

Towards assessing and valuing ecosystems services at the global scale: the World Bank's Global Program for Sustainability

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Wealth Accounting and the Valuation of Ecosystem Services www.wavespartnership.org



Context: global momentum for sustainability

Opportunities

- SDGs, NDC
- Expanding NCA efforts at country level
- Private sector engagement
 - Natural capital protocol
 - Green financing (Green/ Blue bonds, etc)



Providers of technical assistance and receivers of technical assistance

Other providers includes national development agencies, regional development agencies and other providers of technical assistance



Context: global momentum for sustainability (2)

Challenges

- Can we assess overall country progress toward sustainability across the very large number of SDG indicators?
- Can NCA really affect policy making?
- Is there enough financing to support sustainability? ${\color{black}\bullet}$



World Bank goals





World Bank contributions: global and national level





Wealth Accounting and the Valuation of Ecosystem Services





The World Bank has developed wealth as an indicator of sustainability for two decades

The new book tracks wealth in 141 countries, from 1995 to 2014



Several countries have depleted their natural capital, some without growing total wealth





WAVES Countries: From assets to ecosystem accounts





From WAVES

NCA Implementation at country level



...to the GPS program





Pillar 1: components and outputs

| Components | Activities/ Outputs |
|----------------------------------|---|
| 1.1 Measuring sustainability | Broaden the scope of natural capital measurement: |
| | Comprehensive platform of improved global data on natural capital and ecosystem services (including new areas e.g. fisheries, land degradation, watershed protection, etc) |
| | Assessing sustainability |
| | a) New valuation database, including economic valuation of natural capital/ ecosystem services. externalities/ environmental health damages, natural resource depletion/ degradation; |
| | b) Technical reports on extended multi factor productivity (MFP - including natural capital), decoupling indicators, drivers of change of natural capital and ecosystem services; |
| 1.2 Mainstreaming sustainability | High level publications for the broader development community: |
| | Expanded Changing Wealth of Nations |
| | Sustainability modules in Macro/Poverty Outlooks, Global Economic Prospects |
| | Integration of sustainability in World Bank products and processes |
| | Guidance notes and training for integrating sustainability: |
| | At the planning/ policy level (e.g. SCDs, CPFs, NCDs) |
| | At the project level (e.g. CBA, M/E, ESF) |



Scaling up work on ecosystem services under Pillar 1

Water regulation, in terms of availability and hazard prevention:

- Annual and/or seasonal water yield
- Groundwater recharge
- Baseflow or low-flow regulation (drought resistance)
- Peak-flow regulation (flood mitigation)

Water quality, from retention of pollutants:

- Erosion control/sediment retention
- Nutrient retention

Disaster resilience (protection from a variety of natural hazards):

- Coastal storm surge and related erosion and flooding
- Landslides
- Inland flooding

Carbon sequestration, including in soil as well as vegetation



Review of ecosystem services models: screening criteria

Scale

• Beyond project level: i.e. potential use at national, regional, and, ideally, global scale

Scope

• Applicable to priority services: i.e. water regulation, water quality, disaster resilience and carbon sequestration;

Outputs

- Quantitative results on multiple ecosystem services, including
 - relative index
 - absolute measure (in biophysical units),
- Suited for economic valuation where data are available;
- Spatially explicit

Accessibility

- Free and publicly available, at least for certain uses,
- Use freely available data



Applying the screening criteria



Models that meet criteria

- ARIES,
- Co\$tingNature,
- InVEST,
- SWAT, and Water World for waterrelated services



Challenges and opportunities

Challenges

- Trade offs between ease of use and scope of applicability (across space, range of services)
- Accuracy/ reliability/ validation
- Outputs as index vs absolute biophysical units
- Valuation
 - · Counterfactual
 - · Valuation techniques

Opportunities

- Earth observations for better parameterization and calibration
- Inter-model comparison



Pillar 2: components and outputs

| Components | Activities/ Outputs |
|---------------------------|---|
| 2.1 Country level support | Establish NCA systems in Core Implementing Countries (CICs) |
| | 8 to 12 Countries supported |
| | Deliver Targeted Technical Assistance to specific policies/projects (ESF) |
| | 16 to 24 Initiatives supported |
| 2.2 Regional cooperation | Support Regional Communities of Practice (RCPs) (5-8 RCPs workshops) |
| | Support Targeted regional cooperation activities (4-5 events) |
| 2.3 Global engagement | Support global knowledge sharing |
| | 4 to 5 Conferences (e.g. Natural Capital Policy Forum) |
| | Support strategic partnerships |
| | Sign and implement Memoranda of Understanding with strategic partners (e.g. UNEP, UNDP, UN-DESA, CI, OECD and GDSA) |



.. and broadening the modalities of delivery

| Scale of NCA application | Modality | of execution |
|------------------------------|---------------------|--------------------|
| | World Bank Executed | Recipient Executed |
| National Level (top-down) | A | |
| Project M/E & ESF Level | | |
| (bottom-up) | | |
| Logond | | |

Legend

Existing modality of delivery



.. and broadening the modalities of delivery

| Scale of NCA application | Modality c | of execution |
|---|-------------------------------|--------------------|
| | World Bank Executed | Recipient Executed |
| National Level (top-down) | A | (B) ^(◊) |
| Project M/E & ESF Level (bottom-up) | С | D |
| Legend | | |
| | Existing modality of delivery | |
| | New Modalities | |
| Note: (3) It is expected that modality (B) could work only to the extent that it would be part of larger project including a national level NCA | | |

Note: (◊) It is expected that modality (B) could work only to the extent that it would be part of larger project including a national level NCA capacity building component



Pillar 3: components and outputs

| Components | Activities/ Outputs |
|--|---|
| 3.1 Improved sustainability | Establish a sustainable financial markets platform |
| markets | A platform rolled out by 2019/2020 to help market players evaluate the impacts of (un)sustainable management of natural capital on risk/ return profile of securities, starting with sovereign debt |
| | Research and outreach program |
| | Conferences, technical workshops and research papers to support the development and uptake of the platform |
| 3.2 Integrating | Pilot the approaches to sustainability assessments of the financial sector |
| sustainability in financial assessment | Technical notes on integration of sustainability in financial sector's stability and development, delivered in parallel to the IMF/WB Financial Sector Assessment Program evaluations undertaken in selected countries |
| | Sustainability module included in 8 to 12 FSAP |
| 3.3 Sustainable Finance | Advisory services |
| Knowledge Hub | Provide advice on env sustainability to investor community, industry association, regulators and concessional finance providers (on integration of environmental sustainability in concessional finance) |
| | Capacity building and technical assistance to countries Support countries for issuing labeled bonds, setting their own domestic standards or structuring financial products that explicitly incorporate sustainability in their design. |



Broad network of partnerships

| Pillar | External Partners |
|---|---|
| P1: Information on Global Sustainability | UNSD, IPBES, UNEP, FAO, NatCap Project, Global Earth Observation (GEO), NASA, ESA, IUCN, WRI, WWF, TNC |
| P2: Implementation at country level | Country Governments; UNDP; UNSD |
| P3: Incentives for Sustainable financing | NCC; UNEP; GPIF |



Make Sustainability Count

THANK YOU!



ANNEX SLIDES



Sustainability is central to the WBG SD Operating Framework

(SD = all environment + infrastructure World Bank departments)





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Importance of natural capital for low-income countries

- Most countries have increased per capita wealth over the past 20 years.
- Per capita wealth has tended to stagnate or decline in about two dozen low income countries, primarily due to depletion of renewable natural capital.

Perecent growth in wealth per capita, 1995 – 2014



Source: World Bank calculations based on World Bank data (2016)



Pillar 1: Global information on natural capital and sustainability



Pillar 1: Global information on natural capital and sustainability

Challenges

- Insufficient data on natural capital (e.g. fisheries) and ecosystem services (e.g. watershed protection)
- SDGs and existing indices do not provide summary measures of sustainability in economic terms
- The World Bank itself does not have a consistent way to evaluate how sustainably the twin goals are being pursued

Objectives

To provide global, national and sub-national data and tools to measure environmental sustainability, which could be used:

a) to help countries (and the international development community) better understand the sustainability of their economies;

b) to provide essential data for the other pillars of the GPS:

- for Pillar 2, as a basis for countries to better analyze the impact of proposed policies and investments on their stock of natural capital
- for Pillar 3, to introduce a natural capital dimension in financial decision-making



Pillar 2: Country level support to integrate natural capital approaches in decision making



Pillar 2: Country level support to integrate natural capital approaches in decision making

Challenges

- Inadequate availability of Natural Capital Accounts (NCA) at country level
- Limited experience in using NCA approaches to inform policy making and investment decisions

Objectives

Institutionalize NCA approaches at the country level by strengthening capacity to:

- Acquire, maintain and update data and information on natural capital and the values of ecosystem services both in physical and monetary terms;
- b) Use such data in the design and implementation of development policies, programs and projects, including those co-financed by the World Bank.



Pillar 3: Promotion of sustainable financing and investment in natural capital



Context: rapid expansion of green bonds...



Source: Climate Bonds Initiative; *Climate Bonds Initiative estimated value for 2017



...and growing importance of bond financing for lower income countries

Public and publicly guaranteed bond issuance in Sub-Saharan Africa, excluding South Africa (2011-14)





Pillar 3: Promotion of sustainable financing and investment in natural capital

Challenges

- Achieving sustainability requires a step increase in financing: meeting the SDGs in low- and lower-middle-income may cost \$1.4 trillion per year (up to 40% of which in natural capital or combined produced and natural capital)
- Current financial ESG disclosures are short term, mostly based on self reporting, focused on output and not outcomes
- Several market players recognize that sustainability risks might affect in the longer term the stability of, or the returns from, financial markets
- Significant financial market failures in assessing sustainability risks: asymmetric information, maturity mismatch, no information on impact (ex-ante, ex-post)

Objectives

Integrate sustainability considerations in the functioning of financial markets, through:

- a) Providing information on the relationship between sustainability performance of the issuers of securities (sovereign, sectors/industries), and the risk/ return profile of financial assets;
- b) Governance of
 - Investors
 - Financial institutions
 - Supervision
- c) Mobilizing capital, notably from private resources, to finance investments in natural capital
- d) Adjusting WB allocation of own resources



How pillar 3 will add value

World Bank's Global Public Good role

<u>Initiator</u>

- Piloting innovative approaches
- Technical Assistance
- Governance standards

<u>Catalyst</u>

- risk-sharing financial instruments
- strengthening institutional capacity

Facilitator

multi-stakeholder alliances





Notes for presentation – objectives/ motivation

EEA 2012

 SEEA Experimental Ecosystem Accounting is able to provide an indication of impacts (both positive and negative) of economic and other human activity on the environment and can highlight the potential trade-offs among the different combinations of ecosystem services that are generated from alternative uses of ecosystems

EEA Revision process

 The objectives of the revision process are to move towards a consensus on concepts and methods on ecosystem accounting building on the testing and experimentation that has been going on in the past years since the publishing of the SEEA EEA and learning from the experience of various initiatives working on relevant projects, including the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) and the natural capital assessment projects, as well as on availability of new technologies



Notes for presentation – valuation

Valuation

- POSITIVE VS NORMATIVE: from Atkinson and Obst
- The general objective of valuation for accounting purposes is to estimate a price for a flow of
 ecosystem services <u>that has already taken place</u>. Thus, accounting is retrospective in its outlook and
 must frame the valuation in the context of a past reference accounting period.
- Incongruence with environmental economics: if the aim is to establish and ideal (or shadow) price that would reflect a situation in which ecosystem services flows were optimally provided at socially desired (rather than actual) levels
- Clarity on the purpose of valuation and links to the choice of valuation methods
- Applying NPV requires the selection of discount rates and the estimation of the pattern of future flows relative to capacity

