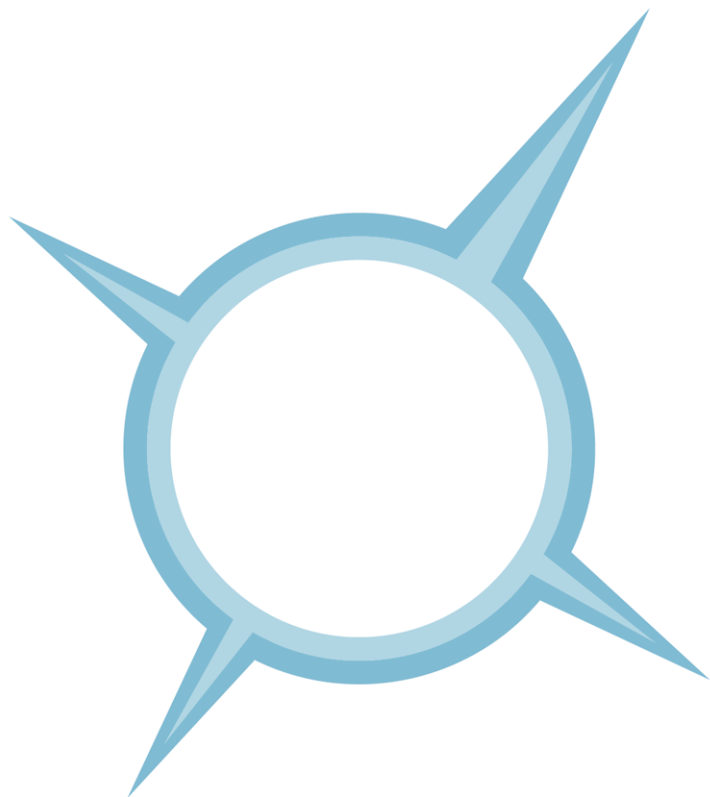




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**United Nations Environment Programme
World Conservation Monitoring Centre**



Policy background: Understanding the international direction of travel for Natural Capital, James Vause (james.vause@unep-wcmc.org), Steven King (steven.king@unep-wcmc.org)

01/08/2016



Policy Background

International Perspectives



Sustainable management of Natural Capital for sustainable development and poverty eradication

With member states, UNEP will strengthen efforts on: monitoring status and trends in Natural Capital, integrate Natural Capital data into policy development and decision making, build capacity in member states to apply Natural Capital Accounting

Natural Capital Declaration

Since Rio+20, a total of 70 countries have declared their support to integrate the value of natural resources into development planning and national economic accounts (World Bank).



Aichi Target 2 (CBD) – agreed by 168 countries

“By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems”



Sustainable development Goals (SDGs) - Agreed by 193 countries

The 17 SDGs aim to eradicate poverty and place all countries on a sustainable development path by 2030.

Natural Capital accounting can help deliver the SDGs by making explicit the links between the economy and the environment, enabling sustainable policy decisions and actions, and monitoring progress (World Bank).

Regional Perspectives



Gaborone Declaration

“To ensure that the contributions of Natural Capital to sustainable economic growth, maintenance and improvement of social capital and human well-being are quantified and integrated into development and business practice.”

Botswana, Gabon, Ghana, Kenya, Liberia, Mozambique, Namibia, Rwanda, South Africa and Tanzania



EU Biodiversity Strategy to 2020

“....map and assess the state of ecosystems and their services in their national territory by 2014, assess the economic value of such services, and promote the integration of these values into accounting and reporting systems at EU and national level by 2020.”

7th EU Environmental Action Programme (7EAP)

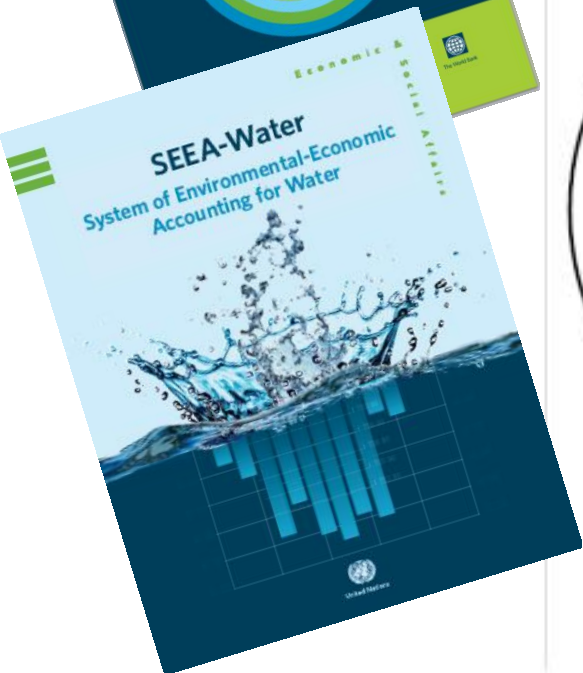
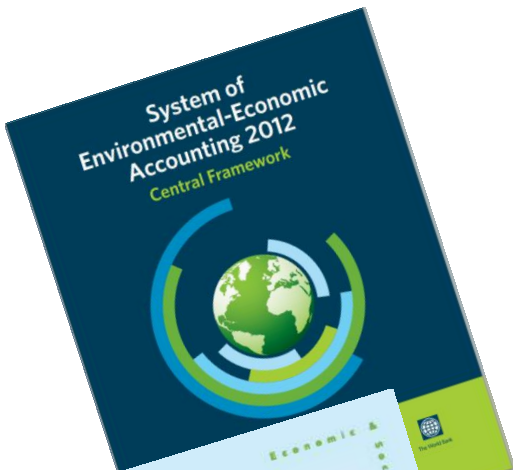
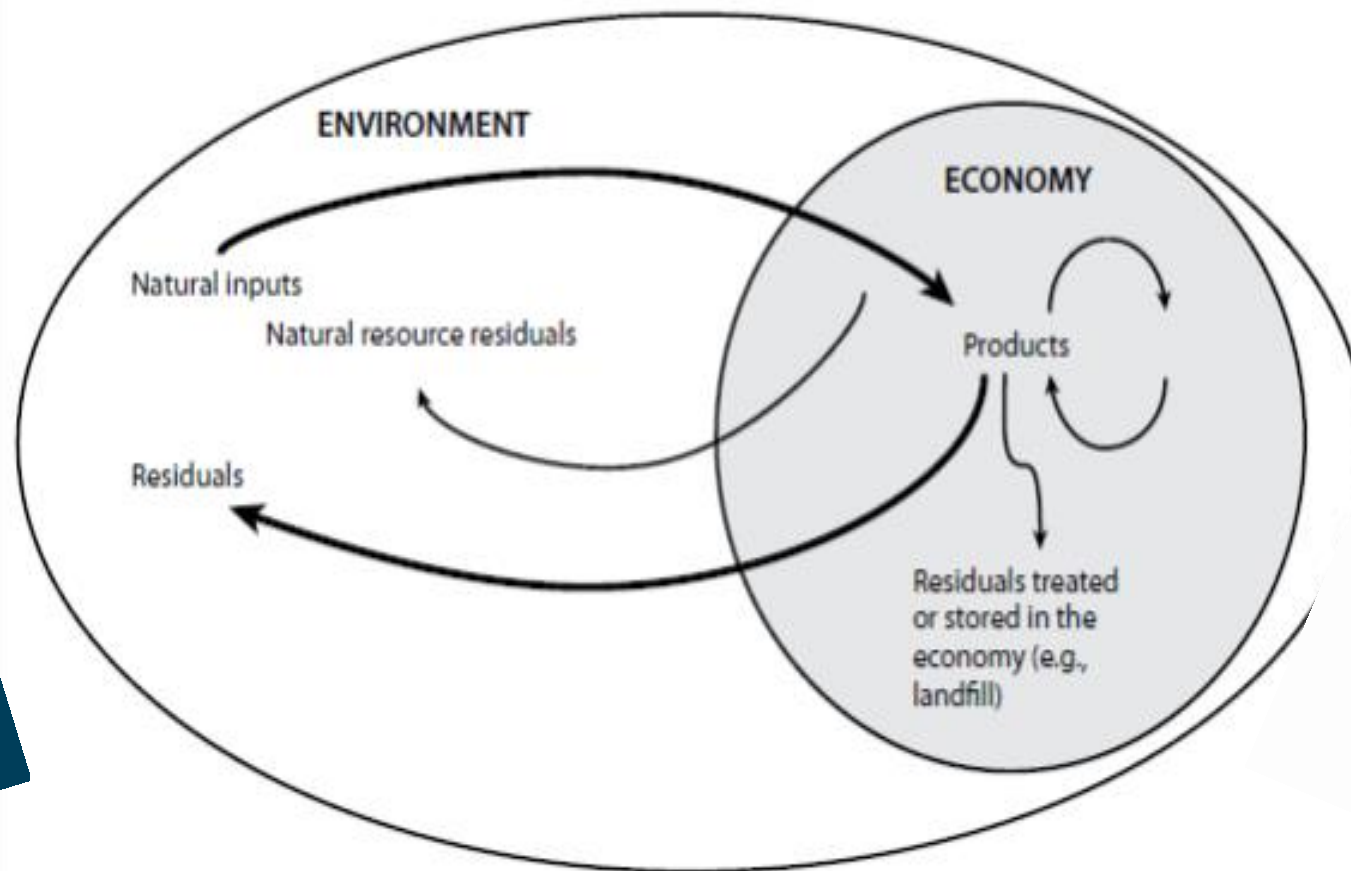
“Developing and applying alternative indicators that complement and go beyond GDP to monitor how sustainable our progress is and continuing work to integrate economic indicators with environmental and social indicators, including Natural Capital accounting”

Tools and Initiatives

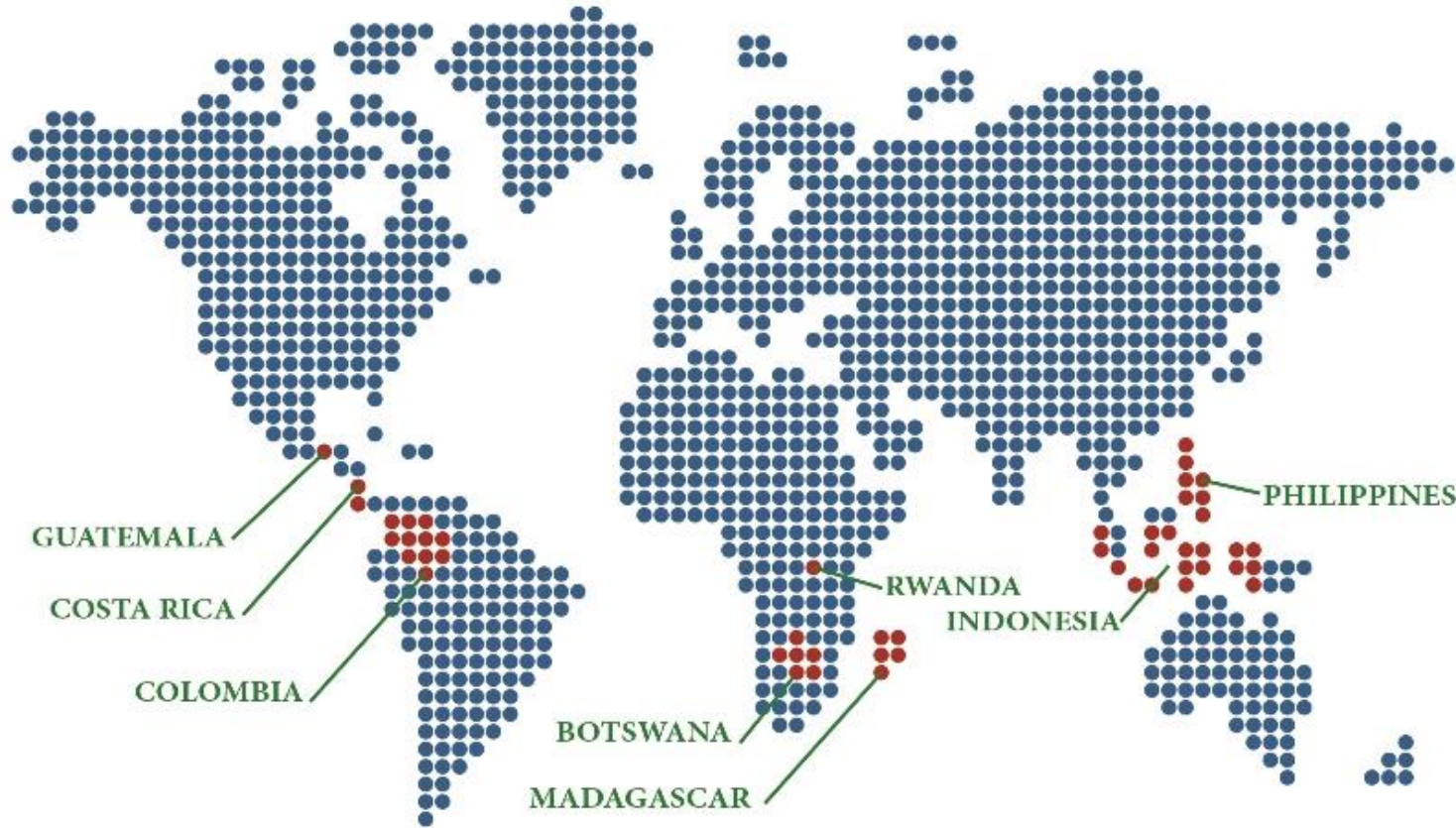


A Central Framework for Natural Capital Accounting (2012)

Figure 3.1
Physical flows in relation to the production boundary of the economy



Wealth Accounting and Valuation of Ecosystem Services (World bank)



Botswana Accounts: Water, minerals, energy, macroeconomic indicators of sustainable development, and the tourism component of land and ecosystem accounts

Colombia Accounts: Ecosystems, forests and water

Costa Rica Accounts: Forests and water.

Guatemala Accounts: Water, energy and emissions, waste, forest, agriculture, and ecosystem accounts

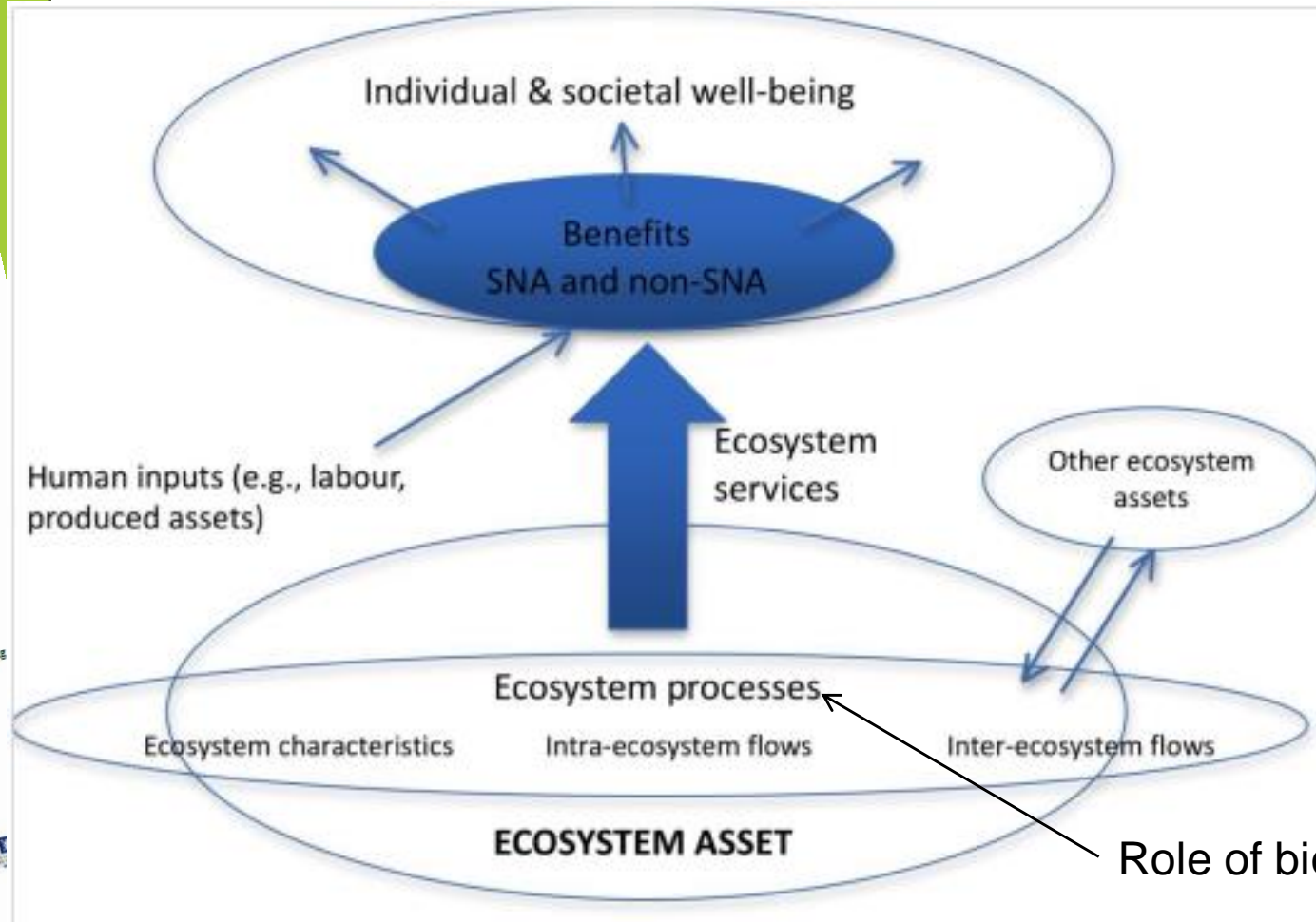
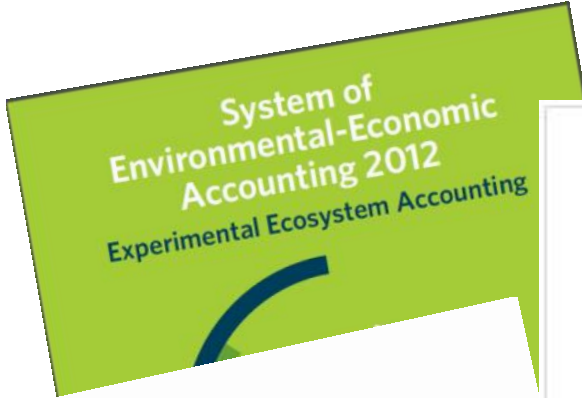
Indonesia Accounts: Land and water

Madagascar Accounts: Mining, water, forests, and macroeconomic indicators

Philippines Accounts: Minerals, mangroves, and ecosystem accounts for Southern Palawan and the Laguna Lake basin

Rwanda Accounts: Land, water and minerals

Natural Capital Accounting for Ecosystems



Role of biodiversity

Knowledge **I**nnovation **P**roject on **I**ntegrated **S**ystem for **N**atural **C**apital and **E**cosystem **S**ervices **A**ccounting in the **EU** (**KIP INCA**)

Now in an implementation phase to 2020

Aims to:

Develop integrated accounts for ecosystems

Track ecosystem assets

Track and project ecosystem service flows

Value the benefits from nature



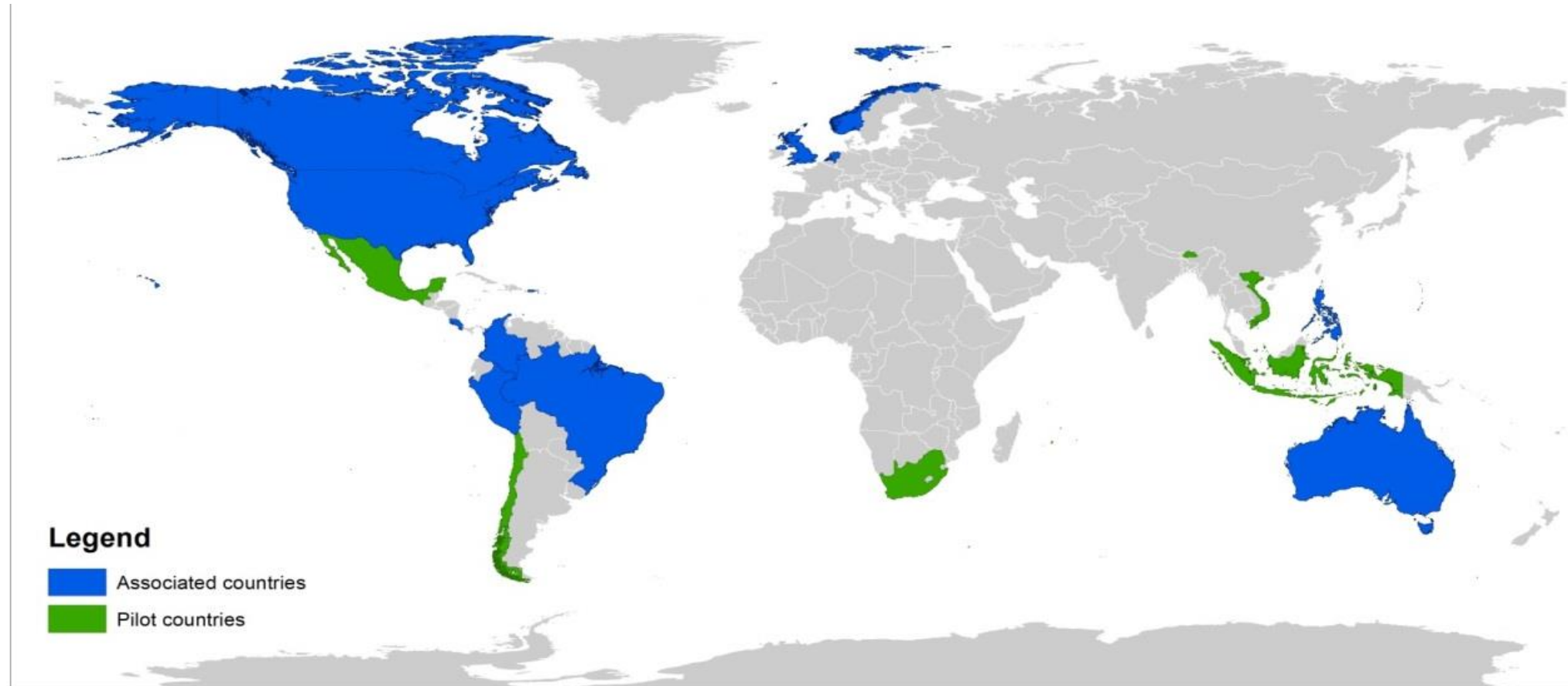


UNEP



WCMC

Natural Capital Accounting for Ecosystems





THANK YOU!

01/08/2016



Applications and Implications for Business

Applications

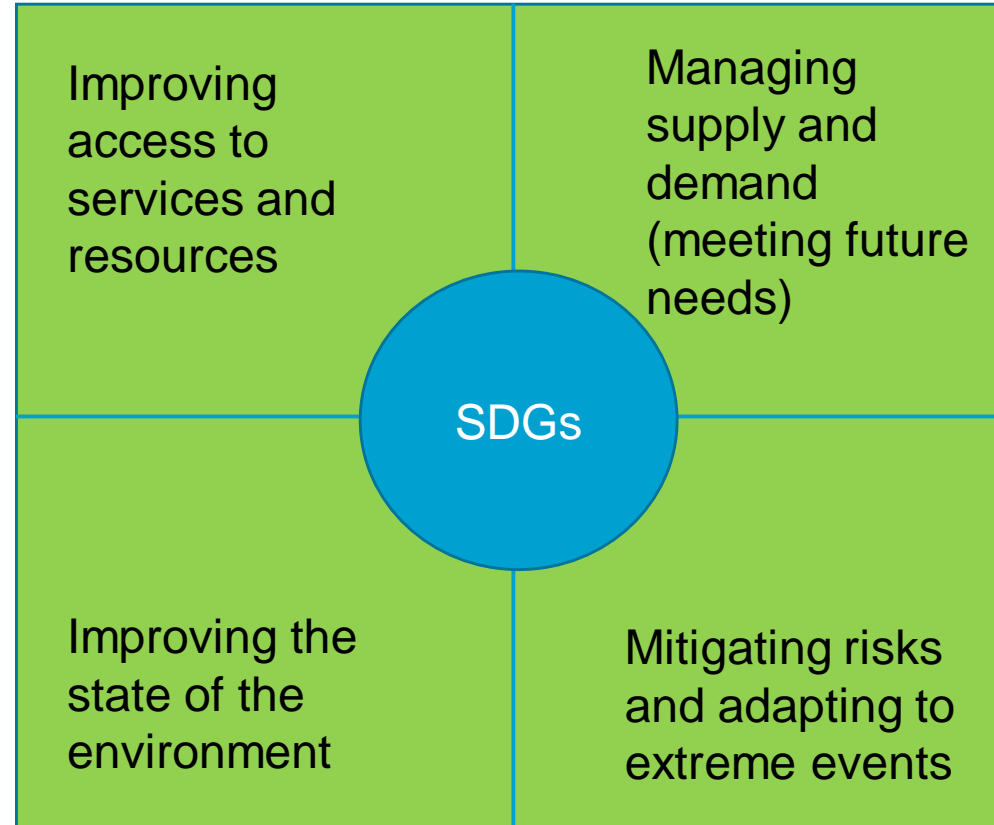
Natural Capital Accounting and sustainable development policy

Track trends in Natural Capital assets (e.g., ecosystems and biodiversity)

Measure the overall efficiency of the economy (e.g., Natural Capital necessary to produce one unit of GDP)

Support action towards greener growth (e.g., decoupling indicators for Natural Capital use per unit of production)

Understand linkages (e.g., which economic activities benefit or degrade Natural Capital)



Understand how depletion of Natural Capital affects a countries wealth

Understand current and future supply of ecosystem services (by ecosystem & beneficiaries)

Inform market approaches for managing the environment and integrating them into public (e.g. via taxes, regulation and planning) and business (e.g. via productivity gains, technology, contents of final consumption) planning

Communicate aggregated trends in Natural Capital use to the public and decision makers



For the physical accounts it is necessary to *widen the dimensions of the supply and use tables*

Supply of natural inputs, products and residuals

SEEA CF Table 3.1

Domestic Economy

Rest of the world

Environment

	Production; generation of residuals		Accumulation			Total
	Production; generation of residuals by industries (including household production on own account), classified by ISIC	Generation of residuals by households	Industries —classified by ISIC	Flows from the rest of the world	Flows from the environment	
Natural inputs					A. Flows from the environment (including natural resource residuals)	Total supply of natural inputs (TSNI)
Products	C. Output (including sale of recycled and reused products)			D. Imports of products		Total supply of products (TSP)
Residuals	I1. Residuals generated by industry (including natural resource residuals) I2. Residuals generated following treatment	J. Residuals generated by household final consumption	K1. Residuals from scrapping and demolition of produced assets K2. Emissions from controlled landfill sites	L. Residuals received from rest of the world	M. Residuals recovered from the environment	Total supply of residuals (TSR)
Total supply						

Limburg, Netherlands (Remme et al., 2014)

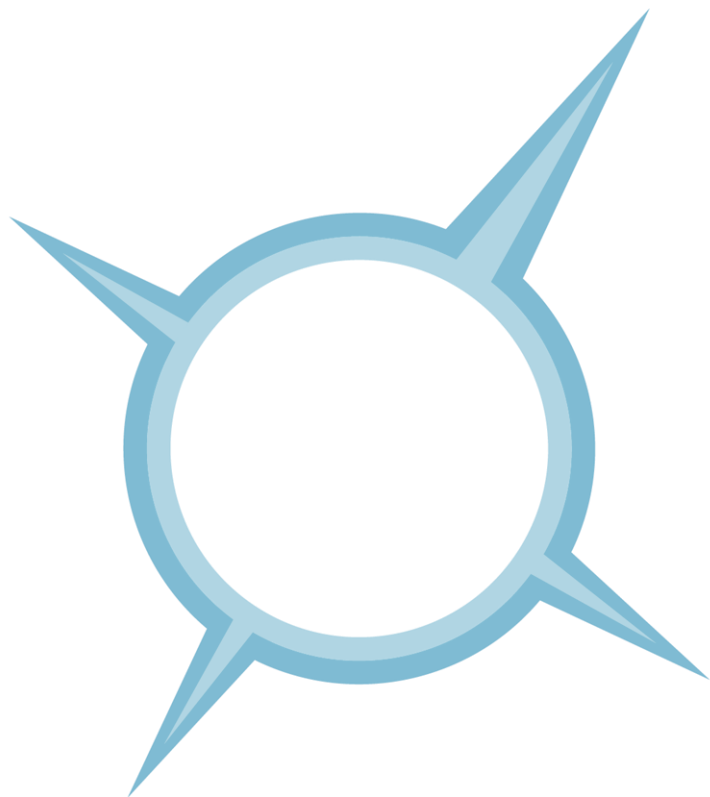
Ecosystem service		Units	Land cover type								Provincial total
			Urban	Pasture	Cropland	Forest	Heath	Peat	Water	Other nature	
Provisioning	Hunting	kg meat	-	9,100	14,732	8,100	678	70		1,513	34,193
	Drinking water extraction	10 ³ m ³ water	4,071	7,026	11,227	3,117	214	-	478	862	26,995
	Crop production	10 ⁶ kg produce	-	-	1,868	-	-	-	-	-	1,868
	Fodder production	10 ⁶ kg dry matter		533	251						784
Regulation	Air quality regulation	10 ³ kg PM ₁₀	272	404	717	700	45	7	40	69	2,254
	Carbon sequestration	10 ⁶ kg carbon	875	8,019	273	50,664	393	149	-	1,056	61,429
Cultural	Recreational cycling	10 ³ trips	2,690	1,863	2,611	1,565	30	3	139	220	9,121



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Factoring Natural Capital into corporate decision making



**NATURAL
CAPITAL
COALITION**

 [@NatCapCoalition](https://twitter.com/NatCapCoalition) #NatCapProtocol



**NATURAL CAPITAL PROTOCOL
AND SECTOR GUIDE
DEVELOPMENT**

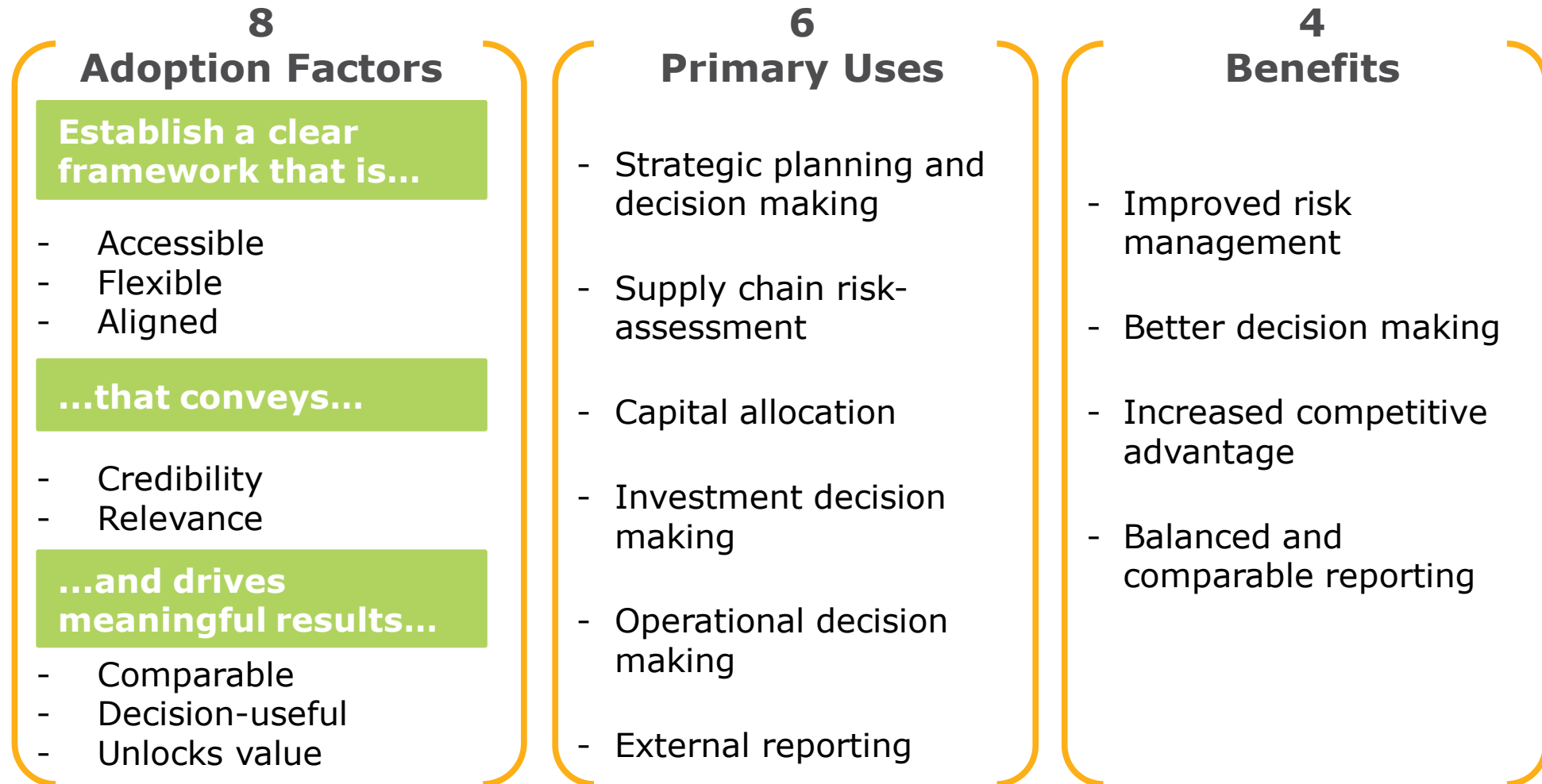
Harmonization

There are many different approaches to natural capital and a lot of work has been carried out already. The Natural Capital Protocol standardizes this into a single global framework



We asked business what they needed

80+ businesses from 15 sectors and all geographic regions



A unique collaborative process

Developed the Protocol

Developed the sector guides,
and managed the business
engagement and pilot testing



Leading companies tested the draft Protocol

Over 50 businesses contributed to the Protocol piloting program

Deep Dives



Piloted the entire Protocol



Piloting companies



Piloted different steps of the Protocol



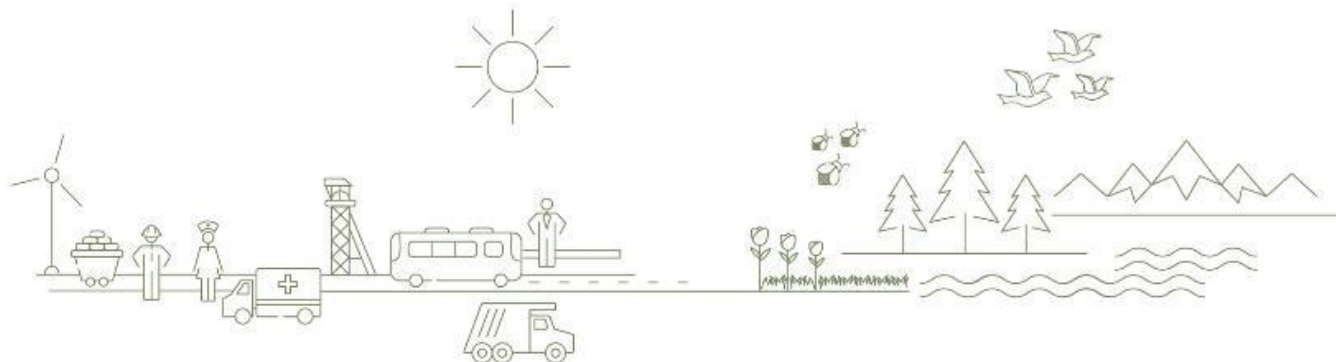


**NATURAL CAPITAL
PROTOCOL**

Introducing the Protocol



The **Natural Capital Protocol** is a **standardized framework** for **business** to **identify, measure and value** its direct and indirect **impacts and dependencies** on **natural capital**

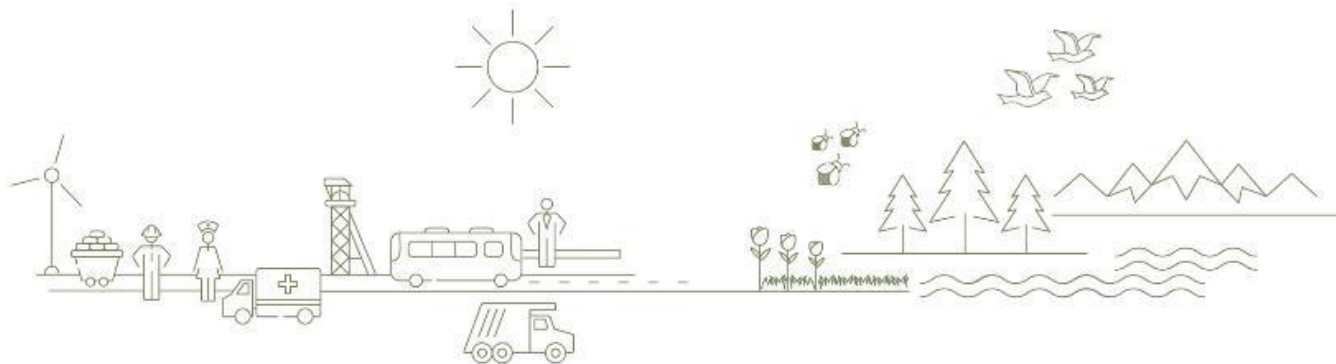


For business to make better decisions

The Protocol is a framework designed to help business generate trusted, credible, and actionable information for business managers to inform decisions

What are the natural capital risks and opportunities in your business?

- Operational
- Legal and regulatory
- Financing
- Reputational and marketing
- Societal



Definitions

The **Natural Capital Protocol** is a standardized framework for business to identify, measure and value its direct and indirect impacts and dependencies on natural capital

The **stock** of **renewable** and **non-renewable natural resources** (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people



Definitions

The **Natural Capital Protocol** is a **standardized framework** for business to identify, measure and value its direct and indirect impacts and dependencies on natural capital

Internationally applicable across **all business sectors, geographies and scopes**; leverages **existing approaches**



Definitions

The **Natural Capital Protocol** is a **standardized framework for business** to **identify, measure and value** its direct and indirect **impacts and dependencies** on **natural capital**

Aimed at informing business **decision making** with trusted, credible and actionable information



Definitions

The **Natural Capital Protocol** is a **standardized framework for business** to identify **measure and value** its direct and indirect **impacts and dependencies** on **natural capital**

- **To measure:** determine the **amounts, extent and condition** of natural capital, in physical terms, e.g. m³, tons
- **To value:** estimate the **relative importance, worth, or usefulness** of natural capital to people / business, in a particular context. Can be **qualitative, quantitative or monetary**



Definitions

The **Natural Capital Protocol** is a
standardized framework for business
to **measure and value** its direct and indirect
impacts and dependencies
on **natural capital**

- **Impact:** negative or positive effect of business activity on natural capital
- **Dependency:** A business reliance on or use of natural capital





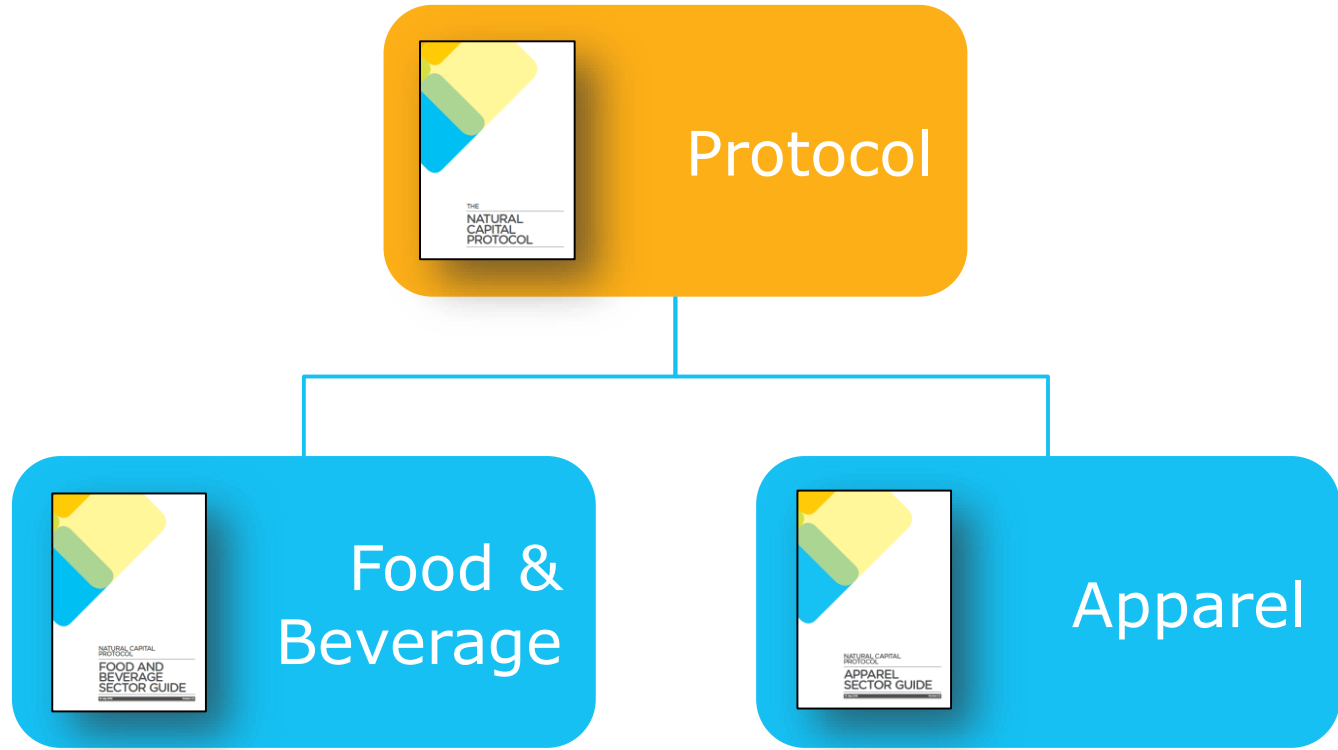
The Natural Capital Protocol Framework





SECTOR GUIDES

Which sectors?



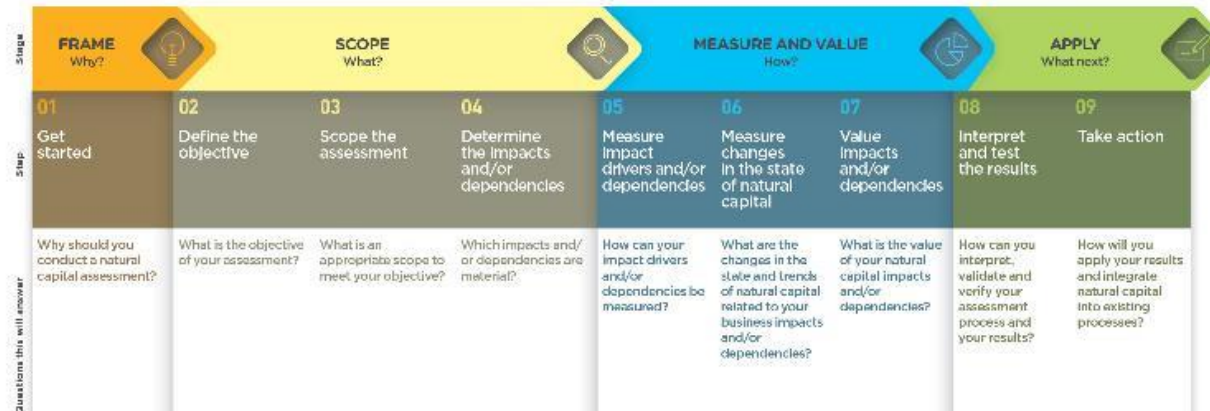
The Coalition will develop new guides in partnership with sector initiatives and associations

Under development:

- Real Estate
- Finance
- Water




What does this look like in practice?



- ❖ The sector guides follow the Protocol framework exactly and do not introduce any additional Stages or Steps
- ❖ The sector guides provide additional guidance on the actions within each Step that are most relevant to the sector
- ❖ As such, the sector guides should be used alongside the Protocol rather than in isolation



Example materiality matrix from the food and beverage sector guide

DEPENDENCIES											BARLEY TO BEER 	IMPACT DRIVERS											
CONSUMPTIVE				NON-CONSUMPTIVE								INPUTS					OUTPUTS						
ENERGY	WATER	NUTRITION	MATERIALS	REGULATION OF PHYSICAL ENVIRONMENT	REGULATION OF LIVING ENVIRONMENT	REGULATION OF WASTE AND EMISSIONS	EXPERIENCE	KNOWLEDGE	WELL-BEING	SPIRITUAL AND ETHICAL VALUES		WATER USE	TERRESTRIAL ECOSYSTEM USE	FRESHWATER ECOSYSTEM USE	MARINE ECOSYSTEM USE	OTHER RESOURCE USE	GHG EMISSIONS	NON-GHG AIR POLLUTANTS	WATER POLLUTANTS	SOIL POLLUTANTS	SOLID WASTE	DISTURBANCES	
○	○	○	○	○	○	○					RAW MATERIALS	○	○	■	■	○	○	○	○	○			
○	○	■									FOOD PROCESSING	○		■	■		○						
○	○										PACKAGING, DISTRIBUTION, AND RETAIL			■	■	○	○					○	○
○											CONSUMER USE	■	■	■	■				■	■			
○											END-OF-USE		○	■	■	■						○	○

KEY: ○ IMPACTS AND DEPENDENCIES THAT ARE MATERIAL TO DIRECT BUSINESS OPERATIONS AT THIS VALUE CHAIN LEVEL
 MATERIALITY ACROSS WHOLE VALUE CHAIN: ■ HIGH MATERIALITY ■ MEDIUM MATERIALITY ■ LOW MATERIALITY ■ NOT MATERIAL



**SUPPORTING THE
PROTOCOL**



Future work of the Coalition

Natural Capital Data Framework

Framework guidelines, developed through collaboration, on how to navigate the complex world of natural capital data and information

Enabling Environment

A *regional workshops program* that builds on the business and country pilots



Protocol Application Program

Program to support the use of the protocol, with mentoring, support services, workshops and an annual conference

Sector Guides

Developing further sector specific guidance to support the application of the Protocol

Protocol Application Program



The Program aims to encourage the uptake of the Protocol by business, providing support, materials and shared learning to those applying it

To join the Protocol Application Program go to

<http://eepurl.com/b4YjN1>



The Protocol Application Program will be led by CISL on behalf of the Coalition



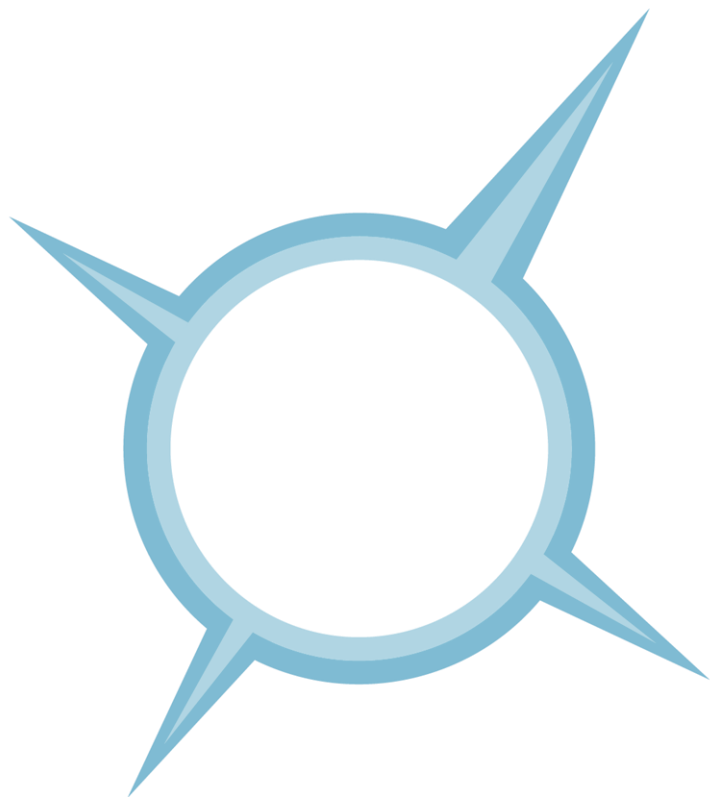
www.naturalcapitalcoalition.org



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Natural capital assessments for extractive company decision-making: Observations from a consultant's perspective



28th June 2016

Proteus Annual Meeting, UNEP-WCMC, Cambridge, UK

James Spurgeon, Director, Sustain Value

james.spurgeon@sustainvalue.co.uk

www.sustainvalue.co.uk



Contents

- Why extractive companies are doing it
- Example applications over past 15 years
- What the Natural Capital Protocol brings
- Remaining issues

Why extractives companies have undertaken natural capital assessments

1. Inform compensation claims
2. Bank financing project requirements
3. Understand it and test it out:
 - Prepare for what is coming & influence the process
 - Check & supplement existing company approaches
 - Explore how it provides different perspective/outcome
4. Helps to:
 - Justify environmental expenditures
 - Inform current & future risks & opportunities
 - Demonstrate leadership in sustainability
 - Demonstrate environmental credentials to investors
 - Ascertain degree of 'net impacts'

Extractives natural capital assessments

2000- 2010

- Coral damage & oil spill offsetting/compensation claims
- Environmental/ecosystem services assessments – for banks
- Socio-economic impact assessments (for EIAs)
- Decision-support tools
 - Disproportionate cost analysis tool (O&G)

2011 (year of WBCSD's Corporate Ecosystem Valuation)

- Ecosystem services assessments in ESIA's
- Decision-support tools
 - Environmental & social valuation tools (O&G & Mining)
 - Ecosystem services prioritization matrix tool (O&G)

Extractives NC assessments: Sustain Value (Oct 2011 to date)

- Ecosystem service assessments
 - Seismic exploration, oil developments & gas pipeline
- Decision-support tools
 - Three monetary valuation tools – Including **ESE-ROVA¹** tool (O&G & 2x mining)
 - Two ecosystem services tools (qualitative/scoring tools) (O&G)
- NC valuation studies – Net Impacts & option appraisals
 - Using ESE-ROVA
 - Mining operations & conservation projects
 - Tyre disposal & water sourcing options (desalination vs surface water) – for mining

¹Environmental, Social and Economic: Risk Opportunity & Valuation Assessment

Extractives NC assessments: Sustain Value (Oct 2011 to date)

- Water valuation studies
 - Helped develop & apply approach for O&G company
 - ESE-ROVA for water sourcing option appraisal (mining)
 - Reviewed trends & tools for IPIECA
- Net Positive & Shared Value
 - Reviewed topic to inform strategy
- Environmental profit & loss (EP&L)
 - Investigating for mining and O&G
- Training
 - IPIECA ES & BES
 - WBCSD BET for mining
 - IFC (PS6)

What the Protocol will bring

- Greater consistency
- Improved understanding
- Enhanced rigour
- Far wider acceptance & take-up
- More focus on dependencies
- Emphasis on stakeholder & company 'values'

Some remaining issues.....

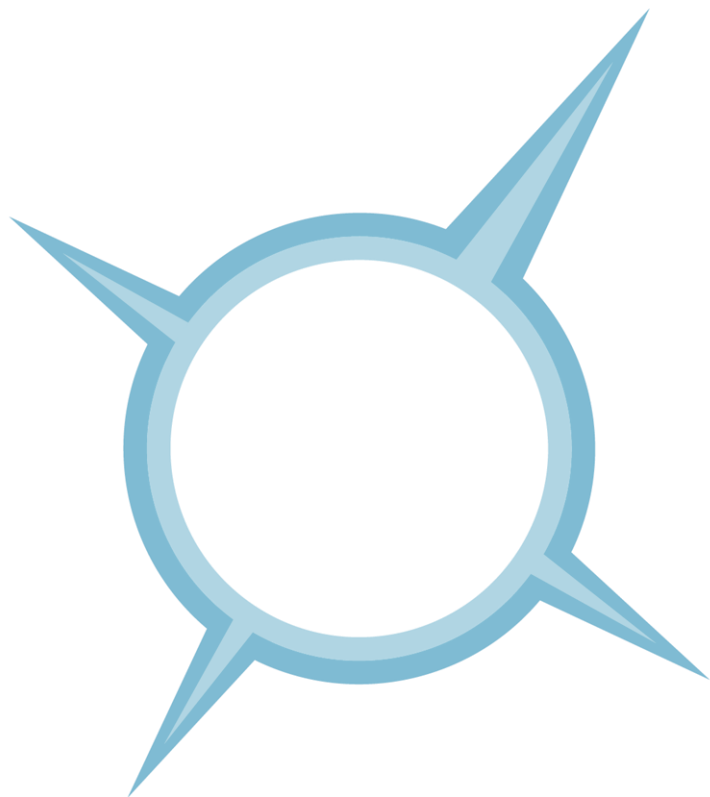
- Data availability
- Understanding of underlying science
- Degree of accuracy needed
- Proliferation of tools
- Dealing with biodiversity & 'non-use' values
- Capacity to do & commission



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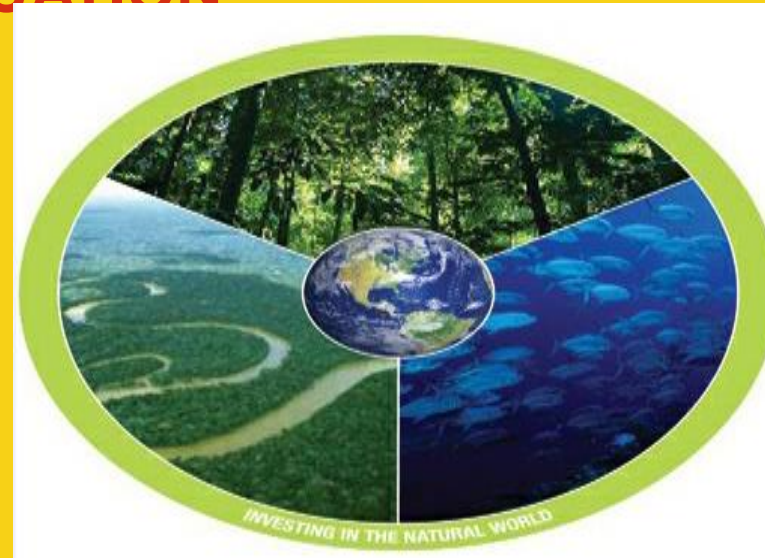
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PILOT TESTING THE NATURAL CAPITAL PROTOCOL – FOCUSING ON WATER VALUATION

PROTEUS
ANNUAL
MEETING



Mikkel Kallesoe
28 June 2016

CAUTIONARY NOTE

The companies in which Royal Dutch Shell plc directly and indirectly owns investments are separate entities. In this presentation “Shell”, “Shell group” and “Royal Dutch Shell” are sometimes used for convenience where references are made to Royal Dutch Shell plc and its subsidiaries in general. Likewise, the words “we”, “us” and “our” are also used to refer to subsidiaries in general or to those who work for them. These expressions are also used where no useful purpose is served by identifying the particular company or companies. “Subsidiaries”, “Shell subsidiaries” and “Shell companies” as used in this presentation refer to companies over which Royal Dutch Shell plc either directly or indirectly has control. Companies over which Shell has joint control are generally referred to as “joint ventures” and companies over which Shell has significant influence but neither control nor joint control are referred to as “associates”. In this presentation, joint ventures and associates may also be referred to as “equity-accounted investments”. The term “Shell interest” is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in a venture, partnership or company, after exclusion of all third-party interest.

This presentation contains forward-looking statements concerning the financial condition, results of operations and businesses of Royal Dutch Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management’s current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Royal Dutch Shell to market risks and statements expressing management’s expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as “anticipate”, “believe”, “could”, “estimate”, “expect”, “goals”, “intend”, “may”, “objectives”, “outlook”, “plan”, “probably”, “project”, “risks”, “schedule”, “seek”, “should”, “target”, “will” and similar terms and phrases. There are a number of factors that could affect the future operations of Royal Dutch Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this presentation, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell’s products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; and (m) changes in trading conditions. All forward-looking statements contained in this presentation are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Royal Dutch Shell’s 20-F for the year ended December 31, 2015 (available at www.shell.com/investor and www.sec.gov). These risk factors also expressly qualify all forward looking statements contained in this presentation and should be considered by the reader. Each forward-looking statement speaks only as of the date of this presentation, 28 June 2016. Neither Royal Dutch Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation.

We may have used certain terms, such as resources, in this presentation that United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. U.S. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website www.sec.gov.

Shell is likely to face more water related risks:

- Oil & Gas production remains water intensive despite continued improvements
- Operations increasingly find themselves in water stress areas
- Competition over water is on the rise
- Water pricing is maturing

We want to test if accounting for NC can lead to reduced business risk, enhanced growth and improved return on investment.

WHAT - SCOPE OF OUR APPROACH

The business (private)
cost of using water

- Covering the financial cost of water supply, treatment and disposal including any capital, operational and maintenance costs

The business (private)
value of water

- Covering the increment to profit that an additional unit of water can produce
- The cost of developing an alternative water source

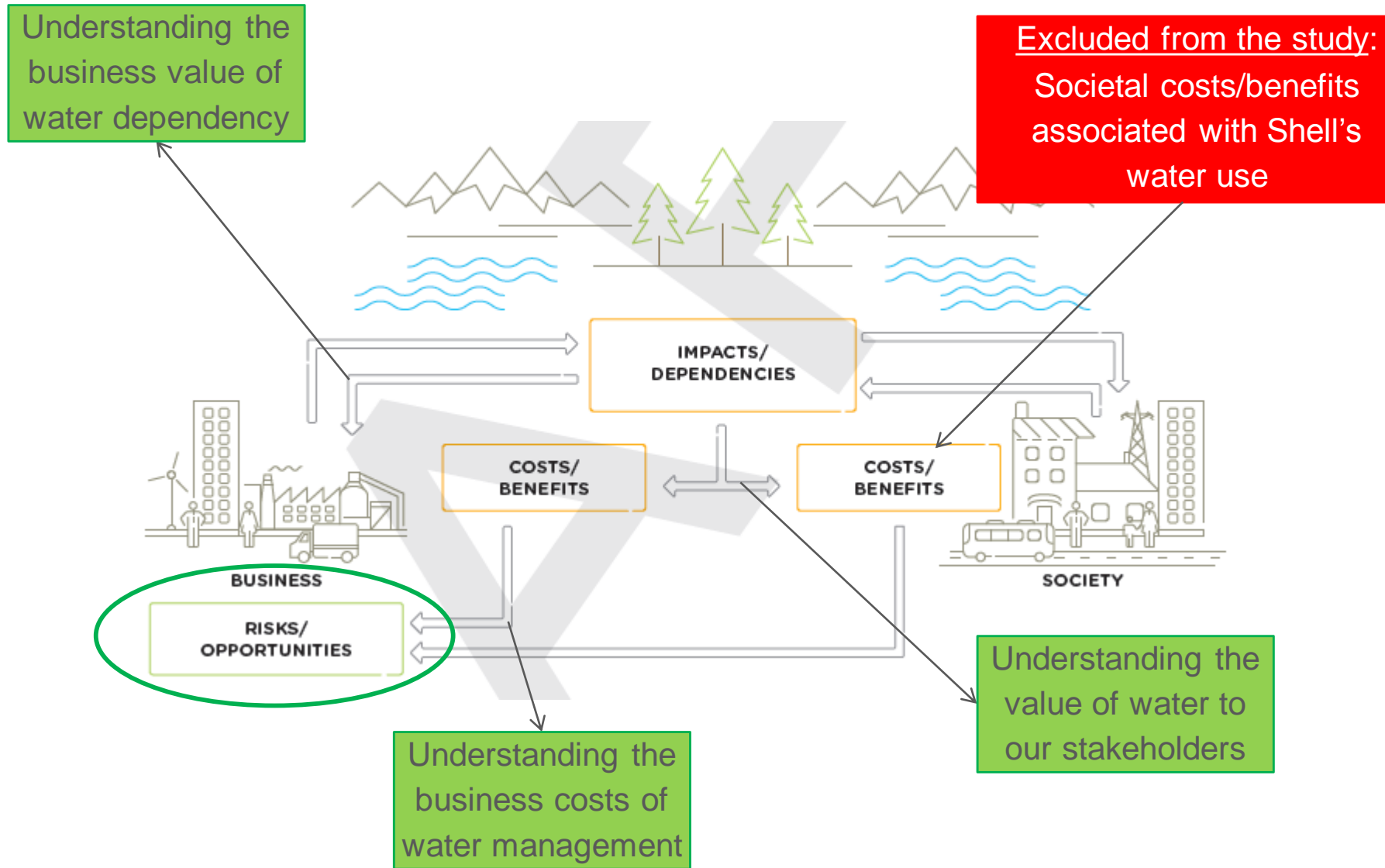
The societal (public)
value of water

- Covering the value of water as a public good that delivers benefits to other users (other sectors, communities & the environment)

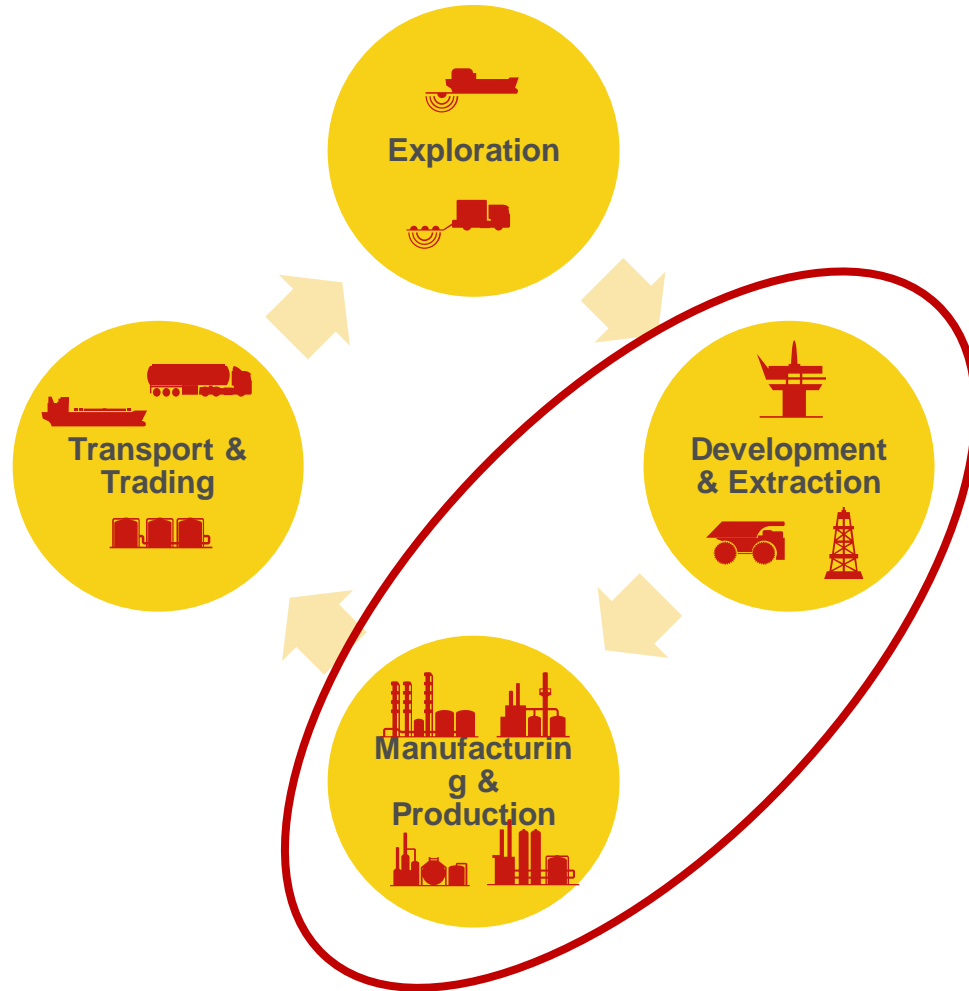
TESTING THE BUSINESS CASE

- Understanding the running and capital costs of water supports the prioritization of areas for water intensity improvement and cost efficiency
- Understanding the business value of water highlights the operations dependency on water and can justify new investments in water management
- Understanding the societal value of water illustrates the potential value at risk from impacts and identifies the largest value holders

FIT WITH THE NCP FRAMEWORK



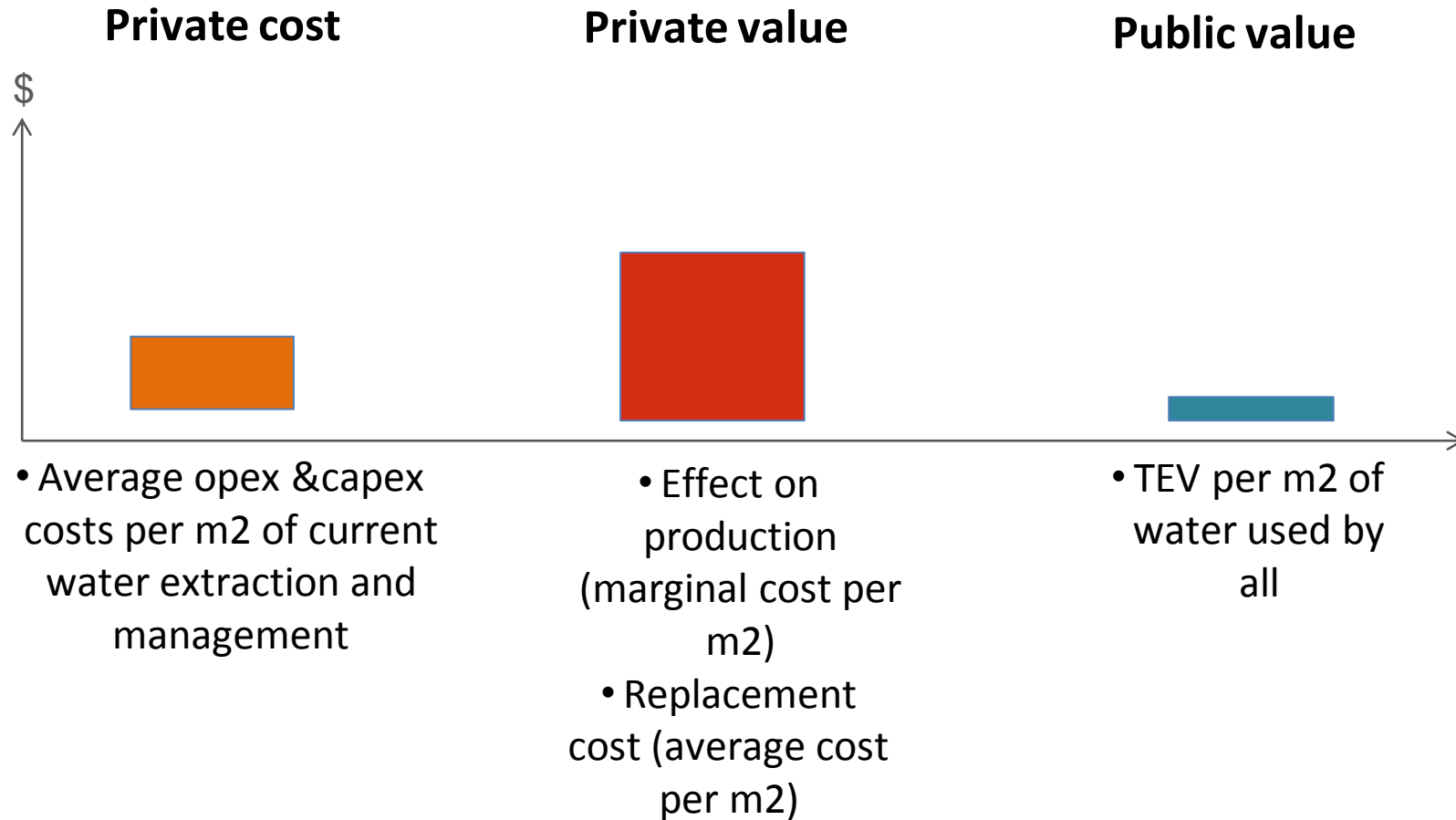
WHERE



Two downstream assets:

- High water use
- Different socio-economic conditions (developed and developing country)
- Potential increase for water stress

RESULTS FROM THE FIRST PILOT – INDICATIVE ONLY

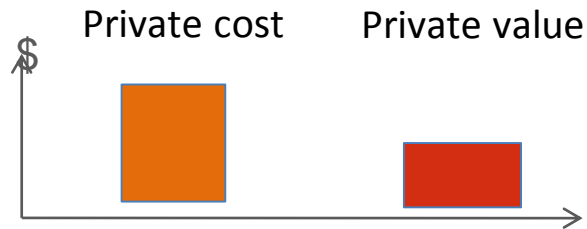


SO WHAT - POTENTIAL APPLICATIONS

Helping inform different assessments, including:

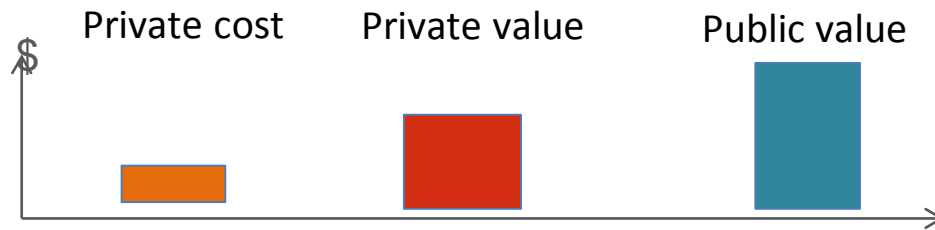
- Opportunities for operational efficiencies
- Scope for reducing impacts on public values
- Regulation risk assessment
- Asset resilience to increases in water costs
- Screening of future projects based on water cost and value

FOR DISCUSSION – WHAT IF



The private cost is larger than the private value:

- Then there should be opportunities for improving water efficiency or saving costs by switching to an alternative water source



The public value is the highest off all, maybe because:

- Increase water stress (caused by change in supply or demand)
- Increase in TEV related to either other industrial uses or BES values (e-flows)

This could signal a real risk to the business as its own WTP for water (expressed as the private value) is too small!

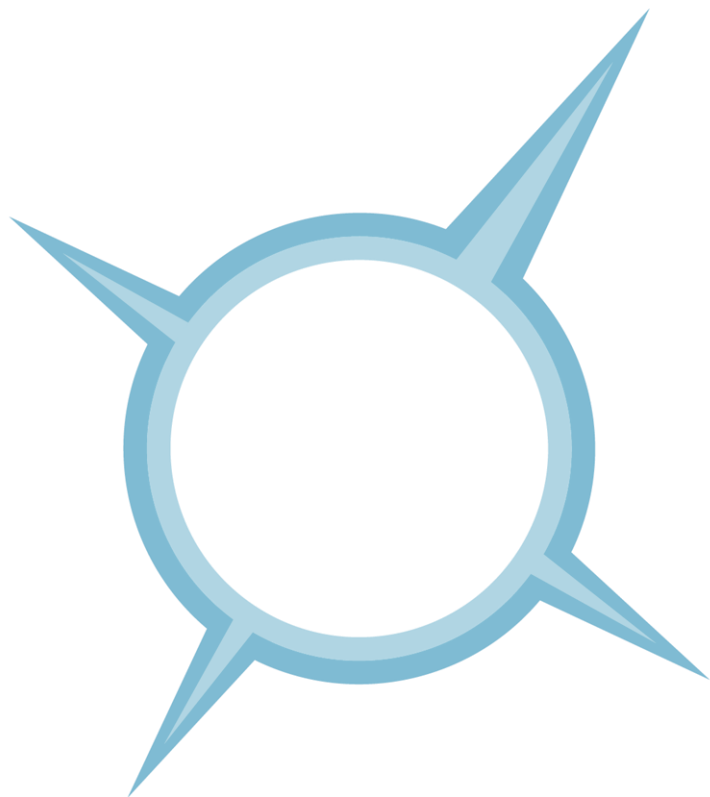




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