

# Why a nexus approach is critical to water management

Competition for water is not being managed to reflect the scarcity of resources in the energy and agricultural sectors. **Nick Michell** spoke to a panel of specialists about the urgent need for greater collaboration and the risks of not taking a nexus approach



Seventy percent of global water use is for agriculture

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### What is the opportunity for joint action and how can this be encouraged?



**Ulrike Pokorski da Cunha**  
Head of International Water Policy, Department Climate, Environment and Infrastructure,

#### Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

At GIZ, we see several kinds of opportunities or entry points: concrete, project level multi-purpose solutions that are able to mobilise funding or political will that one-sector solutions have failed to achieve. Solutions that have benefits in various sectors will hopefully lead to a more strategic, policy-level discussion, where sector strategies will be conceived with the mindset of solving and avoiding problems not only in one sector, but in the other two as well. Another opportunity is a clear trade-off where an intervention in one sector has significant, harmful impacts in other sectors. We believe that exchanging good practice examples can be a way to encourage joint action.



**Dipak Gyawali**  
Chair, Nepal Water Conservation Foundation

Given that the nexus approach is a new attempt at tackling

the vexing old problem of interlinkages, the opportunity that is emerging comes from its recognition by the business sector that has too long rewarded silo efficiency. The environmental sector had always been saying that in the web of life, 'everything is linked to everything'. Now that the business sector is saying it, there is the opportunity to move the two away from a discourse of critique to that of constructive engagement.



**Louise Gallagher**  
Lead of the Natural Capital and Ecosystem Services research programme at the Luc Hoffmann Institute

With multiple

scales, actors and perspectives there are a multiplicity of solutions. Crisis,

policy change and the emergence of new disruptive technologies can all encourage new coordination efforts in response to abrupt change; but a longer term approach is to build flexible mechanisms for cooperation, for example, dialogue, information sharing, and shared resource-allocation planning. One of my key learnings has been that prescribing specific actions to be taken is perhaps not helpful because the nexus takes many different forms. But measures that build interpersonal relationships across sectors will allow for formal and informal joint actions to develop naturally in response to the given context.

### Is there any coordination (within the sector—and between sectors) in prioritising what is required? What is the effectiveness of a multi-sector approach?



**Qingfeng Zhang**  
Director, Environment, Natural Resources and Agriculture Division, East Asia Department and

#### Chair of the Water Sector Group, Asian Development Bank (ADB)

There are plenty of examples of local and regional projects that successfully integrated water and energy systems or sewage disposal and agriculture. But, generally speaking, although the interlinkages among water, food and energy have been discussed for a long time, the multi-sector approach has not yet been effective. Management of water, energy and food is still in silos, and supposed solutions in one sector may likely exacerbate problems elsewhere. Energy planning is often made without taking into account possible changes in water availability due to climate change or other competing uses of water. Water resources planning rarely takes into account the energy used to pump, treat, and desalinate the water, which in turn has an impact on the water used by the power sector.

#### Pokorski da Cunha, GIZ

Each sector usually has a clear-cut vision of its priorities. Where

significant synergies are not realised, the bottleneck is often either a lack of knowledge, or difficulties in implementation due to complicated regulation. Overcoming this is not easy, but the prioritisation goes with the sector priorities. It has to be noted though, that a multi-sector approach is more complex and more expensive and in many cases will take more time than sectoral solutions. Therefore, the expected synergies have to be significant in order to justify the investment. As of now, examples of successful multi-sector approaches on a political level are still scarce. We see, however, that in regions that are under pressure, for example in terms of water scarcity, the willingness to consider multi-sector solutions increases. However, where trade-offs are involved, prioritisation becomes a key challenge.

#### Gyawali, Nepal Water Conservation Foundation

[There is] not much [coordination] at the higher 'food-chain' levels of national and international agencies. It is at the lowest levels of organisation (family, community groups, even village councils and municipalities) that nexus considerations are present. As one moves higher up the food chain, silofication gets more entrenched and rewards are internally doled out that further promote such silofication. Entities created to do the 'nexusing' at that level (national planning commissions, water and energy commissions, population commissions) are often not very effective, primarily because silos are more entrenched and can be overridden only by visionary statesmanship, which is a rare commodity.

#### Gallagher, Luc Hoffmann Institute

Acknowledging that sectoral coordination is hard to do and emerges typically only when there are tangible rewards for overcoming sectoral barriers, it helps to have some grounded examples of where prioritising shared understanding of risks and synergies between actors, be that within a sector or across sectors, has produced good sustainability outcomes.



### What are the drivers for the private sector to invest in innovative solutions that can have cross-sectoral (water-energy-food) benefits?



**Vijay Padmanabhan**  
Technical Advisor  
(Urban and Water),  
ADB

Private sector participation is largely contingent

on government policies and the government's ability to finance investments through a combination of financial instruments. While the region has gone through a cycle of testing service delivery through concessions and management contracts, governments are beginning to rely more on models of incorporating private sector efficiencies in service delivery. Consequently, governments' openness to look at new service delivery models has also allowed for innovation in the sector.

### “If the profit margin is sufficient and the red tape manageable, the private sector also invests in cross-sectoral settings”

Ulrike Pokorski da Cunha, Head of International Water Policy, GIZ

#### **Pokorski da Cunha, GIZ**

The private sector is not really constrained by sectoral silo thinking. This is more a public sector phenomenon. The private sector is already investing in nexus solutions where they are more profitable, more sustainable and involve less risk. If the profit margin is sufficient and the red tape manageable, the private sector also invests in cross-sectoral settings. For example a multi-purpose dam, which balances the interest of the energy sector with local flood protection and drinking water supply needs.

#### **Gyawali, Nepal Water Conservation Foundation**

[One driver is] proper taxation that gives a clear message to the private

sector about the costs of not nexusing. For example, taxation systems based on the footprint concept (the more water or energy footprint in transport, storage or waste disposal, the higher the tax) would structurally force the private sector into more nexused innovations. But that is a political fight that has not been taken up by the saints within the private sector and is taken up only by hard core 'Greens', which is not enough to move the politics onto that pathway.

#### **Gallagher, Luc Hoffmann Institute**

The standard drivers that lead the private sector to invest in anything (profit opportunities, cost and risk reduction, and business development) are going to drive investment in nexus solutions. Where private business models are not already capitalising on water-food-energy synergies or risk reductions, public policy will have to play an important role in driving changes in investment flows, as well as managing risks in the interim.



**James Dalton**  
Coordinator Global  
Water Initiatives,  
IUCN Global Water  
Programme

Fundamentally, it's the bottom line when

it comes to the private sector. Let's be clear about that. There are significant efficiency gains to be made through investing in technology, gains that means less inputs, or greater outputs, reduced energy bills for example. This can also bring improved public opinion, better social licence, and greater stakeholder engagement.

### What information is needed from assessment tools and decision-support systems to plan and design infrastructure that can provide benefits to energy and food production, as well as water supply?

#### **Gallagher, Luc Hoffmann Institute**

Making sustainable resource allocations in the nexus requires that we measure interconnected food, energy and water risks consistently at multiple scales and with strong integration. Meaningful measures

on where the interdependencies could lead to risks and how these risks are likely to materialise are essential to allow decision makers to manage synergies across economic, environmental and social sectors. The quantity and quality of environmental 'stocks and flows' are often the linkages through which risks and interdependencies are transmitted in the nexus. Yet, this element has been a missing piece of the puzzle for assessment tools and decision support systems for nexus implementations.

#### **Dalton, IUCN Global Water Programme**

Simply put, it's about multi-purpose use, and strategic investment that considers the role and importance of the natural infrastructure as well. Assessment tools need to identify the impacts from single sector approaches on other sectors, to help inform decision-making. Ultimately, these results become politically owned. We are talking about the impacts of investments in electricity generation on the environment and on water supply, both positive and negative.

### What are the possible approaches that can support monitoring of nexus activities?



**AKM Mahfuzuddin Ahmed**  
Advisor, Agriculture,  
Rural Development  
and Food  
Security Unit of  
the Sustainable

#### **Development and Climate Change Department, ADB**

Monitoring requires a broad, consolidated, accessible and updated database for the range of water, food and energy stakeholders. Such a body of knowledge will require partnerships with governments, academia, and donors to develop and sustain. The Asia Water Development Outlook (AWDO) is an initial attempt at providing a quantitative and comprehensive view of water security for the Asia Pacific region. AWDO reports on a range of indices distributed across five key dimensions that include productive use of water in food production, industry, and energy.



'Management of water, food and energy is still in silos.' Qingfeng Zhang, Asian Development Bank

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#### **Pokorski da Cunha, GIZ**

I don't think that it is about indicators and monitoring. It is about challenges and risks. It is about prioritising a country's key challenges, not with regard to the problem they pose today but with regard to the problems they will or may pose tomorrow. We should not overvalue tools. Strategic decisions that are taken at high political levels are seldom taken using sophisticated tools. The decision about how high a dam should be and whether to maximise electricity generation or use the dam as a water reservoir for irrigation and flood protection will depend on sound models. It is at that level that we would like to see the nexus perspective considered.

#### **Gyawali, Nepal Water Conservation Foundation**

If moderate 'Greens' were able to work with the more socially sensitive sections among the market players, as well as hierarchic agencies that are not totally beholden to corporate money-funded politicians, there is some hope that new nexus-friendly

approaches could be introduced into the political discourse and practice.

#### **Dalton, IUCN Global Water Programme**

Getting the right indicators is crucial but so is joint monitoring by multi-sectoral committees. The more we can monitor impacts, the better we are at managing them. Big data can support this process, using the latest technologies and local level monitoring, marrying the two to create better multi-institution agreed and owned data for monitoring.

#### **Why are donors, investors and governments financing nexus projects and activities?**

#### **Gyawali, Nepal Water Conservation Foundation**

Are they? I don't think so. If they are, it is to a very small and insignificant scale, and could be because of a sense of confusion as the old development paradigm, based on the efficiency business model, as well as the neoliberal political economy. My sense is that even the German government,

which was at the forefront of supporting the nexus approach, has become lukewarm in the aftermath of the refugee crisis.

#### **Pokorski da Cunha, GIZ**

Water, food and energy security are so interlinked and based on the same natural resources that we will fail to reach our objectives in each of the sectors if we do not consider the others. It is not easy, and has sometimes come across as a top down process, but many donors are convinced that in the long run we will fail to reach our objectives if we cannot change our approach.

#### **Dalton, IUCN Global Water Programme**

It's a no brainer. The sum of the parts is greater than the whole. If you can work with multiple sectors it should be easier to identify complimentary solutions, identify efficiency gains, economies of scale and circular opportunities. It is the holy grail of water management, getting the integrated needs and uses of water to work better across sectors. We hope to achieve this in developed economies, →



so it is logical that there is interest in sharing experience and looking at how these cross-sectoral approaches can work in developing economies.

**How important is it to consider the nexus multi-sectoral perspective in relation to implementing the SDGs?**



**Yasmin Siddiqi**  
Principal Water Resources Specialist, Sector Advisory Services Division, Sustainable Development and

Climate Change Department, Asian Development Bank

The implementation of the SDGs will require a shift away from conventional approaches and will drive more integrated approaches. Given the inherent link of water across various users, sector-specific and isolated interventions can no longer provide solutions and require more innovative approaches, scaling-up of successful pilot activities, cross-sector thinking and looking to external drivers. Perhaps one of the biggest challenges is updating organisational structures, which are designed sector specifically and do not engender cross-sectoral collaboration.

**Pokorski da Cunha, GIZ**

Unfortunately, the SDGs are formulated as sectoral targets. There would have been an opportunity to consider the nexus perspective in the indicators, but with the proposed reduction of indicators to only 100

**“To achieve the SDG’s there will be a need for far better sector coordination and engagement to make the most of investment, experience and learning**

James Dalton, Coordinator Global Water Initiatives, IUCN Global Water Programme

and the strong role of the statistical commission in defining them, this seems unlikely to happen. However, I am convinced that we will be witnessing the trade-offs in the course of the implementation. Hopefully, we will be able to show quickly that by addressing the nexus, all relevant SDGs will be easier to reach than by proceeding in an individual manner.

**Gyawali, Nepal Water Conservation Foundation**

We have to wait and see. As with the MDGs or climate change negotiations, if too much procedural fetishism of bureaucratic hierarchism prevails, we may see a similar strangling-to-death of the SDGs as well. If other voices of market individualism and activist egalitarianism also find a voice at the table, space may emerge for what we call ‘many ten percent solutions’ from each with varying perspectives and definitions of the problem. Given that egalitarian voices are the most vocal when it comes to arguing that ‘everything is linked to everything else’, if we see a move away from public-private partnership to a public-civic partnership as an antidote to too much PPP of the past, then perhaps the more ambitious SDGs have a chance of succeeding.

**Gallagher, Luc Hoffmann Institute**

The nexus promotes intersectoral analysis of complex trade-offs and synergies that can impact resource security and therefore contribute to policy objectives, including the Sustainable Development Goals. In this, the nexus approach may provide a pragmatic sustainability pathway through supporting integration in three critical sectors.

**Dalton, IUCN Global Water Programme**

It is critical, but probably politically not so well understood. We organise ourselves in silos, as it makes things easier to manage. This is how we distribute finance; it’s how we educate ourselves through disciplinary silos. To achieve the SDG’s there will be a need for far better sector coordination and engagement to make the most of investment, experience and learning.

**What is at stake if we continue to avoid cross-sectoral implementation?**

**Pokorski da Cunha, GIZ**

I think we will feel the planetary boundaries closing in very quickly: widespread water scarcity with soil degradation, increasing problems with water quality with ensuing diseases, soaring prices for land, high and volatile food prices, and loss of ecosystems

and livelihoods are among the direct consequences I envisage. There is increasing evidence that this has already reinforced conflicts and migration. That being said, I personally do not believe cross-sectoral implementation in the technical sense is going to be able to save us from the tougher decisions around the limit of growth and the distribution of wealth in the long run.

**Gyawali, Nepal Water Conservation Foundation**

If we continue on the silofication path, more unexpected and probably unpleasant surprises will catch all of us, and will shell shock the existing establishment. Unless there is quickly a broad understanding on the philosophical pathway to a nexus approach, countries will continue to move along narrow beaten tracks. I think an opportunity has been missed in the current SDG benchmarking.

**“If we continue on the silofication path, more unexpected and probably unpleasant surprises will catch all of us, and will shell shock the existing establishment”**

Dipak Gyawali, Chair, Nepal Water Conservation Foundation

**Dalton, IUCN Global Water Programme**

What is at stake is not maximising the potential. We will not maximise technical, productivity or financial efficiency gains. This will make it harder for us to achieve the SDGs for example, and doesn't allow a short cut to achieve our social, environmental and economic targets. We have lessons, we have experience in this area, but it's not getting mainstreamed into the institutions. Incentivising this is difficult. You help yourself first before your neighbour. There has to be a greater understanding of the joint benefits that cross-sectoral implementation can bring. ●

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