

# **Family farming systems – Spaces for the sustainable management of the water-energy-food Nexus**

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## Motivations (i)

Living the 'nexus'

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“[The] **interlinkages** across sectors are most often the realities of **the everyday lives** of several people who currently are **neither the audience nor the target** for this framing but would most certainly witness the challenges of its operationalisation.”

[Srivastava et. Mehta, 2014:10]

## Motivations (iii)

Links from/to my PhD research

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Guiding question

How can **community-driven/grassroots** initiatives **contribute to** the broader **socio-technical transformations** implied in the vision of a world where universal access to clean/adequate energy is reached and sustained?

Focus:

- Technology: small/domestic biogas systems
- Geographical: Latin-American -> case study in Colombia

Transdisciplinary approach [Lang et al., 2012]:

- a) It focuses on societally relevant problem:
- b) It enables mutual learning among researchers from different disciplines and among actors outside academia:
- c) It aims at creating knowledge that is solution-oriented, socially robust and transferable to both scientific and societal practice

## Objective of the study

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Explore contributions to WEF-Nexus from my research concept and (intermediary) findings

- Conceptualization of Nexus ('conceptual strand') [*only shortly touched on*]

What can transdisciplinary research approach inform to the conceptualization of WEF Nexus approach(es)?

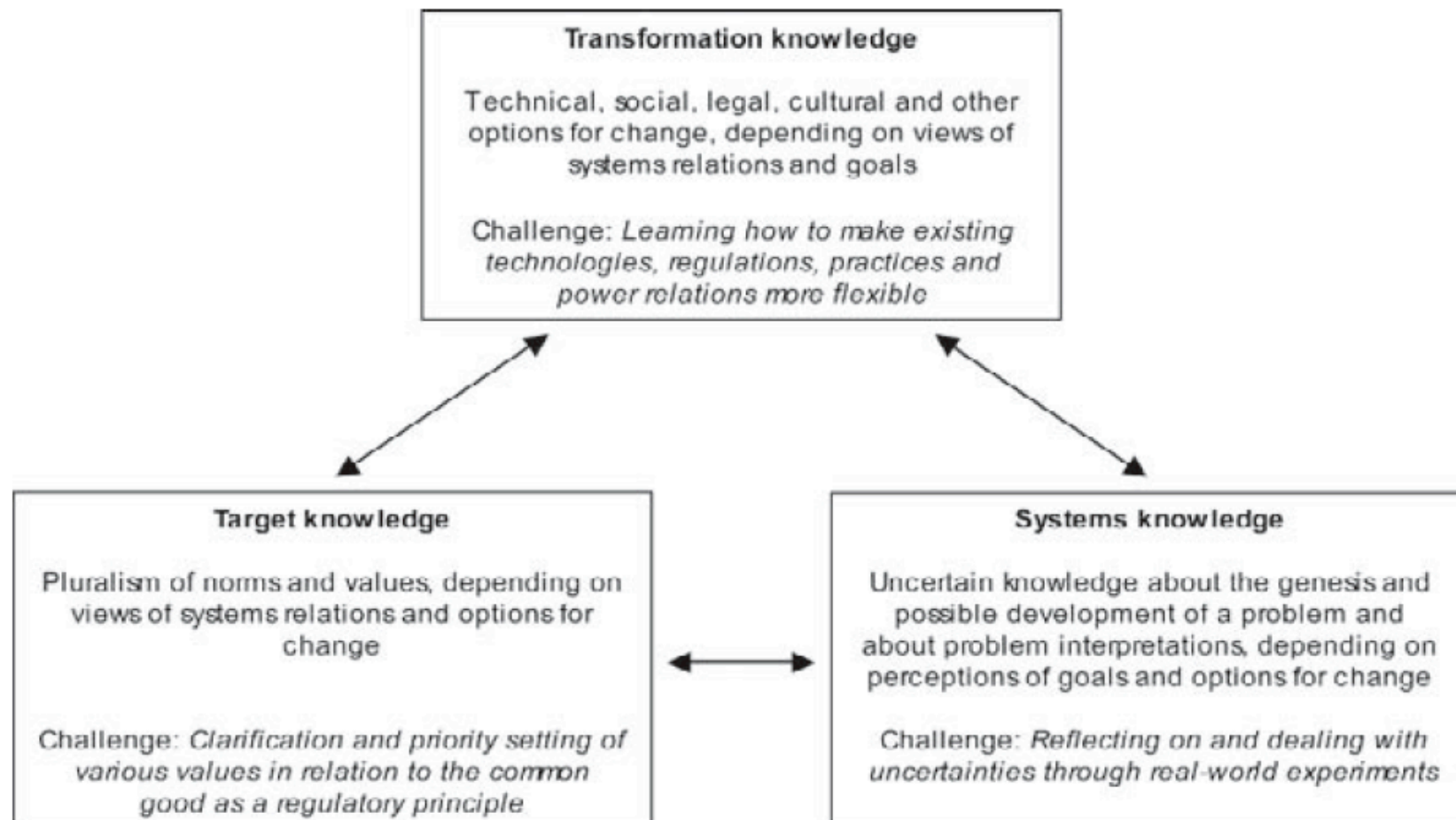
- Operationalization of Nexus ('empirical strand')

By means of which strategies and instruments do community-driven initiatives deal with the integrative challenge of the WEF Nexus approach(es)?

## Conceptual strand

Td research = integration of 'knowledges' towards societal transformation

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Interdependencies between system, target and transformation knowledge (Hirsch Hadorn et al., 2008)

## Taking the WEF-Nexus approach (i)

... as an integration challenge ...

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Integration is on the very core of the Nexus approach(es):

“... the WEF nexus needs to be integrated and addressed in tandem to improve our knowledge of the following:

### System Knowledge

- The nature of the relationships among the three elements.
  - The consequences of their changes and changes in other sectors.
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- The implications for policy development and actions for addressing the three securities.” (iisd, 2013)

### Transformation knowledge

## Taking the WEF-Nexus approach (ii)

... towards Security

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... and the aim of the integration work is to achieve security:

“A nexus approach to managing and achieving **security** in the water, energy, food and environment sectors will support a transition to sustainability” [Bonn2011]

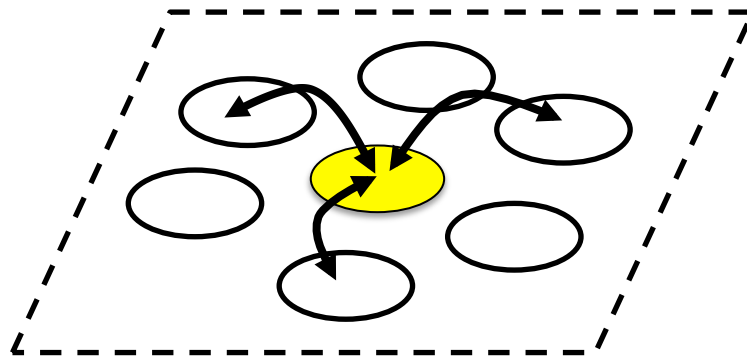
**Target knowledge**

## Empirical strand

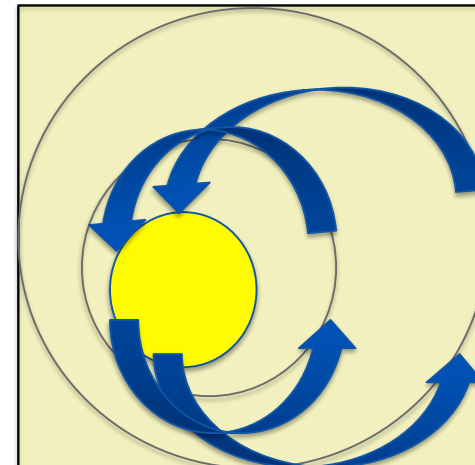
### *case-based* Mutual Learning Session (*cbMLS*)

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- *cbMLS* is a Td format which organizes mutual learning based on a single (or a set of) cases. [Vilsmaier et al, 2015]
- Comprises three phases:
  - Preparation: setting objectives and building team
  - Case encounter: space for mutual learning
  - Post-processing: processing and documentation of results



Transfer  
(e.g. among similar cases)



Extrapolation  
(e.g. between administrative levels)



## Empirical strand (ii)

### cbMLS on sustainable family farming in Colombia

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- Case encounter took place in Riosucio, Colombia 31 March – 01 April
- Central guiding question:  
By means of which tools and strategies can farmers associations effectively contribute to strengthening the family farmers in Colombia regarding their economic, social, environmental and cultural dimensions?
- Gathered 24 ‘experts’ representing:
  - Farmers associations (8);
  - Supportive organizations (NGOs, applied research) (8)
  - Science (8)

# Intermediary results

## Crucial strategy components of farmers associations

Level operation	Components	Values (goals)
Individual farms	<ul style="list-style-type: none"><li>- Predial plan and evaluation 'web'</li><li>- Definition/protection reserves (within farm)</li><li>- Agroecological practices</li><li>- Biodigesters</li></ul>	<ul style="list-style-type: none"><li>- Agroecology</li><li>- Food 'sovereignty'</li></ul>
Micro-basins	<ul style="list-style-type: none"><li>- Establishment of 'ecology groups' and 'micro-basin committees'</li><li>- Micro-basin plan</li><li>- Definition/protection of reserves and bio-corridors</li></ul>	<ul style="list-style-type: none"><li>- Water security</li><li>- (recovering) Sense of collectivity</li></ul>
Association	<ul style="list-style-type: none"><li>- Revolving fund</li><li>- Own staff for technical support</li><li>- Alternative commercialization channels: dedicated market places, trademarks</li><li>- Tool kit of participative methodologies: Diagnostic, planning, monitoring</li></ul>	<ul style="list-style-type: none"><li>- Autonomy</li><li>- Solidarity</li></ul>
Network	<ul style="list-style-type: none"><li>- Exchanges and encounters</li><li>- Systematization, analysis of experiences</li><li>- Visualizing own/indigenous alternatives</li></ul>	<ul style="list-style-type: none"><li>- Mutual learning</li><li>- Political recognition</li></ul>

# Intermediary results

Transformation knowledge

'technical' options

'managerial' options

'political dimension'

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## (Interim) Conclusions & recommendations (i)

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### Transformation knowledge and capabilities

- ... useful to understand and manage the WEF-Nexus can be found in non-Nexus communities:
  - E.g. the experience and knowledge from initiatives working on small/family farming

### Target knowledge

- Visions of relevant non-Nexus communities are not necessarily aligned ('compatible') to the value of 'security'
  - This might hinder the 'integration work', e.g. of different epistemic communities
- Target knowledge should be incorporated as part of the subject about which knowledge is to be improved

-> [Debate of any Nexus system metaphor as part of the approach itself (?)]

## (Interim) Conclusions & recommendations (ii)

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### The political dimension

- ... is particularly relevant in the case of small/family farming:
  - Struggles for the recognition as political actor (stakeholder) -> out of the role as 'target group' or 'beneficiaries'
- Questions of power disparities and how these are linked to/induce unsustainable (unsecure) conditions...
  - ... and influence the 'integration work'
  - ... should be explicitly incorporated in the Nexus subject.

-> [knowledge on choices and components of sustainable/secure/better vision(s) would/can/should not only come from science and models]

# References

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Thank you very much for your attention

Very looking forward for your comments  
and questions!

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