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Item 3(b) of the provisional agenda

**Key challenges in implementing the System of Environmental-Economic Accounting**

### **Analysis of market based instruments for the environment - extensions, applications and techniques**

**Note by Statistics Sweden and the Australian Bureau of Statistics**

*Summary*

This paper describes how statistics on environmental taxes and other environmental transfers, such as subsidies, grants and social transfers in kind, can be applied and interpreted. It addresses the policy relevance of these data, data requirements and compilation issues, and discusses how to enhance the analysis to give an accurate view of the scale of environmental transfers and taxes, subsidies and capital grants. The paper provides practical examples of the related data in several countries.

## **I. Introduction**

1. Market based instruments are widely used by governments to influence social behavioural change, and taxation is a typical example of one of those market based instruments.
2. Taxes can also be used to complement regulatory measures as they generate revenue for the State. Taxes are often accompanied by tax rebates that provide the tax payer an opportunity to reduce the expense. Transfers, include social benefits which are generally income support payments and payments to families which are developed to promote behavioural change.
3. This paper describes how statistics on environmental taxes and other environmental transfers (subsidies, grants and social transfers in kind) can be applied and interpreted.

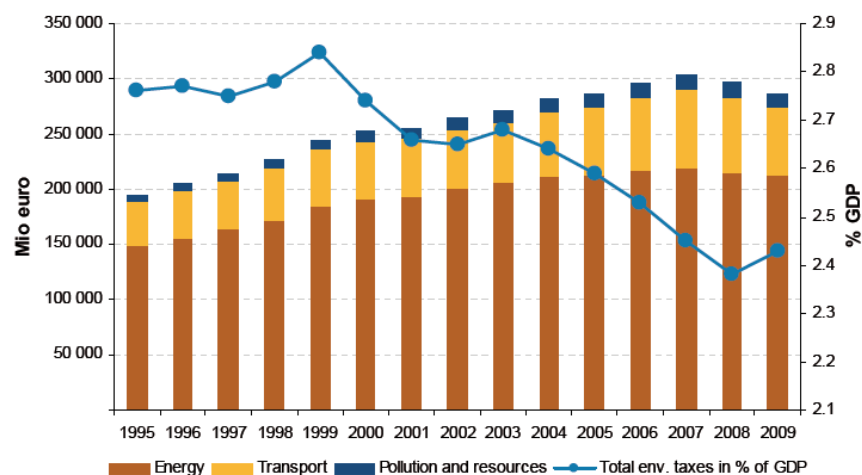
## **II. Environmental Taxes**

4. There are a range of countries around the world which have implemented environmental taxes. It is important to understand the use of the taxes, their social implications and their impact on the environment.
5. Paragraph 4.150 of the System of Environmental-Economic Accounting (SEEA) central framework 2012 defines an environmental tax as “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”.
6. This includes taxes on production and imports, capital taxes and current taxes on income and wealth. Generally environmental taxes are presented according to four broad categories: energy, transport, pollution and resources.

### **A. Application and policy relevance**

7. The most common analysis of environmental taxes undertaken is the comparison of tax revenue data as a percentage of gross domestic product (GDP) (see figure 1). This measure provides both an indicator of the tax burden and of the structure of taxation. Given that an environmental tax is levied on a physical unit, a tax-to-GDP ratio alone is not a sufficient measure of the size of the tax burden. A successful environmental tax on a commodity will generally result in a decrease in the sale of the commodity and thus in the taxation revenue. For example, if a reduction in the purchase of petrol is observed following increase in petrol taxation, the associated tax revenue will decline. Such a decline in tax revenue should then be interpreted as the result of effective policy.
8. Another indicator is the ratio of environmental tax revenue to total tax. However, a high ratio of this indicator does not necessarily mean that environmental protection is of a high priority; rather it can simply mean that the state has used this mechanism to obtain additional revenues.

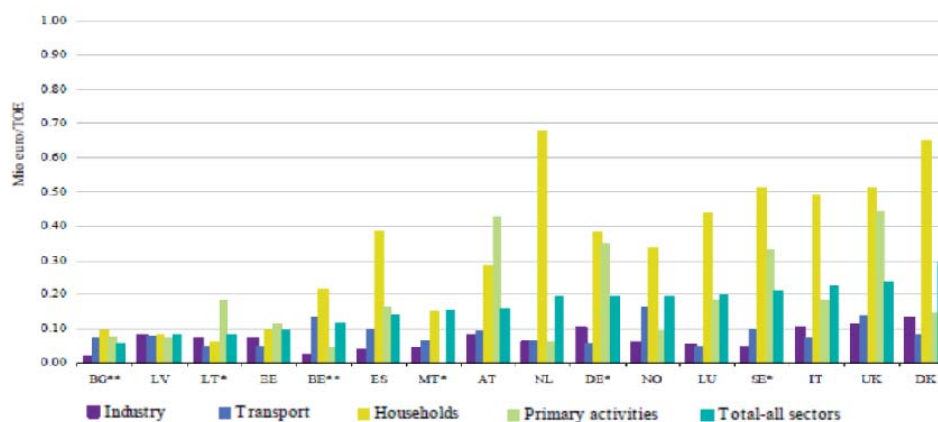
Figure 1  
**Environmental tax revenue by type, EU-27, 1995-2009 (Euros and % gross domestic product)**



Source: Eurostat Statistics in Focus 67/2011 online data code: env\_ac\_tax

9. Another way of measuring the magnitude of environmental taxes is to calculate an implicit tax rate (ITR): the effective tax rate after the impact of all relevant government impositions, including regulation. This measure is less sensitive to reductions in revenue due to more efficient use of the taxed commodity. Figure 2 shows a simplified implicit tax rate of energy taxes by sector in selected European countries

Figure 2  
**Energy taxes divided by energy consumption by sector, 2007 (million Euros divided by tonne of oil equivalent)**

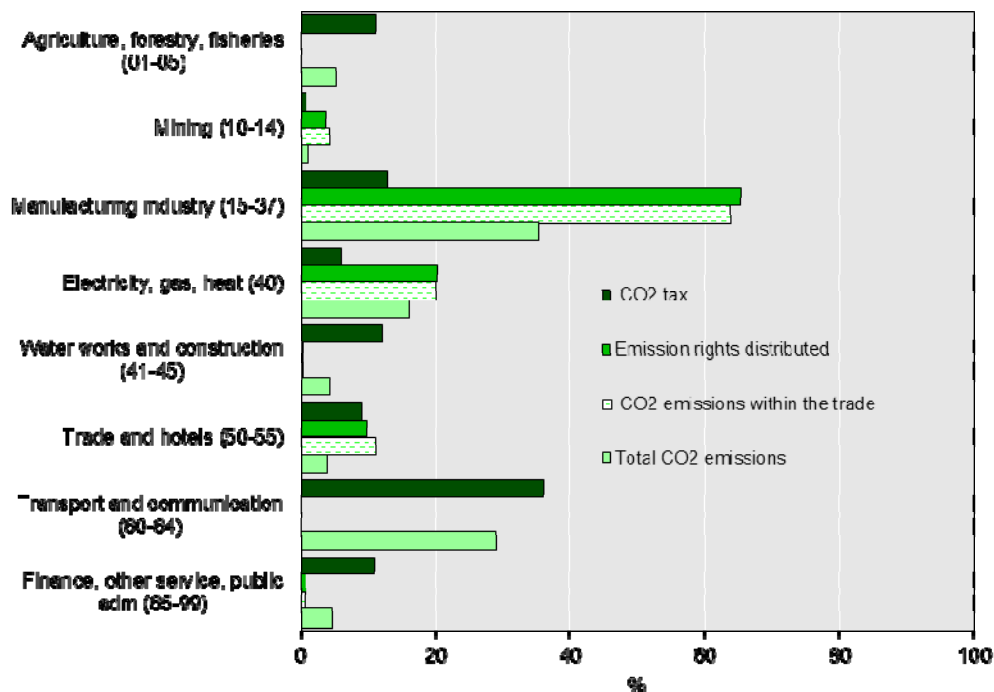


Source: Eurostat Statistics in Focus 67/2010 (online data code: env\_ac\_taxind)\*\*2005, \*2006 and nrg\_100a

10. Analysis can also be undertaken to understand the environmental impact of a tax, for example the reduction in pollution resulting from the introduction of a pollution tax. To do this the physical data which relates to the tax (e.g. emissions, waste and energy products) are required. Figure 3 presents the share of CO<sub>2</sub> taxes<sup>1</sup>, allocated emission trading permits, the CO<sub>2</sub> emissions occurring within the trading scheme<sup>2</sup> and total CO<sub>2</sub> emission in Sweden by industry in 2007. In 2007, several industries were not taking part of the emission trading scheme, e.g. Agriculture, forestry and fishery, Water works and construction as well as Transport and communication. As shown, the CO<sub>2</sub> tax revenues to the government vary depending on the economic activity. The transport and communication industry paid the highest fraction of CO<sub>2</sub> taxes in the economy (36%), while the manufacturing industry (including energy intensive activities such as steel manufacturing and pulp and paper manufacturing) paid about 13% of total CO<sub>2</sub> taxes.

Figure 3

**Distribution of CO<sub>2</sub> tax revenues, emissions rights, CO<sub>2</sub> emissions covered by the trading scheme and total CO<sub>2</sub> emissions in Sweden by Industry (Statistical classification of economic activities in the European Community), 2007**



Source: Statistics Sweden (2010)

<sup>1</sup> Sweden has a specific tax on CO<sub>2</sub> that is levied on oil, coal and coke, peat, natural gas, methane, liquefied petroleum gas and gasoline.

<sup>2</sup> European Union Emissions Trading Scheme, launched in 2005 to combat emissions related to climate change. Aviation is included since 2012. Water works and construction, maritime transport and forestry are still excluded.

## **B. Overview of steps and data requirements**

11. Data availability around the world is variable. In Europe, Regulation No 691/2011 on European Environmental Economic Accounts sets out the data collection scheme for environmental taxes by industry. The national accounts can, at times, provide suitable data at the necessary level of disaggregation; other countries may be required to use administrative data from tax authorities.

12. Constructing implicit tax rates requires additional information. It involves the identification of a measure which corresponds to the tax revenue. In the case of environmental taxes, there are often not one but many bases on which to construct the tax rate. However, for energy taxes, an appropriate indicator for the potential tax base can be identified. Final energy consumption aggregates the different sources of energy utilised into a single indicator. The data should include energy consumed in the economy (excluding the energy transformation sector and to the energy industries themselves) and by households. The various energy sources are aggregated on the basis of their net calorific value, and expressed in tonnes of oil equivalent.

## **III. Environmental related transfers**

13. Paragraph 4.138 of the SEEA central framework defines an environmental subsidy or similar transfer as "...a transfer that is intended to support activities which protect the environment or reduce the use and extraction of natural resources. It includes those transfers defined by the System of National Accounts (SNA) as subsidies, social benefits to households, investment grants and other current and capital transfers".

14. Another issue to consider with environmental related transfers is whether the size and structure of payments result in behaviour which has the potential to be environmentally damaging.

15. To understand potentially environmentally damaging transfers, several definitions and approaches have been tested. Some are shown in this paper below.

### **A. Application**

16. In Sweden, the environmental accounts have published environmental related transfers since 2000. The distinction between an environmentally beneficial and a potentially damaging transfer has been analysed and discussed among statisticians as well as users of statistics. This work has been reported in the regular publication series, in articles (OECD, 2006; Palm and Larsson, 2007) and on the various web-sites.

17. In order to reflect an accurate view of the scale of environmental transfers, all taxes, subsidies and capital grants with the primary purpose of environment protection and/or resource management should be included in assessing the effectiveness and efficiency of environment policies.

18. In order to address environmental transfers in Australia, it is necessary to expand the conceptual boundary beyond the definition given in the 2008 SNA and to address significant data gaps. Tax revenue data are usually of a high quality resulting from rigorous review. However, the reporting of subsidies is far less comprehensive and robust. Reporting is so incomplete and scattered that it is necessary to estimate subsidies, rather than to directly measure them. Estimates of subsidies are heavily dependent on statistical modelling and breakdowns of subsidies into detailed categories would not pass vigorous statistical validation.

19. Although data on implicit subsidies are not collected by the Australian Bureau of Statistics (ABS), the Treasury publishes an annual Tax Expenditure Statement (TES). This report describes various tax expenditures provided under Australian Government taxation. The report also describes the reliability of quantified tax expenditures. The TES provides firm estimates of government revenue foregone (implicit subsidies), including social welfare concessions and environmental related expenditures.

20. Some of these implicit subsidies encourage additional consumption of natural resources and are thus potentially environmentally harmful. For instance, tax concessions on aviation fuels reduce the operation costs of airlines and reduce the incentive to conserve aviation fuel. This increases consumption of aviation fuel above the level of consumption that would have occurred in the absence of tax concessions, which results in more greenhouse gas pollution. Selected implicit subsidies, some of which have the potential to be environmentally damaging in Australia are presented in Table 1.

Table 1

**Selected implicit environmentally related subsidies in Australia (2007-08-2010-11, \$m)**

	2007-08	2008-09	2009-10	2010-11
Excise concessions for 'alternative fuels'	590	580	530	550
Exemption from Crude Oil Excise - condensate	980	580	600	590
Concessional rate of excise levied on aviation gasoline and aviation turbine fuel	950	970	980	1,020
Income tax exemption for LPG conversion grants	35	50	50	25
<b>Total</b>	<b>2,555</b>	<b>2,180</b>	<b>2,160</b>	<b>2,185</b>

Source: The Australian Government, the Treasury (2012)

21. The Netherlands publish experimental statistics on environmentally motivated subsidies and transfers as well as environmentally damaging implicit subsidies (see Table 2). The "Electricity and gas supply" industry receives most environmental transfers. This is mainly due to the MEP/SDE<sup>3</sup> scheme designed to facilitate a transition towards a more sustainable energy supply. The second largest beneficiary is agriculture, forestry and fisheries. The transfers received by this industry support renewable energy production and sustainable fishing. In 2009 households received 50 million euro of environmental subsidies and transfers. These include subsidies for solar panels and diesel particulate filters. (CBS 2011, p. 165).

<sup>3</sup> MEP is a programme that resulting in being compensation paid for the unprofitable part of a wind energy production investment for 10 years. The SDE programme subsidizes the difference between the cost price and the revenue from an onshore wind project.

Table 2

**Environmentally motivated subsidies/transfers by industry and environmentally damaging implicit subsidies in the Netherlands 2005-2009, million Euro**

NACE	2005	2006	2007	2008	2009
Agriculture, forestry and fishing	152.2	205.4	221.1	294.6	246.2
Mining and quarrying	0	0	0	0	0.4
Manufacturing	0	6.6	20.5	18.9	16.3
Electricity and gas supply	467.8	532.1	337.2	458.4	526.2
Water supply and waste management	5.8	11.4	20.6	18.7	33.6
Construction	2.1	3	2.7	4.9	6.3
Wholesale and retail trade	7.1	10.7	26.7	14.5	13.3
Transportation and storage	0.7	3.3	91.6	44.8	22
Accommodation and food serving	0	0	0.1	1.7	0.2
Information and communication	0	0.3	1.7	2.2	3.2
Financial institutions	9.2	13.1	15	14.9	16
Renting, buying and selling real estate	0	0.3	0.4	1	6.2
Other specialised business services	4.3	18	36	43.8	55.6
Renting and other business support	0	13.1	30.1	11.8	9.3
Public administration and services	97.8	61.8	11.3	9.5	17.1
Education	1.2	2.3	3.7	8.2	11.7
Health and social work activities	1	1.2	1.8	1.3	2
Culture, sports and recreation	8.3	10.1	9.5	11.9	12.5
Other services activities	6.3	5.7	9.5	9	9.2
Extraterritorial organisations	0	0	0	0	0
Households	0	0.1	13.6	6.5	50.6
<b>Total</b>	<b>763.9</b>	<b>898.6</b>	<b>853.3</b>	<b>976.6</b>	<b>1,058.20</b>
Percentage of total expenditure by central government	0.58%	0.64%	0.57%	0.61%	0.61%
<i>Environmentally damaging implicit subsidies</i>					
	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Excise duties (reduction in)</b>					
Horticulture	131	149	156	169	86
Water transport	76	76	77	110	802
Air transport	127	129	131	133	922
Tariff differentiation tractors and mobile equipment	130	130	132	120	208
<b>Motor vehicle tax</b>					
Exemption vehicles > 25 years	88	92	94	102	141
<b>Total</b>	<b>421</b>	<b>427</b>	<b>434</b>	<b>465</b>	<b>2,073</b>

Source: Centraal Bureau voor de Statistiek (CBS) / Statistics Netherlands, 2011

22. In Denmark, data on environmental transfers are provided yearly in the environmental accounts. Statistics Denmark offers a time series from 1997 to 2008 on environmental transfers on their website.

Table 3

**Environmentally motivated subsidies on production (DKK million) 2000-2008**

	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Energy</b>									
1 Agriculture, fishing and quarrying	18	15	11	2	12	11	12	11	13
2 Manufacturing	239	197	184	101	57	49	51	45	57
3 Electricity, gas and water supply	4	3	3	1	4	4	4	4	5
4 Construction	2	2	2	1	2	2	2	2	2
5 Ws. and retail trade; hotels, restaurants	32	26	25	9	26	22	25	22	26
6 Transport, post and telecomm.	13	11	10	3	10	9	10	10	11
7 Finance and business activities	20	17	16	10	8	8	9	8	10
8 Public and personal services	131	108	191	69	21	19	21	18	24
9 Activity not stated	0	0	0	0	0	0	0	0	0
<b>Pollution</b>									
1 Agriculture, fishing and quarrying	617	679	584	772	764	228	265	298	258
2 Manufacturing	17	4	2	1	1	47	47	58	59
3 Electricity, gas and water supply	15	8	17	24	23	6	6	8	8
4 Construction	4	4	4	5	5	4	5	6	6
5 Ws. and retail trade; hotels, restaurants	24	23	27	34	30	45	50	63	65
6 Transport, post and telecomm.	20	16	27	28	14	55	60	73	69
7 Finance and business activities	30	30	150	127	42	249	247	293	271
8 Public and personal services	125	164	180	219	192	211	240	299	304
9 Activity not stated	0	0	0	0	0	0	0	0	0
<b>Resource</b>									
1 Agriculture, fishing and quarrying	0	1	0	1	1	0	0	1	1
2 Manufacturing	76	42	26	33	49	28	22	50	46



	2000	2001	2002	2003	2004	2005	2006	2007	2008
3 Electricity, gas and water supply	0	0	0	0	0	0	0	0	0
4 Construction	2	1	0	1	1	1	1	1	1
5 Ws. and retail trade; hotels, restaurants	0	0	0	0	0	0	0	0	0
6 Transport, post and telecomm.	0	0	0	0	0	0	0	0	0
7 Finance and business activities	0	0	0	0	0	0	0	0	0
8 Public and personal services	5	6	5	2	3	3	3	6	6
9 Activity not stated	0	0	0	0	0	0	0	0	0
<b>Transport</b>									
1 Agriculture, fishing and quarrying	9	9	8	9	10	443	543	1508	1788
2 Manufacturing	239	273	244	285	294	305	213	222	227
3 Electricity, gas and water supply	6	9	8	9	9	17	13	11	11
4 Construction	21	21	12	14	15	13	13	13	13
5 Ws. and retail trade; hotels, restaurants	175	160	139	162	168	220	173	162	161
6 Transport, post and telecomm.	2849	2199	2105	2393	2483	1800	1347	1318	1338
7 Finance and business activities	179	169	170	199	205	649	573	1218	1409
8 Public and personal services	844	885	956	1023	1066	1430	1432	1290	1326
9 Activity not stated	0	0	0	0	0	0	0	0	0

Source: <http://www.statbank.dk/mreg4t>

## B. Policy and analytical relevance

23. Environmental transfers are an important economic instrument used regularly by governments to achieve national policy objectives. They receive a great deal of attention as they change the income of households and industries with the objective of enhancing and supporting desired behaviours.

24. While governments often make transfers to encourage more environmentally desirable behaviour, they also give out subsidies and grants for other activities. Some of these other subsidies have the effect of encouraging activities that damage the environment. Energy subsidies are a clear example, in that they encourage the combustion of fossil fuels, resulting in greenhouse gas and other pollution. When examining the effect of government transfers on the environment, policy analysts and decision makers need to consider both environmentally damaging and environmentally beneficial transfers.

25. The Group of 20 (G20) leaders in 2009 agreed to phase out subsidies that “encourage wasteful consumption, reduce our energy security, impede investment in clean energy sources and undermine efforts to deal with the threat of climate change”. The Organisation for Economic Co-operation and Development (OECD) and the International Energy Agency (IEA) are contributing to the follow-up on this commitment by the G20 (see e.g. Inventory of Estimated Budgetary Support and Tax Expenditures For Fossil Fuels, 2011).

### **C. Overview of steps and data requirements**

26. Accessing data for the compilation of an account on environmentally related transfers means to investigate possible approaches applicable to specific country circumstances. Statistics Netherlands (CBS 2011) describes the following three approaches (p. 160):

(a) Cross classification of National Accounts data on subsidies, social benefits, transfers etc. to environmental purpose;

(b) An analysis of government budget lines and/or annual statements (realizations) of relevant government agencies;

(c) Micro data concerning actual payments of transfers.

27. In Sweden, the data material for state appropriations is sourced from the Swedish National Financial Management Authority (ESV) and is based on the appropriations' cash outcome, i.e. when disbursements of the appropriations have been made. Statistics on emissions and economic support by industry are calculated by the environmental accounts team at Statistics Sweden. Statistics on emissions trading and electricity certificates<sup>4</sup> have been collected from reports published by the Environmental Protection Agency and the Energy Agency. Statistics for international comparisons have been gathered from the European statistics office.

### **D. Enhancing analysis**

28. There are a number of additional analytical options for interpreting environment transfers information. Three examples are briefly explained here:

(a) Examination of the impact of environmental transfers on the structure of environmental accounts. The structure of the accounts table (table 6.2.3 in 2012 SEEA) is a useful set of measures to see the impact of changing environment taxes and subsidies on macro-economic indicators such as Net National Income and Net National Savings in a logical way. For example, there is usually keen economic policy interest in any modification to net national savings;

(b) Examination of the flow through the economy and understanding at what stage the transfer is applied. This would involve disaggregation of the tax or subsidy into where in the economic process it is applied, for example, on products, on production and imports and on income or wealth;

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<sup>4</sup> In 2003 Sweden began requiring electricity generators to purchase green certificates to promote renewable electricity production covering a proportion of their sales. The certificates are tradable on the Nordic power exchange Nordpool. To be certified green, the electricity has to come from wind power, wave power, solar energy, geothermal energy, biofuels or small hydroelectric plants.

(c) Examination of the distribution of transfers and use in analytical modelling for new or changed transfers, for example, using input-output models to assess the impact of changes to environmental transfers and the magnitude of that change on industry and households.

## IV. References

### A. Links to relevant technical advice and theory – environmental taxes

ABS (2012) *Completing the picture – environmental accounting in practise* (catalogue 4628.0.55.001)

[www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/2910B851D04B7DA2CA2579F900124AA9/\\$File/4628055001\\_may%202012.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/2910B851D04B7DA2CA2579F900124AA9/$File/4628055001_may%202012.pdf)

This report explores the relationships between economic activity and the environment, and provides information relevant to sustainability, climate change, the Murray-Darling Basin and green growth. It is based on the SEEA central framework.

The Australian Government the Treasury (2011). *Strong growth, low pollution modelling a carbon price*

[http://archive.treasury.gov.au/carbonpricemodelling/content/report/downloads/Modelling\\_Report\\_Consolidated\\_update.pdf](http://archive.treasury.gov.au/carbonpricemodelling/content/report/downloads/Modelling_Report_Consolidated_update.pdf)

The Treasury modelling has been prepared to inform policy design and public discussion about carbon pricing. Treasury modelled a range of scenarios which explore different environmental targets and design features in a carbon pricing scheme. The modelling provides important insights into the economic impacts of carbon pricing at global, national, sectoral and household levels.

CSB (2011). *Environmental accounts of the Netherlands 2010*

[www.cbs.nl/NR/rdonlyres/A3AF6855-3FF1-4344-8699-7C181A293979/0/2010c174pub.pdf](http://www.cbs.nl/NR/rdonlyres/A3AF6855-3FF1-4344-8699-7C181A293979/0/2010c174pub.pdf)

This publication presents a broad quantitative overview of important economic-environmental developments. Key indicators that can be derived from the environmental accounts provide an insight into the interrelation between the environment and the economy, and into the issues of sustainability and green growth.

European Environment Agency (2011). *Environmental tax reform in Europe: implications for income distribution*. Technical report No 16/2011

[www.eea.europa.eu/publications/environmental-tax-reform-in-europe](http://www.eea.europa.eu/publications/environmental-tax-reform-in-europe)

Although environmental tax reforms (ETR) tend to improve incomes across society, they can have mild regressive impacts in that richer households gain more than poorer ones. Care is needed to design ETRs in ways that ensure that certain groups are able to benefit equally. ETR's overall benefits for the economy, environment and society are potentially significant. ETR should therefore be regarded as a key element in the policymaking toolkit for shifting to a green economy.

European Environment Agency (2011) *Environmental tax reform in Europe: opportunities for eco-innovation*. Technical report No 17/2011

[www.eea.europa.eu/publications/environmental-tax-reform-opportunities/at\\_download/file](http://www.eea.europa.eu/publications/environmental-tax-reform-opportunities/at_download/file)

Environmental policy instruments are frequently characterised as obstacles to economic activity but environmental taxes can, in fact, be the opposite — serving as catalysts for the creativity that underpins thriving economies.

Eurostat (2001) *Environmental taxes — A statistical guide*

[http://epp.eurostat.ec.europa.eu/portal/page/portal/environmental\\_accounts/documents/2.pdf](http://epp.eurostat.ec.europa.eu/portal/page/portal/environmental_accounts/documents/2.pdf)

This publication presents guidelines for compiling statistics on environmental taxes, including definitions and concepts, data sources and estimation methods.

Eurostat Statistics in Focus 67/2010 *Distribution of environmental taxes in Europe by tax payers in 2007*

[http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-SF-10-067/EN/KS-SF-10-067-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-10-067/EN/KS-SF-10-067-EN.PDF)

This report describes the distribution of environmental tax revenues by tax payers in Europe.

Eurostat Statistics in Focus 67/2011. *In 2009, EU-27 environmental tax revenue rose to 2.4 % of GDP*

[http://epp.eurostat.ec.europa.eu/portal/page/portal/product\\_details/publication?p\\_product\\_code=KS-SF-11-067](http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-SF-11-067)

This report describes the distribution of environmental tax revenues at EU level and European Union Member States

National Bureau of Economic Research (2008). Don Fullerton, Andrew Leicester, Stephen Smith *Environmental taxes*. Working Paper 14197 July 2008 JEL No. H23,Q28

[www.nber.org/papers/w14197.pdf](http://www.nber.org/papers/w14197.pdf)

This report provides an overview of key economic issues in the use of taxation as an instrument of environmental policy in the UK. It is a good example of how arguments are explained for using taxes and other market based instruments.

OECD (2007). *The Political Economy of Environmentally Related Taxes*.

[www.oecd.org/dataoecd/26/39/38046899.pdf](http://www.oecd.org/dataoecd/26/39/38046899.pdf)

This report looks at the political economy of environmental taxes and how governments can use them in conjunction with other policy instruments to achieve their environmental objectives.

Statistics Sweden (2010). *Environmentally related taxes, subsidies and emission trading permits* [Miljörelaterade skatter, subventioner och utsläppsrätter ] MIR2010:2

This report provides an overview several market based instruments from a statistical perspective. It reports taxes, subsidies and emission trading permits over time and in comparison to one another.

## **B. Links to relevant technical advice and theory – environmentally related transfers**

The Australian Government the Treasury (2012): *Tax expenditures statement 2011*

[www.treasury.gov.au/~media/Treasury/Publications%20and%20Media/Publications/2012/Tax%20Expenditures%20Statement%202011/Downloads/Consolidated\\_TES.ashx](http://www.treasury.gov.au/~media/Treasury/Publications%20and%20Media/Publications/2012/Tax%20Expenditures%20Statement%202011/Downloads/Consolidated_TES.ashx)

The 2011 Tax Expenditures Statement (TES) provides details for 364 tax expenditures provided under Australian Government taxes. It incorporates policy decisions up to and including those reported in the Mid-Year Economic and Fiscal Outlook 2011-12.

CSB (2011): *Environmental accounts of the Netherlands 2010*

[www.cbs.nl/NR/rdonlyres/A3AF6855-3FF1-4344-8699-7C181A293979/0/2010c174pub.pdf](http://www.cbs.nl/NR/rdonlyres/A3AF6855-3FF1-4344-8699-7C181A293979/0/2010c174pub.pdf)

This publication presents a broad quantitative overview of important economic-environmental developments. Key indicators that can be derived from the environmental accounts provide an insight into the interrelation between the environment and the economy, and into the issues of sustainability and green growth.

EEA (2005). *Market based instruments for environmental policy in Europe*. EEA Technical report No 8/2005

[www.eea.europa.eu/publications/technical\\_report\\_2005\\_8](http://www.eea.europa.eu/publications/technical_report_2005_8)

This report presents an overview and assessment of the main recent developments in the use of market-based instruments in Europe.

EEA (2007). *Size, structure and distribution of transport subsidies in Europe*. EEA Technical report No 3/2007

[www.eea.europa.eu/publications/technical\\_report\\_2007\\_3](http://www.eea.europa.eu/publications/technical_report_2007_3)

This report summarises data on the size, structure and distribution of transport subsidies in Europe. It collects, structures and streamlines empirical findings from literature and expert knowledge, and puts them into context.

OECD (1998). *Improving the environment through reducing subsidies*, Part I: Summary and conclusions.

[www.oecd.org/LongAbstract/0,3425,en\\_2649\\_34281\\_2406578\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/LongAbstract/0,3425,en_2649_34281_2406578_1_1_1_1,00.html)

The report develops an analytical framework which enables policy makers to identify those support measures whose removal is most likely to lead to "win-win" benefits. It also offers recommendations to implementing reductions in environmentally-harmful subsidies -- especially those that run counter to environmental objectives that are shared by OECD Member countries -- and to overcome the often exaggerated fear of a loss in competitiveness.

OECD (2006). *Studies Subsidy Reform and Sustainable Development: Economic, Environmental and Social Aspects*

[www.oecd.org/document/1/0,3343,en\\_2649\\_37425\\_36566913\\_1\\_1\\_1\\_37425,00.html](http://www.oecd.org/document/1/0,3343,en_2649_37425_36566913_1_1_1_37425,00.html)

The report provides an overview of approaches for assessing subsidies and associated taxes, and looks at country experiences in reforming subsidies in the agriculture, fisheries, industry, and transport sectors.

Palm V and Larsson M (2007). *Economic instruments and the environmental accounts*. Ecological Economics, Volume 61, issue 4, pp 648-692

[www.sciencedirect.com/science/article/pii/S0921800906004605](http://www.sciencedirect.com/science/article/pii/S0921800906004605)

This article presents the accounts for taxes and subsidies, linked to the accounts for emissions data by industry. It demonstrates disparities between emissions and environmental taxes, as well as where industries or environmental problems are not regulated. The data show that in Sweden economic instruments are always aimed at particular actors or areas, and are never quite as comprehensive as recommended by economic theory.

SCB (2005). *Public environmental protection expenditures and subsidies in Sweden*

[www.scb.se/statistik/\\_publikationer/MI1301\\_2005A01\\_BR\\_MIFT0601.pdf](http://www.scb.se/statistik/_publikationer/MI1301_2005A01_BR_MIFT0601.pdf)

The report presents the development of a methodology of collecting data for both environmental protection expenditures (EPE) of the public sector and environmentally motivated subsidies in Sweden

SCB (2003). MIR2003:4 *Environmental subsidies - a review of subsidies in Sweden between 1993 and 2000*

[www.scb.se/statistik/MI/MI1202/2003M01/MI1202\\_2003M01\\_BR\\_MI71OP0304.pdf](http://www.scb.se/statistik/MI/MI1202/2003M01/MI1202_2003M01_BR_MI71OP0304.pdf)

This report focuses on subsidies that may support the environment, here called environmentally motivated subsidies. These are presented for the period from 1993 to 2000 on an aggregated level as well as broken down by industries and sectors.

Statistics Denmark: [www.statbank.dk/mreg4t](http://www.statbank.dk/mreg4t)

StatBank Denmark contains detailed statistical information on the Danish society.

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