Measuring the Impacts of Climate Change

Are Central Statistical Offices Prepared?

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Overview

- Quick look at climate change and its impacts
- Statistical infrastructure – What is needed?
  - Frameworks
  - Knowledge
- Data – What is needed?

Climate change impacts

- Biophysical
  - warming; changes in precipitation patterns; disappearance of ice; changes in habitat
- Social
  - health; loss of cultural traditions; forced migration
- Economic
  - Farming, fishing, logging; energy use; transportation; infrastructure; prices

Statistical Infrastructure Needs

Frameworks – What is needed?

- Frameworks – the tools that give structure to statistics
  - Conceptual
    - Define *what* to measure and *why*
  - Measurement
    - Define *how* to measure
  - Classifications
    - Bring order to what would otherwise be chaos

Conceptual framework

- Can the existing framework of economic development serve as a framework for measuring climate change impacts?
  - Yes, if suitably broadened
- Climate change impacts are long-term
  - Capital framework is best suited to long-term issues

Capital as a framework

- Standard capital framework must be broadened
  - Most importantly, to include natural capital
  - Recognizing human and social capital also important

- The good news is that much of the thinking has already been done
  - Rich academic literature
  - Joint ECE/OECD/Eurostat Working Group on Statistics for Sustainable Development preparing a report for June 2008

Measurement framework

- A framework compatible with the *System of National Accounts* is needed
  - Understanding climate change impacts requires linkage of environmental, economic and social data

- UN *System of Environment and Economic Accounts* (SEEA) is very close to what is needed
  - A rigorous framework for organizing environmental stock and flow data
  - Treatment of ecosystem assets is the main weakness in SEEA at the moment
  - Social concerns also not covered, but could be

Classifications

- Many existing classifications are relevant
  - industries, products, census regions
- Also needed are
  - ecological classifications
  - land cover and land use classifications
  - drainage basin classifications
  - waste classifications
  - classifications of ecosystem services
- Climate change impacts will be spatially differentiated
  - therefore, spatial classifications are key for analysis

Knowledge – What is needed?

- Climate change will affect environment, economy and society
  - CSOs well placed on economy and society, but less so on environment

- Building capacity to work on environmental issues a major challenge

Building environmental knowledge

- First, the right people needed to attracted
  - CSOs need to make it better known that they do exciting work on environmental issues
  - Environmental specialists need to be convinced that they will not be “on the margins” if they join a CSO
    - And they need to be made to feel part of the mainstream when they join

Building environmental knowledge

- Second, once hired, environmental specialists need to be trained

  – Existing training programs on surveys, statistical methods, national accounts, *etc.* necessary, but not sufficient

  – Additional training on environmental issues required
    - Best done outside the CSO?

Building environmental knowledge

- Third, thinning of environmental expertise is a real risk
  - Environment statistics are very broad and expertise within CSOs is (and will be) limited
    - Some issues will be left untreated
    - Some issues will get treated superficially
    - Progress in expanding the coverage of environmental issues will be slow
  - Best strategy to focus on selected high-priority issues and leave the rest until the program can grow

Data needs

Data to address climate change impacts

- Economic and social data reasonably complete
  - Health data may be an exception

- Environmental data are where the gaps are mainly found, including
  - Land use and land cover
  - Water use and availability
  - Air quality
  - Forest inventories

Thoughts on building environmental data

1. Choose a clear and robust conceptual framework to guide data collection
   - Avoids *ad hoc* collection
2. Build an environmental survey program tightly linked to environmental accounts
   - The success of the SNA is a good model
3. Build good relations with other departments and make use of their administrative and scientific data
4. Integrate environment statistics into statistical mainstream
   - Adhere to standards; use corporate collection infrastructure; apply accepted concepts and methods
5. Build a spatial analysis capacity and collect data that can exploit its potential
   - Cannot measure climate change impacts except spatially

Thank you

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