The Value of Water:

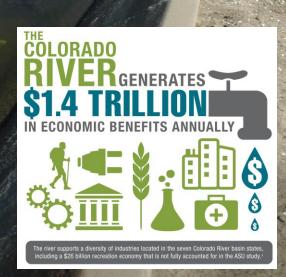
A framework for understanding water valuation, risk and stewardship

Alexis Morgan, WWF-International Stockholm World Water Week, August 24, 2015 Email: amorgan@wwfint.org | Twitter: @alexisjmorgan

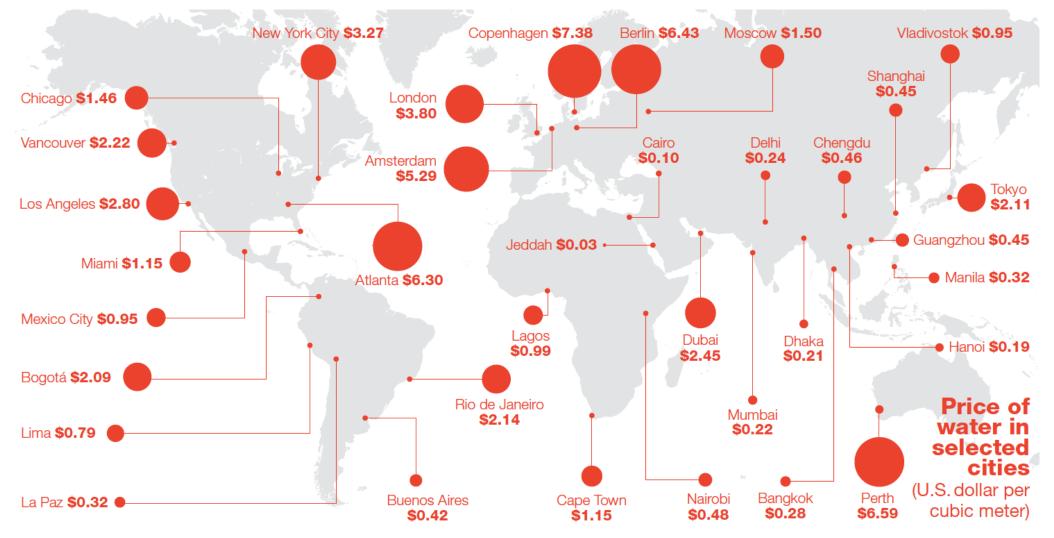
Reflecting on the value of water

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Price ≠ Value



Source: Fortune, 2014

The Value of Water Varies by Time & Space

CORPORATE (AND FACILITY) VALUE CREATION / LOSS FROM WATER USE

Companies (and their facilities) derive proprietary value through water use, which is enhanced or lost based on their industry (corporate risk), their corporate response (water management or stewardship) and external forces (basin risk).

ECONOMIC VALUE CREATION / LOSS FROM WATER USE FOR GOODS AND SERVICES

National, regional and local governments are interested in economic (shared) value (and manage water-related costs/externalities), which are affected by water use decisions, including allocation.

Corporations link to economic value creation via jobs/taxes; also, corporations suffer from health costs, cleanup costs, etc. SOCIETAL VALUE (WELL-BEING) DERIVED FROM HUMAN WATER USE

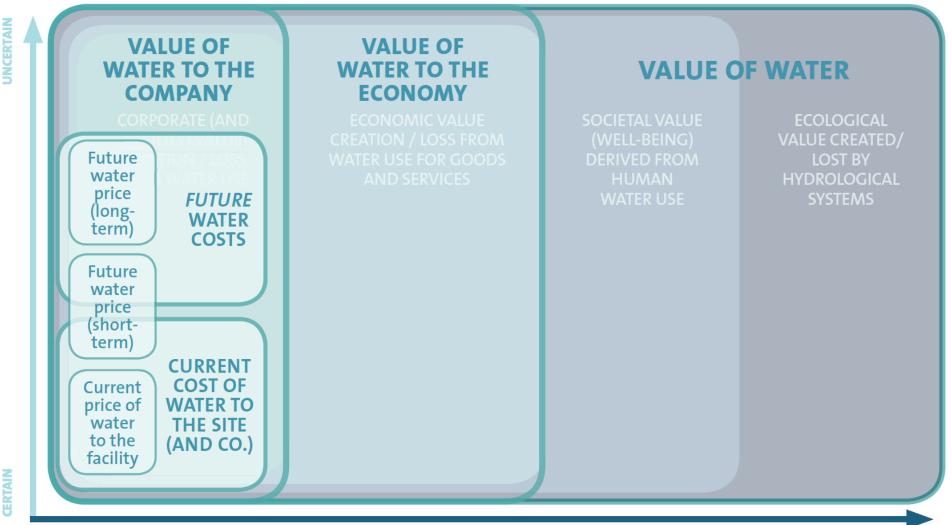
Humanity uses water for various purposes, which range from incalculable values (*e.g.*, basic health and survival) to personal enjoyment (*e.g.*, recreation) and economic use.

ECOLOGICAL VALUE CREATED/LOST BY HYDROLOGICAL SYSTEMS

Ecological systems are tied to all hydrological systems and ultimately provide a broad array of XXXX not only to nature, but to society (via ecosystem services), as well as underpin economic and corporate water use.



Always distinguish price, cost & value



VALUE TO THE FACILITY

VALUE TO THE BASIN

Water

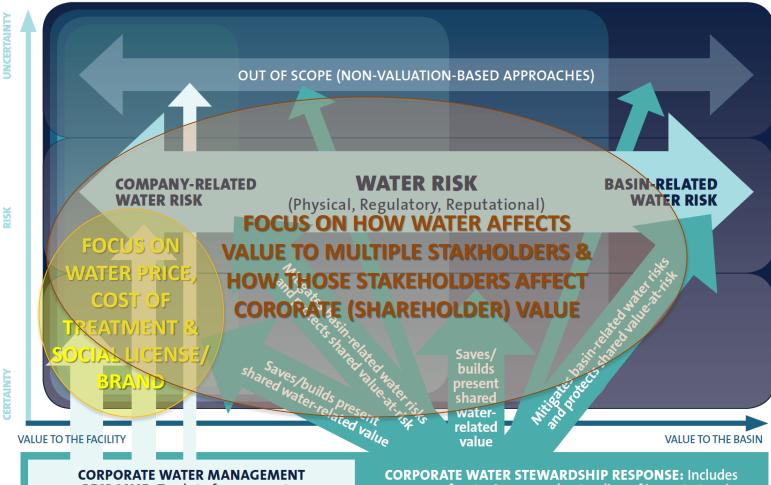
Stewardship harnesses

more value than water management

Water Stewardship: "The use of water that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder- inclusive process that involves site and catchment-based actions.

- The Alliance for Water Stewardship CORPORATE (AND FACILITY) VALUE CREATION / LOSS FROM WATER USE ECONOMIC VALUE CREATION / LOSS FROM WATER USE FOR GOODS AND SERVICES SOCIETAL VALUE (WELL-BEING) DERIVED FROM HUMAN WATER USE

ECOLOGICAL VALUE CREATED/LOST BY HYDROLOGICAL SYSTEMS



CORPORATE WATER MANAGEMENT RESPONSE: Tends to focus on water procurement costs (efficiency) & avoiding pollution fines with limited water-risk mitigation **CORPORATE WATER STEWARDSHIP RESPONSE:** Includes awareness of water issues, understanding of impact at various scales, internal and collective action, as well as governance engagement to protect and build value at various scales.

The Value of Water as a Balance Sheet

Corporate water- related built capital (grey infrastructure) non-current assets	Corporate water-related, natural capital (green infrastructure) current and non-current assets		Current, non- current and contingent water-related	Water-related intangible assets		Corporate water-related social value asset	Unaccounted- for social liability from facility-driven
	Current corporate water assets		liabilities	Community goodwill	Brand value		impairment of public assets
	Frequency a	ind scale of cost	VALUE OF THE changes (all, esp e to changes in si	ecially taxes, v	vater / energ	y / commodity	
Infrastructure amortization and damage/ write-offs	Future market value of water reserves	Ecological impairment (or enhancement) of natural capital	Water-related future liabilities (accounted for— <i>e.g.</i> , future fines)	Value of future community relations	Value of future brand value/ goodwill	Social value impairment or enhancement of corporate assets	Future water- related facility- driven impacts on societal asset value
Value of grey infrastructure assets	Current market value of water reserves	Value of natural capital (green infrastructure) assets (to the facility)	Water-related current corporate liabilities (accounted for— <i>e.g.</i> , fines)	Value of no operational interruption from community concerns	Brand value Goodwill	Social value of publicly- accessible, water-related natural capital Social value of grey infrastructure	Present water- related facility- driven societal liabilities (unaccounted- for public asset externalities)

HIGHLY CERTAIN

VALUE TO THE BASIN

The Value of Water as an Income Statement

Water-related operations and maintenance costs	Water-related administration costs	Water-related regulatory costs	Water-related financial costs	Revenue impacts from water issues	Value of social benefits from corporate water use	Unaccounted for facility- driven, water-related societal costs
					S LISTED BELOW d (and climate ch	
 Infrastructure renewal, amortization Input material procurement costs Cost of secondary treatment (in/out) Cost of water procurement (volume) Cost of energy to move/heat/cool water Cost of water treatment (quality) Facility cleaning/ sanitation costs 	 Cost of water-related illness (WASH) Portion of water-related legal costs (compliance and compensation) Portion of water-related engineering costs Portion of water- related CSR costs (programs/ disclosure/ certification) 	 Water-related emergencies/ spills/cleanup Water-related fines Water- related public infrastructure charges (if applicable) Taxes 	 Financing costs (factoring in water risk premium) Water-related insurance costs 	 New/expanded water-sensitive markets Product innovation (water-related) Ecosystem service revenues Product premium due to water stewardship/CSR Current water- dependent revenue/value creation 	 Value of facility's water-related natural capital contributions Social value provision from grey infrastructure Value of water-related economic and community contributions (<i>e.g.</i>, jobs, taxes/m3 water, etc. 	• Societal costs of externalities (including public infrastructure and natural capital)

HIGHLY CERTAIN

VALUE TO THE FACILITY

The landscape of valuation tools

Water-related operations and maintenance costs WaterVaR (Equarius)	Water-related administration costs	Water-related regulatory costs	Water-related financial costs	Revenue impacts from water issues WaterVaR (Equarius) Bloomberg Water Risk Valuation Tool	Value of social benefits from corporate water use	Unaccounted for facility- driven, water-related societal costs
FV Tool (IFC)		True Cost of Water Tool (Veolia)	1	FV Tool (IFC)	Ecosystem serv and modelling	
Water Risk Monetiser (Trucost/Ecolab)			RISK FOCUSED	True Cost of Water Tool (Veolia)	Calculating the p benefits to socie societal costs inf	ty, or the
Ecosystem services Operational cost avoidance True Cost of Water Tool (Veolia) NalcoPRO (Ecolab)	True Cost of Water Tool (Veolia)	PRESENT-COST	/ REVENUE FO	CUSED Ecosystem services Payment for Ecosystem Service revenue	<i>e.g.</i> , InVEST, SERV Nature, ARIES, N Analyzer, etc.	/ES, Co\$ting atural Capital

HIGHLY CERTAIN

The landscape of (select) water tools

CORPORATE (AND

FACILITY) VALUE

CREATION / LOSS



ECONOMIC VALUE

CREATION / LOSS FROM

WATER USE FOR GOODS

SOCIETAL VALUE

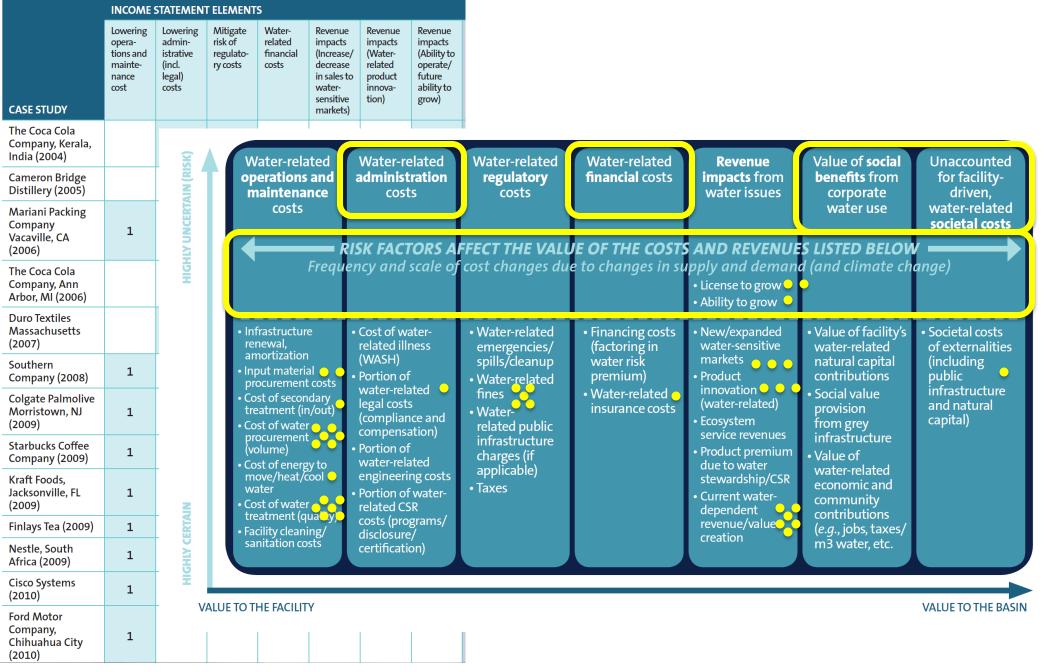
(WELL-BEING) DERIVED

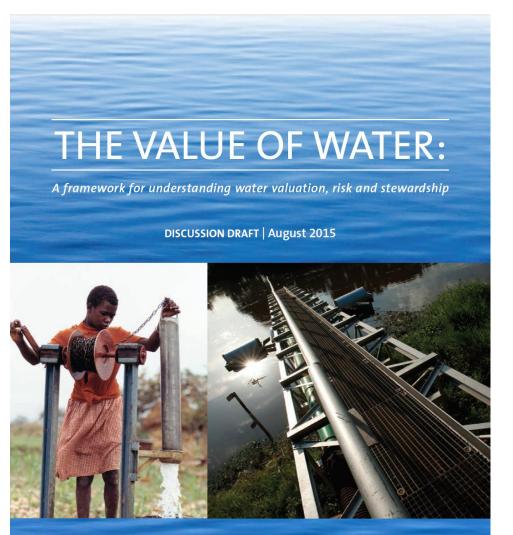
FROM HUMAN

ECOLOGICAL VALUE

CREATED/LOST BY

HYDROLOGICAL





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International Finance Corporation WORLD BANKGROUP

Concluding thoughts:

- Water affects multiple aspects of shareholder value, from expenses & revenues to assets & liabilities
- Few (if any) companies are comprehensively considering how water affects their costs/income (i.e., value)
- Basin-related water value is largely an unexplored area, with current efforts largely focused on the role & opportunities related to natural capital
- Reflecting value in financial risk (e.g., via alpha & beta) will continue to develop & manifest
- Be careful of terminology and understand which tools serve valuation, risk assessment and stewardship.