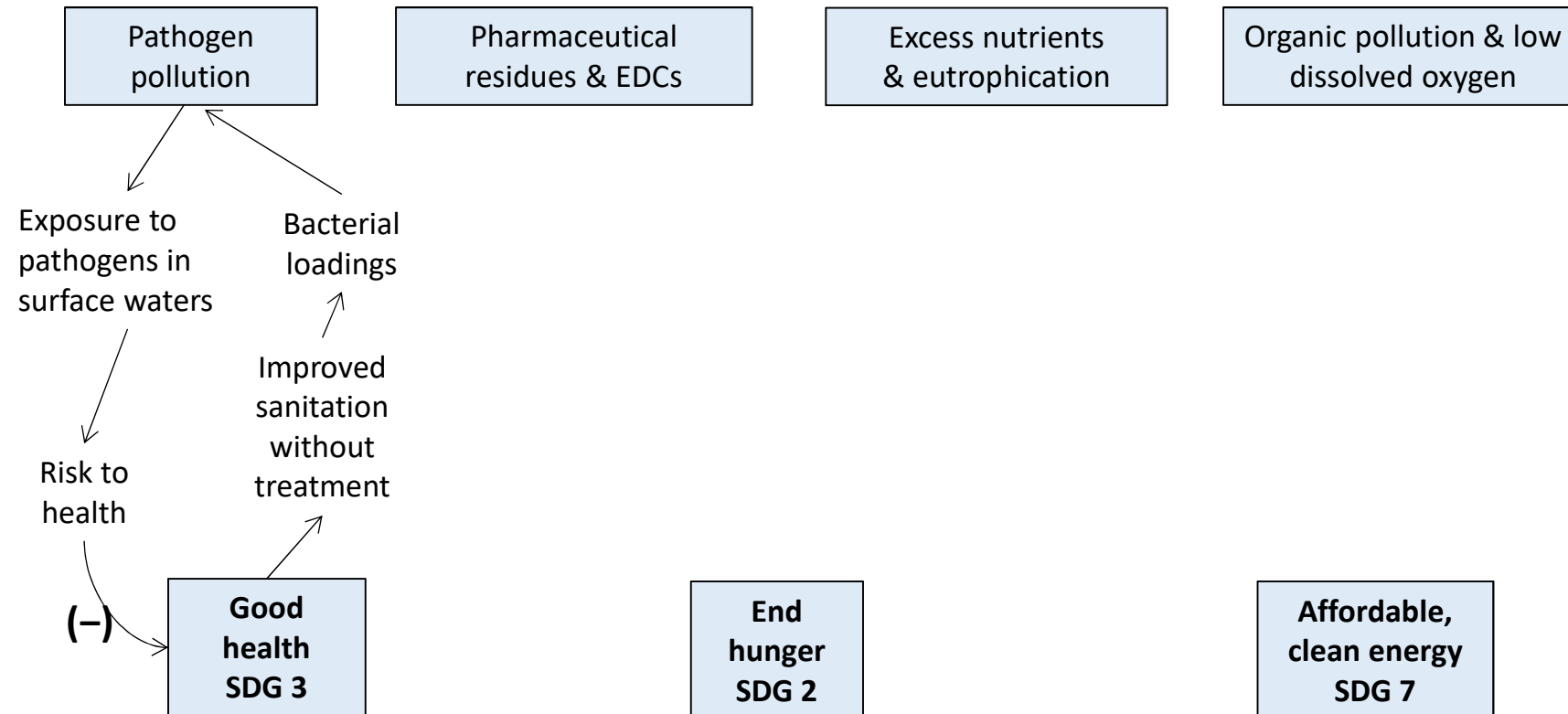
- Work at local level – tailored to community needs
- Coherent policies/measures across SDGs, sectors, departments, ministries

# Example of trade-offs

## *The water quality example*



Water quality SDG-target 6.3... different dimensions of water pollution ...

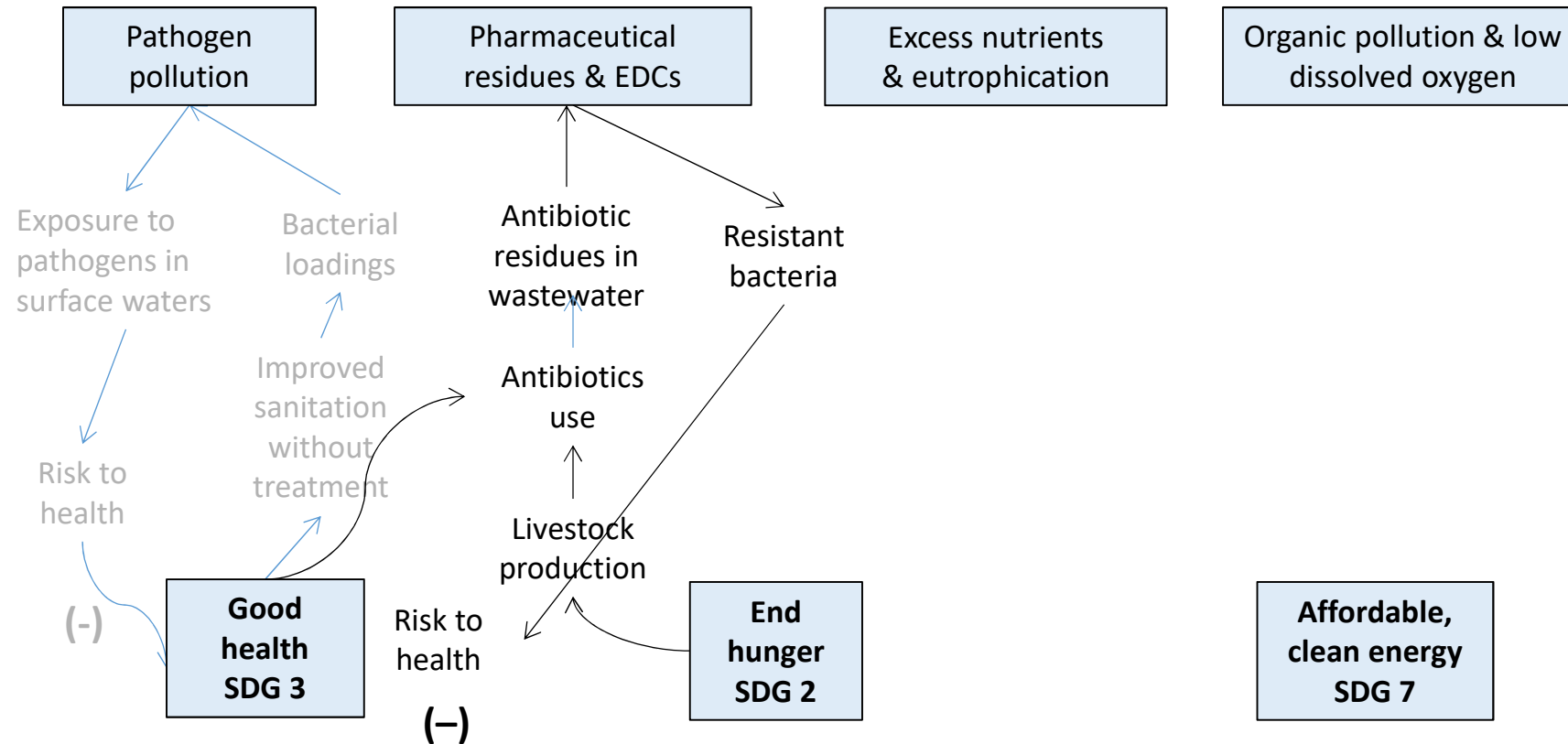


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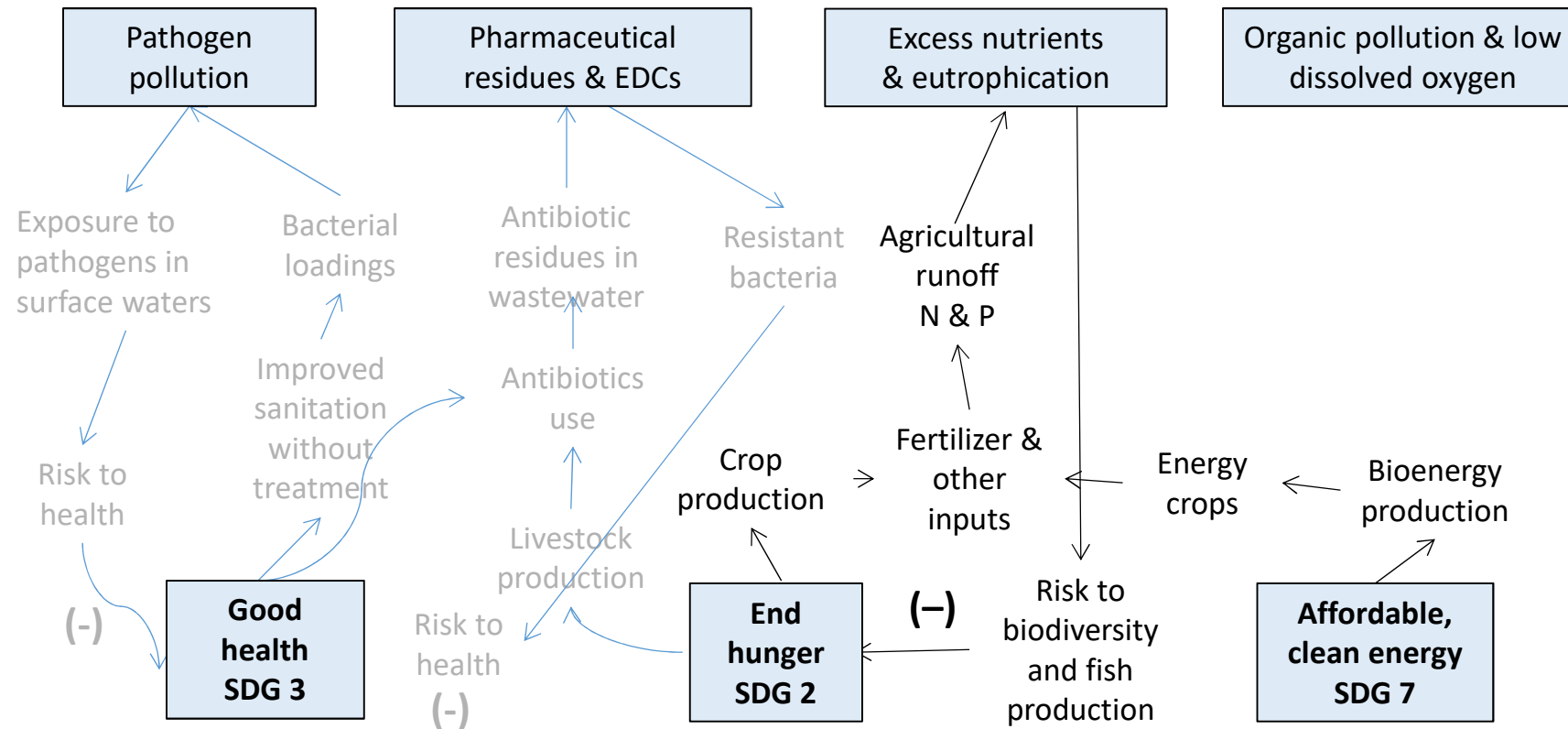


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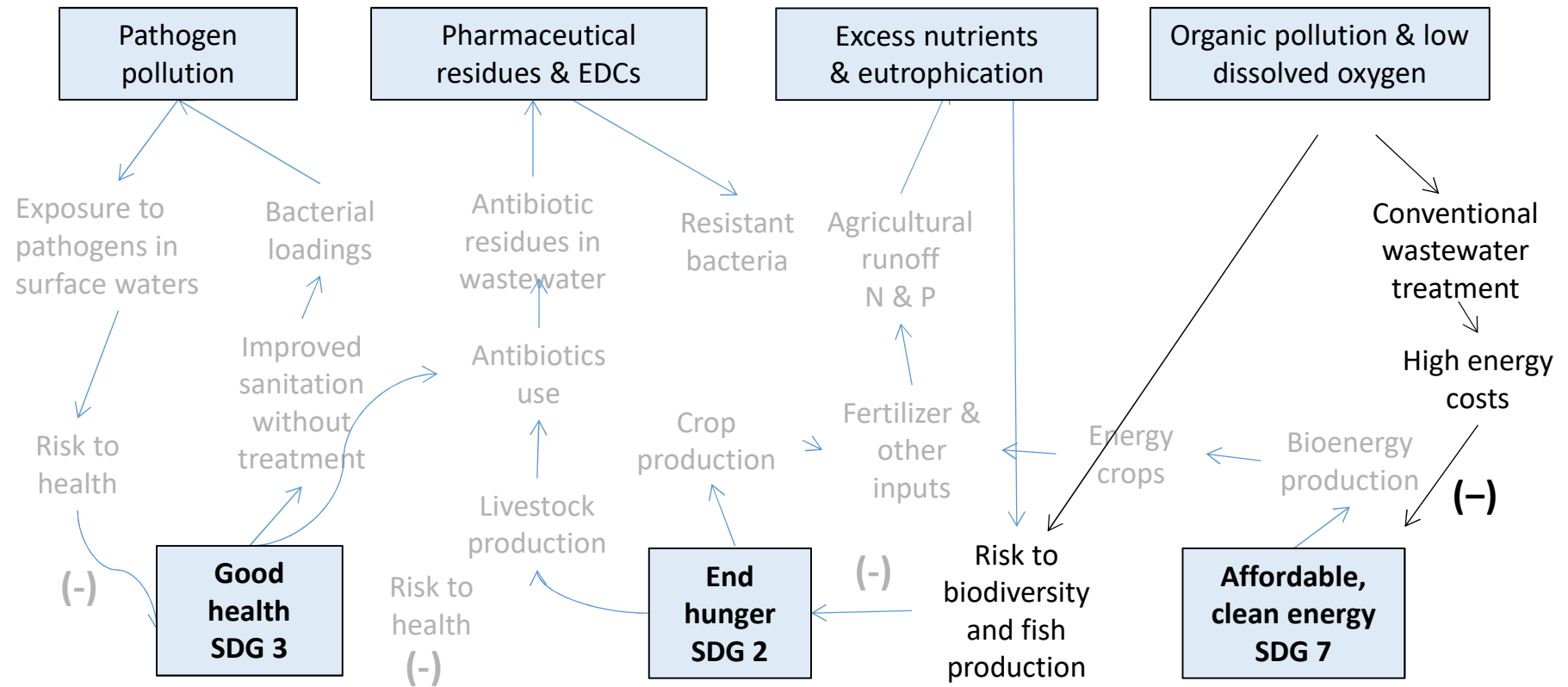


# Example of trade-offs

## The water quality example



Water quality SDG-target 6.3... different dimensions of water pollution ...



30-60%

# Uncovering SDG interactions: SSRP working at local level





## Local projects: First results

# New linkages between poverty, environment, health



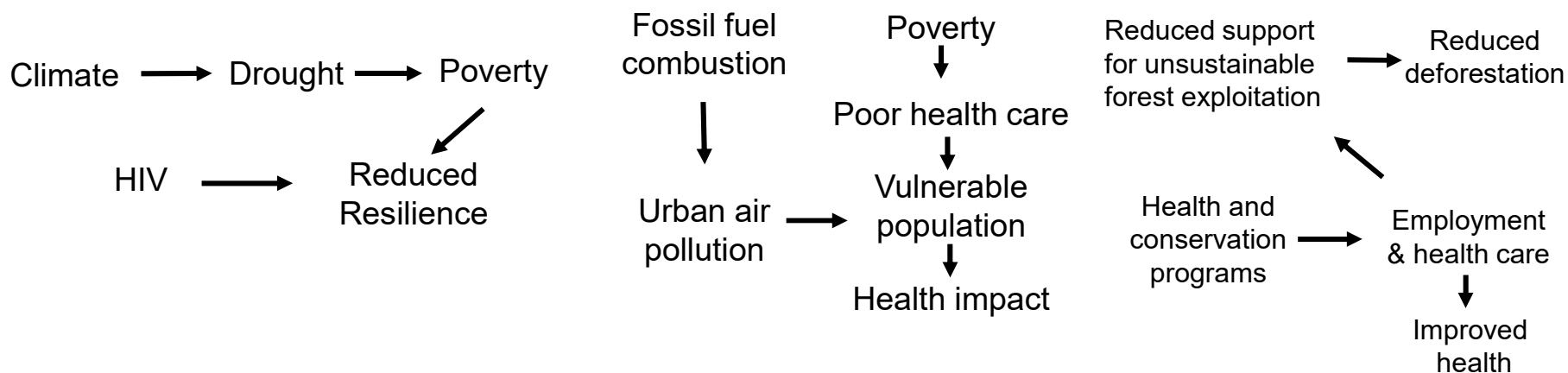
UMkhanyakude district,  
South Africa



Delhi & Beijing



Wanang Forest  
Papua-New Guinea



What are new actions to combine poverty alleviation, conservation and health care & to achieve multiple SDGs?

## Local projects: First results

# Critical transition zones for the SDGs: Peri-urban areas



Wuhan



Calcutta



Brighton region

### Is sustainable agriculture feasible/productive in cities and surrounding areas?

- Agro-ecological farming: yields comparable to conventional farming
- Biodiversity crucial: Enough pollinators for crops
- Citizen science works

### How to minimise current trade-offs?

- Urban food production → unmanaged pesticide use, proximity to air pollutants → health risk
- Irrigated cropping → Water competition



Can safe, agro-ecological urban agriculture be scaled up?

→ SDG targets for *producing food, conserving biodiversity, sustainable cities* ?

Local projects: First results

Towards a rights-based approach to the SDGs



Zambia, Sierra Leone



Ecuador

*Rights to proper nutrition*

*Mining exploitation, tropical forests,  
environmental justice for indigenous people*

What are the elements of a rights-based approach to achieving SDGs for food & nutrition, land, water, and others?

# Local projects: First results



- Interconnections among SDGs emerge & can be acted on locally
- “Deep interdisciplinarity”
- But focusing on local level is necessary but insufficient ...

## International studies: First results

# Impact of economic globalisation on SDGs & interactions



Research on **global supply chains of wood products** from forests in Brazil, Ecuador, elsewhere  
→ “**sustainable supply chain management**” → SDGs for decent work (SDG 8), social justice (SDG 10), and land biodiversity (SDG 15)



Research on **trade law and the environment**  
→ Embedding **sustainability assessments** into existing and new trade agreements can be an especially effective measure to achieve multiple SDGs.



Research on **international debt burden and SDG implementation**  
- multidimensional poverty framework  
→ Rising debt a hindrance to SDGs → **Debt re-structuring** enables LMICs to achieve multiple SDGs

Need to work at national/international level to ensure that we take into account the impact of economic globalisation and governance processes.

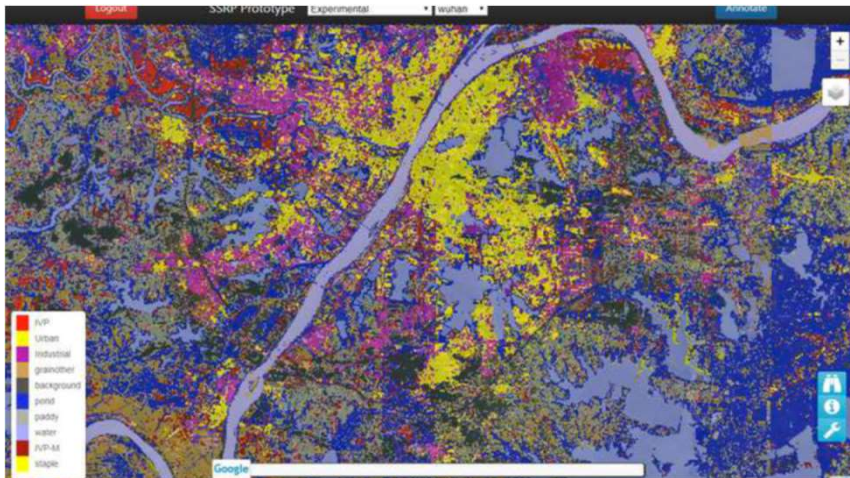


New tools for SDG interactions

# Identifying trade-offs with land use analysis

## First results from Wuhan area

Land use decisions influence trade-offs & synergies





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# Tools for SDG interactions

## Cross-impact matrix



(Scharlemann et al. 2017, SSRP Rockefeller Foundation Study)

Pair-wise comparison of goals.

Scoring: Expert judgement

**Limitations:** Expert judgement (arbitrary?). Numerous combinations of targets. Does not reflect past relationships between goals.



### Lessons from literature of cross-impact studies:

- Synergies more numerous than trade-offs.
- Some synergies more important than others [e.g. effective institutions (16.6), sustainable consumption & production (12), climate action (13)...]
- Context-specific

# Multi-scale research & engagement: from local to global



## *At the local level*

e.g. helping to provide health services and decrease deforestation in forest communities of Papua New Guinea

## *At the national level: engagement with Parliament*

e.g. Parliamentary Reception in Westminster on SDGs  
June, 2018



## *At the international level: working with countries and the UN*

e.g. Side Event with Ghana at  
High Level Political Forum on Sustainable Development.  
United Nations General Assembly, NY.  
July, 2018

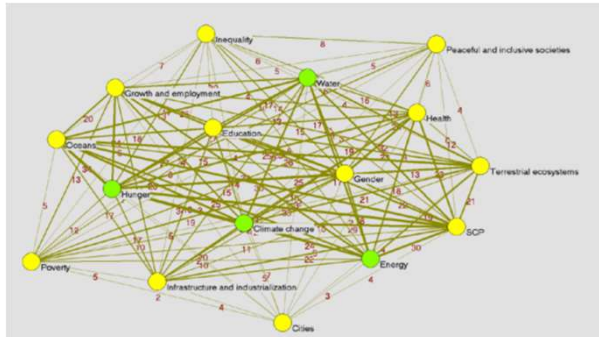
# Going forward: An Integrative approach to SDGs

## But ... tough questions



**Do the synergies add up?**

Will they make a difference to SDG implementation?



**Which synergies and trade-offs have biggest impact on SDG implementation?**

**Context-specific** — *No one left behind; Numerous local and national studies → derive transferable lessons.*



**What kind of governance do we need for exploiting synergies?**





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