

NEXUS THINKING – TWO OR THREE SECTORS?

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The concept of the food-water-energy nexus is gaining traction within international non-government organisations and multilateral aid donors. International institutions such as the World Bank and the Asian Development Bank now recognise that the linkages between these sectors are both dynamic and significant, and can no longer be ignored if we are to move towards sustainable development. Donor organisations are now beginning to understand that operating food, water, energy sectors as a part of a system and factoring in demands and stresses on each sector by another, can reduce costs and improve development outcomes. There is a growing body of literature documenting the possibility for improvements by looking at all three sectors.¹

The overlap between any two of these sectors is usually factored into sectoral project operations in economic terms.² Put simply, this includes considerations such as “how big is the water bill going to be for this coal mine” or “how much will demand for crops in this area drive up prices on this land I want to purchase for a geothermal power plant?”

However, the nexus approach requires exploration of the deeper and more nuanced intersections between the three sectors to minimise trade-offs, and ensure development policy and projects are designed and implemented with the best possible knowledge of impact and outcome.

When speaking about the theory, the three sectors are referred to as a group – the “nexus thinking approach”.³ However, when discussing examples, the literature does little to incorporate the three, other than call for a framework to allow this to be done systematically.⁴ Connections between the different sectors are largely discussed two at a time. This raises the question of how, or where, do we see the 3 sectors overlapping? Can focusing on these points where three sectors overlap provide greater understanding of the nexus and the broader system? Perhaps for many it merely convolutes an already complicated interaction.

While nexus research and themes began to emerge in 2011 and remain popular, the answers to these questions are yet to be fully explored. The significant majority of research and policy thinking on specific cases only involve an examination of two sectors at a time before moving on to assess the relationship between another two. As the nexus and systems thinking approach evolves, and a greater number of tangible solutions are proposed, donor and research organisations must be careful not to omit one sector. While the cooperative management of only two sectors may improve outcomes for both in the short term, this approach is insufficient in the context of long-term sustainable outcomes. To strengthen the theory of nexus thinking, research in the area must reorient itself to explore cases where all three sectors overlap, not just two. Only then can we begin to conceptualise practical institutional, policy and political solutions to inefficiencies and trade-offs in the nexus.

¹ Bazilian, M., Rogner, H., Howells, M., Hermann, S., Arent, D., Gielen, D., & Yumkella, K. K. (2011). Considering the energy, water and food nexus: towards an integrated modelling approach. *Energy Policy*, 39(12), 7896-7906. And McCornick, P. G., Awulachew, S. B., & Abebe, M. (2008). Water--food--energy--environment synergies and tradeoffs: major issues and case studies. *Water Policy*, 10. Amongst others

² Reuters, Factbox: Carbon trading schemes around the world <http://www.reuters.com/article/2012/09/26/us-carbon-trading-idUSBRE88P0ZN20120926>

Veerapaneni, S., Long, B., Freeman, S. & Bond, R. Reducing energy consumption for seawater desalination. *J. Am. Water Works Assoc.* 99, 95–106 (2007).

³ Hoff, H. "Understanding the Nexus. Background Paper for the Bonn2011 Conference: The Water, Energy and Food Security Nexus." Stockholm Environment Institute, Stockholm (2011).

⁴ See footnote #1