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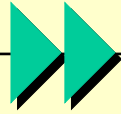
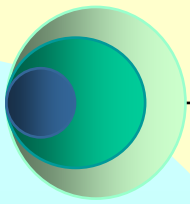
MEASURING SUSTAINABLE DEVELOPMENT

TOKYO, 4 February 2003

Source: OECD

By Dr. Christian P. Avérous
OECD Environment Directorate

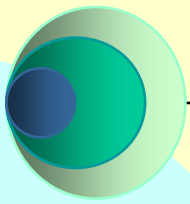




OECD IN SHORT

- **ECONOMIC INTER-GOVERNMENTAL ORGANISATION**
- **30 MEMBER COUNTRIES**
- **CO-OPERATION PROGRAMMES WITH PARTNER COUNTRIES: RUSSIA, CHINA**
- **ENVIRONMENT DIRECTORATE SINCE 1970**

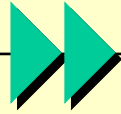
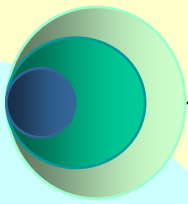




SUSTAINABLE DEVELOPMENT CONCEPT

- **ECONOMIC GROWTH**
→ **SOCIAL, ENVIRONMENTAL IMPLICATIONS**
- **INTER-GENERATIONAL ISSUES**
- **WITHIN AND ACROSS COUNTRIES ISSUES**

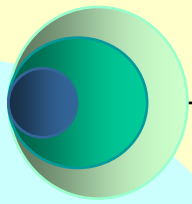




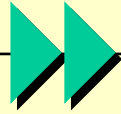
SUSTAINABLE DEVELOPMENT CHALLENGES

- ◆ **PRESERVING THE ASSET BASE**
 - ☞ short term → longer term view
- ◆ **FOSTERING INSTITUTIONAL INTEGRATION**
 - ☞ government policies
 - ☞ stakeholders
- ◆ **MARKET-RELATED INTEGRATION**
 - ☞ removing distortions
 - ☞ internalisation of externalities
- ◆ **STRENGTHENING INTERNATIONAL CO-OPERATION**

..... **TO BE SUPPORTED BY INDICATORS** 



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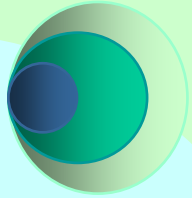


MEASURING SUSTAINABLE DEVELOPMENT

INTRODUCTION

- **FRAMEWORKS**
- **ENVIRONMENTAL INDICATORS**
- **DECOUPLING INDICATORS**



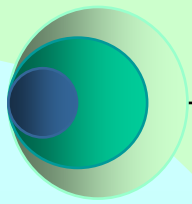


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**MEASURING SUSTAINABLE
DEVELOPMENT**

FRAMEWORKS

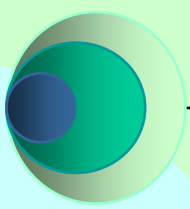




- **ACCOUNTING**
 - ◆ **EXTENDED ECONOMIC ACCOUNTING**
 - ◆ **ENVIRONMENTAL ACCOUNTING**
 - ◆ **SOCIAL ACCOUNTING**

- **ANALYTICAL**
 - ◆ **RESOURCE-OUTCOME APPROACH**
 - ◆ **PRESSURE STATE RESPONSE MODEL**

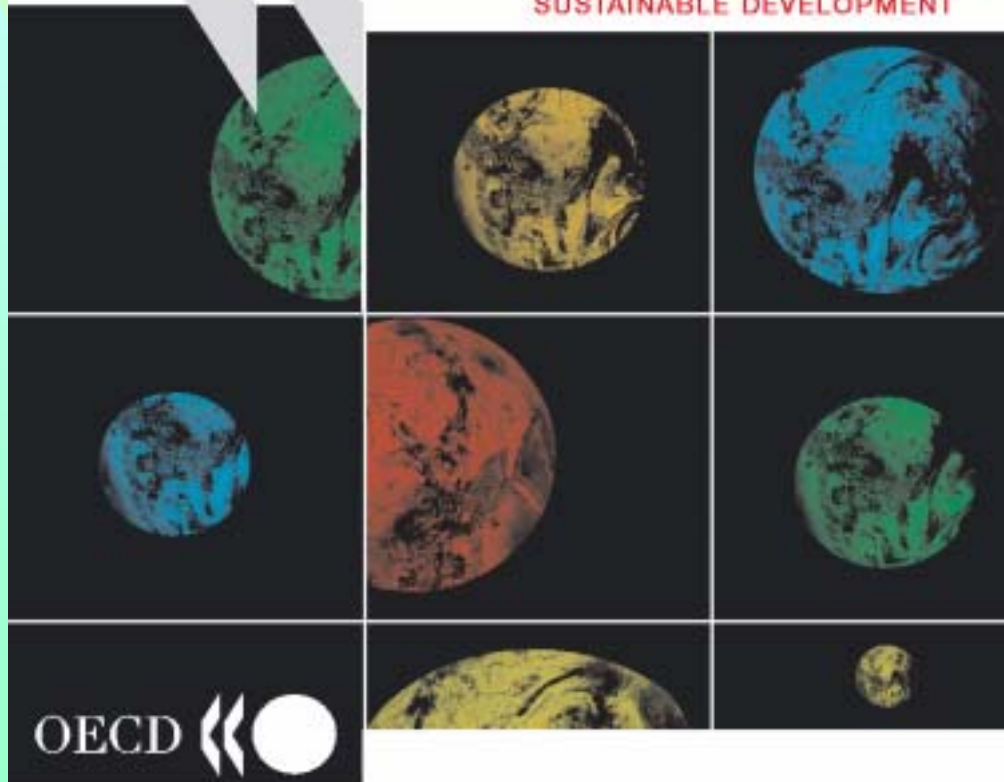


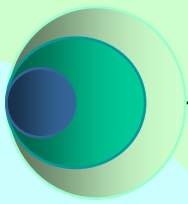


Sustainable Development

CRITICAL ISSUES

SUSTAINABLE DEVELOPMENT

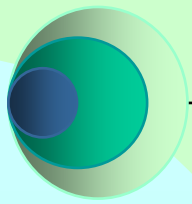




RESOURCE INDICATORS

- ◆ ENVIRONMENTAL, ECONOMIC AND HUMAN ASSETS
- ◆ ENVIRONMENTAL ASSETS
- ◆ ECONOMIC ASSETS (produced assets, technological change, financial assets and liabilities)
- ◆ HUMAN ASSETS (human capital, social capital)
- ◆ A NECESSARY CONDITION FOR (WEAK/STRONG) SUSTAINABILITY





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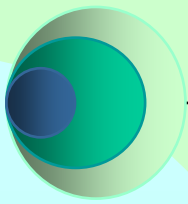
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FRAMEWORKS

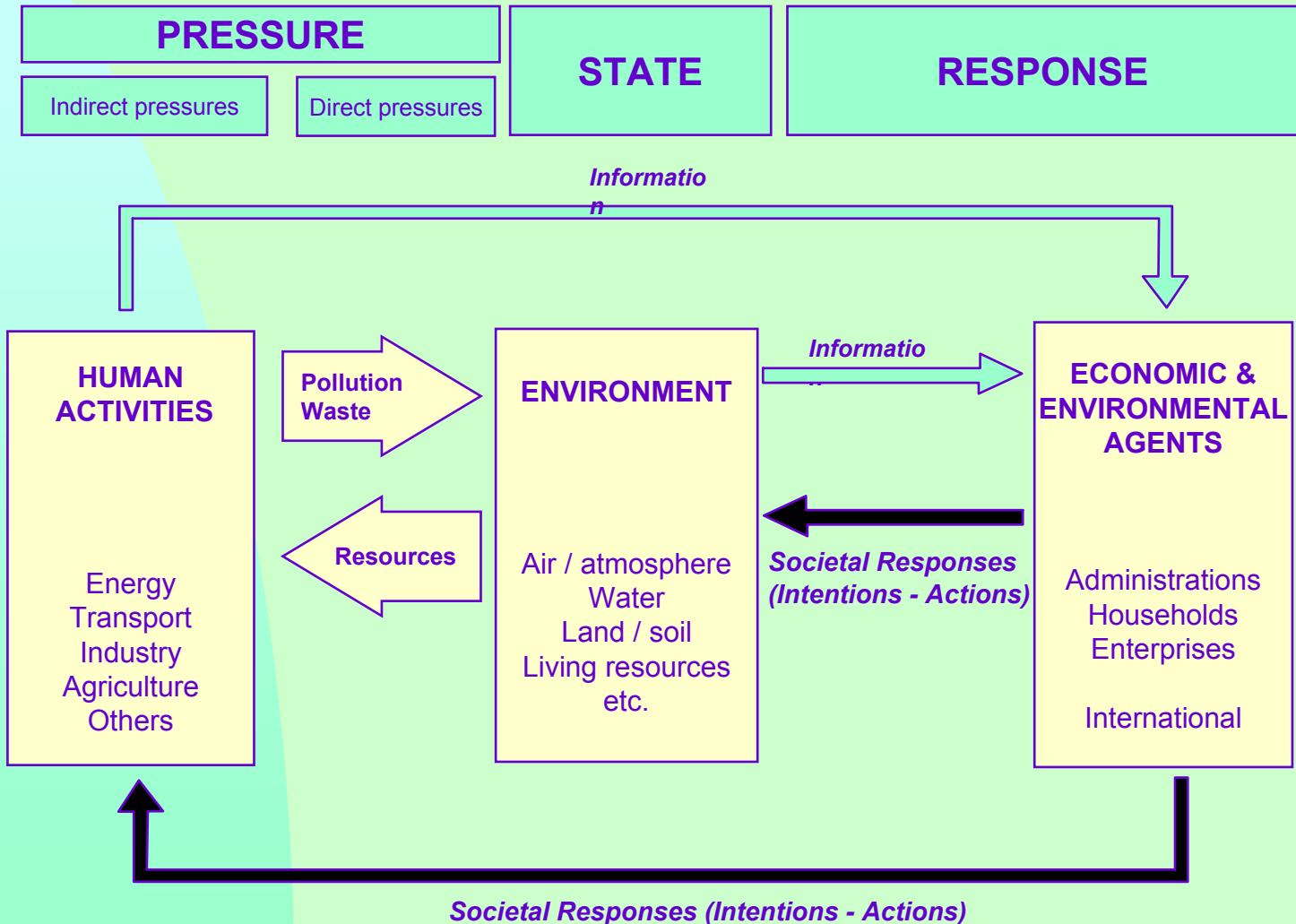
OUTCOME INDICATORS

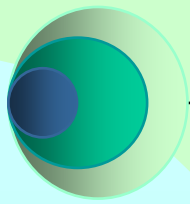
- ◆ PRIORITY OBJECTIVES
- ◆ INTERNATIONAL COMMITMENTS
- ◆ COUNTRY SPECIFIC vs COMMON TO COUNTRIES





FRAMEWORKS

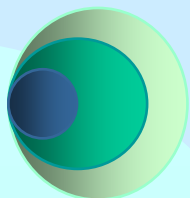




ROLE AND PURPOSE OF INDICATORS

- **INFORM DECISION MAKING**
 - ◆ identify major conditions for sustainability
 - ◆ highlight key trends
 - ◆ monitor progress
- **COMMUNICATE AND RAISE AWARENESS**
 - ◆ interlinkages and trade-offs
 - ◆ longer term implications of current decisions, behaviours
- **CONTRIBUTE TO GREATER ACCOUNTABILITY**



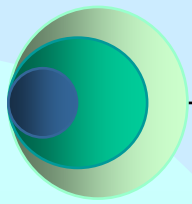


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**MEASURING SUSTAINABLE
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**ENVIRONMENTAL INDICATORS
THE ENVIRONMENTAL PILLAR**





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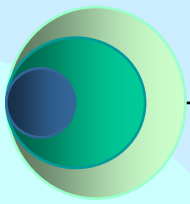


MEASURING SUSTAINABLE DEVELOPMENT

ENVIRONMENTAL INDICATORS

- **A COMMON CONCEPTUAL FRAMEWORK**
- **CEI - CORE INDICATORS**
 - ◆ common to OECD countries
 - ◆ common to various indicator sets
- **KEI - KEY INDICATORS**
- **SEI - SECTORAL INDICATORS**
- **USING INDICATORS**





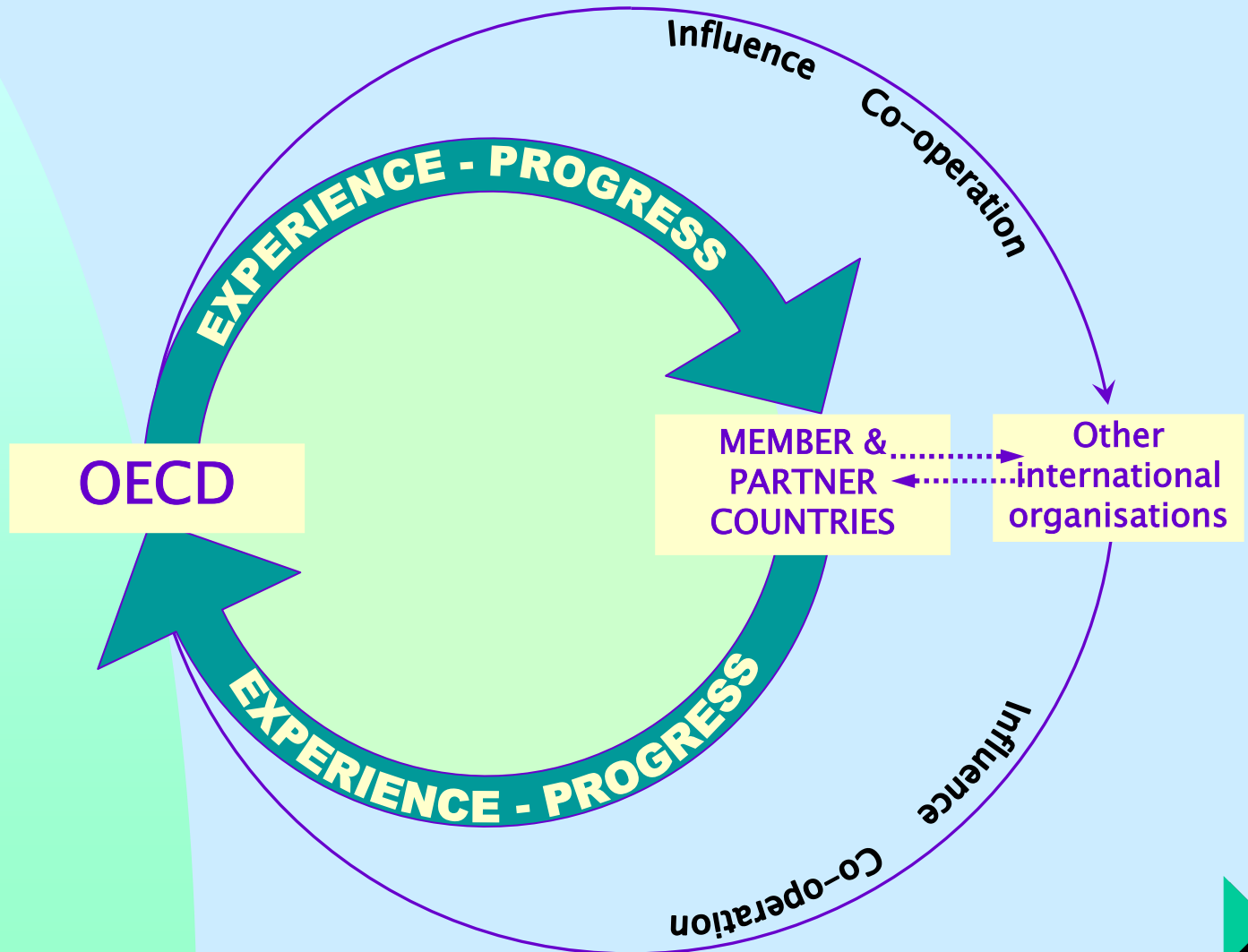
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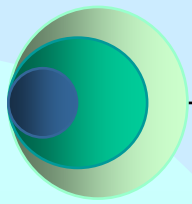


MEASURING SUSTAINABLE DEVELOPMENT

ENVIRONMENTAL INDICATORS

National and international links





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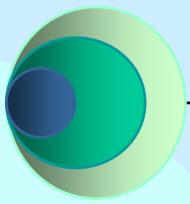
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ENVIRONMENTAL INDICATORS

Selection criteria

- **POLICY RELEVANCE**
- **ANALYTICAL SOUNDNESS**
- **MEASURABILITY**





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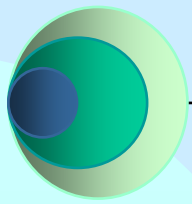
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ENVIRONMENTAL INDICATORS

Core indicators - CEI

- **Requested by G7 Summits: 1989, 90, 91**
- **Published 1991, 94, 98, 2001**
- **Elaborated with Member countries**
- **Core for different countries**
- **Core for different functions**





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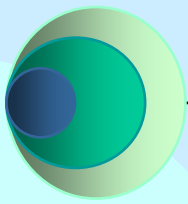


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ENVIRONMENTAL INDICATORS

Core indicators - CEI





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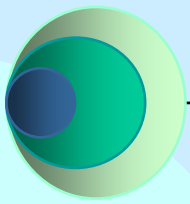
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ENVIRONMENTAL INDICATORS

Core indicators - CEI

	PRESSURE		STATE	RESPONSE
	INDIRECT	DIRECT		
Climate change				
Ozone layer				
Eutrophication				
Acidification				
Toxic contamination				
Urban environment				
Biodiversity				
Landscape				
Waste				
Water resources				
Forest resources				
Fish resources				
Soil resources				
Socio-economic & sectoral indicators				





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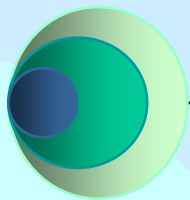
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ENVIRONMENTAL INDICATORS

Key indicators - KEI

- **ENDORSED BY ENVIRONMENT MINISTERS
(May 2001)**
- **SELECTED FROM OECD CORE SET**
- **PURPOSE**
 - ◆ **Public information and communication**
 - ◆ **Draw attention to key environmental issues of common concern**
 - ◆ **Inform about progress made**





POLLUTION ISSUES

Available indicators*

Medium term indicators**

Climate change

1. CO2 emission intensities

Index of greenhouse gas emissions

Ozone layer

2. Indices of apparent consumption of ozone depleting substances (ODS)

Same, plus aggregation into one index of apparent consumption of ODS

Air quality

3. SOx and NOx emission intensities

Population exposure to air pollution

Waste generation

4. Municipal waste generation intensities

Total waste generation intensities, Indicators derived from material flow

Freshwater quality

5. Waste water treatment connection rates

Pollution loads to water bodies

NATURAL RESOURCES & ASSETS

Freshwater resources

6. Intensity of use of water resources

Same plus sub-national breakdown

Forest resources

7. Intensity of use of forest resources

Same

Fish resources

8. Intensity of use of fish resources

Same plus closer link to available resources

Energy resources

9. Intensity of energy use

Energy efficiency index

Biodiversity

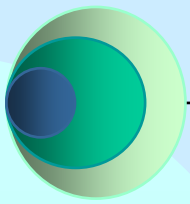
10. Threatened species

Species and habitat or ecosystem diversity
Area of key ecosystems

** indicators for which data are available for a majority of OECD countries and that are presented in this report*

*** indicators that require further specification and development (availability of basic data sets, underlying concepts and definitions).*





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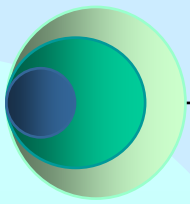
ENVIRONMENTAL INDICATORS

Sectoral indicators - SEI

Several sets

- **Transport**
- **Agriculture**
- **Energy**
- **Consumption**
- **Tourism**





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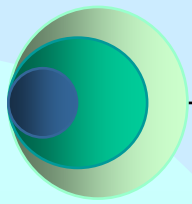
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ENVIRONMENTAL INDICATORS

Use

- **POLICY PERFORMANCE MEASUREMENT (CEI)**
- **PUBLIC COMMUNICATION (KEI)**
- **SECTORAL INTEGRATION (SEI)**





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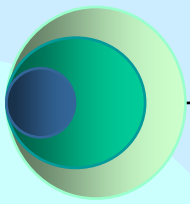


MEASURING SUSTAINABLE DEVELOPMENT

ENVIRONMENTAL INDICATORS

Use





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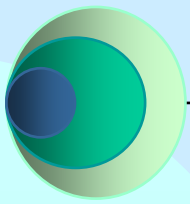
ENVIRONMENTAL INDICATORS

Use

→ environmental performance reviews

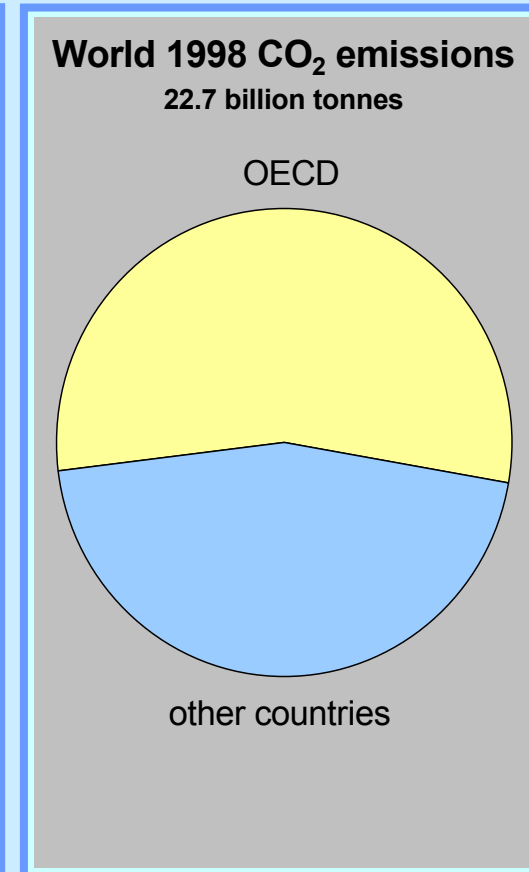
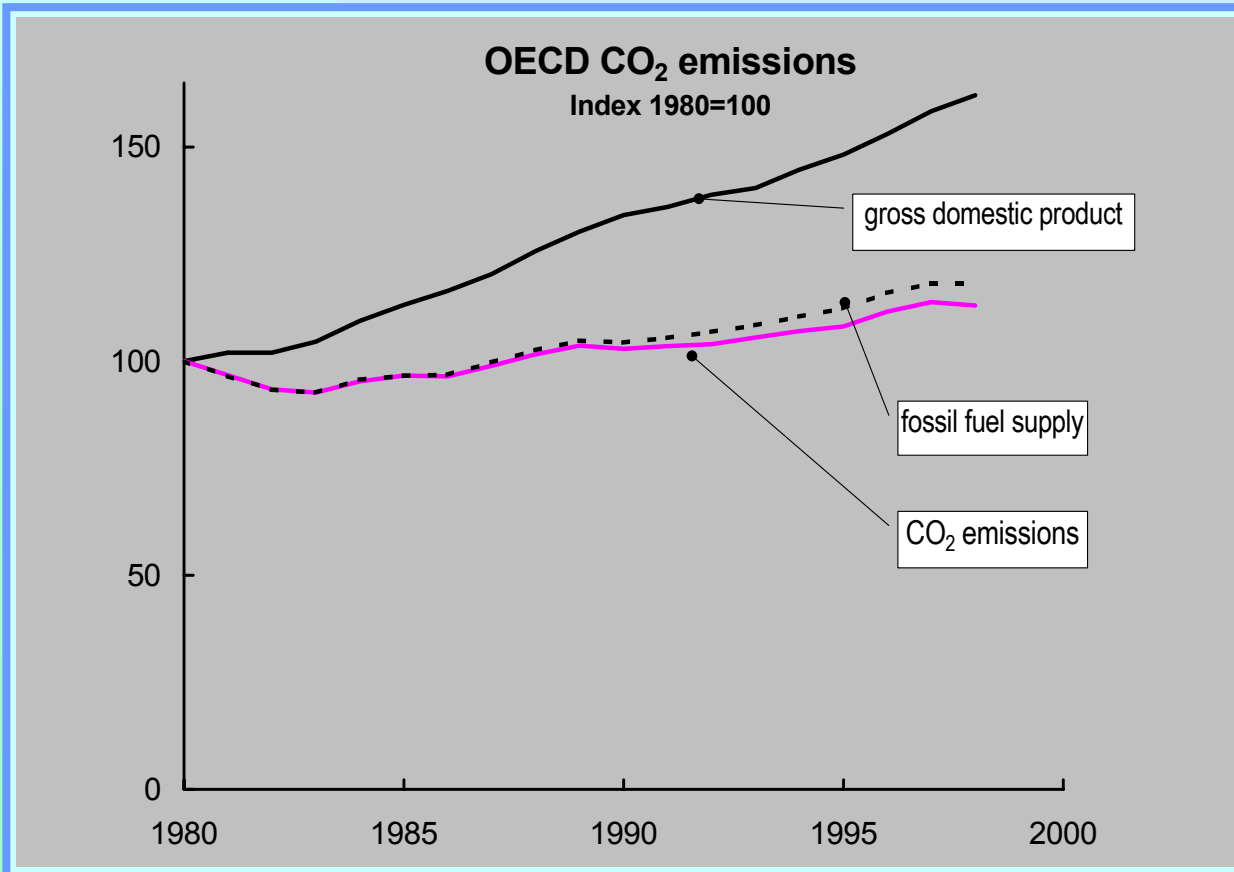
- Only ONE tool
- Interpretation in context
- Inter-country comparisons
- OECD indicators - country-specific indicators
- No unique normalisation

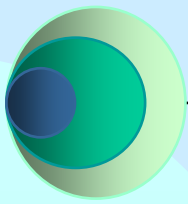




KEY INDICATORS - KEI - Climate change

■ **MONITORING TRENDS**

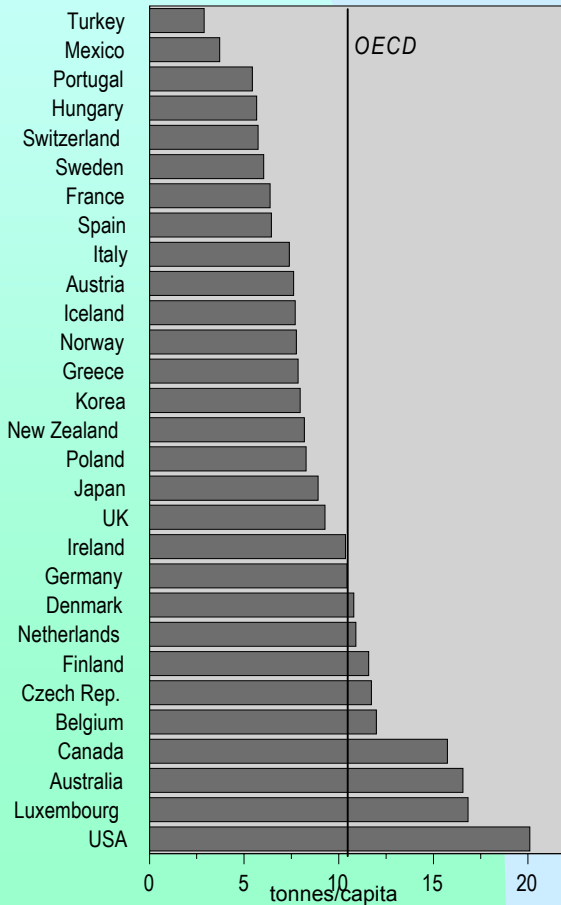




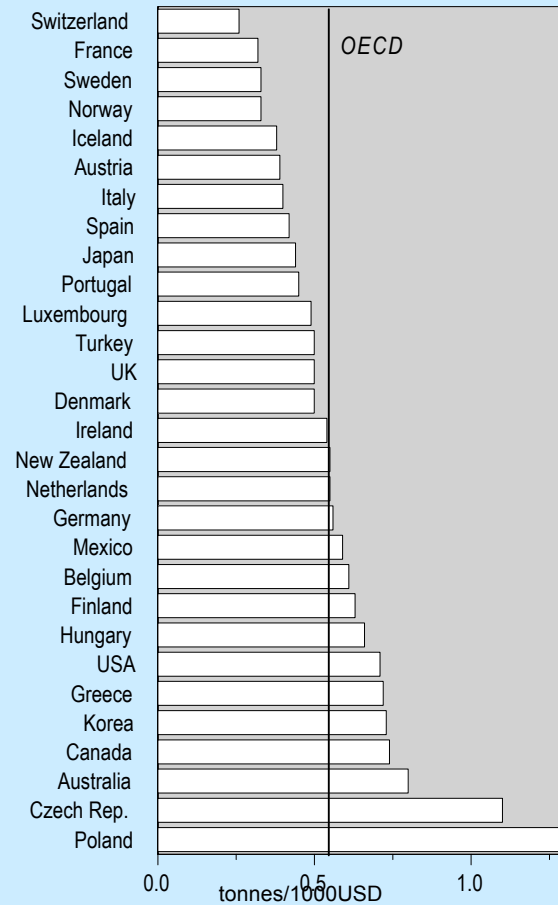
KEY INDICATORS - KEI - Climate change

CURRENT STATE – EMISSION INTENSITIES

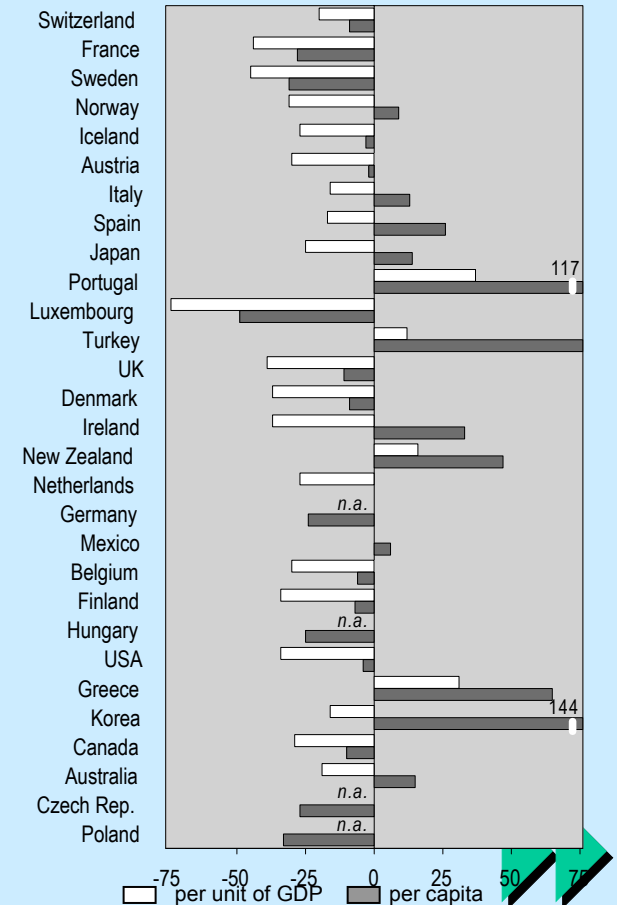
CO2 per capita

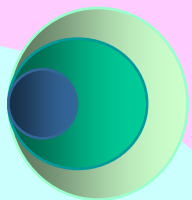


CO2 per unit of GDP



% change since 1980



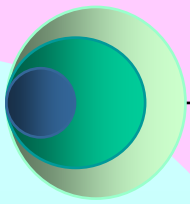


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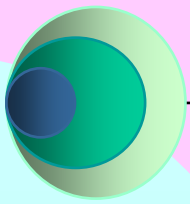
DECOUPLING INDICATORS





- **Decoupling as a major objective of the OECD Environmental Strategy**
- **Request by OECD Ministers (May 2001) to**
“develop indicators that measure the decoupling of economic growth from environmental degradation”





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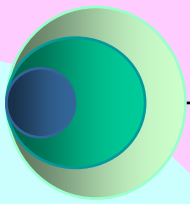
MEASURING SUSTAINABLE DEVELOPMENT

DECOUPLING INDICATORS

CONCRETE RESULTS SO FAR:

- **establishment of an analytical basis**
- **development of an exploratory set of indicators**
- **measurement and publication**
- **use in OECD environmental performance reviews and OECD economic surveys**

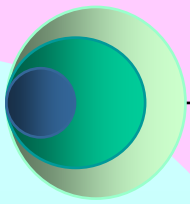




ANALYTICAL BASIS:

- **environmental bads versus economic goods**
- **absolute versus relative decoupling**
- **link to concepts of resource efficiency and productivity**
- **limitations**

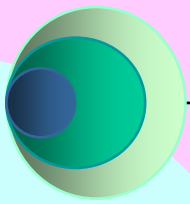




MEASUREMENT:

- **MACRO-LEVEL: economy-wide indicators**
- **SECTORAL LEVEL: sector-specific indicators**
- **UNDERLYING DRIVERS: decomposition into intermediate indicators**
- **DATA GAPS (link between environmental and economic variables)**

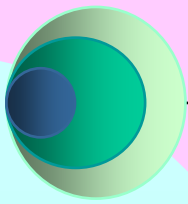




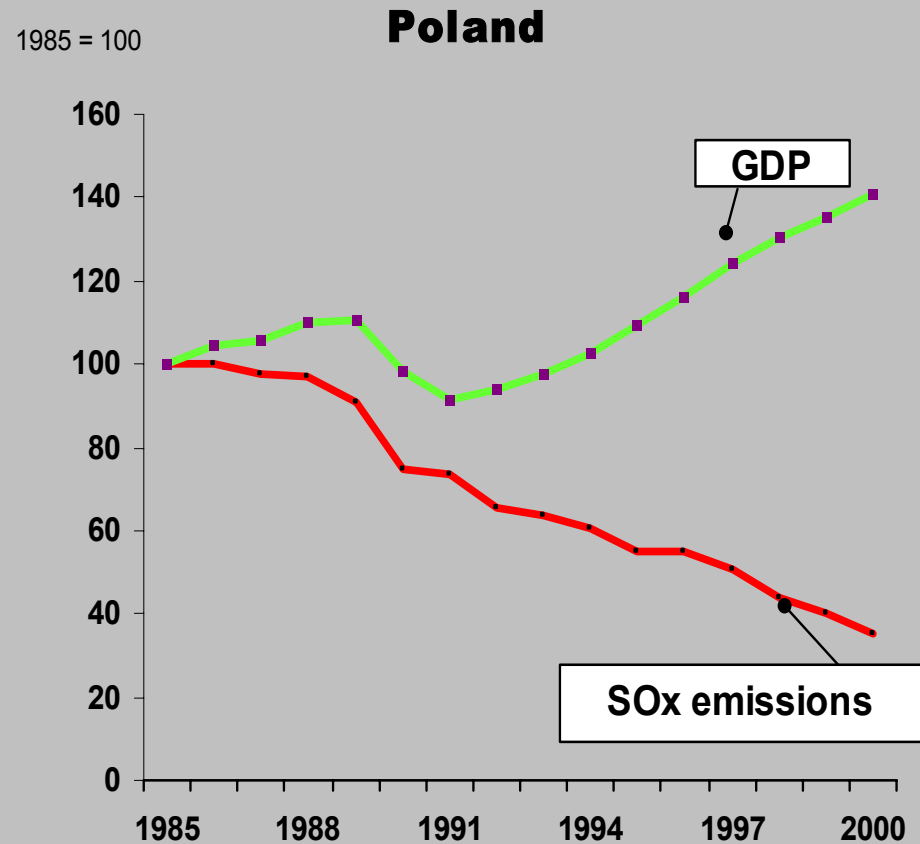
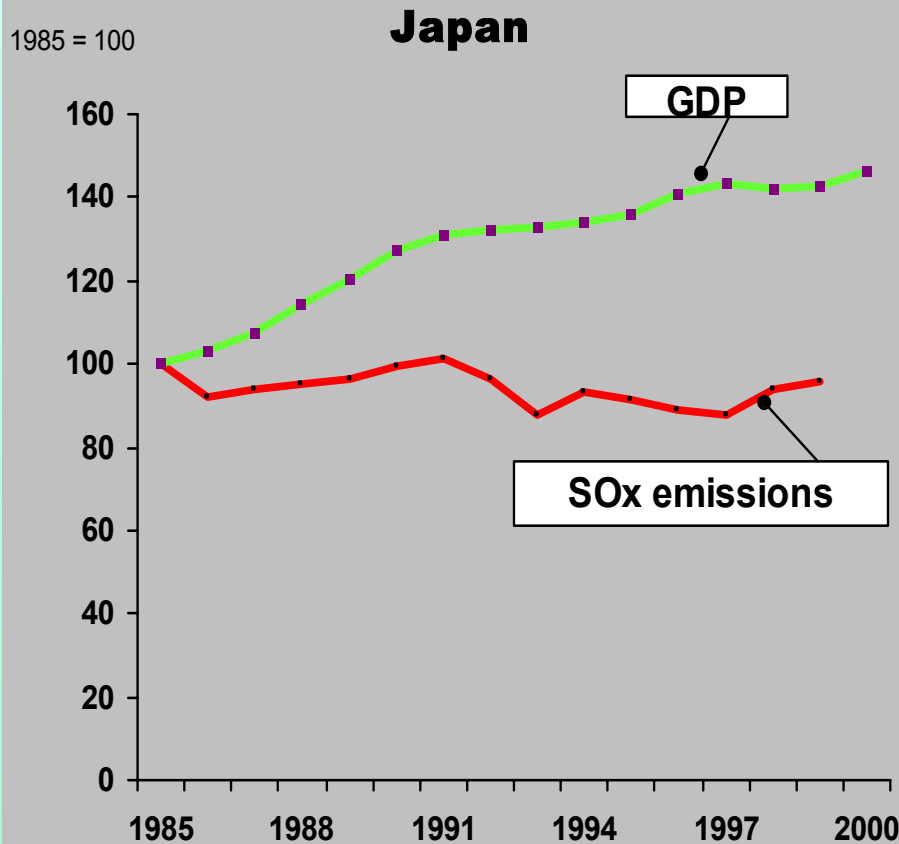
USE AND INTERPRETATION

- **seen as a complement to other indicators and analytical frameworks**
- **link to absolute levels of environmental pressures**
- **national circumstances**





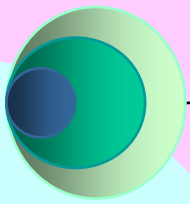
Emissions of SOx versus GDP



emission intensity: 0.3kg SOx/1000USD

emission intensity: 5.1kg SOx/1000USD





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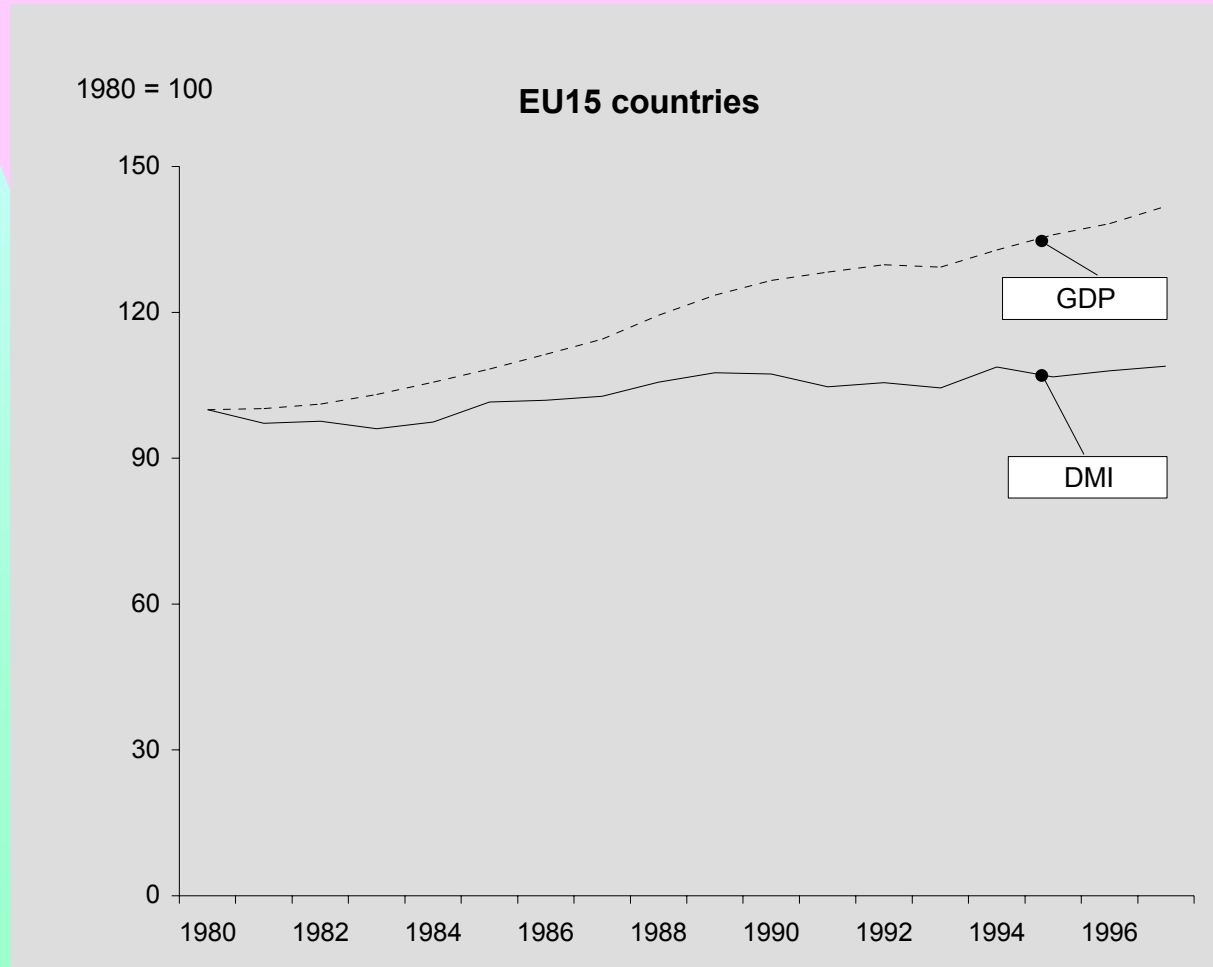


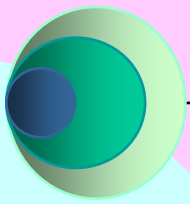
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DECOUPLING INDICATORS

Examples

Direct material input versus GDP





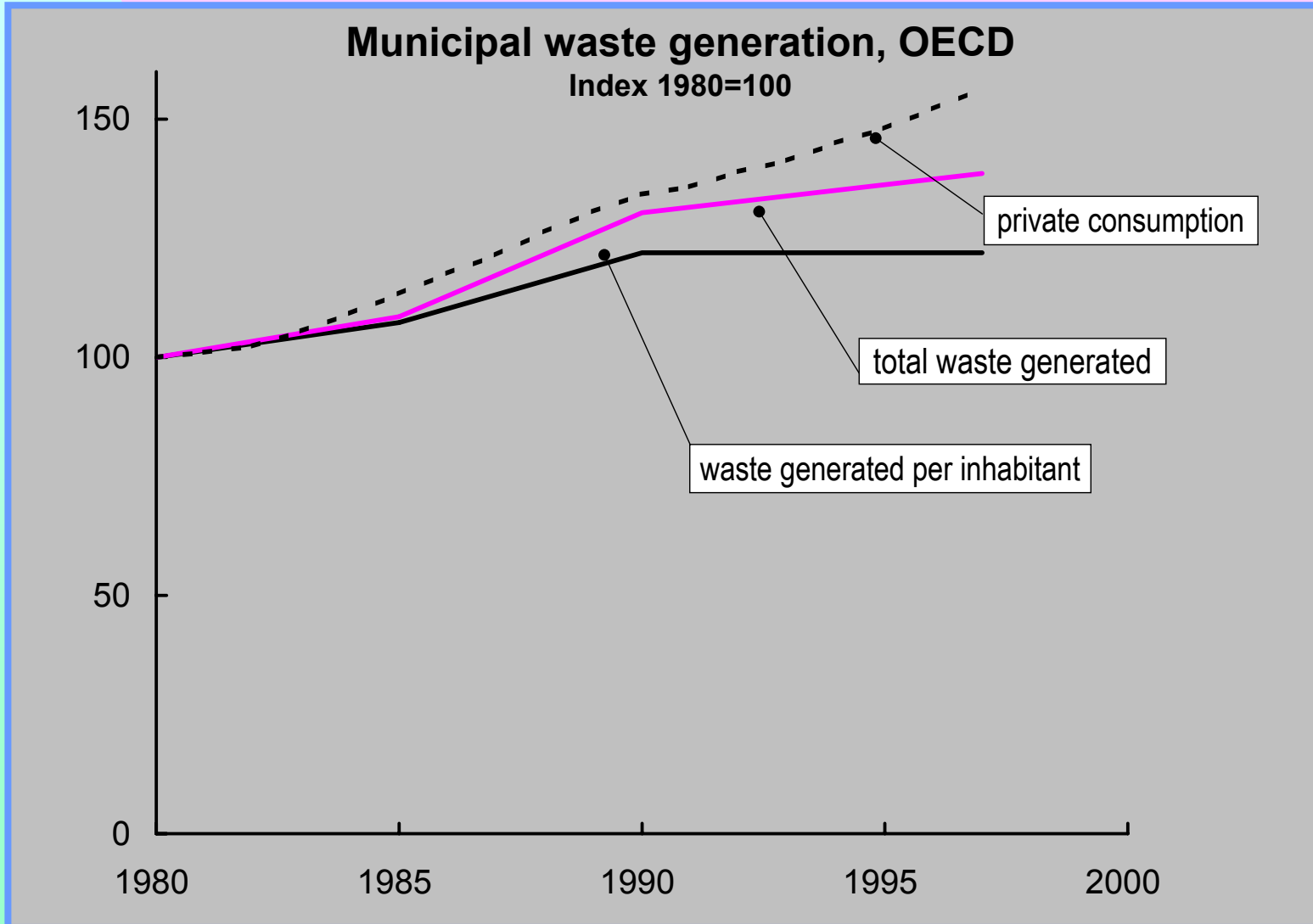
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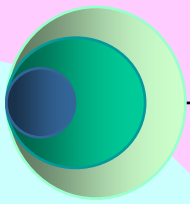


MEASURING SUSTAINABLE DEVELOPMENT

DECOUPLING INDICATORS

Examples





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MEASURING SUSTAINABLE DEVELOPMENT

DECOUPLING INDICATORS

Examples

Energy supply versus GDP

