Nexus – Research and “How To” for Action
From 2011 Bonn Nexus Conference to 2014 follow up
in support of sustainable development goals

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Learning from the Past, Building a New Future: Nexus Scientific Research
Nexus Approach: People at the Center! Governance, and Innovation facilitating impact

Source: adapted from Bonn2011 Conference: The water, energy and food security nexus. Solutions for the Green Economy, 16-18 Nov. 2011;
Messages from the 2011 Bonn Nexus Conference (1)

Principles:
1. Putting people at the center of the nexus
2. Work toward legislative frameworks, good gov., reducing corruption
3. Involve local communities

How to?
Incentives, policy coherence mechanisms, institutional frameworks, education, information, research and empowerment
Messages from the 2011 Bonn Nexus Conference (2)

Nexus opportunities require and entail

- Overcome sector silos / tap synergies
- Get coherence
- Accelerate access to w-f-e
- Create more with less
- End waste, minimize losses
- Value natural infrastructure / ecosystems
- Mobilize consumers
The Nexus 2014 Declaration

Declaration is great! Can impact on SDG Thinking and effective Implementation

Consider more emphasis on:

• Science and Technology;
• Health & Sanitation;
• Connect to industrialization and growth (see OWG/SDG) through resource efficient transformations.
• Governance and management of Nexus;
Nexus research to address 3 key issues

1. Trans-sectoral actions for SD investment (bioeconomy)
2. Governance (decentralization and scale)
3. Innovation (new research opportunities)
Key Issue No. 1: Trans-Sectoral Actions
Example: Bioeconomy (connecting water, food, energy in “value nets” needs multi-stakeholder systems)

Production, Exploitation and Utilisation of Biomass...

...by Media
- Earth
- Water
- Culture Media

...in the Sectors of
- Agriculture
- Fishery & Aquaculture
- Forestry
- Microbial Production
- Waste Industry

Application and Processing

...by Application
- Biotechnology
- Biocatalysis
- Process Technology

Food and feeding stuff technologies

Products
- Foodstuffs
- Animal feed
- Biobased chemicals
- Biofuels
- Biomaterials
- Knowledge

Source: adapted from Bioeconomy Council, Germany, 2010
Key Issue No. 2: The Nexus governance challenges

Governance done in isolation

• Water: public, private and contested
• Food: private and neglected
• Energy: public, private and regulated and mismanaged
• Climate: barely ungoverned

Challenge to govern nexus aspects... but how?
Governance Across Scales (must be governed in centralized and decentralized ways; for instance adjusted to marginality patterns in ecology context (food, soil, water, etc.))

Source: Graw & Husmann, Chap.5, in von Braun, Gatzweiler, 2013
What Nexus scales?

Food-Water-Energy Nexus is

- mostly local,
- some national,
- some transnational
- some global

>>> big implication for Nexus themes in SDGs
Emphasis on local governance in combination with global (SDG) rule-making

- Requires well functioning decentralization – fortunately positive world wide trend toward better decentralization
- The three elements of effective decentralization matter for nexus governance:
  1. Administrative decentralization
  2. Political decentralization
  3. Fiscal decentralization

What nexus governance?

• 1st best - establish Nexus governing bodies? = Not likely
• 2nd best - establish intra-governmental consultative mechanisms for Nexus-governance = many exist already
  – not bigger / better silos, but flexible across sectors
  – direct government-to-government networks, rather than international organizations
  – move from context specific “best practices” to “good fit”

>>> Big implications for Nexus approach in SDGs
Key Issue No 3: Nexus innovation across sectors, and scales, and regions

Needs science policy in support of trans-disciplinarity to tap Nexus opportunities.

Examples:

1. Comprehensive foot-print analyses (e.g. global externalities of scarce water foot prints in multi-country models)

2. Comprehensive food security – climate change research (not as currently: 85% focused on production effects, neglecting access, volatility, extreme events, nutrition)

3. Information and behavioral change support in complex adverse Nexus environments, e.g. WATSAN – Agriculture multi-use water systems in peri-urban zones

>>>Big implications for Nexus themes in SDGs
The way forward with nexus approach

The opportunity: Nexus approach facilitates results oriented connection among key SDGs, and effective SDG implementation >2015

The needs:

• Facilitate stakeholders’ voice (i.e. business and political bodies)
• Identify governance mechanisms; respect great diversity ("best fit")
• Drive Nexus innovation and research agenda toward the highest expected returns to science investments *between* sectors
The way forward with nexus approach

The doubts: sectoral forces are very strong; They will try to capture their piece of Nexus or fight for their special interest domains

The facit:

- We must overcome hurdles on the way forward with Nexus
- The SDGs will not function without a Nexus approach guiding their implementation