GREEN NATIONAL ACCOUNTS:
SESSION 1: ARE WE REALLY GROWING? MEASURING AND ACCOUNTING FOR WELL-BEING AND THE ENVIRONMENT

SANDEE-POVERTY ENVIRONMENT INITIATIVE (PEI)
PARO, BHUTAN
SANDEE-UNDP-UNEP
12 - 13TH AUGUST 2012

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### GDP per capita average annual growth rate

<table>
<thead>
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<tbody>
<tr>
<td>Bangladesh</td>
<td>0.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Bhutan</td>
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<td>5.3</td>
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<tr>
<td>India</td>
<td>2.1</td>
<td>4.9</td>
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<td>Maldives</td>
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<td>5.9</td>
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<tr>
<td>Nepal</td>
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<td>1.9</td>
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<tr>
<td>Pakistan</td>
<td>3</td>
<td>1.7</td>
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<tr>
<td>Sri Lanka</td>
<td>3</td>
<td>4.1</td>
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Ultimate Social Goal

- Increase welfare
- Q: Today or in Future?
- A: Choice between consumption (today) and Investment (future consumption)
- Issue of Sustainability: What are we sustaining?
One more National Income measure?

- GDP, GNP, NDP, NNP, NI – all measures of aggregate activity.
- NDP (NNP) = GDP (GNP) - Consumption of fixed (man-made) capital.
- Current measures do not account for consumption of natural capital also.
- Hence the need for Green NNP.
In fact many believe that revenues earned from extraction of finite natural resources should actually be debited from the NNP to arrive at a adjusted Green NNP.

However, if these resource rents were re-invested then the problem of resource depletion can be avoided – as long as net Investment is positive we are on a sustainable path.
How to calculate adjusted net saving (Investment)

Source: World Bank web site
(Green/Inclusive) NNP

= Regular NNP + Increase in human capital - Depletion of resources – Damage caused by increases in pollution

(Ref: World Bank)

- Green NNP also called Adjusted NNP, etc.

- Green (or Genuine) Savings =

- Net National Savings + Increase in human capital - Depletion of resources – Damage caused by increases in pollution
Genuine Savings or Investment

- A comprehensive measure of net annual savings in all forms of capital (human, produced and natural) in a country
- Gross National Savings - value of consumption of fixed capital - depletion of renewable resources - pollution damages + expenditure on education
- Positive Genuine Savings implies average future consumption will be higher than current because of net increases in capital stock
- Provides a forward look at consumption and therefore a *leading* indicator of sustainable development
If growth in GNP is positive or Genuine Savings is positive is society on a Sustainable path?
The Sustainability debate

- One school believes that Sustainability is ensured (sufficient requirement) if Genuine savings is positive.

- The Comprehensive Wealth school (e.g. Arrow, Dasgupta, Maler) argues that use of Green Saving could be positive and yet unsustainable.

- Therefore, misleading as a Sustainability Indicator
Comprehensive Wealth

- The only way to ensure **sustainable** welfare across generations (sufficient condition) is to ensure preservation of capital – the sum of physical, natural, and human valued at their “true prices”.

- Is substitution possible between different forms of capital (produced/in-tangible and natural capital in an economy)? (Weak substitution vs Strong Substitution).
Ok! So let's do it. Ooops --

Data?

- Green accounting is fraught with data problems:
  -- Physical Data (easier)
  -- Economic Values (harder)
  -- Integration to National Accounts (easy of above are available)

WB now publishes Genuine Savings data for XXX countries.
Wealth Per Capita is Growing

Wealth Per Capita

Axis Title

1995 2000 2005
Wealth per capita India

Wealth per capita Nepal
Natural capital as percentage of Total Wealth

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<td>0.55</td>
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<tr>
<td>Pakistan</td>
<td>0.40</td>
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Islands are doing better!

Per capita Stock of Total Capital (in 2005$)
Wait a minute!

Per capita Stock of Natural Capital (in 2005$)
Genuine Savings Nepal

- GNS (excluding consumption of fixed capital)
- NNS (including consumption of fixed capital)
- Adjusted Net Saving, excluding PM10 damages

Genuine Savings India
What resource changes pull down savings?

Depletion as a Percent of NNS 2008

- Bangladesh
- Bhutan
- China
- India
- Nepal
- Pakistan

Graph showing depletion as a percent of NNS 2008 for different countries.
Challenges for Greening Accounts

- Some 30 countries have wealth accounts
- Forests and Water
  - Physical and Monetary Accounts
- Ecosystem services –
  - Regulating services problematic
  - Start with provisioning services – recreation and fuelwood?
Monetary Accounts and Valuation

- Markets are missing
- Replicable numbers
- Benefit Transfer
  - Do we transfer estimates for different watersheds?
- Multiple Valuation techniques
- Data
  - Secondary data limited
  - Matching of environmental and household data
- How do we scale up in practice? What are some aggregation issues?
Sources

  