Cross-sectoral integration in the Sustainable Development Goals: a nexus approach

Introduction

The Millennium Development Goals laid out an ambitious agenda to improve living standards in poor countries. Now, with the Sustainable Development Goals, world leaders are aiming to set a broader agenda for 2015 and beyond: a set of universal goals that engages countries at all income levels to ensure the long-term well-being of humankind. Put another way, while the MDGs aimed to lift people out of poverty, the SDGs aim to also keep them out of poverty by ensuring that development is both socially and environmentally sustainable.

Long-term sustainability requires acknowledging that many of the resources that support development – water, land, materials – are finite and are also needed to support vital ecosystem services. Development can only be sustainable if it works within those constraints, over time and across sectors and locations. This is where the MDGs fell short: they identified sectoral goals – and targets under them – with little consideration of how efforts to attain a goal in one sector would affect (or be affected by) efforts in another sector, or whether the total demand for key resources could be met by existing supplies without degrading the resource base and underlying ecosystems. Many SDG proposals to date have followed a similar pattern.

Yet a different approach is gaining support as well – one that aims to integrate goals across sectors to make the SDGs more cost-effective and efficient, reduce the risk that SDG actions will undermine one another, and ensure sustainable resource use. A proposed "Integrating Approach" by the Government of Colombia (2013) has helped catalyse the discussion, and the UN Open Working Group on SDGs is actively exploring integration challenges.

This brief aims to support SDGs integration by showing how the water-energy-food nexus can provide a framework for systematically assessing cross-sectoral interactions. The nexus approach is already being applied to development challenges all around the world, and water, energy and food have been identified as priority areas for SDGs – in the Rio+20 outcome document (United Nations 2012a), in a member state questionnaire on SDGs (United Nations 2012b), and in a number of SDG proposals.

Wind turbines dot a field in Rajasthan, India © Flickr / Yodel Anecdotal

The nexus approach can be applied in several ways to explore different approaches to SDGs integration. We show how to identify interactions among goals, and examine different types of interactions: for example, how the achievement of targets under one goal might affect targets under another goal, or how individual targets might serve multiple goals. We also propose "nexus targets" – targets that cut across sectors – as helpful entry points for developing an integrated framework beyond water, energy and food objectives.

The water-energy-food nexus[1]

Most governments have separate agencies to oversee water, energy, and agricultural food production, and they set policies and plan for each sector separately. However, these sectors are closely linked, through local, regional and global water, carbon and energy cycles. Moreover, they all involve resources upon which all people depend, but which billions of people lack access to; they deal with constrained supplies and rapidly growing global demand; and they are subject to regional variations in supply and demand (UNESCAP 2013).

Governments' "silo" approach to these resources, which is also reflected in international agencies, has often led to unsustainable policy and development choices. For example, an increasing number of countries are increasingly relying on energy-intensive, fossil-fuelled desalination plants; others rely on energy-intensive inter-basin water transfers and groundwater pumping as solutions to water scarcity; and bioenergy development has, to a great extent, focused on water- and land-intensive fuels such as maize-based ethanol and palm-oil biodiesel, rather than pursuing more efficient and sustainable solutions, such as generating energy from agricultural residues and waste.

A growing number of scientists and policy analysts in recent years have emphasized linkages between water, energy and food and encouraged an integrated, "nexus" approach to those sectors. The approach emerges from a long history of systems analysis and is backed by a robust body of scientific evidence, but is only beginning to take hold in policy-making and planning. The guiding principles of the nexus approach are to promote sustainable and efficient resource use – doing more with less – to ensure access to resources for the most vulnerable, especially the poor, and to maintain healthy and productive ecosystems (Hoff 2011). Similar principles guide many SDG proposals.

Nexus analyses aim to illuminate cross-sectoral interactions and facilitate integrated planning and decision-making. They can also help clarify how best to allocate resources between

1 We provide only a brief overview here; to explore the subject in depth, see the Water, Energy & Food Security Resource Platform, http://www.water-energy-food.org.

A bottom-up process for formulating SDGs

The Colombian government has been testing the Integrating Approach; 20 ministries and Presidential Councils have come together in a series of sessions to jointly discuss issues ranging from transport, to environment, gender and energy. The initial session focused on the methodology of the Integrating Approach, and agency representatives quickly grasped the logic behind it: defining sectoral SDGs as the means to prioritize sectoral issues would not result in an efficient or sustainable SDG framework. Rather, by collaborating, a robust and structured goal framework can be attained, and transformative change can be driven at the target and indicator level.

In the second session, agencies presented their three priority targets, and everyone – including those who had been sceptical at first, began to embrace the approach. For example, in presenting its three targets, the Ministry of Mines and Energy affirmed that formalizing the mining sector was its top priority. Immediately other ministries and agencies joined in, noting that the target was also relevant to their interests. Within 20 minutes, the target initially proposed by the Ministry of Mines and Energy was shared by 11 government agencies; it is no longer perceived as a sector-specific target.

The multi-sectoral and multi-dimensional efforts that are needed to deliver on sustainable development in Colombia were arrived at, simply and quickly, through a fully participatory approach. The understanding of what is sector-driven and a sectoral interest is changing radically in the Colombian councils and ministries. The Ministry of Education expressed that the very exercise of defining its three targets had brought together different units around substantive discussions in a way that had not happened before.

Enthusiasm for the exercise has gathered momentum, and the National Planning Department has taken over lead from the Ministry of Foreign Affairs that initially proposed the approach. The exercise will provide valuable inputs for the next four-year National Development Plan (2014-2018), and the experience could potentially change the way business is done within the ministries.

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competing needs in order to support agreed development pathways. The assessments use an array of quantitative and qualitative tools and methodologies, depending on the purpose of the analysis, access to data, the stakeholder context, and analytical capacities. Study results will typically identify key trade-offs between policy goals and between resource uses, but also potential synergies to be explored. Sometimes, trade-offs can be mitigated by finding a "win-win" solution, while other trade-offs will need to be mediated (Granit et al. 2013).

Identifying interactions within SDGs

Early structures of SDG consultations[2] encouraged a top-down process that begins with an overarching goal – food and nutrition, for example – then sets targets to support the achievement of that goal. Such an approach makes it very difficult to address interactions across goals and the resources they involve. When goals are the starting point, stakeholders in different sectors have little occasion to interact, much less coordinate their efforts, and the discourse will favour single-sector goals. Thus, a goal-focused process is likely to lead to a long list of disparate goal proposals, with often redundant, and even conflicting, targets.

The Integrating Approach proposed by Colombia, in contrast, would start by identifying concrete targets, without concern for overarching goal areas. The idea is that focusing on targets stimulates discussions on the scope of development issues, not sectoral challenges, and enables interactions to emerge. Consider, for example, a target on improved access to safe drinking water. It would certainly fit well under a goal of ensuring universal access to drinking water but is likewise an enabler of health, education, food security, and growth.

Taking targets as the entry point invites a broader range of stakeholders and perspectives to be included in the formulation of SDGs, extending beyond traditional sectors. This means that targets can be shared across several goals. In the end, targets must be grouped into goals if the SDGs are to be easily communicated, but by starting with targets, goal definitions will follow from a process that recognizes complexities, interdependencies and interactions.

It is important to stress that to be successful, a bottom-up approach will have to go beyond clustering related targets, and actually examine the interactions; otherwise the resulting framework would be confusing and hard to implement or monitor. The point of understanding interactions is to make more informed decisions on goals, targets and indicators, fully aware of all relevant perspectives. Thus, the fact that a trade-off has been identified does not mean that a target must be excluded – it just draws attention to the need to address the trade-off, weighing the options on the basis of common principles and priorities.

Universality and the nexus approach

A key principle of the SDGs is universality – that the goals will be relevant to all countries, and all will contribute to achieving them, but with differentiated targets and actions (Nilsson et al. 2013; Van der Heijden et al. 2014). The bottom-up process and nexus approach are entirely compatible with this principle. Countries will face different trade-offs and synergies, and find different ways to improve development outcomes, emphasizing different targets. Thus, the targets can be seen as building blocks that each country will combine in its own way, balancing the need for ensuring access to resources, efficiency, and long-term sustainability to fit the local context and capabilities. Through a bottom-up process and nexus approach, a suitable set of actions for a specific country (or region) can be identified.

The SDGs alone cannot, of course, guide national or local policies. Decision-makers need to take local resource characteristics, economic and political realities into account. The analysis must therefore take place at the scale where action will be taken. The nexus approach is flexible enough to han-

2 E.g. the Open Working Group's Sessions 3 and 4, the TST Issues Briefs, and the World We Want thematic consultations.

dle different levels of data availability and capacity to gather and analyse data. Where data already exists, nexus tools can be used to quantify relationships between sectors. Where data quality or accessibility is poor, the nexus approach can inform qualitative analyses, and also help to identify data needs. The SDGs process offers opportunities to involve statisticians at an early stage in the formulation of targets, ensuring that selected targets and indicators are designed so they can be measured efficiently.

Exploring interactions in the SDGs: three approaches

To illustrate how interactions between goals can be identified, we looked at the water, energy and food–related goals of four proposed SDG frameworks (Bates-Eamer et al. 2013; Sustainable Development Solutions Network 2013; United Nations/HLP 2013; UN Global Compact 2013) through three complementary approaches. First we examined the targets under the proposed energy and food goals in the four frameworks, to identify ones that might relate to targets under the other two goals. We did this screening at a conceptual level, considering known water-energy-food interactions. Second, we examined *how* the targets interact, and where there are potential trade-offs and synergies among them. Third, we identified possible "nexus targets" that would be positioned between sectors, aiming to maximize overall efficiency, within the three sectors and beyond.

Approach 1: Screening for interactions among proposed targets

The four SDG frameworks that we examined propose close to 40 water, energy and food targets. They recognize some interaction between sectors, either in the narratives of the goals or in the way the whole framework is organized – for example, by proposing a common goal for water and food, or by integrating water, energy and food targets under several goals. The targets focus on the following areas:

- Ensuring access to energy services;
- Improving energy efficiency;
- Increasing the share of energy that comes from renewable sources;
- Ending hunger and ensuring good nutrition;
- Making food and agricultural systems sustainable;
- Sustainably improving agricultural yields;
- Addressing land conversion and climate impact for/of agriculture;
- Ensuring access to water (drinking-water, services and infrastructure);
- Improving water use efficiency;
- Improving the balance of water withdrawals and supply; and
- Ensuring good management of water resources.

As is evident from the list above, some of the targets focus on ensuring access to resources, some on efficiency, and some on long-term sustainability. The three are linked: efforts to ensure access must be combined with efficient management and protection of the resource base and ecosystems in order for the outcome to be sustainable (e.g. if we expand access to agricultural irrigation, over-abstraction must be avoided in order to ensure that the resulting productivity gains can be sustained in the long term). In line with the universality principle, each country would emphasize the targets that best fit its priorities and needs; for example, a country with widespread hunger might focus on food security and nutrition, while a wealthier

	WATER
	Provide universal access to safe and affordable drinking water at home, and in schools, health centres, and refugee camps
	Universal access to basic infrastructure services
	Ensure safe water quality for all
	Increase water efficiency in urban areas by x%
	Ensure establishment and full implementation of national water effluent standards
	Bring freshwater withdrawals in line with supply
	Increase water efficiency in agriculture by x%
	Achieve high-yield food production systems with low post-harvest food losses and sustainable use of water
	Increase water efficiency in industry by x%
	Recycle or treat all municipal and industrial wastewater prior to discharge
	ENERGY
	Double the global rate of improvement in energy efficiency in transport
	Ensure universal access to modern energy services
	Universal access in rural areas to basic infrastructure services
	Universal access to a secure and affordable built environment and basic urban services; low carbon energy and transport
	Ensure clean energy for all
	End discrimination and inequalities in public service delivery
	Double the global rate of improvement in energy efficiency in industry and agriculture
	Integrate reductions in greenhouse gas emissions, efficient land and resource use, and climate and disaster resilience into investments and standards
	Improve energy efficiency with targets for 2020, 2030 and 2050
	Double the share of renewable energy in the global energy mix
	Adopt incentives, including pricing greenhouse gas emissions, to curb climate change and promote technology transfer to developing countries
	Double the global rate of improvement in energy efficiency in production, distribution and consumption
	Phase out inefficient fossil fuel subsidies that encourage wasteful consumption
	Decarbonize the energy system, with targets for 2020, 2030 and 2050
	FOOD
	Bring down the share of overexploited ocean fish stocks by 20 %
	Reduce amount of food lost through poor storage and waste by half
	Achieve high-yield food production systems with low post-harvest food losses and sustainable use of and sustainable use of water, nutrients, and energy
	Increase agricultural productivity by x%, with a focus on sustainably increasing smallholder, yields and access to irrigation
	Adopt sustainable agricultural, ocean and freshwater fishery practices and rebuild designated fish stocks to sustainable levels
	Reduce post-harvest loss and food waste by x%
	Halt forest and wetland conversion to agriculture, protect soil resources, and ensure that farming systems are resilient to climatic extremes
	Integrate reductions in greenhouse gas emissions; efficient land and resource use; and climate and disaster resilience into investments and standards
	Double the productivity of LDC agriculture
	Stop and turn back annual increases in greenhouse gas emissions and deforestation resulting from farming and livestock production by 2020
	End hunger and protect the right of everyone to have access to sufficient, safe, affordable, and nutritious food
	Reduce stunting by x%, wasting by y% and anemia by z% for all children under five
	Eradicate calorie deficient hunger and halt increase of rates of obesity and of malnutrition

Figure 1: Screening of water, energy and food relevance in proposed targets.

country might focus on making agricultural systems more sustainable. On a global scale, however, all three types of targets are essential to the success and sustainability of the SDGs

Screening each target for relevance to the other two goals, it quickly becomes clear that most targets are inherently cross-sectoral. Figure 1 shows the targets grouped by the goal suggested by the four SDG proposals we examined; the symbols indicate what other goal they directly relate to. We show the original goals for illustrative purposes; note that in a bottom-up process, goals would not be defined at the stage of discussing targets.

Approach 2: Exploring the nature of interactions between targets

Clearly there are many connections between water, energy and food targets – but in order to be able to address them effectively in the SDGs, we need to understand the nature of those interactions. In our second analysis, we looked at natural resources as enablers of development: for example, food production requires water, land and energy. It is important to note that although here we only focused on a narrow set of targets and resources, there are many other enablers of development, such as health, education, good governance, access to technology and knowledge, equality, peace and security. A key strength of a bottom-up process is that it would encourage a broader discussion of how all these factors interact.

Our analysis of the water, energy and food targets shows three main types of interactions. Some are *interdependent* – one target has to be realized in order for another to be viable, usually because access to water, energy or land for food production needs to be ensured. For example, the target for increasing access to irrigation requires a steady supply of freshwater.

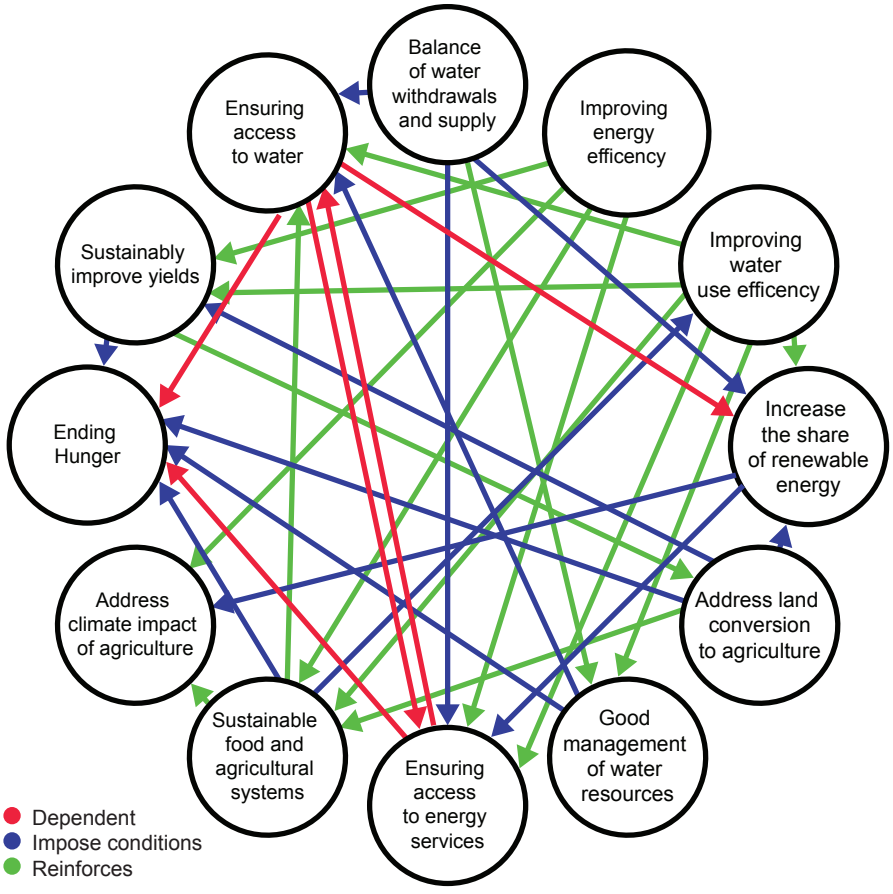

Figure 2: Interactions between proposed water, energy and food targets.

Other targets *impose conditions or constraints* on one another. For example, the target for efficient agricultural water use sets a condition for how access to irrigation can be provided. Arguably, targets that impose conditions or constraints are essential to the long-term success of a wide range of other targets, as they ensure that development is sustainable over time.

Some targets *reinforce* each other, highlighting potential synergies. For example, increasing water efficiency in agriculture can ensure that more of the irrigation water actually reaches plants, thereby helping achieve the target for increased agricultural productivity. Critical *trade-offs* and *conflicts* may occur as targets interact – for instance, when food and energy production compete for the same water resource, and the expansion of one impedes the other.

Figure 2 illustrates interactions between the water, energy and food targets in the four SDG frameworks. Take access to energy services as example. As shown in Figure 2, achieving this target often *depends (red arrow)* on water access, while the targets on sustainable water withdrawal levels and the ambition to increase the share of energy from renewable sources *impose conditions (blue arrow)* for how access to energy services can be ensured. Improved water efficiency and energy efficiency *reinforces (green arrow)* both the energy access and the sustainable water withdrawals targets.

Ending hunger, in turn, *depends* on access to energy services and access to water (as energy and water are needed to produce food), while the targets on sustainable improvement of yields, addressing land conversion for agriculture, and sustainable food and agricultural systems *set conditions* for how hunger is to be eradicated. Again, the way in which resources – and targets – interact is contextual; the figure is based on generally known interactions between water, energy and food.

Figure 2 also highlights resulting potential *trade-offs*, *conflicts,* and *opportunities* for joint action. For example, there may be trade-offs between ending hunger and protecting forests from being cut down for agricultural land, or between ending hunger and increasing the share of renewable energy by producing biofuels (if food crops and biofuel crops are competing for the same land and/or irrigation water). Critical trade-offs or conflicts would only occur in contexts where resources are scarce or difficult to access, but they always underscore long-term sustainability concerns.

Targets focused on sustainability can provide valuable guidance on how to address many of these situations, and even help avoid trade-offs; for example, if agricultural yields are sustainably improved, and food and agriculture systems are made more sustainable, the pressure to expand into wetlands and forests will decrease. These conditions also reinforce one another in the long run, as higher yields and more sustainable systems will ensure that the gains made in ending hunger can be maintained over time, rather than being eroded by water scarcity and land degrada-

tion, for example. Figure 2 shows many reinforcing interactions, emphasizing that many targets support one another and work in the same direction.

Approach 3: Identifying 'nexus targets' between sectors

A third way to address interactions between water, energy and food targets is to map out the connections and identify linking targets at the nexus of different sectors. This approach helps ensure the SDGs' sustainability by showing all the targets that require a resource – and enabling us to gauge whether the demand "adds up" sustainably. Second, it addresses efficiency, by establishing targets for resource use that crosses different sectors.

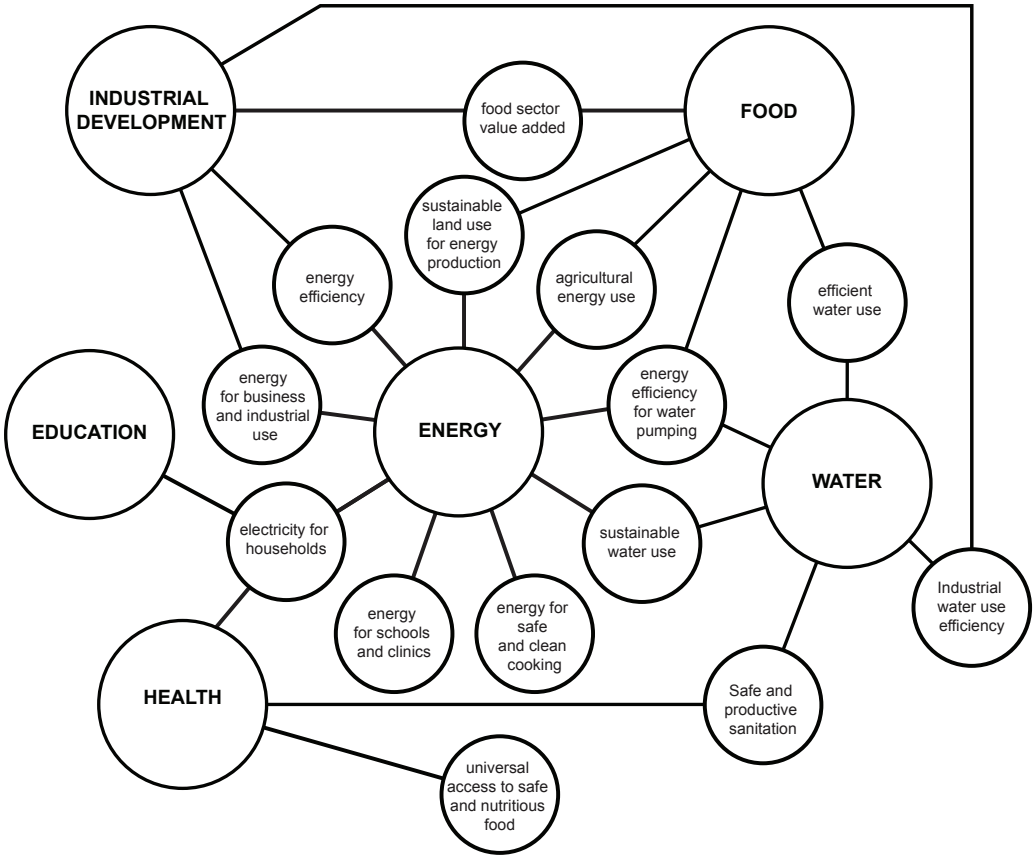

Figure 3: Mapping nexus targets as nodes between goal areas.

Like those in Figure 1 and 2, this approach also starts from a nexus perspective, recognizing that the energy and water sectors are interdependent. For example, energy is needed for water pumping, and water is needed for both hydropower and thermal power production. Similarly, agricultural production depends on energy and water. Beyond water, energy and food, Figure 3 also links these resources as enablers for social sectors. Energy is also crucial to the attainment of both health and education targets, for example: to provide electricity for schools and clinics, and light at home to do homework. Similarly, clean water and sanitation services are also essential to achieving health targets. Figure 3 is a partial illustration of this approach, starting from the energy domain, which could be extended to a comprehensive map of all SDG areas.

In this application, the nexus approach does more than illuminate interactions; it also highlights shared interests and common goals across sectors. Thus, this approach emphasizes the need for cross-sectoral coordination and collaboration, to craft a unified, comprehensive development agenda for a particular place, and ensure the sustainable use of resources.

The nexus in different development contexts

The many nexus interactions that have been illustrated in Figures 1, 2 and 3 underscore why shared targets make sense, and why focusing on the targets rather than goals would be helpful in developing an integrated SDG framework. To complement the conceptual-level discussion in the preceding sections, here we offer examples from Ethiopia, China and the United States that illustrate how cross-sectoral interactions play out in different contexts.

Ethiopia: Rapid growth to alleviate poverty

Ethiopia is one of the world's poorest countries, with a mostly rural population that, to a great extent, lacks access to safe water and modern energy sources. The government has embarked on a rapid economic growth trajectory, and its current five-year Growth and Transformation Plan (GTP) emphasizes rapid development of the agriculture and energy sectors, with a strong focus on exports. Crop productivity is to increase by 30%, power generation by 300%, sugar production by 600%, and meat export by 1000% over five years. The plan includes a significant expansion of irrigation for intensification of food and biofuel production, and large-scale hydropower development, particularly in the Blue Nile basin.

The GTP highlights the need for coordination among sectors and targets relating to food production, bioenergy, hydropower and irrigation. Indeed, a nexus analysis of the Lake Tana/Upper Blue Nile suggests that agricultural intensification and commercialization can improve agricultural productivity, but could also compromise downstream aquatic ecosystems and agriculture around Lake Tana, and thus food security in the region (Stein 2013). Similarly, increasing biofuel production could bring new revenues from exports, reduce greenhouse gas emissions from fossil-fuel use, and potentially improve energy access. But large-scale biofuel production would require huge amounts of land, and also water for irrigation, potentially competing with food production and other ecosystems and their services.

A bottom-up process and nexus approach could help Ethiopia identify interactions and coordinate its targets on access, efficiency and sustainability across sectors. Doing so, resources can be used in a way that enables Ethiopia to achieve its development goals sustainably.

China: a nexus approach in Ningxia

China's demand for water, land, energy and food is increasing rapidly. While water is scarce in China, agriculture strongly depends on energy-intensive irrigation, and the energy sector depends on water intensive coal. At the same time, China has adopted so-called "red lines" related to water, energy and land

Harvesting watermelons on a field in Ningxia, China © Flickr/Bert van Dijk

use. The Ningxia province in northern China exemplifies the need for improved coherence between the different targets.

Ningxia is very water stressed; it has less than one third of China's already low average per-capita water availability, and more than 1 million rural people lack access to safe water. A provincial target only allows water withdrawals to increase by 20% by 2030 – but more than 90% of Ningxia's water comes from the Yellow River, which already has all of its water resources committed. Any increase in withdrawals for Ningxia would come at the expense of users downstream. At the same time, China's Grain for Green reforestation programme has increased Ningxia's forest cover from 4.2% (1995) to 12.8% (2012), potentially reducing water availability due to the high water demand of trees.

In terms of land resources, the national red line for land translates into an increase in cultivated land by 3.5% from 2010 to 2015 in Ningxia, whereas cities, industry, mining and transportation are to expand by about 2.5% yearly. Consequently, more and more "unused land" is being put into productive use, which can come at the cost of ecosystem services such as carbon sequestration and resources such as water.

Ningxia holds about 3.5% of China's coal resources, and has large solar and wind power potential. Within the current Five Year Plan, Ningxia aims to increase its total energy production yearly by 12.6%, wind power production by 45% and solar power production by 61%. The current heavily coal based (95%) energy production and energy intensive industrial development brings growing tension with other targets to cap total consumption of coal and decrease the carbon-intensity of the economy. It is not clear, how much additional water will be required for the development of the energy sector, nor how that demand will be met.

In the short term, much can be gained by improving Ningxia's still very low resource productivity. Ningxia has a target to increase water productivity by 27% from 2010 to 2015. Water quality improvement would also enhance the usability of water, and ambitious action plan on soil erosion control – on almost half of cultivated land by 2015 – would undoubtedly help increase land productivity. For long-term sustainable development of the region, there is a strong need for improved coordination and integration across sectors and supply and demand targets.

California: grappling with water scarcity

Water security is a growing concern for California, the most populous U.S. state and producer of nearly half of U.S.-grown vegetables, fruits and nuts (CDFA n.d.) – most through intensive, irrigated farming. Only northern California has plentiful water, while the rest of the state relies on major aqueducts, most notably the State Water Project (SWP), which delivers water to local water agencies serving 25 million people and more than 3,000 km^2 of irrigated farmland in Central and Southern California. Allocations from the SWP are reduced when water is scarce, and in January 2014, with reservoirs at historic lows due to severe drought, the SWP cut off allocations entirely for the first time in its 54-year history (Lovett 2014).

California officials have long known that water supplies were being consumed faster than they could be replenished, and climate change projections show water stress will likely increase. Much of the state's surface water comes from winter precipitation and spring snowmelt, and over the last 30 years, winters have been getting warmer, the snowpack has declined, and spring stream flow timing has changed.

In Southern California, several utilities have been investigating seawater desalination as a way to improve water security. But desalination is very energy-intensive, and California's

An alfalfa field under irrigation near San Miguel, in Central California. © Flickr / Ken Figlioli

Herding cattle along a canal in the Blue Nile river basin, Ethiopia © SEI / Yihun Dile

water sector already uses 19% of the state's electricity, including energy for pumping, transporting and treating water, and energy-intensive residential, commercial and agricultural water end-uses. The SWP is California's single largest power consumer, with a net energy use of 2 million MWh per year. A nexus perspective thus raises the question: How would desalination affect energy use and efficiency in the state?

An SEI analysis (Mehta and Yates 2012) linked two modelling tools, the Water Evaluation and Planning (WEAP) system and the Long-range Energy Alternatives Planning (LEAP) system, to examine the implications of meeting roughly 5% of Southern California's current urban water demand with desalinated seawater through 2049. It found that desalination could reduce the need for water imports by about 300 million m^3 per year, on average, but it would also increase the water sector's electricity use by about 3 TWh per year; producing that additional energy, in turn, would increase the greenhouse gas emissions of the energy sector, contributing to future climate change.

Concluding remarks

Many of the proposed SDG targets cut across and support multiple development goals. Yet early approaches to formulating the SDGs – with targets predominantly developing around pre-determined areas – do not promote cross-sectoral collaboration and integration. It is now generally agreed that an integrated approach to the SDGs would be better, but a structure for visualizing and jointly exploring this is needed to take the discussions from the abstract to the concrete. We believe the approaches presented in this brief could serve as a starting point.

Some might argue that a bottom-up approach and a focus on interactions would add complexity to the SDG process. It is true that interactions are complex, but the approach merely exposes complexities that already exist, but are often overlooked. By proactively addressing those complexities in the formulation of the SDGs, we can produce a more concise SDG framework with more robust solutions more robust, because redundancies and contradictions have been identified and addressed in the process.

Integration through a nexus approach could thus help the SDGs to manage complexity, and make the goals easier to communicate and to implement. The approach may also support more effective negotiations, by enabling countries to see more clearly where their interests coincide, where they diverge, and how they might reconcile their differences.

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The Itaipú hydropower dam, on the Paraná River on the border between Brazil and Paraguay © Wikimedia Commons / Herr Stahlhoefer

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