

# The application of a nexus approach in transboundary basins

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Draft for a chapter of the final stock-taking report of the assessment of the water-food-energy-ecosystems nexus under the ECE Water Convention

Version for review by the Task Force on the Water-Food-Energy-Ecosystems Nexus

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This draft chapter, which aims to introduce the nexus approach and its use in the assessment of the water-food-energy-ecosystems nexus, is made available for review and discussion at the third meeting of the Task Force on the Water-Food-Energy-Ecosystems Nexus (Geneva, 28-29 April 2015).

A revised and edited version of the draft chapter, in accordance with the discussion at the Task Force meeting, together with the other chapters and basin assessments will be submitted to the Working Group on Integrated Water Resources Management (Geneva, 24-25 June 2015) for review and endorsement for submission to the Meeting of the Parties.

The final version, revised with any comments from the Working Group, will be presented as part of the final stock-taking report of the nexus assessment to the seventh session of the Meeting of the Parties to the Water Convention (Budapest, 17-20 November 2015) for its final endorsement.

The water, energy and food sectors are so strongly interlinked that actions in one area commonly have impacts in one or both of the others; yet these sectors too often operate in isolation, and seeking security in one sector may compromise others. The Conference on “The Water, Energy and Food Security Nexus — Solutions for the Green Economy” (Bonn, November 2011) brought wider attention to these interlinkages and presented initial evidence for how a nexus approach can enhance water, energy and food security by increasing efficiency, reducing trade-offs, building synergies and improving governance across sectors.

Water is used in variable intensity in different industries, as well as for energy production, not only in hydropower plants but also as a cooling media in other types of power plants. Conversely, energy is needed for extracting, transporting, distributing and treating water (UN-WWAP 2014). In the ECE region, as well as globally, agriculture is the largest consumptive water user; the predicted agricultural production increase necessary in the future to meeting growing population demands, and the current push for increasing the use of renewable energies (especially hydropower and biofuels), affect water and land resources. The possibilities for agriculture and food production are constrained by limited suitable land resources, which in some areas are threatened by land degradation. The development perspectives depend substantially on functioning ecosystems and the services they provide specifically to these three sectors, as well as to maintain biodiversity, and the many services derived from it, such as support of tourism, local economies, climate change adaptation and mitigation. The pressures from population growth, urbanization, industrialization, economic development and climate variability and change add to the challenge of ensuring the availability of water in sufficient quantity and quality for the various uses. Accommodating the different sectors and promoting synergies between them supports the transition to a green economy, which aims (among others) at efficiency in resource use and greater policy coherency (ECE 2012).

At the national level, coordination between the water, energy and food sectors is fraught with difficulties, but the complexity increases substantially in transboundary basins, where the impacts spread from one country to another. Across the ECE region and globally, there is great spatial variation both in resource availability (or scarcity) and in the means in place to develop and to manage sustainably those resources.

The United Nations World Water Development Report’s issue on Water and Energy (UN-WWAP 2014), focusing in particular on energy and water, notes that, where competition between different resource domains is likely to increase, trade-offs need to be made deliberately, requiring management and containment, preferably through collaboration and in a coordinated manner. Conflicting uses and trade-offs call for concerted efforts to accommodate the different sectoral needs and to promote synergies.

## 1 TOWARDS GREATER POLICY COHERENCE AND THE OBSTACLES ON THE WAY

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Shortcomings in intersectoral coordination are a major challenge both on the national and transboundary levels, in developing countries, economies in transition and in developed countries.

The Issue Brief of the High-level Political Forum of Sustainable Development, “From silos to integrated policy making” (2014),<sup>1</sup> underlines for achieving an effective policy integration the importance of taking into account inter-linkages among different areas of policy at the formulation stage:

*Achieving effective integration of the three dimensions of sustainable development goes beyond merely “aggregating” independently formulated policies across the different domains. It entails taking into account inter-linkages among different areas of policy at the formulation stage. Integration implies that policy-making in any one area takes into account the effects of (and on) policies and outcomes in other sectors and areas. This will help ensure that policy is mutually coherent across the full range of dimensions, and that the effects of policy in one area do not contradict or undermine desired outcomes in others. This also enables to incorporate in sectoral policy-making cross-cutting dimensions that are crucial to achieving sustainable development, such as sustainable consumption and production.*

At the national level, policy fragmentation remains a challenge, as governments are often organized along sectoral lines and effective intersectoral structures and coordination arrangements are commonly lacking. Further, in many cases human, funding, infrastructure and other capacities may not be in place to facilitate efficient coordination and cooperation. With a shortage of human capacity, the priority will often be to focus on core responsibilities. Cross-cutting efforts may suffer as a consequence. Better governance would require better coordination, facilitated by improved relationships between different branches and levels of government).

Integrated management approaches, such as integrated water resource management (IWRM), integrated energy planning (IEP) and integrated land-use assessment (ILUA), have been developed to study, plan and develop policy for resource management, seeking to integrate different uses of the resource in question.

Examples of integrated management approaches demonstrate limitations in cases where resources are tightly interwoven.<sup>2</sup> Each approach examines future development scenarios of one sector, yet no account of consistent and concurrent scenarios of other sectors are normally made. Integrated management processes make intersectoral linkages explicit. However, they do not necessarily look beyond those which is why a non-water using activity in one country may impact water use in another. While this is clearly beyond sectoral management, it might not be apparent even in a (conventional) integrated management approach.

#### **Box 1: The need to extend inter sector planning – examples in Agriculture**

**The interrelation of energy, irrigation and food security has become a serious issue in South Africa. Electricity tariffs increased by 31% between 2009 and 2010 and were planned to increase by approximately 25% for the next three consecutive years (South African Government, 2008; ESKOM, 2008). One of the areas that could be most affected by energy price increases is the agricultural sector due to its energy demand for irrigation. 25% of South Africa’s staple food is grown on irrigated land. Decreasing irrigation and shifting towards rain-fed agriculture may endanger national food security especially during drought periods. South Africa was a net food exporter from 1985 to 2008 but, due to**

<sup>1</sup> This Issue Brief, available at [https://sustainabledevelopment.un.org/content/documents/1322HLPF\\_Brief\\_5.pdf](https://sustainabledevelopment.un.org/content/documents/1322HLPF_Brief_5.pdf), makes reference to the nexus assessments of the Alazani/Ganikh and the Sava, carried out under the Water Convention.

<sup>2</sup> Herman et al 2013

population growth and declining increase in agricultural productivity in recent years, has become a food net importer.

As another example, Punjab has only 1.5% of India's land, but its output of rice and wheat accounts for 50% of the grain the Government purchases and distributes to feed more than 400 million poor Indians. A significant problem is that farmers are pumping ('mining') aquifers faster than they can be replenished (as electricity is subsidised, this is partially due to inadequate price signals) and, as water levels drop, increased pumping is sapping an already fragile and over-taxed electricity grid. Overall, irrigation accounts for about 15–20% of India's total electricity use.

Given the interconnectedness between economic sectors, Hoff (2011) concluded that a reduction of negative economic, social and environmental externalities can increase overall resource use efficiency, provide additional benefits and secure the human rights to water and food. Conventional policy- and decision-making in silos therefore needs to give way to an approach that reduces trade-offs and builds synergies across sectors – a nexus approach. As an early proponent of the nexus concept, the World Economic Forum (2011a) viewed securing water resources as dependent on consideration of multiple sectors, namely energy, trade, national security, cities, people, business, finance, climate and economic frameworks.

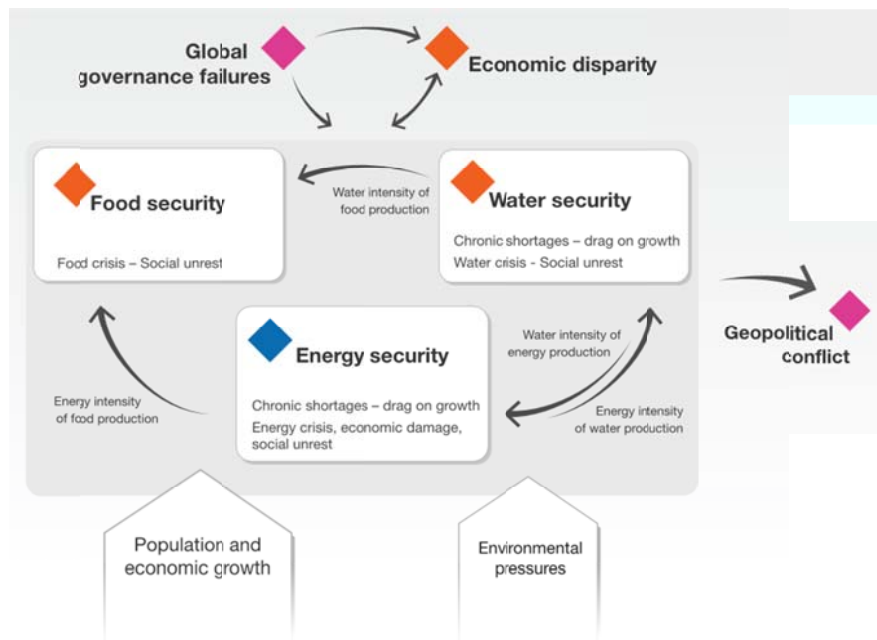


Figure 1. Nexus schematic with a security focus (World Economic Forum, 2011b).

Since then, a wealth of integrated analytical initiatives have been launched to promote intersectoral or concurrent multi-sector approaches have been under a “nexus” umbrella, variably covering complex interlinkages between energy, water and food or agriculture, or at least some of these. The United Nations World Water Development Report's issue on Water and Energy (UN-WWAP, 2014) lays out a wealth of evidence about impacts from management of the one resource on the other, but also points at various possible actions that can be taken into response.

Bazilian et al. (2011), based on (IAEA, 2009) conclude treating the three areas of the water-energy-food nexus holistically would lead to a more optimal allocation of resources, improved economic efficiency, lower environmental and health impacts and improve economic development conditions. In short,

overall optimization of welfare. So significant are the simulated impacts, taking into account climate change (Howells et al 2013), that governments and the global community (GSDR 2014) have called for a move to improve nexus (or concurrent multi-sector) planning.

## 2 EXPANDING INTEGRATED WATER RESOURCES MANAGEMENT: WATER USES IN THE NEXUS

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While the integration of water resources management at the river basin scale has been practiced for decades (e.g. Molle 2009), the paradigm has changed. Also the international recognition and support for it has evolved.

An often-quoted definition of IWRM is that of the Global Water Partnership: “a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems”. The concept also involves integration of demand and supply of water, and of natural and human systems.

Agenda 21 of the United Nations Conference on Environment and Development (UNCED) in 1992 called for “the application of integrated approaches to the development, management and use of water resources”. UNCED recognised the challenges of managing water resources for a multiplicity of uses and threats that are set within the much broader contexts of changes in the economic, social and political landscapes (UNEP 2012). An important global affirmation of the IWRM approach and political support for putting it in practice came when the Johannesburg Plan of Implementation was adopted by governments at the 2002 World Summit on Sustainable Development (WSSD), held in Johannesburg, South Africa. Its Article 25 calls for “the development and implementation of IWRM and water efficiency strategies, plans and programmes at national and at regional levels, with national-level IWRM plans to be developed by 2005”. This target turned out ambitious since a review led by UNEP in 2012 concluded that worldwide 64% of countries had developed IWRM plans and 34% reported an advanced stage of implementation.

While already the IWRM concept underlines the importance of integration between water resources policy, economic policy and sectoral policies (GWP 2000), a nexus approach extends further into integrated, intersectoral planning, lending itself to different scales and a river basin — a basic unit for water management in IWRM — does not have the same preference or priority. Box 2 highlights in rough and simple terms the main differences between IWRM and nexus approaches.

The various possible scopes of a “nexus” in the context of resource management and the scientific underpinnings are currently the subject of dynamic research. Capturing the richness of that research is beyond the scope of this chapter. Evidence about the practical value and influence of a nexus approach is still accumulating and remains to be judged (see e.g. Benson et al. 2015). However, there is at least one characteristic of the nexus approach that makes it interesting to promote cross-sectoral coordination. Because of its broad perspective and the absence of a single-resource focus — that could be water in the case of IWRM — the nexus approach can allow for a more egalitarian dialogue across sectors. For example in the case of a river basin, it can encourage more involvement of important economic sectors such as agriculture and energy production in the dialogue around water management.

Box 2. A comparison of Integrated Water Resources Management (IWRM) and a nexus (intersectoral) assessment<sup>3</sup>.

Box 2	IWRM	Nexus (Water-Energy-Food)
<b>Origin of the concept</b>	Agenda 21 - Rio de Janeiro, 1992	First Nexus Conference - Bonn, 2011
<b>Trigger</b>	Sectoral strategies and plans need more integration to meet key water supply goals.	Sectoral strategies and plans need more integration and dynamic and dependent development scenarios to be considered.
<b>Objective</b>	Improve efficiency in the use of water (GWP, 2000).	Address externalities across sectors and achieve overall resource use efficiency (SEI, 2011).
<b>Entry point</b>	Water use; water resources management.	Externalities between sectors; management of natural resources. The entry point can be different (e.g. water or energy) depending on the perspective of the policy maker and the priorities (Bazilian et al, 2011). Seeks to engage different sectors in coordination on a more equal footing.
<b>Main challenges</b>	Securing appropriate water for people, food production, aquatic and terrestrial ecosystems. Dealing with variability of water in time and space, with risks related to water flows, groundwater recharge and water quality. Create awareness and forge political will to act, promoting collaboration across sectors and boundaries (GWP, 2000).	Define actions, trade-offs and synergies in the provision of water, food and energy from resource to use. Harmonize often diverging policy directions, targets and goals of different sectors.
<b>Boundaries of a typical IWRM or Nexus analysis</b>	Basin or sub-basin.	Depending on the focus, could be local, national, basin level, regional or global, <sup>4</sup> with a particular emphasis on basins.
<b>Sectors and resources</b>	Water resource is at the center and outlooks for different users and different needs are considered.	There is no universal methodology. Depending on the focus of the analysis, water, energy or land use can be at the centre (Bazilian et al., 2011). However, outlooks for other sectors are dynamic responding to the same drivers as well as to feedbacks between sectors.
<b>International dimension</b>	Explicitly reflected where water bodies are shared, calling for transboundary cooperation.	Explicitly reflected where resources or linkages between sectors are shared. (This would include for example, transboundary water bodies, but also regional power pools etc.)

<sup>3</sup> The table is adjusted and integrated from UNSGAB, The Nexus Approach vs IWRM - Gaining Conceptual Clarity available at [http://www.water-energy-food.org/en/news/view\\_\\_1612/the-nexus-approach-vs-iwrm-gaining-conceptual-clarity.html](http://www.water-energy-food.org/en/news/view__1612/the-nexus-approach-vs-iwrm-gaining-conceptual-clarity.html))

<sup>4</sup> The nexus assessment under the Water Convention has a particular emphasis on transboundary basins, while obviously the broader macro-regional context has also been considered, which is relevant notably to energy sector developments and to trade

### 3 TRANSBOUNDARY SETTINGS: WATER AS AN ENTRY POINT TO THE NEXUS

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The key obligations under the Water Convention are the prevention, control and reduction of adverse transboundary impacts as well as equitable and reasonable use of shared water resources. The definition of a “transboundary impact” in the sense of the Water Convention is broad,<sup>5</sup> and the Convention is about different water uses. To promote these objectives, effective interventions commonly need to be made outside “the water box”,<sup>6</sup> for example where decisions regarding agricultural policy are made in order to reduce excessive water use or pollution. So the water management authorities need to work much more closely and in better coordination with the different sectors of the economy.

In transboundary basins the impacts from development potentially propagate beyond state borders, therefore calling for cooperation between riparian countries in the management and use of shared water resources, including on water infrastructure. In such settings, trade-offs and externalities may cause friction between the riparian countries and different interests. To avoid significant negative impacts from unilateral action, it is necessary to coordinate plans and management measures between the riparian countries. Coordination, cooperation and exchange of information can bring up synergies for mutual benefits and reveal ways to address the trade-offs. As it is also necessary to ensure the long-term sustainability of the water resource, a balance needs to be found between various uses and protection of the resource.

To have the necessary information basis and to form a holistic picture of the situation is more complicated in transboundary basins, where harmonized data would be needed from all the riparian parties with a significant share of the basin. However, there is also potentially more opportunity for benefits, only achievable through joint action, through looking at the basin as a whole and identifying the most suitable locations for developments.

The development of an approach to assess the water-food-energy-ecosystems nexus in order to enhance inter-sector coordination and transboundary cooperation can therefore be helpful. While all sectors are important, in the context of transboundary basins, water provides a useful point of entry to a nexus analysis. The physical link it creates between countries calls for transboundary coordination. It is increasingly obvious that different sectoral policies and development plans that significantly impact on the status of water resources is outside the domain and influence of water management, underlining a need to cooperate closely with different economic sectors. As such, the nexus approach can be seen as a subsequent (or even parallel) step to IWRM. The nexus approach strengthens transboundary cooperation by actively involving all sectors whose action can improve synergies (Lipponen and Howells 2014).

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<sup>5</sup> The Convention specifies significant adverse effects on the environment to include effects on human health and safety, flora, fauna, soil, air, water, climate, landscape and historical monuments or other physical structures or the interaction among these factors; they also include effects on the cultural heritage or socio-economic conditions resulting from alterations to those factors.

<sup>6</sup> The “water box” refers to the water sector and its decision-making i.e. water supply and sanitation, hydropower, irrigation and flood control; outside the water box is other decision-making affecting water (UN-WWAP 2009).

## 4 FUTURE: CHANGING PRESSURES AND INTERSECTORAL RELATIONS WITH CLIMATE

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Competition — and in some cases even conflicts — between different water uses, often in different riparian countries, is a common challenge. Climate change impacts are expected to further aggravate such competition. In many basins, potential impacts of climate change on water resources have not been specifically assessed: more comprehensive and collaborative research into the impacts of climate change at the subregional and basin level is needed.<sup>7</sup>

Future resource scarcity, ecosystems degradation and the risks associated with climate change are the most evident reason to consider climate in the context of the nexus. Lower runoffs, decreased rainfall, desertification, natural erosion and the increased frequency and intensity of extreme weather episodes of droughts and floods are all examples of climate-related factors that will test the resilience of all sectors, which means their capability to respond and adapt to climatic changes. From a nexus perspective, this “climate-proofing” means efficient uses, coherent strategies for development across sectors, clear responsibilities and mandates to take action.

Several aspects of a nexus approach resonate well with efforts to adapt to a changing and variable climate: For example improving water use efficiency —advocated as a nexus measure — also reduces exposure to climate induced physical water scarcity. Shifting to more appropriate crops according to climatic conditions, land type and water availability is another example of adaptation measure that has intersectoral benefits – less agricultural inputs needed, reducing impact on ecosystems and shared water resources – and it can therefore be considered a nexus solution.

A more indirect impact of climate change on the nexus is related to greenhouse gases mitigation efforts. In different ways and with different levels of commitment, most countries are aiming at reducing, stabilizing or limiting their contribution to global emissions. An international carbon market exists to provide economic incentives to emissions reduction. This aspect calls for further coordination across sectors because mitigation actions can lead to counter-intuitive negative impacts and their expected benefits need to be estimated with an accurate analysis of their impacts across sectors. The example in Box 3 clearly illustrates these interdependencies. The integrated management approaches referred to earlier typically assume that the related sectors are static, or that their development is not fundamentally changed by the scenario drivers. This can result in important feedbacks being ignored or overlooked. For example, climate change may change the intersectoral relations and the level of use of some resources.<sup>8</sup>

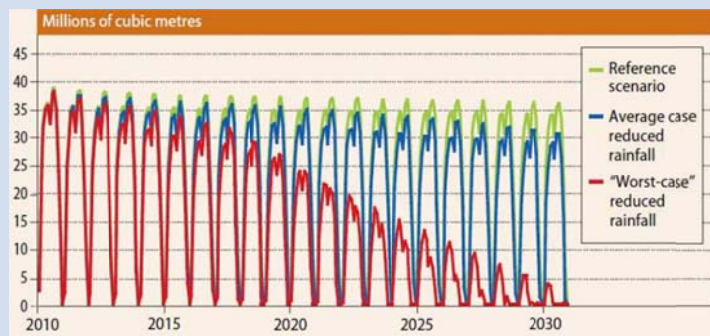
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<sup>7</sup> Under the Water Convention such collaborative work is promoted in the Global Network on Adaptation to Climate Change in Transboundary Basins, led by ECE and the International Network of Basin Organisations (INBO). Good practice examples on adaptation in transboundary basins and lessons learned have been gathered in this framework. (ECE 2015)

<sup>8</sup> For example, consider a climate change scenario where rainfall drops and temperatures rise. An Integrated Land - use Assessment might consider the impacts of lower rainfall on crops and determine water requirements to be met with irrigation, assuming an outlook on water availability. It may go on to calculate the increased energy demand required to pump crop irrigation requirements, assuming an outlook on irrigation and energy costs. However, it will not necessarily call on an Integrated Energy Planning Activity to assess - for the same climate change scenario - whether or not that extra energy can in fact be supplied, and if so, at what cost.



### Box: 3 Intersectoral linkages and climate exerting pressure on water resources



**In Mauritius a national biofuel policy that made sense from a best practice energy, land and water planning point of view was shown to be strongly inconsistent. This was only discovered when the Government and international analysts modelled these systems in an integrated manner, especially in response to climate change induced reductions in precipitation. The change in rainfall patterns leads to an increase in water withdrawals that in turn leads to higher demand for energy to drive pumps to bring the water from its source to the fields and to power water desalination plants. A positive feedback loop means that this leads to increased demand for cooling of thermal power plants and thus additional withdrawals of water. Since electricity demand is met with coal-fired power generation the greenhouse gases benefits of the biofuel policy are eroded by increased emissions from the power sector. (Hermann et al. 2013)**

## 5 ASSESSING THE NEXUS: HOW IT CAN HELP IN RESOURCE MANAGEMENT

The nexus needs to be tackled in practice in diverse physical and political settings, including in the context of transboundary river basins, in which very little has been done so far. The sixth session of the Meeting of the Parties to the ECE Water Convention (28-30 November 2012 in Rome, Italy) decided that an assessment of the water-food-energy-ecosystems nexus of a representative set of transboundary would be carried out as a part of the programme of work under the Convention from 2013 to 2015. The Parties called for (a) providing a picture of the interdependencies across water, ecosystems, energy, food and other areas, such as climate change and biodiversity, in terms of uses, needs, economic and social benefits and potential synergies, as well as conflicts and trade-offs, and (b) outlining possible policy responses. At the basin level, this implies the following aims:

- Support transboundary cooperation by
  - o identifying intersectoral synergies that could be further explored and utilized;
  - o Determining policy measures and actions that could alleviate negative consequences of the nexus and help to optimize the use of available resources
- Help to move towards increased efficiency in resource use, greater policy coherence and co-management
- Build capacity in assessing and addressing intersectoral impacts

In response to the decision, the methodology presented in this report was developed to provide a framework for assessing transboundary basins. Several basins were subsequently assessed, namely the Alazani/Ganikh (the pilot basin), Sava and the Syr Darya Basin, allowing valuable lessons to be learned.

From a substantive and analytical point of view, the nexus approach used builds on the Climate, Land-, Energy-, Water-use (CLEW) frame work (Howells et al 2013) and considers special characteristics associated with transboundary basins. These characteristics include: (a) the physical link that the water body forms between riparian countries; and (b) that the basin area often plays a special role within the country. This role results in local-to-national dynamics as well as transboundary dynamics that add to the intersectoral linkages. Another key addition of the ECE nexus approach is the explicit recognition of ecosystems.

The approach developed seeks to combine a sound analysis of interlinkages (impacts, trade-offs, benefits) with a joint identification of actions that can improve coherence of policies, intersectoral coordination and transboundary cooperation. An integral part of the process is an intersectoral, transboundary dialogue.

The aim is to carry out integrated assessments working across sectors that provide a strengthened knowledge base for the development of coherent policies that, in turn, support co-optimization<sup>9</sup> and the taking into account of different needs in developing transboundary basins.

## 5.1 NEED FOR A BETTER AND BROADER INFORMATION BASE

Data gaps and asymmetric access to information may also be an obstacle to more cohesive governance. If information is missing or not available to all relevant departments or levels of government this can hamper productive dialogue and cohesive action.

By advancing knowledge, toolkits, capacity building and intersectoral transboundary dialogue, this nexus approach aims to help identify areas where coordinated planning, dialogue and governance holds new and effective paths to secure development that is sustainable. It is not the goal of this methodology to develop a detailed integrated master strategy, but rather offer insights into where integrated management might offer additional benefits and lay foundations for future joint actions.

Further, given that increased intersectoral coordination implies greater complexity, a need arises to communicate effectively with representatives of different sectoral interests as well as with experts. Accessible, relevant and visual communication of information about intersectoral links helps to highlight the most relevant intersectoral linkages and therefore to nudge action.

## 5.2 THE BEGINNING OF A DIALOGUE

The application of the methodology has demonstrated that it facilitates a dialogue across sectors and resources. The representatives of the countries have appreciated the opportunity for intersectoral discussions, which are not common practice even at the national level. The general assessment framework was developed to assess diverse basins, but the methodology allows for flexibility to adjust to the characteristics of each basin.

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<sup>9</sup> Seeking to reach simultaneously more than one objective and incorporate several constraints; for example, instead of maximizing benefits from hydropower generation in flow regulation, a co-optimized solution could ensure adequate releases to sustain ecosystems. [reference?]

The methodology has an important participatory dimension in its process, with an intersectoral nexus assessment workshop involving the sectors concerned as well as a representative set of key stakeholders and interest groups. Also reviews of the findings by the national administrations and other stakeholders and consultation meetings are among the key elements of the approach.

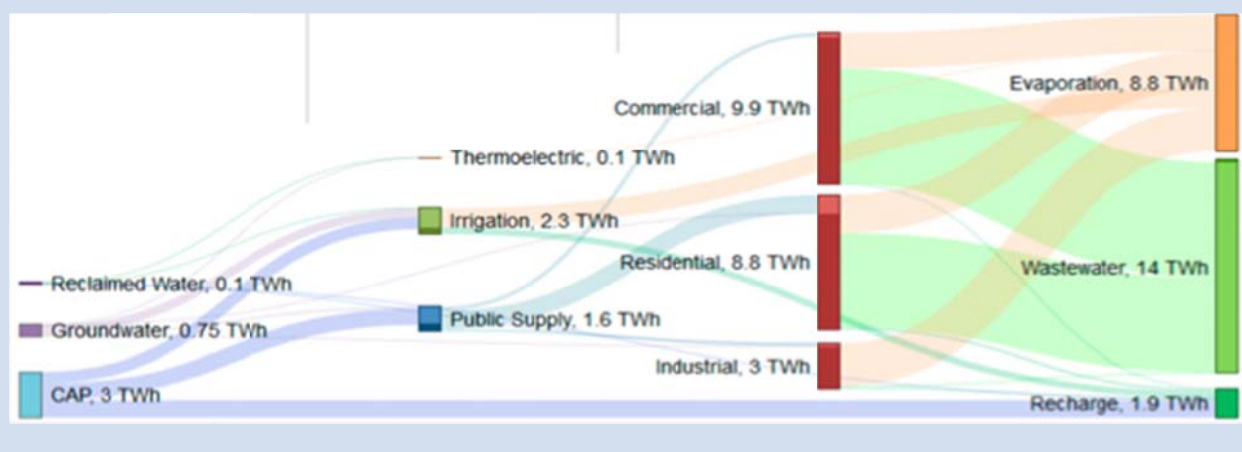
What can be achieved depends on the setting and the issues, the actors involved, constructiveness of the dialogue and on political willingness.

### 5.3 TANGIBLE OUTPUTS - EXAMPLES OF INTERSECTORAL, TRANBOUNDARY SOLUTIONS

There is a growing body of evidence that intersectoral solutions provide important advances over single sector goals. These can range from indicating that a water efficiency measure, for example has other attendant benefits. An exemplary case is that of Arizona (United States of America), where energy efficiency goals are met by improving water efficiency.

#### Box 6: The embodied energy in the water cycle in Arizona.

The breadth of each flow indicates the compounded quantity of energy that is used to manage or treat each flow. This implication is that as less water is used, so too is energy. Source: Bartos and Chester, 2014.



The best manner to demonstrate the utility of the ECE nexus approach is to point to emerging solutions that have been unearthed during the basin assessment studies. These have been jointly discovered by national stakeholders and international partners involved in the development of three basin assessments. These include changing household energy use in one country to improve flood management in another; how increasing the use of renewable energy can increase water releases and promote agriculture and how multi-purpose water management will be needed to ensure energy security and meeting of low carbon growth goals. The chapter of the report summarizing the findings from the basin assessments and the individual assessments can be referred to for details.

Note that each of these solutions necessarily transverse sectors, sectoral planning and boundaries, yet have strong economic and other development drivers.

Further examples of how intersectoral impacts can be reduced and synergies built upon can be found in the chapter on nexus assessment tools.

## 6 CONCLUSIONS

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The exact definitions and scope of a nexus approach vary and the concept and its value are being debated. However, for a practitioner of resource management or a government official working in policy development in one of the nexus resource fields, the following are some of the important considerations:

- The intersectoral impacts and the environmental implications of sectoral policies — potentially traversing borders in transboundary basins — may be significant
- It makes a lot of sense to address these externalities as there are concrete benefits to be had, for example, economic, environmental, resource security, welfare and public health related benefits). Addressing these externalities is also consistent with the principles of customary international law and the ECE Water Convention: (a) to use transboundary waters in an equitable and reasonable way; and (b) to prevent, control and reduce significant transboundary impact.
- The interlinkages between sectors are numerous and it is easy to lose sense of the most important. However, this should not be a reason to postpone action. Both a frank dialogue and information exchange between the relevant sectors and a sound integrated analysis help to reveal the most significant trade-offs to address as priority.
- A number of tools are available to governments, joint bodies for transboundary cooperation and other actors to tackle the nexus, subject to selecting the most appropriate tools for a particular set of issues.

The nexus approach developed under the ECE Water Convention builds on IWRM and CLEW approaches in order to develop a workable set of tools to engage a multi-sector audience and communicate where and why more integrated planning is needed. It does so by simultaneously considering several sectors and the evolution of their interlinkages. Such a process can commonly be missed in integrated planning efforts.

The ECE nexus approach may be used (together with other activities) as a basis for developing much needed local-to-national, cross-sector, transboundary cooperation. However, its objective is primarily to show that such cooperation is needed and do so in a non-prescriptive, inclusive and indicative manner, pointing at a broad range of potential opportunities.

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