



# Green Growth Knowledge Platform Conference Mexico January 2012

## **Green Growth Indicators**

Session 1a

Welfare measurement and performance  
metrics

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# Presentation

1. Background
2. OECD Green Growth measurement framework
  - how it relates to welfare and sustainable development
  - criteria for monetary measures of natural assets
3. Measurement agenda

# 1. Background



# Background

- Mandate to OECD in 2009
- Report to Ministerial meeting in 2011
  - Green Growth Strategy
  - Green Growth Indicators
  - Tools for Delivering on Green Growth
  - Special reports on
    - Agriculture
    - Energy
- Follow-up work under way

# ... indicators report





# 1. OECD Green Growth measurement framework

# ...to start with, a definition of Green Growth

*Green growth is about fostering **economic growth and development** while ensuring that the **natural assets** continue to provide the resources and environmental services on which our well-being relies. To do this it must catalyse investment and innovation which will underpin sustained growth and give rise to new **economic opportunities**.*

# Link to simple welfare model

Welfare change/sustainability =

$$\underbrace{p_K \Delta K}_{\text{produced capital}} + \underbrace{p_N \Delta N}_{\text{natural capital}} + \underbrace{p_T \Delta T}_{\text{productivity / innovation}} + \underbrace{p_N \Delta H}_{\text{human capital / health}} + \underbrace{p_N \Delta S}_{\text{social capital}}$$

= Comprehensive net investments, valued at social shadow prices

Underlying this simple reduced relation are structural relations describing

- Production
- Utility
- Interaction production, consumption, natural



# Sustainability and Green Growth

- Sustainability provides context to OECD work on Green growth
- GG more narrowly focused (human, health and social capital are picked up by **OECD work on societal progress**)
- Strong policy component
- Measurement:
  - Emphasis on structural relations
  - Emphasis on natural and produced capital
  - In particular, 4 types of indicators

## OECD GG indicators focus on:

1. Production processes: ***Indicators of environmental and resource productivity***
2. ***Natural asset base*** ( $\Delta N$ )
3. Environmental assets in the utility function: ***Indicators of environmental quality of life***
4. Indicators of ***economic opportunities***: innovation, investment competition and overall productivity change ( $\Delta T$ )

# Indicator groups and topics

## 1 The environmental and resource productivity of the economy

- Carbon and energy productivity
- Resource productivity: materials, nutrients, water
- Multi-factor productivity

## 2 The natural asset base

- Renewable stocks: water, forest, fish resources
- Non-renewable stocks: mineral resources
- Biodiversity and ecosystems

## 3 The environmental dimension of quality of life

- Environmental health and risks
- Environmental services and amenities

## 4 Economic opportunities and policy responses

- Technology and innovation
- Environmental goods & services
- International financial flows
- Prices and transfers
- Skills and training
- Regulations and management approaches

## Socio-economic context and characteristics of growth

- Economic growth and structure
- Productivity and trade
- Labour markets, education and income
- Socio-demographic patterns

# Monetary valuation of natural assets

- From perspective of NSOs, 3 criteria to be considered when trying to measure  $p_N$
- Criterion 1: is asset inside the national accounts asset boundary?
  - Yes: should be amenable to monetary valuation
  - Example: land, subsoil resources, some biological resources, produced (orchards, fish from aquaculture) and non-produced (other fish, natural timber)



# Monetary valuation of natural assets

- Criterion 2: private or social valuations?

- Private values:

- Market prices can be invoked (after some adjustments) → useful for balance sheets
    - Private shadow prices can sometimes be computed eg to measure effects of regulations
    - But externalities not valued → not useful for tracking sustainability

- Social values:

- Conceptually right measures to value assets and track (weak) sustainability
    - But vast differences in existing monetary



estimates raises question about readiness for official statistics

# Monetary valuation of natural assets

- Criterion 3: individual or combined assets?
  - Individual natural assets (e.g. timber, sub-soil minerals, water,...)
  - Ecosystems as a combined asset
    - Conceptually important to recognise ecosystem assets and services
    - But major issues of quantification in physical terms (multi-dimensional, non-linear, space-dependent)
    - Even more complex: monetary valuation → research subject but probably not ready for official statistics



# 3. Measurement Agenda

# Measurement agenda (1)

## **1. Implementing environment-economy accounting framework SEEA**

- Key for consistent information
- Key for the construction of indicators
- Standard adopted, now implementation



# Measurement agenda (2)

## **2. Advancing measures for key natural assets**

- Accounts on land
- Other natural resources, such as non-energy and energy mineral resources, and timber resources

→ Both areas inside the asset boundary of the SNA and the SEEA: useful for both the SNA and the SEEA implementation

# Measurement agenda (2)

## **3. Demand-based estimates of environmental productivity/decoupling**

- Account for environmental pressures or natural resource use embodied in imports and exports
- First set of results for CO<sub>2</sub> available
- Update and other environmental pressures

# Measurement agenda (4)

## **4. Extended growth accounting**

- Better capture growth contribution of natural assets and growth effects of abatement activity
- Draw on work on valuation of natural resources
- Adjusted multi-factor productivity measures

## **5. Advance physical measures**

- Nitrogen/Phosphorus balances (beyond agriculture)
- Biodiversity

# Join the discussion!



- **International Green Growth Dialogue online community**
- A secure site for sharing your perspectives and initiatives, and discussing the development of the Green Growth Strategy.
- To register, email your contact details to:  
[green.growth@oecd.org](mailto:green.growth@oecd.org)

**Green Growth Strategy**

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## International Green Growth Dialogue

Overview (customize) | All Content (33) | Discussions (2) | Documents (31) | Set as default tab

**ANNOUNCEMENT: The final version of the Interim Report is now available** | Show Details | 1 2 3

### Latest Documents for Comment or Discussion

- What green growth initiatives are being implemented in your country?
- Re: Green Growth Strategy - Interim Report C(2010)48

### Latest Documents for Information

- Recent Green Growth events
- Events
- President Lee Myung-bak Declares Official Launch of the Global Green Growth Institute at East Asia Climate Forum 2010
- Colour Green Growth Strategy Interim Report C/MIN(2010)5 - Chinese

### Welcome to the International Green Growth Dialogue

The OECD [Green Growth Strategy](#) is being developed to address both economic and environmental challenges, with input from multiple disciplines. To succeed, it needs a wide range of perspectives from OECD and partner countries as well as other stakeholders including international organisations, civil society and business.

This website is a collaborative forum for sharing your perspectives and your own initiatives, and discussing the development of the Green Growth Strategy. It complements the discussions that take place in formal OECD bodies.

Read the [OECD Green Growth Declaration \(25 June 2009\)](#)

### What's New

- 16/06/2010 - [Korea has officially launched the Global Green Growth Institute](#)
- 15/06/2010 - [The Economic Survey of Korea 2010](#) contains a chapter on Korea's green growth strategy: mitigating climate change and developing new growth engines
- 28/05/2010 - [Outcomes of the 2010 Council Meeting at Ministerial Level](#)
- 27/05/2010 - Follow the Forum sessions at [Forum 2010 webcasts](#) and [OECD Insights Blog](#). Forum presentations: [Overview /](#)

### Actions

- Start a discussion
- Create a document
- Create an announcement
- Create a poll
- Create Tag Group
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- Receive email notifications
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### OECD Links

- [OECD Green Growth webpage](#)
- [OECD Forum 2010](#)
- [Meeting of the OECD Council at Ministerial Level 2009](#)
- [Interim Report](#)





Thank you!

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