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ENVIRONMENTAL-ECONOMIC ACCOUNTING FOR EVIDENCE-BASED POLICY IN ASIA (E-LEARNING PROGRAMME)

THE SEEA AND CLIMATE CHANGE POLICIES

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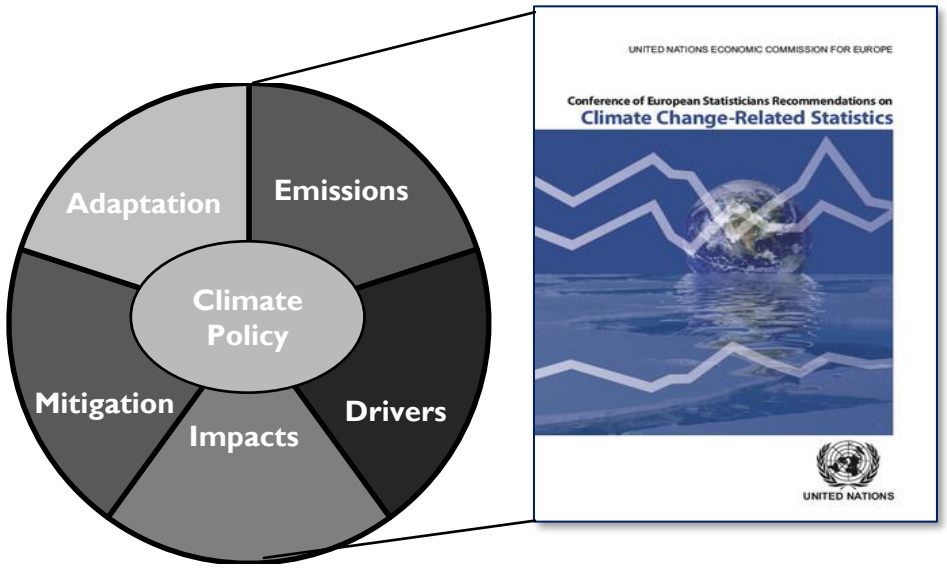
Content

- Background – CES Recommendations on climate change related statistics and Unece CC core indicators
- Climate change DRIVERS: Unece CC core indicators and SEEA energy accounts
- Climate change EMISSIONS: Unece CC core indicators and SEEA air emission accounts
- Climate change MITIGATION: Unece CC core indicators and SEEA environmental taxes
- Climate change Impacts and Adaptation – overview of Unece CC core indicators
- Summing up

Background and reference frameworks



Endorsed in 2014 by more than 60 countries and international organizations.

Scope "Environmental, social and economic data that measure the human causes of climate change, the impacts of climate change on human and natural systems, the efforts of humans to avoid the consequences as well as their efforts to adapt to the consequences"

For each area:

Which policy relevant, internationally comparable and methodologically robust indicators can we produce on the basis of SEEA?

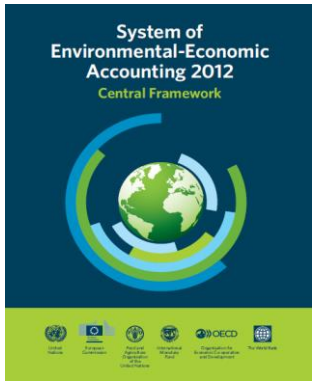
What kind of additional statistical information can be derived from SEEA accounts?

CC-Related Statistics and Indicators

CES endorsed in June 2020:

- Set of 44 core climate change-related indicators
- Contextual indicators and possible disaggregation variables
- Implementation guidelines

White cover versions available at https://statswiki.unece.org/pages/viewpage.action?pageId=285216611



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Drivers (1) – Core Unece CC indicators

Indicator	Tier	SEEA
Total energy use by the national economy	II	Energy
Total primary energy supply (TPES)	I	
Share of fossil fuels in total energy use by the national economy	III	Energy
Share of fossil fuels in total primary energy supply (TPES)	I	
Losses of land covered by (semi-) natural vegetation	III	Land
Total support for fossil fuels in relation to GDP	III	Transactions
Total energy intensity of production activities of the national economy	II	Energy
Total CO_2 intensity of energy used in production activities of the national economy	II	Energy, Air emissions
Energy use by resident households per capita	I	Energy

TIER

I: conceptually clear, established methodology, data regularly produced
II: conceptually clear, established methodology and standards available, data not regularly produced
III: no established methodology and standards or methodology/standards are being developed/tested

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Drivers (2) – SEEA Energy accounts, Supply and Use Tables

SUPPLY TABLE						
	Industries	**Households**	**Accumulation**	**Rest of the World**	**Environment**	**Totals**
Energy from natural inputs					Energy inputs from the environment	Total supply of energy from natural inputs
Energy products	Output			Imports		Total supply of energy products
Energy Residuals	Energy residuals generated by industry	Energy residuals generated by household consumption	Energy residuals from accumulation	Energy residuals received from the rest of the world	Energy residuals recovered from the environment	Total supply of energy residuals
USE TABLE						
	Industries	**Households**	**Accumulation**	**Rest of the World**	**Environment**	**Totals**
Energy from natural inputs	Extraction of energy from natural inputs					Total use of energy from natural inputs
Energy products	Intermediate consumption	Household consumption	Changes in inventories	Exports		Total use of energy products
Energy residuals	Collection & treatment of energy residuals		Accumulation of energy residuals	Energy residuals sent to the rest of the world	Energy residual flows direct to environment	Total use of energy residuals

- Energy use and energy intensity by economic activity
- CO_2 intensity of energy by economic activity

Source: Sokol Vako (UNSD) Presentation on SEEA – Energy
https://www.cepal.org/sites/default/files/events/files/session_3_energy_accounts.pdf

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Emissions (1) – Core Unece CC indicators

Indicator	Tier	SEEA
Total greenhouse gas emissions from the national economy	I	Air emissions
Total greenhouse gas emissions from the national territory	I	
CO_2 emissions from fuel combustion attributable to the national economy	III	Air emissions
CO_2 emissions from fuel combustion within the national territory	I	
Greenhouse gas emissions from land use change (LULUCF)	I	Air emissions, SEEA-EA
Total greenhouse gas emissions from production activities	I	Air emissions
Greenhouse gas emission intensity of production activities	I	Air emissions
Direct greenhouse gas emissions from households	I	Air emissions
Carbon footprint	II	Air emissions

Emissions (2) – SEEA Air emission accounts, example

- GHGs and GHGs emission intensity by economic activity
- Households emissions by purpose

	Industries					Households			Total Economy
	Agriculture	…	Manufacturing	…	Services	Heating	Transport	Other	
Air emissions (GHGs)									
carbon dioxide (CO_2)									
methane (CH_4)									
nitrous oxide (N_2O)									
hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluorides (SF_6), Nitrogen Trifluoride (NF_3)									

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Mitigation (1) – Core Unece CC indicators

Indicator	Tier	SEEA
Renewable energy share in total energy use by the national economy	III	Energy
Renewable energy share in the total final energy consumption within the national territory	I	
Share of climate change mitigation expenditure in relation to GDP	III	Transactions
Share of energy and transport related taxes in total taxes and social contributions	I	Transactions
Total climate change related subsidies and similar transfers in relation to GDP	III	Transactions
Average trading carbon price	I	
Amounts provided and mobilized in United States dollars per year in relation to the continued existing collective mobilization goal of the $100 billion commitment through to 2025	II	
Net emissions/removals of carbon dioxide by forest land	I	SEEA EA

Mitigation (1) – SEEA environmental taxes, example

Energy and Transport taxes paid by individual industries/households and by tax type

	Industries					Households	Total Economy
	Agriculture	…	Manufacturing	…	Services		
Energy taxes							
carbon taxes							
Taxes on fuel used for transport							
Other energy taxes							
Transport taxes							

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Impacts and Adaptation – overview of Unece CC core indicators

Indicator - Impacts	Tier	SEEA
Direct economic loss attributed to hydro-meteorological disasters in relation to GDP	II	
Mean temperature anomaly (compared to climate normal 1961 - 1990)	I	
Percentage of land area suffering from unusually wet or dry conditions (Standard Precipitation Index)	I	
Occurrence of extremes of temperatures and precipitation	I	
Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	I	Water
Placeholder for indicator on CC impact on biodiversity		
Carbon stock in soil	III	SEEA-EA
Proportion of land that is degraded over total land area	I	Land and SEEA-EA
Number of deaths and missing persons attributed to hydro-meteorological disasters, per 100,000 population	II	
Number of people whose destroyed dwellings were attributed to hydro-meteorological disasters	II	
Incidence of climate-related vector-borne diseases	II	
Excess mortality related to heat	III	
Direct agricultural loss attributed to hydro-meteorological disasters	II	SEEA-EA

Indicator - Adaptation	Tier	SEEA
Share of government adaptation expenditure in relation to GDP	III	T
Change in water use efficiency over time	I	Water
Share of green urban areas in the total area of cities	III	SEEA-EA
Placeholder for indicator on CC adaptation by forests		
Proportion of agricultural area under productive and sustainable agriculture	II	Land

T=Transactions

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Summing up

The implementation of SEEA CF allows to produce many internationally comparable core UNECE CC related indicators particularly as regards ‘DRIVERS’, ‘EMISSIONS’.

In a number of cases, in addition to the core indicators, the SEEA accounts also allow to calculate further details such as the breakdown by economic activity or products.

Many other indicators can be derived from the implementation of SEEA EA (not dealt with here in detail).

Statistical sources other than environmental accounts play an important role as well.

Thanks!

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