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Challenges & the need for Source-to-Sea approaches

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6 CLEAN WATER AND SANITATION



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6.1 By 2030, universal access to water

Where we are now	The SDG Challenge	S2S & SDG Linkages
MDGs 1990 – 2015:	663 million still need access or 44	Impacts of sea level rise on groundwater
104 million/year gained access to	million/year	quality
improved water	Rural access and	and of
source, MDG	"last mile"	contaminated
achieved at global	problem	groundwater on
level (91 vs. 88%)		coastal water quality
		14.1

6.2 By 2030, universal access sanitation, end open defecation

Where we are now	The SDG Challenge	S2S & SDG Linkages
MDGs 1990 – 2015:	2.4 billion still lack access	Improving sanitation access
Average 84 million/year		and ending open
gained access to sanitation	Need to add 160 million/year or	defecation reduces nutrient, BOD and
MDG missed by 700	doubling of MDG	bacterial loads to
million (68 vs. 77%)	rate	waterways and
		coastal areas
		14.1

6.3 By 2030 halve proportion untreated wastewater

Where we are now	The SDG Challenge	S2S & SDG Linkages
Present, about 2.52 billion people (35%) have wastewater treated	Halving (e.g. moving to 67.5%) requires treating wastewater for about 2.32 billion additional	Globally, untreated wastewater represents ~10% of nutrient loads to coastal areas
	Need to add 154 million/year	Hypoxia may amplify effects of ocean acidification (and vice versa)
		14.1, 14.3

6.4 By 2030 sustainable withdrawals, substantially

reduce people facing water scarcity		
Where we are now	The SDG Challenge	S2S & SDG Linkages
20 th century – water withdrawals increased 1.7x faster than population	People experiencing water stress or scarcity could increase to 3.6 billion by 2025 (FAO)	Upstream diversions can reduce freshwater flows needed by
2005 – 1 billion people already facing water	Achieving SDG requires to slow and reverse current trends	coastal ecosystems
stress or scarcity (FAO 2006)	Revolution in water use efficiency needed, scaling up of IWRM	Dams can reduce sediment flows needed to replenish coastal
	As for energy, decoupling of water consumption with economic and population growth is required.	delta ecosystems 14.2

6.5 By 2030 implement IWRM at all

levels including transboundary		
Where we are now	The SDG Challenge	S2S & SDG Linkages
286 transboundary rivers (TWAP) 206 transboundary lakes & reservoirs (TWAP) 592 transbound aquifers (IGRAC)	If accept simple premise that at least a basic framework for multicountry cooperation is a	40% world population lives in TB basins which represent half earth's land surface
295 international water	sine qua non for effective implementation of IWRM	TB basins ~ 60% of
agreements since 1948	at transboundary scale, we should be striving to	global freshwater flows
1997 UN Convention on International Watercourses	have all TB basins under at least an initial framework by 2030	Achieving IWRM in TB basins reduces coastal
1992 ECE Water Convention	This would need to	pollution, maintains water flows and
158 of world's ~263	average ~150/15 = 10	sediment supplies to
transboundary river & lake basins lack cooperative management	new basins per year	coastal ecosystems
framework (OSU, 2008)		14.1. 14.2

6.5 By 2030 implement IWRM at all levels

3.3 by 2000 implementation at an investig			
Where we are now	The SDG Challenge	S2S & SDG Linkages	
82%/79% countries implementing changes in water laws/policy (UN-Water, 2012)	IWRM needs to continue to be integrated into broader development planning &	Achieving IWRM in national basins reduces coastal	
64% countries have developed IWRM plans	financing	pollution, maintains water	
34% countries advanced implementation	IWRM even more important as water-related risks (CC,	flows and sediment supplies	
67% incl water in national development plans	flood, drought) increasing	to coastal ecosystems	
Progress slowed or even regressed in low and medium HDI countries	Continued support needed on institutional framework for WRM esp low HDI	14.1, 14.2	
Slightly positive trend financing for water resources but little on payment for water	countries		
resource services	Investment in water conservation and WUE needs		
Countries adopting IWRM show more progress on infrastructure development	to increase		
Strong linkage between IWRM enabling environment & improved mgmt practices	Continued need for capacity building across all country income levels		

1/1 1 By 2025 prevent & significantly reduce

14.1 By 2025, prevent & significantly reduce			
marine pollution esp marine debris & nutrients			
Where we are now	The SDG Challenge	S2S & SDG Linkages	
Nitrogen loads to oceans roughly tripled from pre-industrial times (fertilizer, manure, wastewater) Geometric increase in hypoxic zones	Transformational policy changes and economic incentives in nitrogen management across multiple sectors needed at all levels of governance	Enhanced fertilizer use efficiency, better manure mgmt., increased WWT, reduces nutrient loads to coastal areas	
Global economic damage N pollution \$200 – 800 billion/year (UNDP, 2012)	(UNEP et al., 2012)	6.2, 6.3, 6.5, 6.a	
World produces 300 million mt/year plastics	There are numerous proven strategies, policies etc. that can	Rivers, esp large TB, are a major transport vector for plastics to the oceans	
Global plastics recycling rate ~24%	deliver large reductions in plastics pollution, need	Solid waste management	
8-20 million mt/year plastics entering	widespread adoption and	needs to be integral part	
oceans and growing rapidly (x10 by	scaling up	of IWRM	
2025) esp in developing regions			
Damage to marine ecosystems \$13 billion/year (UNEP, 2014)		6.3, 6.5	

14.3 Minimize and address ocean acidification

Where we are now	The SDG Challenge	S2S & SDG Linkages
30% anthropogenic CO ₂	BAU GHG pathway ocean pH	OA can amplify
dissolves into surface oceans	decreases another 0.3-0.4 units, virtually certain major	ecosystem impacts of coastal hypoxia
Ocean pH already decreased	deterioration ocean	driven by nutrient
about 0.1 pH unit	ecosystems	loads
Increased acidity prevents CaCO ₃ organisms from producing shells & skeletons; reverberates thru ecosystem	BAU economic costs \$1.2 trillion/year by 2100 (Brander, 2011)	6.2, 6.3, 6.5
Several ecosystems, especially polar regions, already showing impacts	Global action on climate change mitigation (Paris agreement) is directly correlated with reversing ocean acidification	

14.4 By 2020 end IUU & overfishing

Where we are now	The SDG Challenge	S2S & SDG Linkages
About 30% fish stocks	Average 6% per	Coastal ecosystems
overexploited	year of stocks	impacted by river-
	moved towards	borne pollution,
IUU affects about 20%	sustainable use by	reduced water and
global fish yields worth	2020	sediment flows, serve
about \$23 billion/year		as critical breeding
	Eliminate average	and nursery areas for
Strong relationship	4% IUU per year to	many harvested fish
between IUU & over-	2020	species
fishing and weak fisheries		
governance (Agnew et al.		6.2, 6.3, 6.4, 6.5
2009)		

14.5 By 2020 conserve at least 10% coastal & marine areas

Where we are now	The SDG Challenge	S2S & SDG Linkages	
8.4% EEZs under MPAs, Aichi 10% EEZs projected to be achieved in 2016 (CBD)	10% by 2020 requires 1.3% more ocean under MPA per year (4.7 million sq km/yr), 5x rate from 2004-	MPAs require IWRM in adjacent rivers to protect MPAs from pollution, sediments,	
SDG calls for 10% of entire	14	envir flows and other	
OCEAN under MPA, presently at		stressors	
3.5%	Progress/concluding on ABNJ agreement may take	6.2, 6.3, 6.4, 6.5, 6.a	
World added ~0.26% ocean per year 2004-14	time => focus of near-term action in EEZs		
Very small proportion of high seas protected (0.25%); key negotiations on UNCLOS implementing agreement on ABNJ have begun	Many scientists concur that 10% isn't sufficient for true protection and sustainability, more like 30% desired.		

14.7 By 2030, increase economic benefits to SIDS & LDCs from marine resources

Where we are now	The SDG Challenge	S2S & SDG Linkages
SIDS exports of fish products US\$1.75	SIDS need	Sustainable land,
billion (2012), ~7% of Exports and 1.7%	assistance in	water, biodiversity
GDP; increased about 50% 2006-12	developing and	and coastal area
	implementing their	management
SIDS tourism exports \$24 billion, 50% of	'blue economy'	integral to
their services exports. Hotel related FDI to	strategies to	sustenance of SIDS
SIDS increased to ~\$0.5 billion in 2012	optimize their roles	fisheries,
	as 'Large Ocean	aquaculture and
BUT	States' and grow	tourism sectors
	economies	
Fisheries in SIDS subject to as much as		6.1, 6.2, 6.3, 6.4,
\$872 m. in harmful subsidies (Sumaila)		6.6, 6.a, 6.b
~60% of SIDS stocks are overfished		
leading to realization of only 48% of		
potential economic benefits in their EEZs.		

SDGs 6 and 14 are extremely ambitious and in several cases require transformational changes in water and ocean management and governance

"....more, better, sooner"



