Making use of integrated models in SDG implementation planning: Demand-side perspectives from the national level

Simon Hoiberg Olsen
IGES
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   - Japan (advanced)
   - Thailand (upper middle income)
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   - Indonesia (lower middle income)
   - Mongolia (landlocked)
4. Regional initiatives (UNESCAP)
5. IGES work on integrated modelling
6. Conclusion
Questions and definitions

– Why would SDGs need to be informed by modelling?
  • What are the mandated principles of the SDGs?

– To what extent is policy making informed (influenced) by scientific information?
  • Do governments use modelling exercises (forecasting, GEM etc.) for their planning, and how do they do that?
  • Is information from modelling only used in planning, or also at other stages of implementation, reporting etc?

– What kinds of sci-pol interfaces have seemed to work (not work?) → of use for SDGs?

Modelling in the cases includes: Economic modeling, Computable General Equilibrium, (forecasting), CBAs, Air quality (pollution assessment, forecasting).

Demand-side: The extent to which modelling and science based information has been used in policy making.
Structure of quick study

1. Desk-top reviews of countries
2. Interviews by phone
   - Focus: Is the demand for integrated approaches visible in:

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Japan case: General Environment

1. Regulations
General disclosure of information and policies in Japan based on (1999) Law Concerning the Disclosure of Information Owned by Administrative Organisations

2. Integrated Development Plans
Basic Environment Plan (Article 15 of Law No. 91, 1993).

3. Institutions, policy making → Councils and committees
- Environment → Shingikai (i.e. Central Council for Environment)
- Industry → Council for Industrial Structure (3R policies etc.)
  • Regular meetings within research community and policy makers are
    Policy: Kentokai (expert committee) no modelling discussions taking place
    Science: Suishinhi (ex. Current S11 project on SDGs) → modelling team on planetary well-being (results in Japanese)
5. Critique/Challenges (for post-2015/SDGs)

Critique:

- Composition of *Shingikai* is decided by the government, which could prove challenging for reflection of diverse interests (although perfect can be enemy of good)
- No institutionalized link between science and policy (ad-hoc)

6. Others - Influencing BAU is a challenge

- METI has traditionally had good ties with business sector,
  - MOEJ perhaps less so.
- Challenging for MOEJ to informally consult proposed policies/impacts with business sector
- In some cases symposiums are organised to get public support to push METI or orient their policies to become more environmentally friendly

4. Modelling and science-policy-public interfaces

- Modelling discussions take place from time to time
- Climate change context: In 2009 and 1997 before Kyoto climate mitigation target was political issue, *Shingikai* was “official” place to discuss models and targets
Thailand case: Air Pollution

   - PCD: Mandated to propose policy options to the government (National Environment Board (NEB))

2. Integrated Development Plans
   - 11th National Economic and Social Development Plan (2012-2016)

3. Institutions, policy making
   - Undertaken by Pollution Control Department (PCD)
     - Developed several policy scenarios,
     - Controlling several sources and reductions necessary to estimate the effect of different policies
     - Defined best measures to reduce sulfur and lead content in fuels → policy scenarios
   - Governance/institutional link already formally established between the PCD and Thai gov’t
   - National Environment Board: Experts and ministers from relevant ministries (industry, energy); chaired by the PM
Thai case: Air Pollution

4. Modelling and science-policy-public interfaces
- Modelling for policy development purposes in the period of 1990-2000;
- System consisted of three modules:
  1. Management of air quality data;
  2. Emission inventory model;
  3. Dispersion model with spatial and time distribution into a GIS grid

- After debating proposed policy options the NEB submitted agreed measures to other agencies for action

- Informal preparation: PCD shared optional measures with representatives from Ministry of Energy and Ministry of Industry, Thai National Standard Institute etc.
  - Took years to negotiate, but once agreed a proposal was formalized in the NEB
  - Thai Cabinet passed a resolution which relevant organizations were bound to follow.
5. Critique/Challenges (for post-2015/SDGs)
- Science is not always enough to bring new policies into action.
  - Or perhaps science needs to tell more stories?
- The role of media and the public should not be underestimated.
- Modelling and scientific information should be communicated to several constituencies simultaneously (govt, CSOs, general public).

6. Others – creating demand
- 1992 WHO stated that Bangkok ranked as one of the most polluted cities in the world.
- PCD created two-pronged pressure:
  1. Research, modeling and
  2. PCD’s public relations department to inform the media about the gravity of the situation.

Public consultations:
- Present the issue in simple terms
- Present options/solutions to get support
Indonesia case: Agriculture

**Regulations:** Article 4 of Law no. 25/2004 on National Development Planning - Both at central and local gov’t levels

2. Integrated Development Plans
- Medium-term Development Plan (2010-14)
  - National plan drawn up from local plans and underpin ‘musrenbang’
  - Basis for gov’t agencies strategic plans
- Master Plan for the Acceleration and Expansion of Indonesian Economic Development (2011-2025)

3. Institutions, policy making
- Indonesian Center for Agricultural Socio-economic and Policy Studies
- 75 researchers - 40 PhD level (good capacity)
Indonesia case: Agriculture

4. Modelling and science-policy-public interfaces:

• Modeling team under Indonesian Agency for Agricultural Research and Development (IAARD) at Ministry of Agriculture
  • Consultations are held with policy makers at proposal stages
    - Annual seminars, consultations, workshops, expert meetings
    - Results are presented and comments are collected from the policy side
    - Policy briefs to Minister of Agriculture through General Director of IAARD
      - Ex: Attaining Food Security in the Midst of a Changing Climate: Is Agricultural Subsidy Still Relevant?

• Others: Online media, news paper articles, agricultural magazine
Indonesia case: Future

5. Critique/Challenges (for post-2015/SDGs):
Preparing for the SDGs, research areas (Agriculture):
1. Decreasing number of poor farming community and its comparison with rural population in general and variation of agroecosystem.
2. Relationship between regional agricultural sector growth and the decreasing number of poor farmers.
3. Development of rural labor absorption and its implication towards farmers’ income and variation of agro-ecosystem.
4. Relationship between the status of rural economic development and income distribution.

Recommendations for post-2015:
• Research on climate change, land-use change, unfair trade liberalization etc.
• Each ministry to set up modelling teams with budget to engage in: (i) Development policy modelling; (ii) development/update of databases; (iii) capacity building for policy makers and modellers
Fiji case: Academia

1. Regulations
   • People’s Charter for Change, Peace and Progress (2008)

2. Integrated Development Plans
   • Roadmap for Democracy and Sustainable Socio-economic Development 2010-2014
   • Green Growth Framework (2014)
     • Large inclusive consultative process, towards *integrated approach*

3. Institutions, policy making:
   • Scientific advice: University of South Pacific
     • Australian National University
     • International Monetary Fund’s Pacific Financial and Technical Assistance Centre
Fiji case: Academia

4. Science-policy-public interfaces
   • Gov’t formal written requests to the university
     • University response in writing
     • Ad-hoc meetings or workshops
   • Science policy counterparts within gov’t
     • Ministry of Finance and Planning
     • Strategic Planning Office the Bureau of Statistics, National Data Bureau
     • External consultants

Science-Policy link as public event: Fiji Economic Update
   • Engagement with policy makers and the public
   • Shapes policy and decision making
   • National and (sub) regional engagement
   • Growth oriented (infrastructure, education etc.)

Mongolia case: Ministries

2. Integrated Development Plans
     • Two phases (2009-15; 2016-21).
     • Guides development of all national programs and government actions.
     • Based on MDG priorities and HDI

   “Create a system to…elaborate medium- and long-term forecasts”
   (MOFA 2008:10)
   • Priority for both phases

3. Institutions, policy making
   Coordinating ministries (mandated to coordinate other line ministries)
   • Ministry of Environment and Green Development
   • Ministry of Economic Development
Mongolia case: Ministries

4. Modelling and science-policy-public interfaces

Modellers
• Used to be under the State Planning Commission (Ministry of Finance)
• Now under Ministry of economic development (smaller modelling capacity)
• Few people are involved in modelling (T-21)
  • External assistance (UNEP and UNDP)

Push and pull: Science-policy link in practice
1. By use of written recommendations (science→policy)
2. According to government demand (policy→science)

5. Critique/Challenges (for post-2015/SDGs)
For post 2015/SDGs → updating the development strategy
• Modelling community needs capacity to inform policymakers of viability of achieving the SDGs and targets
• CBA should be made available for selection of achievable and sustainable projects.
<table>
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<th>Country/characteristics</th>
<th>Relevant regulations</th>
<th>NSDS/similar plans</th>
<th>Institutions, policy making</th>
<th>Modelling and science-policy-public</th>
<th>Challenges for SDGs and others</th>
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<td>Japan</td>
<td>General disclosure of information and policies in Japan based on (1999) Law Concerning the Disclosure of Information Owned by Administrative Organisations</td>
<td>3rd Basic Environment Plan (2012)</td>
<td>- Shingikai (Central Council for Environment) - Kentokai (Expert Committee)</td>
<td>- Ad hoc modelling discussions, consultations (formal/informal) - Media, PR</td>
<td>- Composition of committees and councils often strongly government led;</td>
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<td>Thailand</td>
<td>-Official Information Act (B.E. 2540) (1997) -PCD: Mandated to propose policy options to the government (National Environment Board(NDB))</td>
<td>-The Eleventh National Economic and Social Development Plan (2012-2016)</td>
<td>- National Economic and Social Development Board - National Environment Board (Office of the PM) - SWEEP (Sweden)</td>
<td>- Musrenbang’ - Seminars, consultations, workshops, expert meetings; - Policy briefs - Media Outreach - Multi-criteria analysis (GGGI)</td>
<td>- Public pressure as key to policy change - Value of informal consultations</td>
</tr>
<tr>
<td>Mongolia</td>
<td>N/A</td>
<td>National Comprehensive Development Strategy (2008-2021)</td>
<td>Coordinating Ministries - Ministry of Environment and Green Development - Ministry of Economic Development</td>
<td>Ad hoc consultations - Some modellers with expertise in T21 (external support) - Gov’t procurement of advisory expert services</td>
<td>- Two coordinating ministries, but is there competition between ‘green’ development and economic development? - Long term plan based on MDGs → transition logical</td>
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UNESCAP initiative on economic modelling for SD

Mandated by Rio+20
“...regional commissions and their subregional offices, have a significant role to play in promoting a balanced integration of the economic, social and environmental dimensions of sustainable development...” TFWW (§100).

Two approaches:
1. Investigating constraints and feasibility at national levels
2. Establishing partnerships with suitable institutions

Objectives:
• Application of economic modelling for SD at the national level
  – Investigating alternative modelling approaches
  – Developing integrated modelling platform
• Establishing a regional network of economic modelers for sustainable development, including of those in the region’s universities (1 year)
• Shared data and analysis infrastructure (virtual laboratories) – to address data constraints and expanding analytical capacity (2 – 3 years)
Progress to date

- Core group - economic modelers/ economists of leading institutions from AP region and beyond
- Joint study in Australia (CSIRO) in 2013
- Collaboration with UN DESA and other regional commissions
- Integrated modeling platform deemed feasible
- Potential for engaging other networks of universities

Goal: CAPACITY BUILDING

Target – institutions that support governments

Long term capacity & infrastructure to undertake modelling for SD – internal & external

ESCAP will organize an Expert Group Meeting in October/ November 2014 to take stock of existing modeling approaches and explore innovative approaches.

Audience: Regional experts and capacity hubs for modelling
IGES in India: Methodological framework of quantitative assessment of water energy

Global Circulation Model

Hydrological Model (HEC-HMS)
Output: Future water availability (BCM)

Power plant survey
Output: Water use intensity (m3/MWh)

Output: water use intensity (m3/MWh)

Hydrological Model (HEC-HMS)
Output: Future water availability (BCM)

Supply demand gap

MESSAGE Model
Output: Water demand for energy, Energy mix under water constraint scenarios

Statistical extrapolation

• Agriculture
• Industry
• Domestic

Output: projection of future water demand

Water Demand

Energy

Feeds into

Regional and national water management and energy development planning
IGES III: Can current policies overcome water conflict between electricity and other users?

By 2050, total water demand will exceed total utilisable water, even with the enforcement of existing policies.
Long term electricity supply mix under water constraint conditions
Usefulness of combined package of unique quantitative assessment tool for policy making and investment decisions

- Useful to make integrated strategic nexus planning at regional, national and river-basin levels
  - Can reduce conflicts and trade-offs and build synergies and deliver co-benefits.
- Useful for investors to minimize risk of water scarcity for energy projects
  - Can inform private sector business planning
- Useful for setting up an integrated adaption and mitigation strategy
  - Can inform general national planning
Science-policy interface:
• Demand generated (or evidenced) from:
  – co-authored reports,
  – regular meetings,
  – institutionalized channels of communication between science and policy etc.

Science-public interface:
• Indirectly generate demand for policy change
• ‘Extract’ a blueprint of institutional set-ups to strengthen science-policy/science-public interfaces for post-2015?
Revisiting questions

• Modelling – one element to help actors prioritize (accounting for linkages, 3D of SD etc.)

• Policies have been shaped by modelling advice (in a few cases) but not consistently
  – Unclear if modelling scenarios etc. are used to check progress at different stages of the policy-implementation cycle

• Good examples:
  – Co-locating science dept’s, modellers within ministries
  – Mandates
  – Regular meetings, consultations instead of ‘one-offs’
  – Annual events to debate and build capacity

• Multi-prong approach (science-policy and public)
  – Outreach strategies, stories, solutions