Trends in Resource Consumption in the Asia Pacific: Introducing the REEO Report

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1. The REEO Study
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PART 1

The REEO Study
Resource Efficiency: Economics and Outlook for Asia and the Pacific (REEO)

- A UNEP initiative
- Conducted by CSIRO (Australia) in collaboration with Chinese Academy of Sciences, TERI (India) and IGES (Japan)
- Scope:
  - The history, current condition and future of natural resource use in Asia and the Pacific
  - Materials and waste
  - Energy and emissions
  - Water and Land
  - Resource Efficiency
  - Modeling future resource use scenarios
  - Policies to guide sustainable use of natural resources in Asia and the Pacific countries and the region
One of the Outcomes: A Unique Database

- Comprehensive data on material flows for 1970 – 2005
- Most Asian and Pacific countries covered
- Data presented for biomass, fossil fuels, metal ores and industrial minerals, and construction minerals
- The data covers domestic extraction, physical trade balance (imports minus exports, measured in tonnes), and domestic material consumption
- The dataset was endorsed by ADB, UNESCAP and UNEP
- Sources and methodologies as well as the full dataset are available at

  www.csiro.au/AsiaPacificMaterialFlows
PART 2
Selected Findings for Asia and the Pacific
At the beginning of the 21st century Asia-Pacific became the world’s largest resource user.

A significant share of the region’s resource consumption is related with export to countries outside of the region. However, most of the resources are used for end-consumption in the region.

Domestic Material Consumption (DMC) in Asia-Pacific, the world and the rest of the world, 1970-2005, million tonnes.
A doubling of the use of biomass – a six time increase in the use of non-renewable resources

Domestic Material Consumption (DMC) in Asia-Pacific, 1970 -2005, million tonnes
Per Capita Resource Consumption in Asia Pacific has Increased Rapidly

Asia Pacific was consuming just one third of the Rest of the World

Asia Pacific is now consuming as much as the Rest of the World

Per Capita Resource Use for the Asia-Pacific, Rest of World and World, for the years 1971 – 2005.
(Total Domestic Material Consumption)
No Sign of Decoupling in the Region

Each dollar of GDP requires **increasing** amounts of natural resources.

Material Intensity for the Asia-Pacific, Rest of World and World, for the years 1971 – 2005.
(Materials are Total Domestic Material Consumption, dollars are constant year 2000 $US, exchange rate based)
Possible Future Scenarios

The REEO scenario modeling suggests that:

- Resource consumption would triple until 2050 under a business-as-usual scenario.
- Even with efficiency improvements of 50% in key economic sectors, resource consumption would still increase drastically.
- Large changes in how we live, eat, work and move around are needed.
PART 3
Selected Findings for Indonesia
Domestic Material Consumption (DMC) for Indonesia, 1970 – 2005, million tonnes

- Metal ores and industrial minerals
- Fossil Fuels
- Construction Minerals
- Biomass

![Graph showing Domestic Material Consumption (DMC) for Indonesia from 1970 to 2005, million tonnes.](image-url)
Total Primary Energy Supply (TPES) for Indonesia, 1970 – 2005, Peta Joule
Transitioning from an agricultural to an industrial society – from biomass and renewable energy to fossil fuels and construction minerals

Domestic Material Consumption (DMC)

1970
- Biomass: 90%
- Construction Minerals: 4%
- Fossil Fuels: 1%
- Metal ores and industrial minerals: 5%

2005
- Biomass: 11%
- Construction Minerals: 26%
- Fossil Fuels: 15%
- Metal ores and industrial minerals: 48%

Total Primary Energy Supply (TPES)

1970
- Coal: 23%
- Hydro: 1%
- Natural Gas: 76%
- Non-Hydro Renewables: 0%
- Petroleum: 0%

2005
- Coal: 37%
- Hydro: 14%
- Natural Gas: 17%
- Non-Hydro Renewables: 0%
- Petroleum: 32%
Labour Productivity has improved but Material and Energy Productivity are lagging behind.
Human development requires increasing amounts of resources and energy. **Education and literacy** improvements require few resources, increases in **life expectancy** more resources, increases in **GDP/capita** requires large resource inputs.
Summing up

• The region is rapidly transforming from agricultural to industrial, with soaring resource use

• Stabilised resource use and reduced environmental damage require drastic changes in the way society produces and consumes – the lifestyles and globalised production patterns of industrialised countries are not viable models to follow

• The needs for food, housing, water, energy and transportation have to be met in much smarter ways than now.

• Such changes require structural changes
  – Values and mindsets
  – Business models
  – Balance between paid work and leisure time
  – Political priorities and ways of delivering human wellbeing, for example less emphasis on GDP
  – Stronger and more integrated policies addressing whole value chains from a life-cycle perspective.
Thank you for your attention
Terima kasih

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