



# Natural Capital Accounting and XBRL

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# ICAEW Natural Capital Accounting – Structured Data Task Force


**MISSION:** The mission of the INCA-SDTF is to provide recommendations and guidance that will inform the UK's Office of National Statistics' (ONS) and the Department for Environment, Food and Rural Affairs (Defra) decision on whether to implement an XBRL strategy and program for its reporting framework.

## **OBJECTIVES:**

Assess feasibility of using the global XBRL data standard  
Ensure that natural capital information can be discovered, aggregated, analyzed, repurposed and communicated in a machine readable format



# WHAT IS 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 business and society

- One of several recognized forms of capital (e.g., financial, manufactured)
- Supports all other capitals by providing essential resources, such as air, water, soil and minerals, supporting a healthy planet that underpins thriving societies, prosperous economies

Natural capital is a way of defining the wide range of benefits that we derive from nature. It provides the air we breathe and the water we drink. It is essential to life and it underpins thriving societies and prosperous economies.

- Natural Capital Coalition


Natural capital is a critical asset, especially for developing countries where it makes up a significant share (36%) of total wealth.

- The World Bank


A satellite image of Earth showing North and Central America. The landmasses are green and yellow, surrounded by blue oceans and white clouds. The image is used as a background for the top half of the slide.

## WHAT IS NATURAL CAPITAL ACCOUNTING?

Natural capital accounting is the process of calculating the total stocks and flows of natural resources and services in a given ecosystem or region. Accounting for such goods may occur in physical or monetary terms.

A close-up image of human hands holding a small globe of the Earth. The hands are of different skin tones, and the globe is positioned in the center, symbolizing global unity and stewardship.

# WHY PRODUCE NATURAL CAPITAL ACCOUNTS?

- 
- Consistent way to look at significance of nature
  - Identifies drivers of ecosystem change
  - A key indicator of long-term living standards
  - Need to adopt a broader definition of wealth
  - Monetary valuation helps integrate economic and environmental data
  - Raises awareness of economic significance
  - Provides basis on which changes in value of components of natural capital can be recorded
  - Develops an aggregate indicator of sustainability

# THE INCA-SDTF PROJECT

## "GREEN GDP"

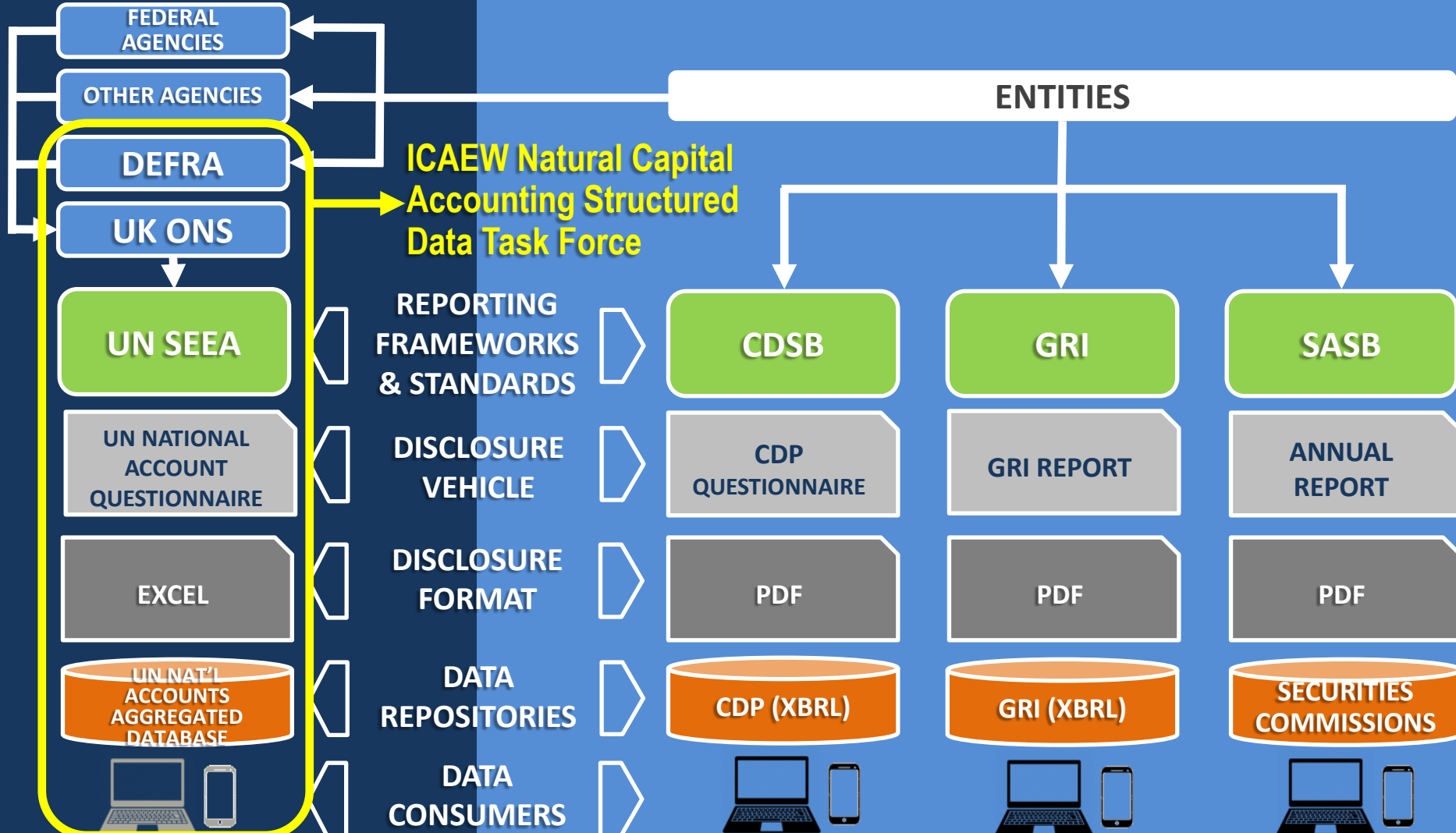


NATURAL  
CAPITAL  
COALITION  
PROTOCOL

## "ENVIRONMENTAL PROFIT & LOSS"



NATURAL  
CAPITAL  
COALITION  
PROTOCOL

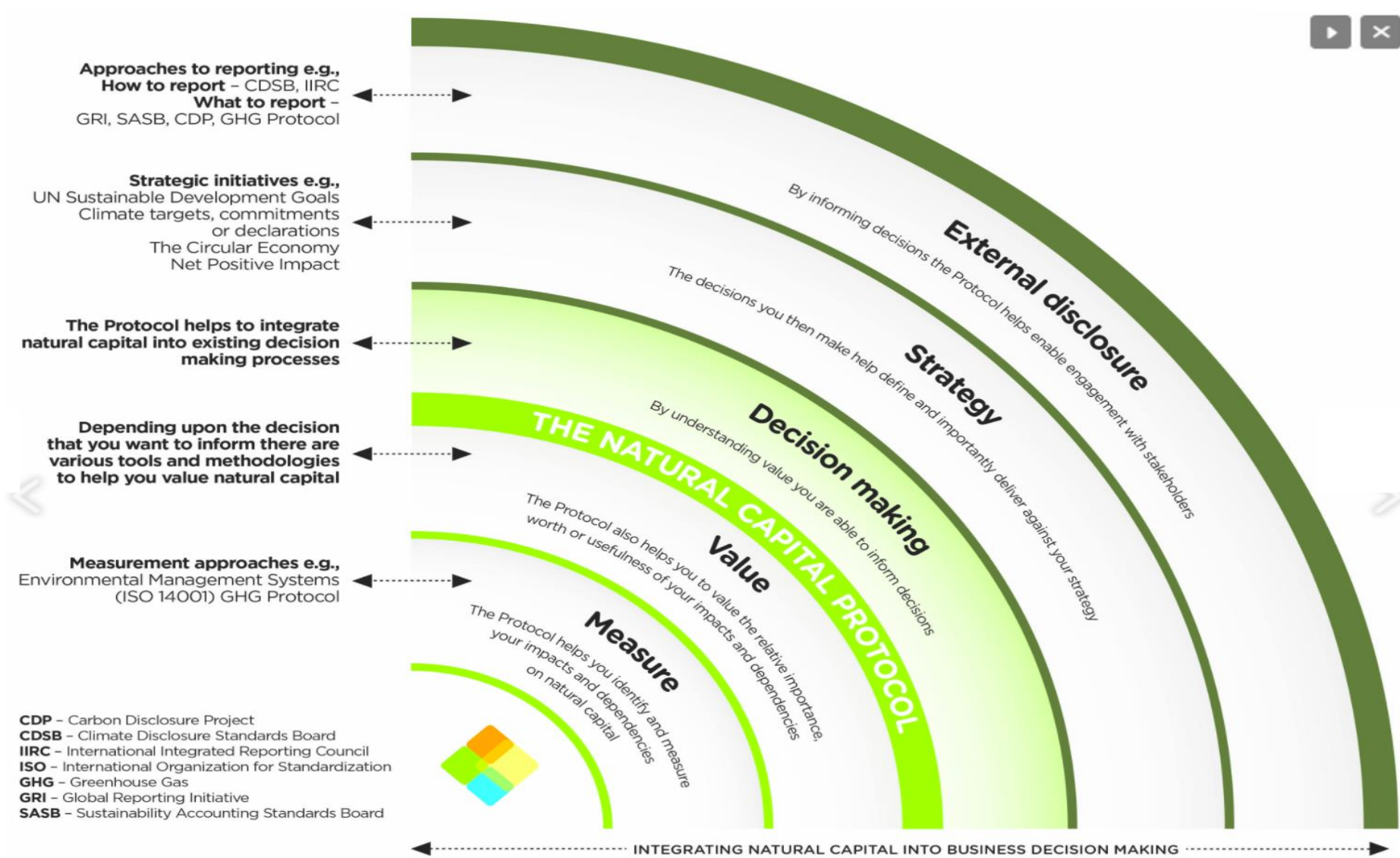


# NATURAL CAPITAL COALITION PROTOCOL



PRINCIPLES: Relevance, Rigor, Replicability, Consistency

# INTEGRATING THE NATURAL CAPITAL COALITION PROTOCOL



This landscape is not exhaustive. The Natural Capital Coalition will continue to explore the landscape as it evolves.

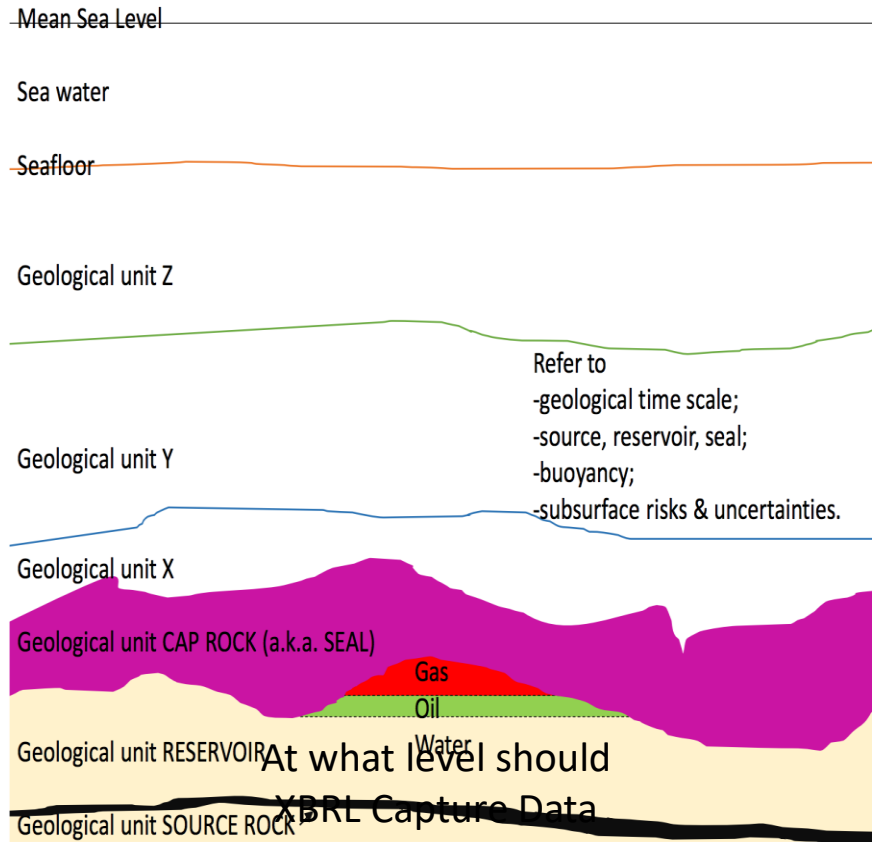
# Natural Capital Accounting



Royal Dutch Shell plc,

Oil and Gas Authority (OGA)

## Schematic vertical cross section through a hypothetical offshore oil & gas field



# SHELL OIL AND NATURAL CAPITAL



## Estimates of UK Oil Reserves and Ultimate Recovery at 31 December 2015<sup>(1)(2)</sup>

[figures in brackets for end 2014]

| Oil Reserves units - million tonnes  | Proven               | Probable         | Proven & Probable    | Possible         | Maximum <sup>(3)</sup> |
|--|----------------------|------------------|----------------------|------------------|------------------------|
| Fields in production or under development <sup>(4)</sup>                   | 349 [374]            | 217 [255]        | 566 [630]            | 161 [312]        | 727 [942]              |
| Other significant discoveries where development plans are under discussion | 0 [0]                | 0 [86]           | 0 [86]               | 0 [32]           | 0 [118]                |
| <b>Total Oil Reserves in million tonnes<sup>(4)</sup></b>                  | <b>349 [374]</b>     | <b>217 [342]</b> | <b>566 [716]</b>     | <b>161 [344]</b> | <b>727 [1,060]</b>     |
| <b>Cumulative Oil Production to end 2015<sup>(5)</sup></b>                 | <b>3,668 [3,623]</b> |                  |                      |                  |                        |
| <b>Estimated Ultimate Recovery in million tonnes</b>                       | <b>4,016 [3,997]</b> | <b>217 [342]</b> | <b>4,234 [4,339]</b> | <b>161 [344]</b> | <b>4,395 [4,683]</b>   |

[Please note “Other significant discoveries where development plans are under discussion” were counted as Reserves for end 2014 but are shown as zero this year.]

## Estimates of UK Oil Contingent Resources at 31 December 2015<sup>(1)(2)</sup>

[figures in brackets for end 2014]

| Oil Resources units - million tonnes                                       | Lower  | Best    | High    |
|--|--------|---------|---------|
| Other significant discoveries where development plans are under discussion | 62 [0] | 134 [0] | 268 [0] |

The Shell logo, featuring a yellow scallop shell with a red outline and the word "SHELL" in red capital letters across the center.

Proved reserves estimates are calculated pursuant to the US Securities and Exchange Commission (SEC) Rules and the Financial Accounting Standards Board (FASB) standards. Proved reserves can be either developed or undeveloped. The definitions used are in accordance with the SEC Rule 4-10 (a) of Regulation S-X. Proved reserves are those reserves that are associated with future production that will be consumed in operations.

Proved reserves shown are net of any quantities that will be settled under arrangements that involve Shell subsidiaries.

| Europe         | Asia           | Oceania        | Africa         | North America  |                |                      | South America  |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|----------------|
|                |                |                |                | USA            | Canada         |                      |                |
| Oil and<br>NGL | Oil and<br>NGL | Oil and<br>NGL | Oil and<br>NGL | Oil and<br>NGL | Oil and<br>NGL | Synthetic<br>refined | Oil and<br>NGL |

The SEC Form 20-F requires the disclosure of a standardised measure of discounted future net cash flows, relating to estimated net proved reserves, based on a 12-month unweighted arithmetic average sales price, calculated on a first-day-of-the-month basis, with cost factors based on those at the end of each year, currently enacted tax rates and a 10% annual discount factor. In our view, the information so calculated does not provide a reliable measure of future cash flows from proved reserves, nor does it permit a realistic comparison to be made of one entity with another because the assumptions used cannot reflect the varying circumstances within each entity. In addition, a substantial but unknown proportion of future real cash flows from oil and gas production activities is expected to derive from reserves which have already been discovered, but which cannot yet be regarded as proved.

Standardised measure of discounted future cash flows relating to proved reserves at December 31

| 2015 – SHELL SUBSIDIARIES  |  |  |  |  | \$ MILLION |  |
|--|--|--|--|--|------------|--|
|  |  |  |  | Shell share of joint ventures and associates | Total      |  |
| Future cash inflows  |  |  |  | 23,344                                       | 101,971    |  |
| Future production costs  |  |  |  | (19,098)                                     | (143,064)  |  |
| Future development costs   |  |  |  | (1,255)                                      | 6,417      |  |
| Future income tax  |  |  |  | 7  | 304        |  |
| Change in standardised measure of discounted future net cash flows relating to proved reserves |  |  |  | 218  | (1,488)    |  |
|  |  |  |  | 927  | 5,256      |  |
| 2015   |  |  |  | (4,383)                                      | (23,313)   |  |
| At January 1   |  |  |  | 1,463  | 19,281     |  |
| Net changes in prices and production costs   |  |  |  | 3,188  | 17,025     |  |
| Revisions of previous reserves estimates   |  |  |  | 6,552  | 54,455     |  |
| Extensions, discoveries and improved recovery  |  |  |  | 10,963                                       | 36,844     |  |
| Purchases and sales of minerals in place   |  |  |  |  |            |  |
| Development cost related to future production  |  |  |  |  |            |  |
| Sales and transfers of oil and gas, net of production costs                                    |  |  |  |  |            |  |
| Development cost incurred during the year  |  |  |  |  |            |  |
| Accretion of discount  |  |  |  |  |            |  |
| Net change in income tax   |  |  |  |  |            |  |
| At December 31   |  |  |  |  |            |  |
| Effect of discounting cash flows at 10%  |  |  |  |  |            |  |
| Standardised measure of discounted future net cash flows                                       |  |  |  |  |            |  |

[A] includes Shell's 14% share of Woodside, a publicly listed company on the Australian Securities Exchange. We have no direct access to data from Woodside, consequently the proved reserves are based on our best assessment.

From RDS 20-F issued in 2016.

# POSSIBLE RESEARCH AROUND NATURAL CAPITAL ACCOUNTING

- Data quality > governance, effective controls
- Data collection challenges
- Taxonomy development
- Globalization
- Policy impact
- Reporting burden
- Market demand for data
- Role of Technology
- Additional topics?



A person wearing a dark suit, light blue shirt, and striped tie is pointing their right index finger directly at the viewer. The background is a solid light blue.

OUR CALL TO ACTION

**OFFER FEEDBACK  
DURING THE PUBLIC  
COMMENT PERIOD**

THANK YOU



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