



Benefit sharing – How do we get there?

Some conceptual considerations and lessons from case studies

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Two dimensions of international cooperation



Output dimension

- States form regime(s) (benefit sharing as incentive?)

**Level 1:
International level**

Impact dimension

**Level 2:
Domestic level**

- Net benefits of cooperation are generated and shared



- Move from a zero-sum game of water sharing to a positive sum game of sharing the benefits from the use of water (Biswas 1999, Sadoff and Grey 2002, Klaphake 2005)

- Sadoff and Grey 2002: Benefits for the river, benefits from the river, reduced costs because of the river, benefits beyond the river

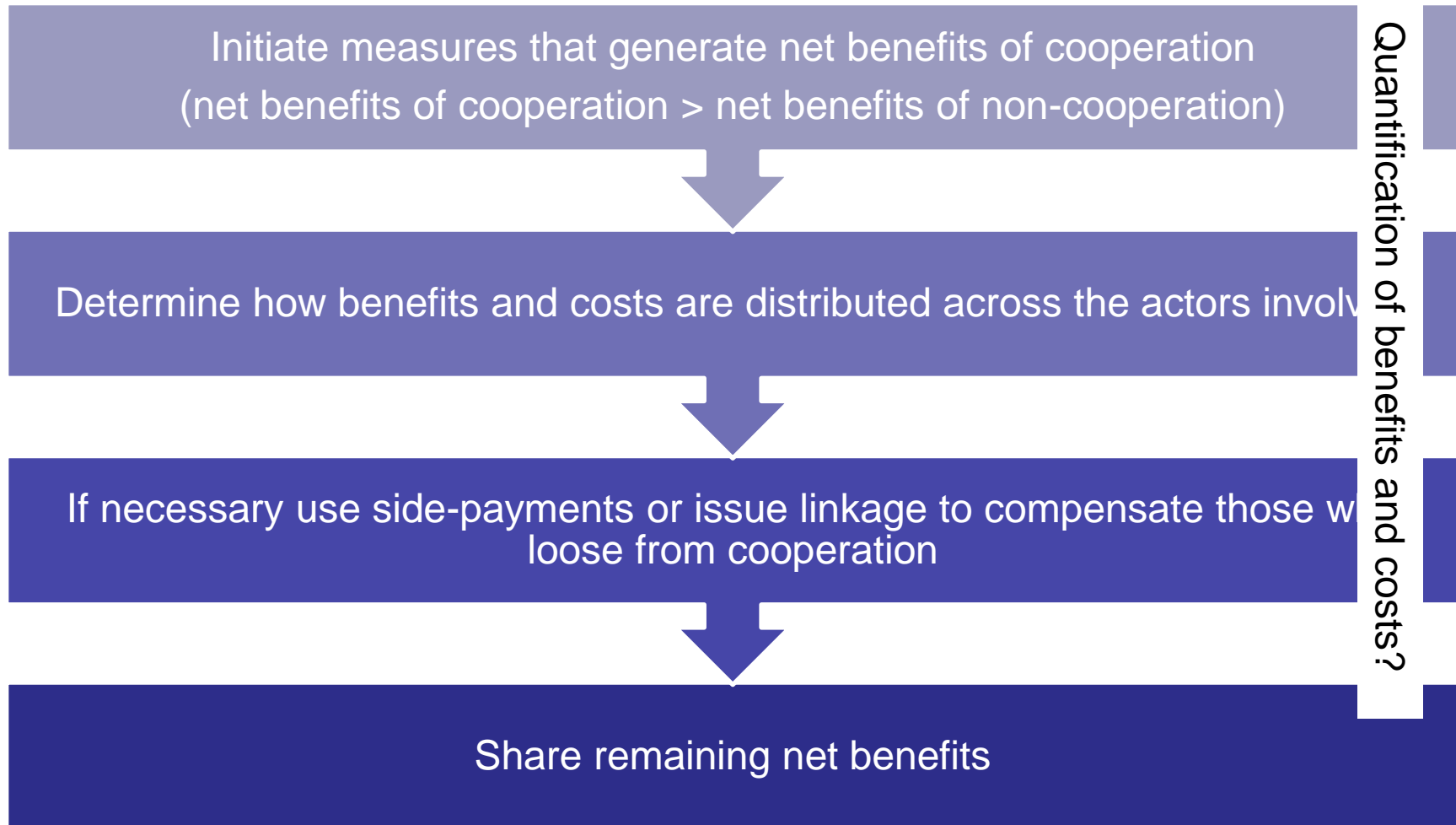
- ⇒ How to get there?

- Possible starting points
 - (1) Tradable water rights (challenging on international rivers)
 - (2) Coordinated infrastructure / side-payments downstream => upstream / payments for ecosystem services / issue linkages
 - (3) Joint infrastructure investments



- Joint or coordinated infrastructure measures as important starting point for generation of benefits of cooperation, e.g. through:
 - Wastewater treatment
 - Hydropower generation/multi-purpose dams
 - Flood protection
 - Improved navigability
 - These may entail various benefit and cost streams (economic, environmental, social and political)
 - Benefits/costs may be distributed differently across actors in the basin
- ⇒ Benefit sharing requires making all actors better off than in the status quo

Steps in benefit sharing



Source: Hensengerth, Dombrowsky and Scheumann 2012

Case study 1: Kidron/Wadi Nar wastewater management (Israel-Palestine)



- East Jerusalem & East Bethlehem discharge untreated wastewater to Kidron/Wadi Nar and Dead Sea
 - Potential threat to aquifers and odors
- ⇒ Different treatment options (joint or separate) under consideration



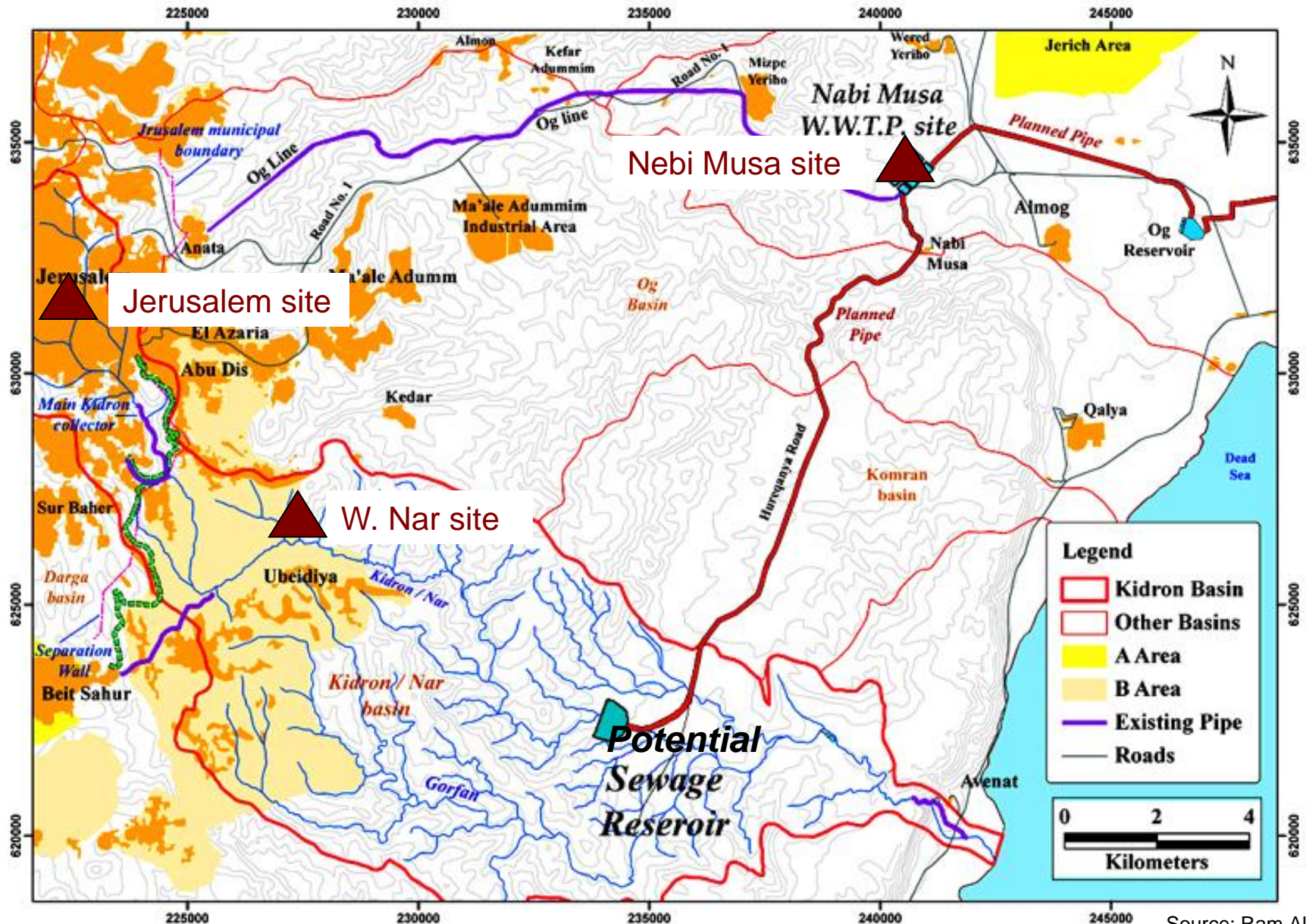
Population & Wastewater Volumes (2006)



	Population	Wastewater
	k	MCM/a
Israelis East Jerusalem	105	6.9
Palestinians East Jerusalem	60	1.4
Palestinians West Bank	75	0.6
Total	240	8.9

Source: Klawitter et al 2007b

Kidron/Wadi Nar – WWTP Options



CBA of Treatment Options



Option	Wastewater (MCM/a) treated at			Net benefits (Kidron dry)	Net benefits (Kidron wet)
	W. Nar	Nebi Musa	Jerusa- lem	(US\$ million/a)	(US\$ million/a)
M1	8.9	-	-	3.00	3.53
M2	-	8.9	-	1.67	-
M3 ISR	0.6	8.3	-	1.71	1.74
M3 PAL	2.0	6.9	-	1.82	1.94
M3 Gravity	5.4	3.5	-	2.88	3.20
M4	0.6	-	8.3	-1.20	-1.16

Source: Dombrowsky et al. 2010

Net benefits = benefits to agriculture + non-market benefits - costs

Political Economy Analysis



	M1 wet (dry)	M2	M3 ISR Outsourcing	M4
Net benefit \$million/a	3.5 (3.0)	1.7	1.7	-1.2
ISR Water Authority	-	++	+	-
ISR MoHealth & Environment	+	+	+	+
ISR regional councils	-(+)	+	+	+
Jerusalem municipality	-	+	+	-
Palestinian Authority	--	--	++	+
PAL local level	+(+)	-	+	--

+ supportive; ++ strongly supportive; - opposed; -- strongly opposed

Source: Dombrowsky et al. 2010



- Economically option solution (one WTTP on Palestinian territory) is not acceptable
 - Basin approach does not maximize net benefits from cooperation and is not acceptable either
 - Most acceptable solution might be joint outsourcing of two plant solution (half of max. benefits)
- ⇒ Stalemate despite demonstrated benefits of cooperation...

Case study 2: Regional hydropower projects in Africa's Great Lakes region



Ruzizi II



Ruzizi III



Energie des Grands Lacs (EGL)



Nile Equatorial Lakes Subsidiary Action Program (NELSAP)



Rusumo Falls



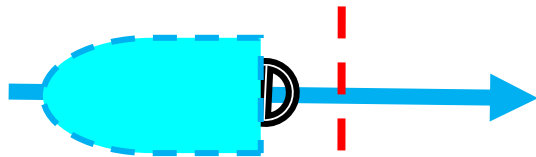


- Access to electricity (to be) shared equally between 3 countries in all 3 projects
 - Ruzizi II (operational since 1989):
 - Electricity delivered to 3 states despite war => spill over effects for regional integration
 - Pending compensation claims in DRC
 - Payment default by national utilities => no debt repayment
 - Ruzizi III and Rusumo Falls (under prep):
 - Extensive Environmental and Social Impacts Assessments and Resettlement Action Plans
 - Different institutional designs to avoid payment default
 - Rusumo Falls:
 - Change of scheme due to social costs!
- ⇒ Parties have good sense of benefits and costs, although they are not fully monetarized
- ⇒ Importance of incentives for repayment and resettlement right!

Starting points for benefit sharing related to dams



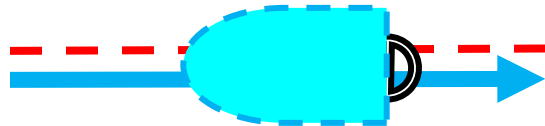
(1): Dam on transboundary river in upstream state A with externalities into downstream state B



Possible reasons for cooperation

- i. Upstream can not finance the dam alone/ dam does not pay for upstream alone
⇒ Senegal R.: Manantali Dam
- ii. An altered, jointly agreed dam design increases aggregated net benefits
⇒ Columbia R.: dams in Canada
- iii. Downstream wishes to build an upstream dam
⇒ Orange R.: dams in Lesotho

(2): Dam on a border river



Possible reason for cooperation

- Benefits can only be exploited cooperatively
⇒ Zambezi R.: Kariba Dam; Rio Parana: Itaipu Dam; Ruzizi R.: Ruzizi II Dam

Conclusions



- Coordinated or joint infrastructure can be a starting point for benefit sharing
 - Is usually associated with diverse benefit and cost streams at different scales
 - Benefits and costs can be understood in qualitative, quantitative or monetarized terms
 - Monetarization can inform process, but can be time consuming and disputed
 - Even if benefits of cooperation can be demonstrated there may still be obstacles for cooperation
 - Critical step in benefit sharing is to over-compensate those who would loose from cooperation => involve affected domestic groups (support them through quantification?)
 - Repayment of jointly owned infrastructure can also be an issue...
- ⇒ Process and participation of affected groups matters for BS

Thank you for your attention!

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Relevant publications



- Hensengerth, Oliver, Ines Dombrowsky, Waltina Scheumann (2012): Benefit-Sharing in Dam Projects on Shared Rivers, Bonn: German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) (Discussion Paper 6/2012)
- Dombrowsky, Ines, Almog, Ram, Becker, Nir, Feitelson, Eran, Klawitter, Simone, Lindemann, Stefan, Mutlak, Natalie (2010), How widely applicable is river basin management? An analysis of wastewater management in an arid transboundary case. *Environmental Management*, 45(5): 1112-1126.
- Dombrowsky, Ines (2010), Benefit-sharing in transboundary water management through intra-water sector issue linkage? In *On the Water Front: Selections from the 2009 World Water Week in Stockholm*, ed. Lundqvist, Jan, Stockholm International Water Institute (SIWI), Stockholm: 25-31
- Dombrowsky, Ines (2010), The Role of Intra-water Sector Issue Linkage in the Resolution of Transboundary Water Conflicts. *Water International* 35(2): 132-149.
- Dombrowsky, Ines (2009) Revisiting the Potential for Benefit-sharing in the Management of Transboundary Rivers. *Water Policy* 11(2): 125-140.