

System of Environmental Economic Accounting



System of
Environmental
Economic
Accounting

Environmental activity accounts

Environmental taxes and EGSS

Sokol Vako

United Nations Statistics Division

23-26 February 2016

Chiba, Japan

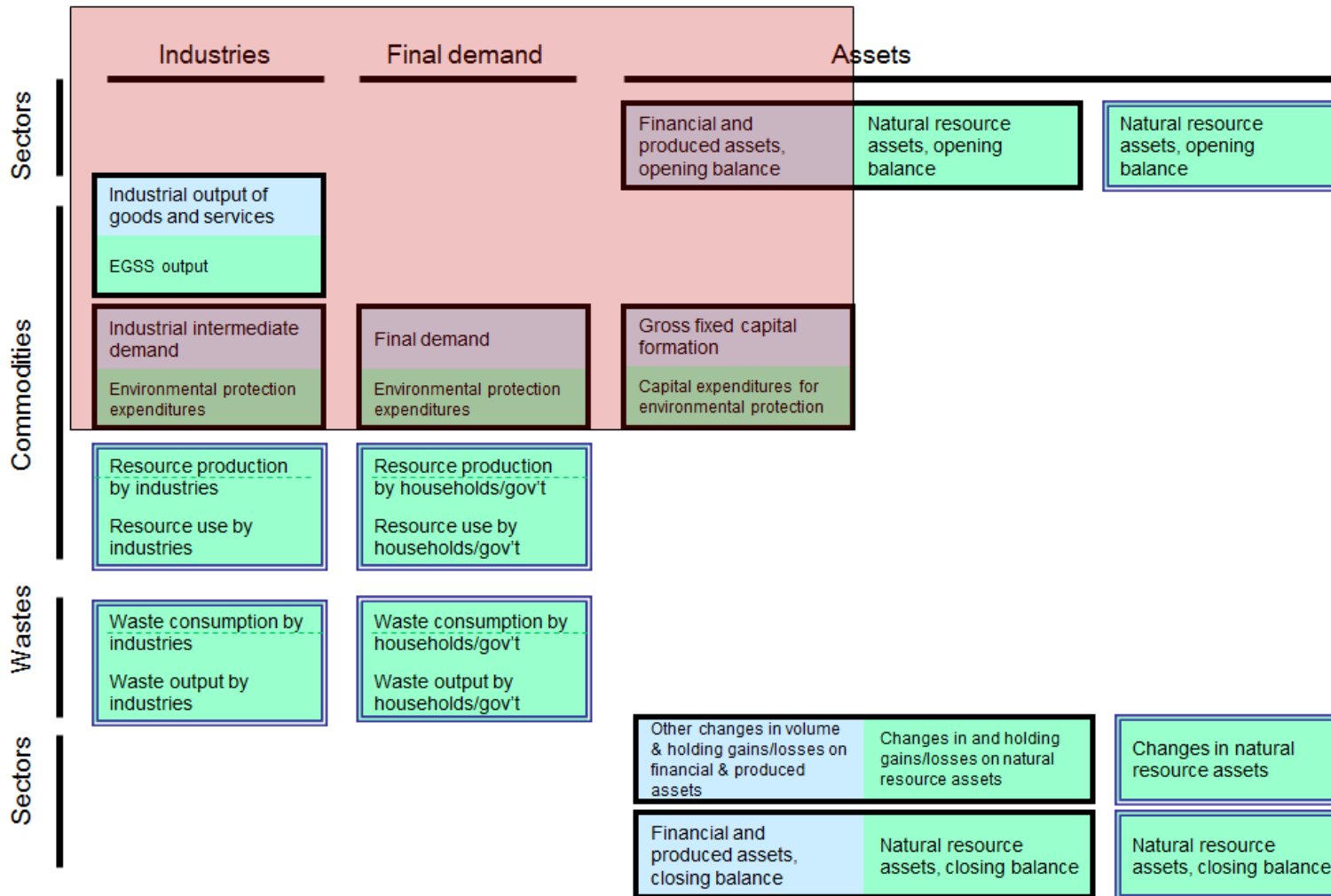


United Nations

Content

- What are environmental activity accounts?
- What are environmental taxes?
- Some thoughts on EGSS
- Exercise

Environmental activity accounts



Scope of environmental activities

- **The scope of environmental activities** *include those economic activities whose primary purpose is to reduce or eliminate pressures on the environment or to make more efficient use of natural resources.*
 - Environmental protection
 - Resource management
- **Primary purpose criterion**

Classification of environmental activities

Group	Classes
I: Environmental protection (EP)	1 Protection of ambient air and climate
	2 Wastewater management
	3 Waste management
	4 Protection and remediation of soil, groundwater and surface water
	5 Noise and vibration abatement (excluding workplace protection)
	6 Protection of biodiversity and landscapes
	7 Protection against radiation (excluding external safety)
	8 Research and development for environmental protection
	9 Other environmental protection activities
II: Resource management (RM)	10 Management of mineral and energy resources
	11 Management of timber resources
	12 Management of aquatic resources
	13 Management of other biological resources (excluding timber and aquatic resources)
	14 Management of water resources
	15 Research and development activities for resource management
	16 Other resource management activities

Which of the following activities are environmental?

- Installation of solar panels to generate electricity
- Buying equipment to measure pollution
- Buying an apartment in an area with less pollution
- Buying mercury free batteries

Environmental activity accounts in SEEA-CF

- Environmental protection expenditure accounts (EPEA)
- Environmental goods and service sector (EGSS)
- Environmental taxes
- Environmental subsidies and similar transfers
- Environmental permits

Environmental Goods and Services Sector

EGSS

- **Supply side** of environmental activities → production of environmental goods and services
- **Aim:** assessing the contribution of EGSS to the total economy and its employment potential
- **Key indicators:**

*Total production, total employment, total value added,
total exports, total gross fixed capital*

Scope

The EGSS consists of producers of all environmental goods and services → Thus, all products that are produced, designed and manufactured for purposes of environmental protection and resource management are within scope of the EGSS.

- Environmental specific services, connected products, adapted goods and environmental technologies
- 'Main purpose' criterion (technical nature of product or activity / intension of the producer)

Methodology: activity approach versus product approach

- **Product approach:** → Identify environmental goods and services in source data
- **Activity approach:** → Identify environmental activities in source data
- **Data sources:** surveys (new or already existing), statistics, SNA, external reports
- *Netherlands:*
 - → Many different environmental activities have been identified by Statistics Netherlands as EGSS activities
 - → For every activity a specific methodology has been developed in order to compile the data

Overview: activities in EGSS

- 1) Sewage and refuse disposal services (ISIC 37-39)



- 2) Recycling (ISIC 38.3)



- 3) Wholesale in waste and scrap



Overview: activities in EGSS

4) Renewable energy production



5) Production of energy saving and sustainable energy systems



6) Insulation activities

Overview: activities in EGSS

- 7) Production of environmental equipment
- 8) Environmental advise, environmental engeneering
- 9) Environmental technical Construcion
- 10) Environmental related inspection
- 11) Second hand shop
- 12) Organic agriculture
- 13) Own account activities
- 14) Government governance related to the environment
- 15) Environmental non profit organisations
- 16) Environmental education

Many different data sources.....

Activity	Main source
Sewage and refuse disposal services	National accounts, supply and use tables
Wholesale in waste and scrap	National accounts, supply and use tables
Environmental related inspection and control	Employment registers
Government governance related to the environment	Environmental Statistics, EPE statistics
Organisations and associations on the environment	Employment registers and business register
Internal environmental activities at companies	Environmental Statistics, EPE statistics
Renewable energy production	Energy Statistics, Renewable energy statistics
Energy saving and sustainable energy systems	Own constructed database and Production Statistics
Insulation activities	National accounts
Organic agriculture	Agriculture statistics, area of organic agriculture
Recycling	National accounts, supply and use tables
Second hand shops	Production Statistics
Water quantity control by waterboards	National accounts, Government accounts
Environmental advice, engineering and other services ¹	Own constructed database and Production Statistics
Industrial environmental equipment ¹	Own constructed database and Production Statistics
Environmental technical construction ¹	Own constructed database and Production Statistics
Environmental related education	Education statistics

Most important data sources

- **SNA** data → environmental services
- Own constructed data base of environmental companies plus **production statistics** (PRODCOM), international trade statistics etc.
- Government statistics
- Agricultural statistics
- Labour registers
- EPEA

Some key issues.....

- International comparison data
 - Scope
 - Methodology
 - Data sources
 - The more effort, the larger the EGSS ?
- Cleaner goods / resource efficient goods
- Integration in EPEA / ReMEA
- Dissemination of the results

Exercise on EGGS

Calculate green employment

- Employment in the EGSS is a key indicator that can be used for various policies
- Calculate based on two of tables with data and some additional information the employment in the EGSS

Table 1 : SNA data

2010	Labour input of employed persons 1 000 years of employment	Output mln euros
A-U All economic activities	6719	1025466
AAgriculture, forestry and fishing	180	24563
<i>of which</i> Agriculture	110	12290
Fishing	30	4398
Forestry	40	7875
B Mining and quarrying	7	19317
C Manufacturing	766	238809
<i>of which</i> 10-12 Manufacture of food and beverages	116	50777
17 Paper	23	5876
19 Manufacture of coke and petroleum	6	26899
20-21 Chemistry and pharmaceuticals	60	43039
26-27 Electrical and electron. Industry	59	15431
28 Manufacture of machinery n.e.c.	70	17899
29-30 Transport equipment	38	11353
D Electricity and gas supply	25	29590
E Water supply and waste management	36	11002
<i>of which</i> 36 Water supply	6	1506
37-38 Waste and wastewater management	23	7021
38.3 Recycling	7	2475
F Construction	456	65960
G-I Trade, transport, hotels, catering	1588	179064
<i>of which</i> road transport	187	26876
J Information and communication	229	50490
K Financial institutions	238	76211
L Renting, buying, selling real estate	63	53960
M-N Business services	1010	99968
O-Q Government and care	1787	156632
R-U Culture, recreation, other services	334	21703

Table 2: Production data

CPC		Production
	<i>million euro</i>	
02.20.14	Fuel wood	287
17	Paper and paper products	5286
20.14	Biofuels	498
24.5	Steel needed for building windmills	845
27.5	Energy efficient refrigerators (highest standard)	934
28.11.22	Hydraulic turbines and water wheels	285
28.11.24	Wind turbines	798
29	Electric cars	374
38.21	Treatment and disposal services of non-hazardous waste	2476
38.22	Treatment and disposal services of hazardous waste	4287
42.22.23	Construction works for power plants	1365
43.29.11	Insulation works	2412
	Rail transport	8349
74.90.13	Environmental consulting services	1639

Additional information

- 50 percent of all specialised environmental protection services relate to waste and waste water management are supplied by the government
- 15 percent of all energy produced by ISIC 35 is renewable
- 10 percent of agriculture is organic farming
- 17 percent of all paper is recycled (i.e. reused in the paper industry)
- 80 percent of all fuel wood complies with Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) standards
- In the ministry for the environment work 1000 people (fte), in the ministry for infrastructure work 1200 people (fte)

Exercise table

	Employment in EGSS
	<i>1000fte</i>
A-U All economic activities	
A Agriculture, forestry and fishing	
B Mining and quarrying	
C Manufacturing	
D Electricity and gas supply	
E Water supply and waste management	
F Construction	
G-I Trade, transport, hotels, catering	
J Information and communication	
K Financial institutions	
L Renting, buying, selling real estate	
M-N Business services	
O-Q Government and care	
R-U Culture, recreation, other services	
Total	

What are environmental taxes?

Definitions

- *Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units.*
 - > Taxes on products
 - > Other taxes on production
 - > Taxes on income
 - > Other current taxes
 - > Capital taxes

Definitions

- *An **environmental tax** is a tax whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific, negative impact on the environment*
 - > Energy taxes
 - > Transport taxes
 - > Pollution taxes
 - > Resource taxes

Environmental taxes by type of tax

Environmental taxes by type of tax

Type of environmental tax	Type of tax						Total
	Taxes on products	Other taxes on production	Taxes on income		Other current taxes	Capital taxes	
			Corporations	Households			
Energy taxes	10 800	1 500				300	12 600
Carbon taxes	4 600						4 600
Taxes on fuel used for transport	4 700						4 700
Other energy taxes	1 500	1 500				300	3 300
Transport taxes	2 600	800			1 400	100	4 900
Pollution taxes	400	500			200		1 100
Resource taxes	200	400			300		900
Total environmental taxes	14 000	3 200			1 900	400	19 500
Non-environmental taxes	79 000	15 400	23 000	74 000	5 800	1 600	198 800
Total taxes	93 000	18 600	23 000	74 000	7 700	2 000	218 300
<i>Share of environmental taxes (percentage)</i>	<i>17.7</i>	<i>20.8</i>	<i>0.0</i>	<i>0.0</i>	<i>32.8</i>	<i>25.0</i>	<i>9.8</i>

Approach

- Starting point: All government levies (national, subnational)
- I. Identification of tax base(s); environmentally-related levies
- II. Distinction between environmental taxes and environmentally related payments
- III. Allocation to environmental tax groups
- IV. Allocation to the final tax payer

- Data Sources: Tax statistics, government finance statistics, national accounts

Exercise

Exercise

- Compile the environmental taxes account for the 2 years for which data is provided
- What conclusions can be drawn from the accounts
- Discuss any indicators that can be derived from the information in the accounts
- What additional data source could be integrated with the tax data to provide additional insights



THANK YOU

seea@un.org

Acknowledgments

Based on a presentation by Sjoerd Schenau, Statistics Netherlands
and Eurostat course on Environmental Taxes



United Nations