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Sustainable Materials Management towards Resource Efficiency

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What is SMM? - Definition

- The following working definition was developed by the OECD Working Group on Waste Prevention and Recycling to guide further work in this area:

"Sustainable Materials Management is an approach to promote sustainable materials use, integrating actions targeted at reducing negative environmental impacts and preserving natural capital throughout the life-cycle of materials, taking into account economic efficiency and social equity."

What is SMM? - Definition

Resources: the stock of natural capital(in the lithosphere and biosphere) that underpins sustainable development (energy resources and minerals, water, soil, forests, fish stocks….)

Materials – the transformation of resources to meet economic and social needs (timber, food, steel, combined in consumer products…)

Example of initial transformation	Example product or good	Illustrative use profile	example end-of life scenario (illustrative percentages only
Ore to metal	Steel beam	Building and Construction component with 80 year life span	95% recycled 5% to landfill
Oil to plastic resin	carpet	Building and Construction component with 15 year life span	50% recycled 25% converted to energy 25% to landfill
Raw log to lumber	Roof truss	Building and Construction component with 80 year life span	75% recycled 25% to landfill

Sustainable Materials Management: is an approach to promote sustainable materials use – reducing impact and preserving natural capital across the life cycle while taking into account economic efficiency and social equity

What is SMM? – Policy Principles

- Preserve Natural Capital (ie materials, energy, water, land, air and ecosystems)
- Design and Manage Materials, Products and Processes for Safety and Sustainablility from a Life-cycle Perspective
- Use the Full Diversity of Policy Instruments to Stimulate and Reinforce Sustainable Economic, Environmental and Social Outcomes
- Engage all Parts of Society to Take Active, Ethically-based Responsibility for Acieving Sustainable Outcomes

How do SMM and the 3Rs fit?

Life Cycle Stages		Green Growth Strategy	IPP	Resource Prod.	Sust. Cons. & Prod.	3R Action Plan	SMM Initiative
Material Production	↑ Resource Productivity[5]	✓		✓		✓	✓
	↑ Resource Efficiency[6]			✓	✓	✓	✓
	↓ Pollution	✓		✓	✓		✓
Manufacturing/ Construction	↑ Resource Efficiency		✓	✓	✓	✓	✓
	↓ Pollution	✓	✓	✓	✓	✓	✓
	Product/ Technology Innovation	✓	✓	✓	✓	✓	✓
	↓ Packaging		✓			✓	✓
Distribution	↓ GHG Emissions	✓	✓		✓		✓
Use/Reuse	Greener Consumption (↓ cons. & purchase greener goods & services)	✓ (fossil fuel cons.)	✓	✓	✓		✓
End of Life	Material/ Resource Recovery	✓		✓		✓	✓
	Hazardous Waste Mgmt					✓	✓
	Recycle		✓	✓	✓	✓	✓
	↓ Pollution	✓				✓	✓
	↓ illegal trans-boundary movement of waste					✓	✓
	Reuse Materials			✓	✓	✓	✓
	Import waste from developing countries (for treatment/recovery)					✓	✓

Why SMM?

- For the last 25 years the OECD has been developing and promulgating international policies aimed at minimising waste generation and managing the residues in an environmentally sound manner:
  - Transboundary Movements of Waste (TMW);
  - Waste minimisation/waste prevention (WM);
  - Environmentally Sound Management of Waste (ESM).

Why SMM?

- It has gradually become evident that waste minimisation policies which address only end-of-life products and materials are not alone effective in reducing increasing amounts of waste associated with accelerating economic activity and material consumption.

- This accentuates the need for creative and far-sighted solutions, using life-cycle thinking to reduce the negative environmental impacts of materials in a cost-effective manner.

SMM - Important Trends (I)

Population growth:

- Global population will be 8.2 billion in 2030 (4.9 billion in urban areas);
- 95% of this growth will take place in developing countries (ROW, India).

Welfare increase:

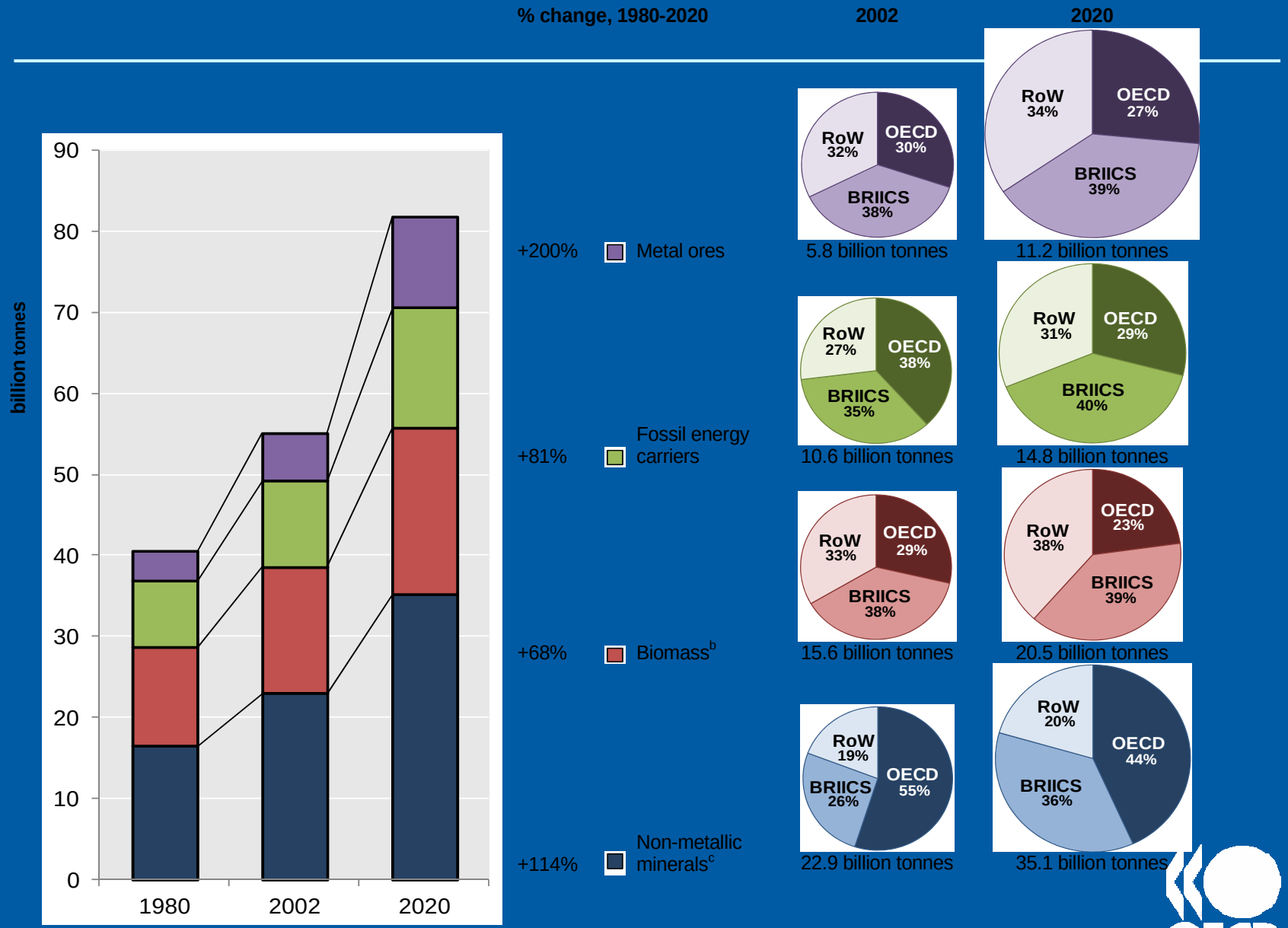
- Annual GDP growth to 2030 will be approx. 2.2% for OECD, 4.6% for BRIC; 4% for ROW;
- Global trade will considerably accelerate as a result.

SMM - Important Trends (II)

Resource extraction:

- Annual resource extraction will also increase to 80 billion tonnes in 2020 (~100 billion tonnes in 2030), up 48% from 2002;
- This growth will be uneven between different areas and categories, metal ores exhibiting highest rates; overall growth rates will be highest in BRIICS;
- We are not yet there, but discussions on resource scarcity have already started

Global resource extraction, by major material groups and regions, 1980-2020



Source: OECD, based on SERI (2006), MOSUS MFA database, Sustainable Europe Research Institute, Vienna, http://www.materialflows.net; Giljum, et al. (2007).

SMM – IMPORTANT TRENDS (III)

Scarcity of virgin resources:

- Some examples of remaining resources: Antimony 30 years, Copper 60 years, Gold 45 years, Silver 29 years, Tin 40 years, Zinc 46 years;

- This will be a real opportunity for recycling industry

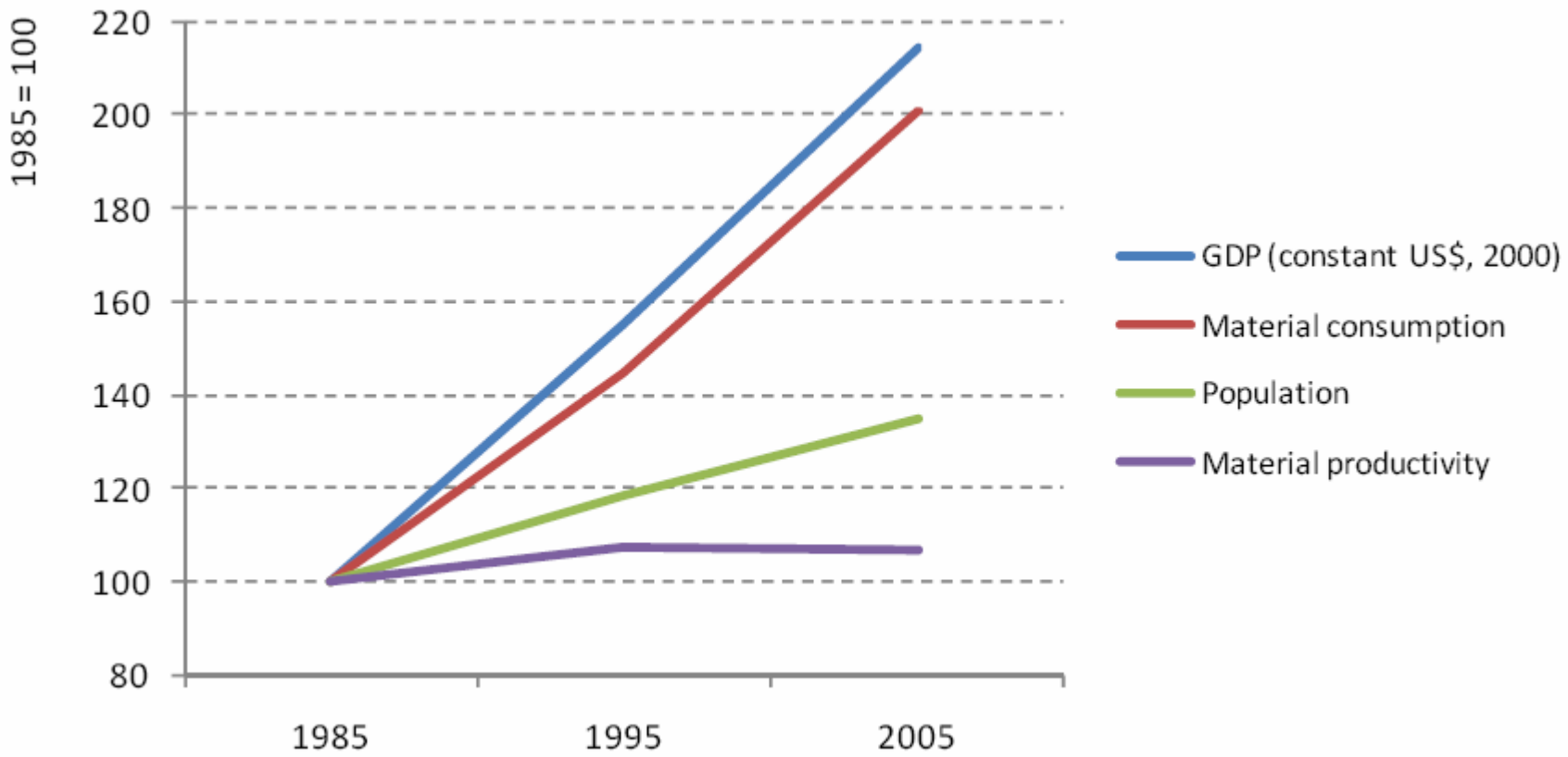
SMM - Important Trends (IV)

Waste generation:

- *Global* waste generation is currently 8-10 billion tonnes (municipal waste is 1.6 billion tonnes);
- Global *municipal* waste generation in 2030 will be 900 million tonnes in OECD, 1 billion tonnes in BRIICS and 1.1 billion tonnes in ROW;
- *Industrial* waste generation has stabilised within the OECD area, but continues to increase rapidly in BRIICS and ROW.
- Not enough is known about *hazardous* waste streams (especially their environmental effects)

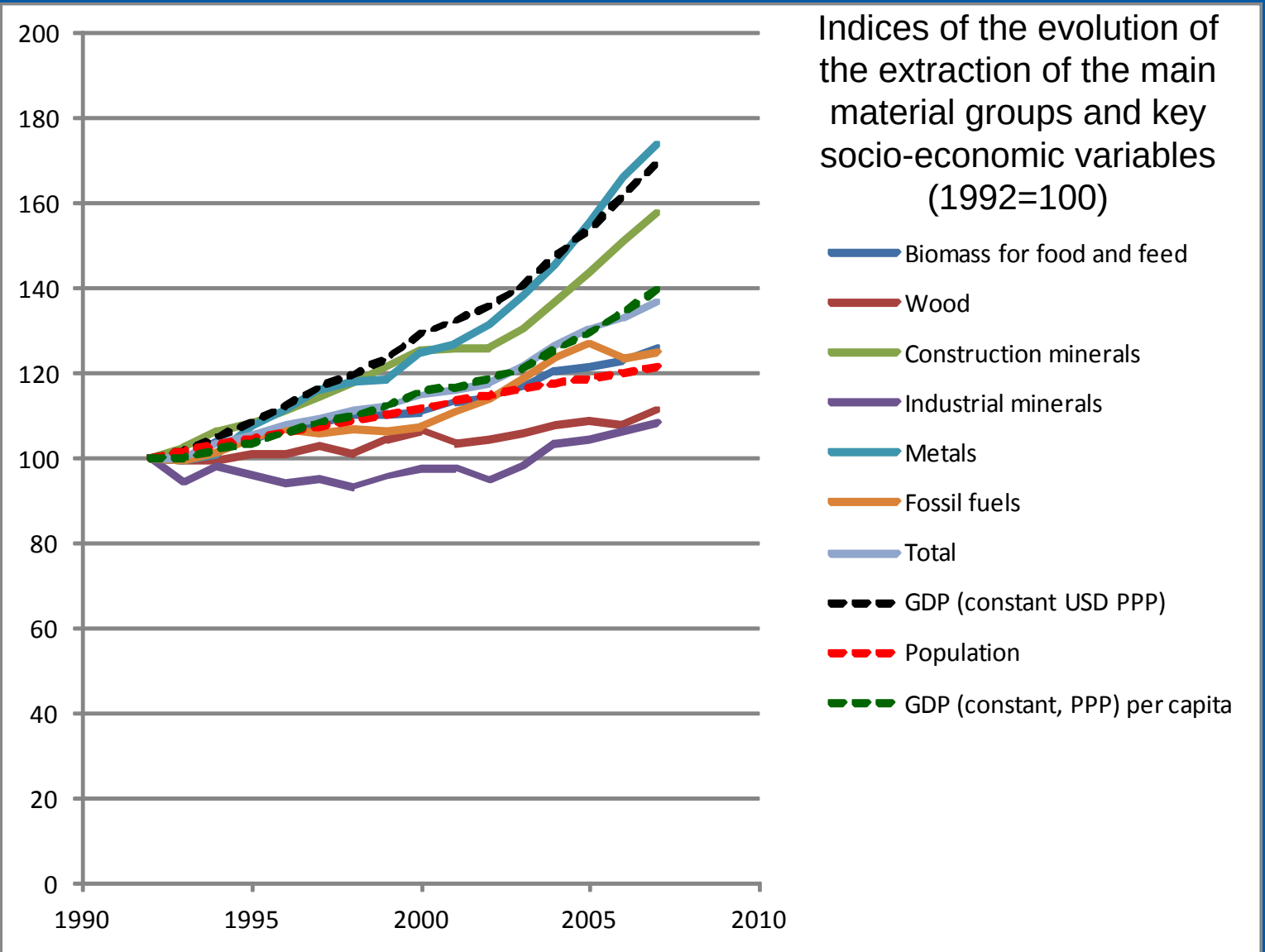
Why is SMM relevant to Asia?

GDP, population, material consumption and material productivity in 19 Asian countries



Source: SERI, 2010

Why is SMM relevant to Asia?



What are the Challenges?

- There is a shared view across many countries and companies that they find it difficult to re-engineer their organisations and programmes in order to move from waste to sustainable resource management
- SMM is closely connected to other policy areas:
  - Critical metals: innovation, transboundary movement of waste
  - Wood fibre: climate change, agriculture, urbanisation, population growth
  - Aluminium and Plastics: energy and climate change

➢ This requires a cross sectoral approach to policy making on SMM and assumes that problems with policy integration can be overcome

What are the Challenges?

- Some front-runners have made impressive progress, but for the industry as a whole, SMM is still rather unknown.
- Traditional "command-and-control" approaches are unlikely to be sufficient to promote SMM.
  - This requires information efforts as well as the careful design of policy mix that is effective

- The life-cycle stages at which the biggest impacts occur differ by material
  - This requires a policy approach that is differentiated material by material

What are the Challenges?

- Geographic flows of materials accross national borders imply that there are issues of resource security and technology transfer
- However, information transfer through life-cycles and supply chains of materials and products remains a major challenge of the private sector, even within front-runners.
  - ➢ This requires international cooperation to ensure the effectiveness of SMM policies

Where do we stand on SMM?

- OECD reports examining the framework conditions (policy principles) needed for SMM, including the possibilities of applying specific policies (*e.g.* SMM targets) and/or instruments (*e.g.* economic approaches) are currently being completed;

- Case studies on priority materials (aluminium, critical metals, plastics, fibres), aimed at developing a better understanding of "good practices" in these areas and facilitating exploration of policy opportunities and barriers for SMM are also under development.

SMM – Next Steps

- The OECD will hold a Global Forum on SMM on 25-27 October 2010 focusing on "policies for implementing SMM" on the basis of studies that are currently underway.

- Efforts would also be made to link the discussions to implementation of the OECD Council Recommendation on Resource Productivity and the G8 Kobe 3R Action Plan.

- Further work on the practical measures that allow to implement SMM is likely to be carried-out for specific materials and products.

SMM

Thank you for your attention!

http://www.oecd.org/env/waste