



INTERNATIONAL FINANCIAL ARCHITECTURE
FOR STABILITY AND DEVELOPMENT/
CRYPTO-ASSETS AND FINTECH

Mainstreaming Natural Capital Valuation

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Submitted on March 15, 2019

Revised on March 31, 2019

Abstract

There is a critical need to reconfigure the international financial architecture to meet sustainable goals. For making informed decisions on allocating resources for sustainable business and economic development, it will be essential to value the cost of natural capital. This practice is difficult since assigning a monetary value for quantifying natural inputs such as water, air, trees and climate is context-specific and requires data. Natural capital valuations can help in calculating the true cost of capital and thus differentiate sustainable projects from unsustainable ones. The G20 should encourage the development and adoption of processes, instruments and regulations needed for valuing natural capital.



Challenge

Problem definition

The lack of appropriate valuation of the cost incurred by nature for a specific project makes it difficult for companies to effectively price environmental externalities and integrate these natural costs into their calculation of the true cost of capital and the true cost of the product.

Today:

- There is no simple and transparent quantitative methodology that businesses can use to gauge the impact of their value chains on climate or for governments to gauge the impact of public projects on nature.
- There is no regulation requiring companies to disclose natural capital assessments in the financial statements with regulators or to investors.
- There is a lack of consistent data on natural inputs which can be used for developing replicable assessment frameworks.

As a result, there are limited concrete assessments available for policy-makers to make decisions in favor of sustainability.

Proposal

Proposal 1: Create and adopt tools and instruments that can mainstream and simplify the methodology used to compute Natural Capital Valuations

Natural capital can be defined as *“those elements of the natural environment which provide valuable goods and services to people, such as the stock of forests, water, land, minerals and oceans”*. This was formulated by the Natural Capital Committeeⁱ, an independent advisory committee of the UK government.



Methods for valuing natural capital

A key determinant of computing the accurate valuation of natural capital is the pricing of natural resources such as water, air pollution, and food. The prices of such resources vary by region depending on the level of scarcity and this must be factored in by the proposed tools and instruments.

Existing evaluations like Environmental Impact Assessments (EIA) and Environmental Statements do not add a monetary value to natural capital.

The most commonly-used method to value natural capital globally is by its market price (determined by multiplying the quantity of the natural resource used with its market price). Other methods to value nature include the Cost-based Method, the Revealed Preference Method and the Stated Preference method. (P.A. Champ, K.J. Boyle, and T.C. Brown, 2003)ⁱⁱ

A study of FTSE 100 companies by ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure), a web-based tool launched by the United Nations Environment Programme's Finance Initiative (UNEPFI) in November 2018 found that 13 of the 18 sectors, that represent a total of \$1.6 trillion in net market capitalization, are made up of the companies whose production processes have a high dependence on nature ⁱⁱⁱ. What makes this tool particularly interesting is that it is managed by Natural Capital Finance Alliance (NCFA), a collaboration between UNEPFI, Global Canopy, and UN Environment World Conservation Monitoring Centre, along with support from financial institutions from around the world such as Yes Bank, First Rand, VicSuper, National Australia Bank, UBS, Citi, UniCredit etc.

Attempts to value natural capital

There have been some attempts to compute the natural cost of capital, most notably by a private company called Trucost (a part of S&P Global) that specializes in natural capital valuations

- The Industrial and Commercial Bank of China (ICBC), with the help of Trucost, developed a tool^{iv} for investors to assess the natural costs and



possible environmental risks from their investments in the aluminum sector in China.

- Puma (with the help of Trucost and PricewaterhouseCoopers) created the world's first Environmental Profit and Loss Account^v in 2011. The exercise revealed that the total monetary impact of PUMA's direct and supply chain operations on nature was \$163.5 million. The highest costs, worth \$53 million each, were incurred for water and greenhouse gases (GHG). Puma's parent company, Kering, contributed to the development of the Natural Capital Protocol^{vi}.
- The Government of India is examining the feasibility of quantifying natural capital. The Economics of Ecosystems and Biodiversity – India Initiative (TII) was launched in 2011 by the Ministry of Environment, Forest and Climate Change, Government of India and TEEB (The Economics of Ecosystems and Biodiversity) with support from the German Federal Ministry. The initiative^{vii} conducted a qualitative assessment of the natural capital of India's wetlands covering issues like land-basin management, ecological restoration, water-regime management, etc.

Improving valuation methods

A key requirement for the accurate assessment of natural capital is data on the natural resources being used. This is hard to collect, aggregate and analyse. The Natural Capital Coalition and the UN Environment World Conservation Monitoring Centre (WCMC) have launched efforts to address this gap with its 'Data Information Flow project'^{viii}. The project is focusing on the high-frequency quantitative data required on biodiversity, water use, freshwater ecosystem use, greenhouse gas (GHG) emissions, and terrestrial ecosystems, and calls for the development of new web-based tools for verifying large datasets, design of taxonomies to organize data, and suggests the use of proxies where data is unavailable.



What can the G20 do?

The G20 Green Finance Synthesis Report 2017^{ix} examined the maturity of Environmental Risk Analysis (ERA) processes as well as the need for Publicly Available Environmental Data (PAED). This exercise helped to identify a range of ERA tools and methodologies that are being used around the world to integrate environmental risk into a company's risk management process and for allocating capital towards green opportunities.

The G20 can support the design of valuation methodologies by:

- Identifying select heavy polluting industries such as thermal power, oil refineries, chemicals, automobiles, cement and construction. The exercise can be expanded to other industries over time depending on the pilots.
- Encouraging the development of instrumentation and satellite-imagery that enables the real time usage of natural resources.
- Establishing industry specific coalitions to develop natural capital valuation methodologies. These coalitions should include officials, business representatives and scientists from the G20 countries to ensure that concerns on data, processes and methodology can be addressed jointly.

A uniform standard globally for valuing natural capital will not be appropriate for countries/societies at varying levels of development and with different challenges. A top down solution coming from an organization such as the G20 is likely to face resistance from smaller countries that feel that the standard is being imposed and does not take into account their challenges. Second, trust in global rating agencies and institutions has also fallen due to multiple factors – sub-prime crisis showed ratings were flawed and there have been allegations that Libor and Brent have both been manipulated.

A sustainable and acceptable solution must be developed at the local level, taking into account local factors and challenges and which can be implemented by local agencies/organizations. In this, the G20 can act by helping to create capacities for countries to carry out natural capital valuations on their own. It can organize seminars and events in each country where general practices are highlighted and local stakeholders can weigh in on how country-specific



concerns can be factored in to create a robust model.

Proposal 2: Encourage the inclusion of Natural Capital Valuation assessments in financial sector reporting

Since natural capital valuation includes the costs incurred by nature to produce a commercial good or service, this information must be transparent and easily available to all its stakeholders – regulators, investors and the general public. Companies must be encouraged to file the information on their natural capital valuation assessment with the regulators. This can be the securities regulator for publicly listed companies or departments in-charge of corporate affairs for non-listed companies. They must disclose these valuations in their annual reports for the benefit of their investors as well. The information disclosed will also help the securities regulators select the companies to be listed on their sustainability indices.

Existing initiatives

Since valuing natural capital is hard, no regulator across the world has made natural capital valuations mandatory. However, there is an increasing demand by regulators for companies to disclose sustainability and environment assessments.

Official multilateral initiatives:

- An industry led taskforce on ‘Climate Related Financial Disclosures’ (TCFD), convened by the Financial Stability Board (FSB), has developed voluntary climate related financial disclosures across four aspects of an organization’s operations - ‘Governance’, ‘Strategy’, ‘Risk Management’ and ‘Metrics and Targets’. These disclosures are designed to help investors, lenders and the insurance industry price climate related risks and opportunities. Here is a synthesis of the recommendations:
 - Governance: The report^x suggests that companies should disclose how their board of directors and senior management assess and manage



climate related risks and opportunities.

- Strategy: The report recommends that companies should identify and describe the climate related risks and opportunities to the organization and evaluate their impact on the business strategy and financial planning.
- Risk Management: The report recommends the disclosure of the process used by companies to identify, assess and manage climate related risks.
- Metrics and targets: The report recommends the disclosure of the metrics used by companies to assess the climate related risks and opportunities and the company's performance against the established goals.
- United Nations System of Environmental Economic Accounting (UN SEEA)^{xi} has developed a framework to capture economic and environmental data in national and cross-country databases.
- United Nations Principles for Responsible Investment (UN PRI)^{xii} has developed six voluntary principles with the help of an international group of investors to integrate ESG parameters into their investment decisions.
- World Bank led 'Wealth Accounting and Ecosystem Partnership Services' (WAVES)^{xiii} launched a global partnership in 2010 to integrate natural resources into development planning processes through natural capital assessments. Countries like Botswana, Colombia, Costa Rica, Madagascar, the Philippines, Guatemala, Indonesia and Rwanda have adopted this methodology so far.

Independent initiatives:

- The Global Reporting Initiative (GRI)^{xiv}, an independent international organization has created the first and most widely adopted standards for global sustainability reporting.
- The CDP^{xv} Disclosure Insight Action (formerly the Carbon Disclosure Project), a UK based initiative, runs a global disclosure system that enables companies and countries to measure and manage their environmental impacts. It maintains a database of self-reported disclosures made by its members.



Country-specific, Region-specific initiatives:

- India: The Securities and Exchange Board of India (SEBI) has mandated the top 500 listed companies on Indian stock exchanges to disclose Business Responsibility Reporting (BRR) in their annual reports.
- EU: The European Union Directive 2014/95/EU has mandated companies in across the EU that have an average of 500 employees to disclose a consolidated non-financial statement ^{xvi} in their annual reports on environmental impact.

Private initiatives:

- Wipro (with the help of Trucost) has been disclosing its natural capital valuations since 2013-14. Wipro's total environmental costs were equal to \$ 166.7 million^{xvii} for 2016- 17 of which 46% came from GHG emissions, 19% from air pollution and 25% from water consumption.

What can the G20 do?

The G20 can encourage the regulators in its member countries to make the disclosure of their natural capital valuation assessments more mainstream.

In November 2018, a consortium of business leaders and impact investors submitted an open letter^{xviii} to the G20 leaders recommending the formulation of a commission that will support the development of accounting standards that will help businesses measure their environmental impact. The letter suggested the application of impact-weighted methods of financial analysis and evaluation to the valuation of natural capital.

Proposal 3: Encourage Natural Capital Valuation assessments for public projects

Since natural capital valuation includes the costs incurred by nature to produce a public good, these costs must be added to the total costs estimated for executing public infrastructure projects.



This will:

- Change the cost-benefit analysis of each public project during the feasibility stage thereby enabling governments to make decisions based on “true cost”
- Force the contracting companies to reduce their ecological footprint and push them towards building sustainable infrastructure
- Encourage public understanding of the true price of externalities, cost of capital and net present value of each project.

The Natural Capital Coalition’s Protocol provides generalized guidelines that can help organisations identify their direct and indirect impacts on the environment and gauge their dependencies on natural capital. The protocol is currently the most widely used framework but its adoption is voluntary and it does not explicitly recommend a formula or a tool to value natural capital. It provides the framework for a company to conceptualise, measure, integrate natural capital assessments into its investment decisions. It has formulated sector specific guidelines for apparels, food and beverages, forest products, and financial services^{xix}.

For instance, Yes Bank^{xx}, an Indian private sector bank, has applied the Natural Capital Coalition’s Protocol to evaluate the natural capital impacts of its renewable and clean energy projects (including wind and solar power generation), funded by the proceeds of its green bonds issuances of 2015 and 2016^{xxi}. The study was helpful in quantifying the positive impact of its investments on the environment, including saving CO₂ and SO₂ emissions.

What can the G20 do?

The G20 can encourage the inclusion of natural capital valuations in the feasibility studies for public infrastructure projects. This will be in addition to the environment impact assessments (EIA) currently required which only evaluates the possibility of the damage done to nature in physical quantities (e.g. destroying forests) – not its use of natural capital in monetary terms (e.g. use of water, air).



Proposal 4: Leverage natural capital valuations for determining the true cost of capital for public projects

In finance, the cost of capital is the return required to make a project feasible. It is calculated based on the debt and equity used to finance the project. At the moment, it includes the physical costs incurred to execute the project. These can be easily calculated. Once natural capital valuations are included in the calculation, the true cost of capital will increase for unsustainable projects.

This approach can be used to make comparisons between two alternative project options where the physical costs of one project is higher than that of the other. With the inclusion of natural capital costs, the true cost of the project with a greater impact on the environment will be higher in comparison. This will make the project unsustainable and less viable, influencing the investor's decision against the project.

For instance, the Dow Chemical Company has undertaken an initiative^{xxii} to identify and implement sustainable projects worth \$1 billion in net present value, according to its 2025 Sustainability Goals. It has already identified projects worth \$160 million. The company has conducted freshwater analysis studies^{xxiii} to review its internal water usage. Using the Natural Capital Protocol, it has assessed whether it is possible to price and reduce their future use of water.

What can the G20 do?

The G20 must encourage the inclusion of natural capital valuations in the calculations of the cost of capital for sustainable projects, especially related to infrastructure. This approach can be used to test the viability of projects. Funding agencies will be able to pick out the sustainable projects, thereby eliminating the others. The implementation of this recommendation will take time but this will be a revolutionary step towards the mainstreaming of sustainable finance.



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