Natural resource management - an integrated approach for a sustainable development vision

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1. UN’s global environmental authority

2. Universal membership and UN Environment Assembly
   Mission: “To provide leadership and encourage partnership in caring for the environment by **inspiring**, **informing**, and **enabling** nations and peoples to improve their quality of life without compromising that of future generations.”

3. Focusing on seven priorities:
   - Climate change,
   - Disasters and conflict,
   - Ecosystems management,
   - Environmental governance,
   - Harmful substances and hazardous waste,
   - **Resource efficiency – sustainable consumption & production**
   - Environment under review
UNEP Asia Pacific

Afghanistan
Australia
Bangladesh
Bhutan
Brunei Darussalam
Cambodia
(People's Republic of) China
Democratic People's Republic of Korea
Fiji
India
Indonesia
Islamic Republic of Iran
Japan
Kiribati
Lao, People's Democratic Republic
Malaysia
Maldives
Marshall Islands
Micronesia (Federated States of)
Mongolia
Myanmar
Nauru
Nepal
New Zealand
Pakistan
Palau
Papua New Guinea
Philippines
Republic of Korea
Samoa
Singapore
Solomon Islands
Sri Lanka
Thailand
Timor-Leste
Tonga
Tuvalu
Vanuatu
Vietnam
Cook Islands*
Niue*

* Non UN Member States
- **Create enabling conditions** and factors to strengthen or initiate policies that efficiently mainstream resource efficiency

- **Develop institutional knowledge, skills and capacities** for effective design and implementation of policies and activities that accelerate the shift to **Sustainable Consumption and Production**.
Four key areas of the Regional Policy Support Programme

**Policy Assessment:** Policy Assessment. Review of Present Situation and Relevant Policies in Asia: Selection and Focus of the Programme

**Capacity Building:** Capacity building, including direct policy support. Strengthening Awareness and Enhancing Knowledge of Decision-makers in the Public and Private Sectors and Consumers.

**Policy Dialogue:** Policy Dialogue. Providing opportunities for dialogue, cooperation and learning between countries.

**Networking and Institution:** Institution building, Strengthening Implementation Networks, Creating Pools of National Asian Experts Able to Sustain Themselves in the Long Term.
SWITCH-Asia Policy support – Mongolia

Mongolia has potential for a broader national Resource Efficiency and Sustainable Consumption and Production programme due to SDV and NGDAP. UNEP support going forward may focus on support for policy monitoring and implementation.

SWITCH-Asia I Activities

- Green Building Guidelines for School Buildings
- Developing the Green School Design and Energy modelling
- Natural resource use database for Mongolia (118 indicators with time series data), Country analysis
- Market assessment, legal review and prioritization of products for Sustainable Public Procurement

Way forward

- National Action plan for SCP in the Green Development Policy Action Plan
  - Sustainable Tourism
- Sustainable development in tertiary education
  - Sustainable Public Procurement
  - Indicators and data for resource efficiency
SWITCH-Asia Projects – Mongolia

- Green Products and Labelling: 370 companies to improve their products and reduce water, energy and materials consumption through cleaner production and eco-design
- Greener Construction Project: Investing in research and development of greener construction products and practices
- Sheep Wool Building Materials: Turning Sheep Wool into Environmentally Friendly Building Material - Integrated Approach for Supply Chain Development

www.switch-asia.eu
What is Sustainable Consumption and Production?
Simplest and most comprehensive definition (UNEP 2011):

“SCP is a holistic approach to minimising the negative environmental impacts from consumption and production systems while promoting quality of life for all”
The SDGs
SCP is Transversal

Access to natural resources for energy, food, water
Sustainable food systems
Chemicals in air/water pollution
Education for sustainable lifestyles

Reduce water pollution
Water efficiency
Renewables Energy efficiency
Resource efficiency Sustainable Tourism
Sustainable infrastructure, industry
Environmentally sound technologies

Sustainable urbanisation, transport
Resource efficient cities
Climate change mitigation
Sustainable fisheries, tourism
Need to apply SCP to trade
Policy needs data – a dashboard

- **Inform about issues and trends:** what is resource efficiency and where do we stand?

- **Agenda setting:** is this important enough for policy attention?

- **Informed public debate:** let's get facts straight (and focus where it matters)

- **Underpin policy goals and policy statements in the form of targets:** where are we now and **where should we aim to be?**

- **Measure progress in achieving policy objectives (incl. SDG reporting):** is the policy working or should we adjust our approach?
What are natural resources?

Natural resources are the physical basis of our social and economic activities.

**Materials**
- Biomass (crops, animal + forest products)
- Fossil Fuels
- Construction minerals
- Metal ores

**Energy**
- Coal
- Renewables
- Oil
- Gas
- Nuclear

**Water**
- Groundwater
- Freshwater
- Rainwater

**Emissions**
- Air emissions
- Water emissions
- Waste emissions
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Construction minerals  
Metal ores

Energy  
Coal  
Renewables  
Oil  
Gas  
Nuclear

Water  
Groundwater  
Freshwater  
Rainwater

Emissions  
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- Renewable
- Oil
- Gas
- Nuclear
- Water
- Groundwater
- Rainwater
- Air emissions
- Hydrosphere
- Atmosphere
National GDP, Societal goals

Sector X

Sector Y

Sector Z

Mongolia’s natural resource base

Materials
Labour
Capital etc
Resource efficiency is the ratio between natural resource use and the socio-economic benefits derived.

Macroeconomic level

Sector level

Mongolia’s natural resource base

Tonnes/$
Today’s policy decisions will shape the future relationship between natural resource use and societal goals.
Indicators for a resource efficient Green Asia

- Request from Countries (SWITCH-Asia)
- Mapping exercise
- Regional workshop
- Prioritisation
- Selection
- Pilot dataset
- Comms materials
- Launch at the Asia Pacific Ministerial Meeting
- Country level work
  - Regional/global (Cities, SDGs, methodology)

Timeline:
- 2012
- 2013
- 2014
- May, 2015
- 2015-17
...this is the database
**SDG Target**

8.4 - resource efficiency in consumption and production

12.2 - sustainable management of natural resources

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### SDG indicators

<table>
<thead>
<tr>
<th>SDG indicators</th>
<th>Indicators *</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.4.1/12.2.1 Material footprint (MF)</td>
<td>Domestic Material Consumption (Total)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Domestic Material Consumption (Biomass)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Domestic Material Consumption (Fossil Fuels)</td>
<td>t</td>
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<td></td>
<td>Domestic Material Consumption (Metal Ores)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Domestic Material Consumption (Construction Minerals)</td>
<td>t</td>
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<tr>
<td></td>
<td>Domestic Material Consumption (Total) per capita</td>
<td>t/cap</td>
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<tr>
<td></td>
<td>Domestic Material Consumption (Biomass) per capita</td>
<td>t/cap</td>
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<tr>
<td></td>
<td>Domestic Material Consumption (Metal Ores) per capita</td>
<td>t/cap</td>
</tr>
<tr>
<td></td>
<td>Domestic Material Consumption (Construction Minerals) per capita</td>
<td>t/cap</td>
</tr>
<tr>
<td>MF / capita</td>
<td>Domestic Extraction of Materials from the Environment (Total)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Material Footprint (Biomass)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Material Footprint (Fossil Fuels)</td>
<td>t</td>
</tr>
<tr>
<td></td>
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<td>t</td>
</tr>
<tr>
<td></td>
<td>Material Footprint (Construction Minerals)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Material Footprint (Total) per capita</td>
<td>t/cap</td>
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<td></td>
<td>Material Footprint (Construction Minerals) per capita</td>
<td>t/cap</td>
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<tr>
<td></td>
<td>Material Footprint (Agriculture)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Material Footprint (Mining and Energy)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Material Footprint (Manufacturing)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Material Footprint (Construction)</td>
<td>t</td>
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<td></td>
<td>Material Footprint (Transport)</td>
<td>t</td>
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<tr>
<td></td>
<td>Material Footprint (Services)</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>Material Intensity</td>
<td>kg/$</td>
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<tr>
<td></td>
<td>Material Footprint Intensity</td>
<td>kg/$</td>
</tr>
</tbody>
</table>

| 8.4.2/12.2.2 Domestic material consumption (DMC) | Domestic Extraction of Materials (Biomass) | kt |
|   | Domestic Extraction of Materials (Fossil Fuels) | kt |
|   | Domestic Extraction of Materials (Metal Ores) | kt |
|   | Domestic Extraction of Materials (Construction Minerals) | kt |

**Indicators where UNEP can support with datasets (1970-2015 or 1990-2015 depending on the indicator)**
<table>
<thead>
<tr>
<th>SDG snapshot</th>
<th>Indicator</th>
<th>Mongolia 2015</th>
<th>Asia Pacific 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4 – water efficiency</td>
<td>water efficiency (litres/$)</td>
<td>170</td>
<td>129</td>
</tr>
<tr>
<td>7.2 - renewable energy</td>
<td>Renewable energy (%)</td>
<td>4.8%</td>
<td>16%</td>
</tr>
<tr>
<td>7.3 - energy efficiency</td>
<td>Energy intensity (MJ/$)</td>
<td>54</td>
<td>16</td>
</tr>
<tr>
<td>8.4 - resource efficiency</td>
<td>Material footprint (Tonnes)</td>
<td>27 million</td>
<td>46,193 million</td>
</tr>
<tr>
<td></td>
<td>Material footprint (Tonnes/Capita)</td>
<td>10</td>
<td>11.5</td>
</tr>
<tr>
<td></td>
<td>Material footprint (Kg/dollar)</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>12.2 - sustainable and efficient use of</td>
<td>Domestic material consumption (Tonnes)</td>
<td>100 million</td>
<td>51,368 million</td>
</tr>
<tr>
<td>natural resources</td>
<td>Domestic material consumption (Tonnes/Capita)</td>
<td>34</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Domestic material consumption (Kg/dollar)</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>17.11 - exports</td>
<td>(Tonnes)</td>
<td>17 million</td>
<td>3,734 million</td>
</tr>
</tbody>
</table>
• **Resource use:**
  - **What is it?** Total and per capita amount of natural resource use
  - **Policy Use?** Evidence base for decoupling policies. Show the physical scale of the economy
  - **Indicators?** Domestic Material Consumption (tonnes), Total Primary Energy Supply (joule), Total Water Use (L), Greenhouse Gas Emissions (tonnes)

• **Trade Dependency:**
  - **What is it?** Dependence on natural resources from global markets.
  - **Policy Use?** **Importers:** tracking resource efficiency to reduce economic dependency from trade; **Exporters:** mitigating negative side effects of a trade based primary resource economy to allow for better distribution and productive use of primary resource incomes
  - **Indicators?** Physical Trade Balance (tonnes), Unit Price of Trade ($/kg), Imports/Exports (tonnes)
...examples of policy uses

**Resource Productivity:**
- **What is it?** Economic output per unit of natural resource input
- **Policy Use?** Important for developing countries increasing their resource base to support human development and material standards of living. This becomes particularly important when Asian economies depend more on natural resource imports and global resource prices are rising.
- **Indicators?** Material Productivity ($/kg); Energy Productivity ($/joule); Water Productivity ($/m³); GHG Intensity ($/kg)

**Eco-Efficiency of Production:**
- **What is it?** Total sectoral resource use, and sectoral resource productivity
- **Policy Use?** Allows setting targets and establishing policies for sectors will have a much greater steering effect than national targets would have. They are close to the activities they would drive innovation and best practice in economic sectors.
- **Indicators?** Water Use in Agriculture (m³), Emissions of the Energy Sector (tonnes), Material Use for Manufacturing (tonnes), Material Use for Construction (tonnes), Emissions of Transport (tonnes), Material Footprint of Services (tonnes)
Possible uses in Mongolia

• **National Green Development Action Plan:**

  • SO3.1 Increase investment to increase efficiency of resource utilization and productivity.
    **Implementation activities:** Introduce indicators of energy use, water use and of other resources during production of a unit of output and raw material in all sectors. (NRSO, MOI).

  • **Indicators?** Efficient and effective use of resources. Material Productivity ($/kg); Energy Productivity ($/joule); Water Productivity ($/m³); GHG Intensity ($/kg)

• SO 3.8 Estimate the share of environmental contributions in socio-economic development by incorporating green development indicators into the National Accounting Systems.
  **Implementation activities:** Establish and use a methodology to implement and determine eco-efficiency indicators at the macro and sector level (NRSO, MEDGT)

• **Indicators?** Regular estimation of eco-efficiency. Water Use in Agriculture (m³), Emissions of the Energy Sector (tonnes), Material Use for Manufacturing (tonnes), Material Use for Construction (tonnes), Emissions of Transport (tonnes), Material Footprint of Services (tonnes)
Possible uses in Mongolia

Sustainable Development Vision:

Principles for sectoral development:
• Adopt advanced technologies with high productivity in each sector...
• Encourage production methods that is natural resource-efficient..
• Strictly comply with the principles of efficiency and effectiveness in all economic and social sectors.

The principles of environmental sustainability:
• Use resource efficiently and effectively;
• Support clean technology and encourage low-waste and sustainable production and consumption;
• Encourage environment-friendly attitude and appropriate behavior.
Possible uses in Mongolia

Sustainable Development Vision sectoral goals:

• **Agriculture**: increase opportunities to export livestock and livestock, increase the pure breed cattle heads to 200 thousand in intensive livestock farming, increase the fertilizers demand to 100 percent
• **Tourism**: from 0.2 to 2 million tourists
• **Industry**: expand leather processing, develop industries for smelting copper and purifying gold, processing petroleum, natural gas, oil shale and coal, manufacturing chemical fertilizers and other chemicals
• **Mining**: large mining projects
• **Energy**: meet 100% of energy demand domestically, increase renewables
• **Infrastructure**: add 2,800km of roads, additional rail
• **Urban development, Info technology**
Resource use data can help ensure that the **sector level policy** matches vision for resource use and societal goals.
THANK YOU!

For more information, visit: www.switch-asia.eu

Or contact: Janet.salem@unep.org