

Questionnaire on nexus solutions and investments

Multiple answers are possible. However, each questionnaire must capture a single case, otherwise it will be impossible to align success factors with the problem in question. However, that does not mean that a problem cannot have multiple characteristics. For instance, floods and turbidity would be an example of problems, as could water scarcity and pollution. Accordingly, if you are able to cite more than one case, and have time to do so, then please complete a separate questionnaire for each of them.

General Information

The information that the respondent provides in this questionnaire is used for the purposes of the nexus solutions and investments stocktaking.

The responses will be treated anonymously. Personal data will be treated in a confidential manner, ensuring the data is securely stored, with suitable organisational and technical measures, e.g. to prevent unauthorised access.

The synthesis report will be made available for review and comments in draft form in the framework of the Water Convention's bodies before publishing.

1. Your first name:	
2. Your last name:	
3. Your position:	
4. Your organisation:	
5. Your country:	
6. Your e-mail address:	
7. Your telephone number:	
8. Which transboundary river basin or aquifer does this solution/ investment concern?	

SECTION 1 – BRIEF SUMMARY

9. Please provide a very brief description of the case to which this questionnaire refers. Ideally you should include mention of where the problem occurs, who are its winners and losers, and who is or has been involved in fixing it.	
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SECTION 2 – THE PROBLEMS FACED

This section begins by establishing which water using sectors are affected by the problem in question. For the purpose of this study, these sectors are characterised as shown below. These characteristics are not offered as a technical definition of each sector. Rather, they are offered as simple guide to make sure that we understand your responses in the context of your nexus problem.

For instance, if you have a water quality problem because the abstraction of too much water for irrigation means that there is not enough left in the natural system to absorb polluting farm run-off, you might wish

to select water, agriculture and environment. Or perhaps, if your problem is that unregulated tailings discharge from mines, compromises a touristic opportunity based on pristine landscapes, you might select water, tourism, industry and the environment. Thus:

Water

- water resource management
- bulk water
- bulk water infrastructure
- domestic water
- water quality
- wastewater treatment

Agriculture

- irrigation
- food crops
- energy crops
- industrial crops

Energy

- hydropower
- fossil fuel based energy production
- other thermal including solar thermal/CSP
- floating solar installations
- renewable energy (including invasive biomass)

Environment

- natural water bodies (surface water and aquifers)
- watersheds
- hydromorphology
- habitat and biodiversity
- natural flood and turbidity cycles

Industry

- all water using sectors other than agriculture, energy and navigation

Navigation

- draft depths

Tourism

- amenity
- landscape

The remainder of the section invites you to select the elements which, taken together, define the problem (their causes are captured in the next section). Please select as many as apply while noting that:

- natural elements are those which have not directly arisen as a result of human activity (except for climate change which is considered here to be a natural element)
- anthropogenic elements are those which have arisen directly as a result of human activity, or lack of if, due to for instance, poor enforcement of regulations.

10. Which sectors are affected (select 2 or more)?	
Water	Selected by means of a "button"

Agriculture	Selected by means of a “button”
Energy	Selected by means of a “button”
Environment	Selected by means of a “button”
Industry	Selected by means of a “button”
Navigation	Selected by means of a “button”
Tourism	Selected by means of a “button”
Other (if yes specify the sector)	Selected by means of a “button”

11. Which of these combinations of options define the problem?

(11, 12) Water quantity	(11.) Permanent	Too much water	Natural	Selected by means of a “button”
			Anthropogenic	Selected by means of a “button”
		Insufficient water	Natural	Selected by means of a “button”
			Anthropogenic	Selected by means of a “button”
		Excessive variability	Natural	Selected by means of a “button”
			Anthropogenic	Selected by means of a “button”
	12. Time based	Too much water	Natural	Selected by means of a “button”
			Anthropogenic	Selected by means of a “button”
		Insufficient water	Natural	Selected by means of a “button”
			Anthropogenic	Selected by means of a “button”
		Excessive variability	Natural	Selected by means of a “button”
			Anthropogenic	Selected by means of a “button”
(13, 14) Water quality	13. Seasonal/time based	Pollution	Natural	Selected by means of a “button”

			Anthropogenic	Selected by means of a "button"
		Salinity	Natural	Selected by means of a "button"
			Anthropogenic	Selected by means of a "button"
		Turbidity	Natural	Selected by means of a "button"
			Anthropogenic	Selected by means of a "button"
	14. Seasonal/time based	Pollution	Natural	Selected by means of a "button"
			Anthropogenic	Selected by means of a "button"
		Salinity	Natural	Selected by means of a "button"
			Anthropogenic	Selected by means of a "button"
		Turbidity	Natural	Selected by means of a "button"
			Anthropogenic	Selected by means of a "button"
15. Environment	Biodiversity loss or compromise			Selected by means of a "button"
	Habitat loss or compromise			Selected by means of a "button"
	Sediment or erosion			Selected by means of a "button"
	Compromised human health			Selected by means of a "button"

SECTION 3 – THE ROOT CAUSES

This section invites you to identify all the root causes that have caused or have contributed to the problem in question. Please select as many as apply.

Most are self-explanatory, but the following may need definition, clarification or elaboration:

- *Unsuitable infrastructure*: This refers to infrastructure that may not be the best way to solve the problem. An example would be the construction of flood bunds which simply send the flood downstream, meaning that one party's solution becomes another party's problem. A nexus alternative could be the restoration of flood plains which could have proven economic and environmental benefits; or to attenuate floods on banded rice fields, ditto.

- *Infrastructural limitations*: This can mean either that existing infrastructure is not fit for purpose in terms of specification and/or operation; or that the needed infrastructure has yet to be developed.

- *Unsuitable operating rules for infrastructure*: This refers to infrastructure with multi-purpose potential but which is operated as optimized for a single purpose. An example would be a cascade of hydropower dams that are maintained at full supply level, meaning that: i) evaporation losses might be higher than necessary; ii) water with a high opportunity cost downstream is not available when needed; and iii) the risk of cascade failure and severe flood damage downstream is greatly increased. Multi-purpose operating rules could provide a win-win-win solution.

- *Data and information limitations*: This can mean that data and information is non-existent; is poorly agglomerated or is not made available between sectors and/or across national boundaries (“information is power”).

- *Policy silos and linear thinking*: Policy silos refer to the “space” within single sector policies are drafted in isolation from and without consultation and coordination with policy makers from other sectors which might compete for the resources (such as land, water and finance). Linear thinking is the opposite of lateral thinking and constrains innovation. For instance, to solve problems of water scarcity with expensive dams, when the same result could be achieved by changing water law to introduce a system of water use permits and seasonal allocations, would be an example of linear thinking.

- *Political economy*: Political economy is all about saving political capital i.e. avoiding unpopular policies or initiatives. For example, promulgation and strict enforcement of demand management regulations may require more political capital than might providing free energy for irrigation.

- *Resistance to new ideas*: Resistance to new ideas to an extent is self-explanatory, except to note also that when faced with an opportunity to adopt or promote a new idea, a planner or decision maker may perceive a reputational risk.

- *Constraints of donor financing*: These constraints arise when a donor dependent government has policies that are better suited to new ideas such as nexus, when its donor(s) programming might not provide for such new realities and opportunities, e.g. due to financing sources being of sectoral in nature and hence constraining trans-sector support.

16. Does the problem arise from any of the following (please select all that apply)	Deforestation or forest degradation	Selected by means of a “button”
	Climate change	Selected by means of a “button”
	Natural change in hydrology or another natural cause of some sort (if yes, please explain)	Selected by means of a “button”
	Anthropogenic change in hydrology	Selected by means of a “button”
	Land use change	Selected by means of a “button”
	Poor land use and management	Selected by means of a “button”
	Unsuitable infrastructure	Selected by means of a “button”
	Infrastructural limitations	Selected by means of a “button”
	Unsuitable operating rules for infrastructure	Selected by means of a “button”

Poor water resource management	Selected by means of a “button”
Data and information limitations	Selected by means of a “button”
Poor inter-sectoral coordination	Selected by means of a “button”
Regulatory inadequacies (abstraction and discharge)	Selected by means of a “button”
Policy silos and linear thinking	Selected by means of a “button”
Political economy	Selected by means of a “button”
Resistance to new ideas	Selected by means of a “button”
Constraints to donor financing	Selected by means of a “button”
Inadequate institutional arrangements and mechanisms	Selected by means of a “button”
Inadequate institutional capacity	Selected by means of a “button”
Inadequate finances	Selected by means of a “button”
Poor disaster planning and preparedness	Selected by means of a “button”
Lack of transparency or corruption	Selected by means of a “button”
Other anthropogenic (if yes please explain)	Selected by means of a “button”
Other natural (if yes please explain)	Selected by means of a “button”

SECTION 4 - THE FACTORS OF SUCCESS

This section invites you to identify factors that comprised or contributed to the solutions. Please select as many as apply.

Most are self-explanatory, but the following may need definition, clarification or elaboration:

- *New, multi-purpose “basin” level infrastructure and/or the planning thereof*: This refers to infrastructure that is intentionally implemented to provide benefits for more than one riparian

- *Common metrics*: It is not enough to share objectives, it is also important to agree how their achievement is monitored or measured. Common metrics, by definition, are likely to be highly objective. This applies between sectors and between riparians.

- *Standardised social and environmental impact assessments between sectors and between riparians:* Different stakeholders have different evaluation indicators. This means that an investment that is satisfactory for one, may not be for another. This is not uncommon among development partners. Transboundary cooperation requires mutually consistent and understood assessment indicators and methodology. The indicators should moreover be as objective as possible in order to avoid politically advantageous subjectivity.

- *Economically mobile water:* Water is economically mobile when the pertaining legal, regulatory and institutional framework allows or facilitates water to be allocated to uses that minimise its opportunity cost. This, simply stated - is the economic return of its most lucrative use minus its return on current use. It should be self-evident that where water governance is strong, the need for economic mobility applies only to the water left over when societal and environmental needs are satisfied. A possible reallocation mechanism would comprise trades of water not needed by one permit holder to another user that does need it. This requires a system of water permits and well regulated water markets. It is not the same as volumetric water pricing by the state or its regulators!

- *Transparent and equitable terms of transboundary trade between the riparians:* Related to the concept of economically mobile water, is the idea that well-regulated and equitable produce or product trade is the best way to extract value from the factors of production by allowing production to be concentrated where resources are available – in this case water. This concept is not limited to agriculture.

- *Innovative infrastructure:* This speaks to the linear thinking challenge. An example would be that of Thailand where in some locations banded rice fields are used to attenuate floods. Rice yield losses prove to be minimal, while capture fisheries increase, aquatic gene pool integrity is enhanced along with tangible habitat benefits.

- *Innovative financing:* Including blended finance and revenue based models for both infrastructure and institutional financing.

- *Small scale conservation agriculture:* In this context refers to landscape/watershed restoration as a result of widespread uptake of sustainable, more productive smallholder farming systems and could include sustainable intensification.

- *Large scale conservation agribusiness:* For instance, large scale production of soil binding crops with multi-sector benefits, such as crops with food, energy, industrial uses and diverse value chain potential, etc.

- *Renewable energy:* This includes wind, PV solar, wave, biofuels, zero head turbines and non-storage based hydro. It does not include single use hydropower dams, but can include multi-purpose hydropower dams.

- *Smart energy strategies:* This could include e.g. a mix of energy sources having local comparative advantage in a well regulated energy market. It could also include one-off use of invasive biomass for pelletised use in thermal power stations.

17. Which of these factors comprised or contributed to the solutions?	Stronger transboundary cooperation	Selected by means of a "button"
	Increased awareness of the benefits accruable to cross sector transboundary trade-offs, compromise and synergies	Selected by means of a "button"
	Increased awareness of options for cross-sector, transboundary trade-offs, compromise and synergies	Selected by means of a "button"

New, multi-purpose “basin” level infrastructure and/or the planning thereof	Selected by means of a “button”
Multi-purpose use of existing infrastructure	Selected by means of a “button”
Shared data and information	Selected by means of a “button”
Common metrics	Selected by means of a “button”
Standardised social and environmental impact assessments between sectors and between riparians	Selected by means of a “button”
Functional, transparent incentive structure	Selected by means of a “button”
Appropriate, well enforced regulations	Selected by means of a “button”
Demand management policies	Selected by means of a “button”
Legal arrangements	Selected by means of a “button”
Institutional arrangements	Selected by means of a “button”
Economically mobile water	Selected by means of a “button”
Transparent and equitable terms of transboundary trade between the riparians	Selected by means of a “button”
Innovative infrastructure	Selected by means of a “button”
Innovative financing	Selected by means of a “button”
Innovative infrastructure operating rules	Selected by means of a “button”
Natural infrastructure	Selected by means of a “button”
Small scale conservation agriculture	Selected by means of a “button”
Large scale conservation agribusiness	Selected by means of a “button”
Renewable energy	Selected by means of a button
Smart energy strategies	Selected by means of a “button”

	Decentralised service delivery concepts	Selected by means of a “button”
	Decentralised service infrastructure	Selected by means of a “button”
	Other (if yes, please provide a simple explanation)	Selected by means of a “button”

SECTION 5 – NEXUS FINANCING

Water sector financing is a highly complex issue, not helped by the fact that the potential players have a diverse mix of perceived risks. Yet the issue is of crucial importance because of the huge global underinvestment in crucial water sector infrastructure. And the challenge is not limited to infrastructure: the financing of transboundary water management and the needed institutions is also proving to be a significant challenge.

The questions in this section represent an attempt to condense a complex issue into its simplest, indivisible parts. Nonetheless you are invited to add anything that you think is missing from the two subsections (type of finance, and delivery pathway).

Most are self-explanatory, but the following may need definition, clarification or elaboration:

- *Project specific funding*: This is funding for a single, discrete investment (infrastructural or institutional).
- *Specific programme financing*: This is funding for a pre-determined suite of investments (infrastructure and/or institutional).
- *Adaptable programme financing*: This is funding for a suite of investments (infrastructure and/or institutional), that is not predetermined but have a common cascade of objectives and outputs.
- *Sector budget support*: This is funding made available to line ministries or their decentralised/devolved authorities to be disbursed at their discretion.
- *Central budget support*: This is funding made available to non-line ministries and/or decentralised/devolved authorities to be disbursed at their discretion.

Cross-cutting to all of these and hence difficult to capture as such with a simple “click” is *basket funding*. Hence, if this is significant in the context of the solution to hand, then please provide a simple note to this effect.

18. How was the solution financed?	By the state (including credits from development partners)	Selected by means of a “button”
	By the state with development partner grant support	Selected by means of a “button”
	By development partner grants	Selected by means of a “button”
	By blended finance	Selected by means of a “button”
	By the private sector	Selected by means of a “button”
	Other (if yes, please provide a simple description)	”

19. How was the finance delivered?	Project specific funding	Selected by means of a “button”
	Specific programme financing (e.g. climate funds)	Selected by means of a “button”
	Adaptable programme financing	Selected by means of a “button”
	Sector budget support	Selected by means of a “button”
	Central budget support	Selected by means of a “button”
	Other (if yes, please provide a simple description)	Selected by means of a “button”
20. Was basket funding involved? If yes, please provide a simple description		

SECTION 6 – NEXUS ADED VALUE

This section speaks to the heart of the entire study and is largely self-explanatory except for the following:

- *Decentralised/devolved financing opportunities*: An example of this would be where a commercially funded agribusiness stabilises a watershed with crops having potential for profitability, socio-economic transformation, economic growth and environmental sustainability/restoration. Another would be where a significant tourism venture finances restoration and conservation of the landscape on which its revenues depend.
- *Reduced demands on line budgets*: The costs of multi-purpose infrastructure can be shared between the line-ministries involved.
- *Increased returns on sunk costs*: An example of this would be where multi-purpose operating rules applied to existing, say hydropower dams, or banded rice fields (as above) diversifies their benefit streams.
- *Increased returns on investment*: The more benefits streams accrue to an investment, the greater the returns on investment are likely to be.

21. In what way did the nexus approach add value to the intended result.	Improved infrastructural functionality	Selected by means of a “button”
	Improved ecosystem services	Selected by means of a “button”
	Reduced tension	Selected by means of a “button”
	Regional peace or stability	Selected by means of a “button”
	Improved resource security (water, energy or food)	Selected by means of a “button”
	Better resilience or reduced risks	Selected by means of a “button”
	Establishment of improved planning practices and paradigms	Selected by means of a “button”

	Enhanced intersectoral cooperation	Selected by means of a “button”
	Enhanced transboundary cooperation	Selected by means of a “button”
	Greater transparency	Selected by means of a “button”
	Increased returns on the factors of production (especially land and water)	Selected by means of a “button”
	Decentralised/devolved financing opportunities	Selected by means of a “button”
	Reduced demands on line budgets	Selected by means of a “button”
	Increased returns on sunk costs	Selected by means of a “button”
	Increased returns on investment	Selected by means of a “button”
	Other (if yes, please provide a brief explanation)	Selected by means of a “button”

SECTION 7 – NEXUS OPPORTUNITY IGNORED

This section is self-explanatory, any necessary definitions or elaborations are already provided above.

22. Which of the following problems was a constraint on nexus approaches?	Poor inter-sectoral coordination	Selected by means of a “button”
	Policy silos and linear thinking	Selected by means of a “button”
	Political economy	Selected by means of a “button”
	Resistance to new ideas	Selected by means of a “button”
	Constraints of donor financing	Selected by means of a “button”
	Inadequate institutional arrangements and mechanisms	Selected by means of a “button”
	Inadequate institutional capacity	Selected by means of a “button”
	Inadequate finances	Selected by means of a “button”
	Other (if yes, please provide a brief explanation)	Selected by means of a “button”

23. Please explain the options selected above:	
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24. Are you willing to be contacted for a more detailed follow-up discussion	
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