(draft) position paper on issues in environmental taxes and transfers

Compiled[1] by Sven C. Kaumanns
(Federal Statistical Office Germany)

Preface[2]

(1) The System of Environmental-Economic Accounting – Central Framework (SEEA CF) must be more than just a detailed extension of the SNA. The economic guidelines from the SNA do not always adequately address environmental-economic questions. The aim of the SEEA CF is to create significant added value in reporting environmental and economic interrelationships beyond what can be achieved in the SNA. Therefore, where necessary, the SEEA CF should establish different provisions than those in the SNA.

(2) The guiding principle must be that the accounts are coherent, consistent and harmonised. Their main task is not direct communication, but rather they should form the basis from which easily interpretable and communicable results — such as indicators — can be derived through appropriate summarisation. This dualism must be taken into consideration when compiling the accounts.

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[1] A first version of a paper on these issues was compiled in 2024 by Sven Kaumanns (Statistisches Bundesamt) with the collaboration of Matthew Chambers (U.S. Bureau of Economic Analysis), Nina Hiltunen (Statistics Finland) and Mark de Haan (Statistics Netherlands) as well as Simon Schürz (Statistisches Bundesamt) and presented and discussed at the 30th meeting of the London Group in Washington DC.
This revised position paper is based on this original document, supplemented by the discussion from the Washington meeting and thereafter. It is also presented in a clearer and more concise form. The paper focuses in particular on the need to expand, supplement, explain or amend the existing SEEA CF.
Please refer to the original draft and the minutes of the 30th meeting of the London group for further information.

[2] During the meeting in DC in 2024 the group agreed that it would create additional use to allocate monetary flows to the period of the environmental impact represented by a physical flow and to the sector inducing the impact in addition. This could be done alongside the results of the accrual approach of the SNA, which allocates the flows to the period when the tax basis arises. On the topic on taxes and those transfers that should support environmentally friendly behaviour, the group noted the necessity to complete the SEEA CF with more detailed information on the time and the sectors to which the tax or transfer should to be assigned. The group concluded, that probably a more detailed and flexible classification for the taxes are required, e.g. to better reflect climate impact of fossil energy. Regarding those transfers, that could lead to environmental harmful behaviour (PEDS) the group recognized, that they could be captured by a similar definition as environmental taxes. However, some members expressed their strong concern, that the support of non-state-of-the-art technology – even if better as the current standard – could in these cases be counted as support of environmental harmful behaviour. Thus, it might be useful to calculate and present the overlap between PEDS and ESST.

(3) When defining the accounts, it is important to ensure that they are designed so that they can be analysed in a wide variety of directions. This ensures that an analysis can also be adapted to changing requirements through different combinations. Political communication requirements should not be incorporated in accounting definitions but should be met by downstream analysis of the accounts.

(4) The accounts on taxes, subsidies (environmentally beneficial as well as those that are potentially harmful to the environment) and related instruments such as tax abatements (again both environmentally beneficial as well as those that are potentially harmful to the environment) or emission certificates should be viewed as a coherent and integrated whole. Viewed individually, these accounts sometimes give an incomplete and distorted picture. Only in their entirety do they allow a comprehensive view of the state's financial environmental policy relations with the other sectors. It is therefore necessary to harmonise these accounts in detail and to focus on the fact that one of the main purposes of the accounts is to derive surefire indicators from them and that the components of the accounts should not be politically motivated indicators themselves.

(5) Beyond that, they must allow both the government sector and the other sectors to be analysed as well as ensuring interoperability with national accounts just as with physical accounts, such as e.g. material and energy flows. In addition, the taxes and subsidies accounts must be structured so flexibly that they are not exclusively orientated to current political demands but are multi-purpose and must be easily adapted to new requirements.

(6) The SEEA CF 2012 currently provides only rudimentary guidance on how taxes and subsidies should be recorded within the Environmental-Economic Accounting framework, such as how they should be broken down by sectors and at which points in time they should be recorded. This paper aims to establish more concrete principles for this purpose.

(7) The above-mentioned requirements result in the following need for the SEEA CF to adapt, concretise or complement the existing regulations on taxes, subsidies and related government instruments. This position paper is not intended to replace or compete with the Guidance Notes of the SEEA CF TC, that can and must go into much more detail. Rather, it is intended to provide directions for their preparation and to encourage further adaptations and concretisation in the SEEA CF.

Subsidies and similar transfers

General

(8) Subsidies and similar transfers[3] are defined as those payments in cash or in kind made by the government as defined in 4.138 of the SEEA CF 2012. Payments that are mandated by the government, but executed by another institution that performs budgetary tasks on behalf of the government, could also fall under this category.

(9) Subsidies and similar transfers may be categorized along three dimensions.

- as positive or negative in relation to the environment;

[3] For the sake of simplicity, unless otherwise stated, the term transfer will be used for subsidies and similar transfers in the following.

- based on their target/intention, impact or technical nature.
- granted on a product, production or be simply a transfer (social, capital or other current transfer).

(10) In principle, situations can arise in which transfers are both intended to be environmentally beneficial and, by impact or technical nature, harmful to the environment. Here, the SEEA CF should provide a possibility to adequately present this. It would be most favourable to present it as an intersection between PEDS and ESST. Since the purpose and impact can also affect different environmental areas, a detailed presentation of the affected areas is necessary here.

(11) Transfers may be either current or capital.[4] SEEA CF should separate the consideration and presentation of these two types of transfer. A capital transfer, often linked to an investment, should preferable be allocated to the period the investment is made; While a current transfer preferable should be allocated to the period for which it has been granted. This approach allows capital transfers to be meaningfully related to the investment accounts.

(12) There may also be different ways of looking at whom a transfer is attributable to. There may be cases where the sector receiving the payment is not identical to the sector from which a change in its environmental behaviour is to be assumed. This is the case, for example, if supply prices should be reduced due to the transfer payment. In case of doubt, especially if the national accounts refer to the payee in such cases, a double consideration must also be considered here if the other entity is identifiable.

(13) Even if tax abatements are not subsidies, tax abatements should basically follow the same allocation rules as ESST and PEDS.

Environmental Subsidies and similar transfers (ESST)

(14) In 4.139 – 4.144, similarly to environmental taxes in 4.150 – 4.155, the SEEA CF 2012 provides the framework for determining when a subsidy should be considered environmentally related. Accordingly, a subsidy is considered environmentally related if "*the primary intent or purpose of the government is for resources to be used for either environmental protection or resource management purposes. In principle, a decision on whether the primary purpose of a transfer is environmental should be made for each individual transfer. Then, once a decision on the primary purpose has been made, the total value of the transfer is treated as being for that primary purpose. (…) The determination of primary purpose should not be based on whether the use of the resources by the recipient of the transfer results in positive outcomes for the environment. While it is reasonable to consider that the purpose of the government in making the transfer and the purpose of the recipient are the same, it may not be the case that the expenditure of the transferred resources results in beneficial environmental outcomes, even if this was the intent.*"

(15) Accordingly, unlike the EU Commission in its guidelines[5], the SEEA CF assumes that the intention behind granting the transfer should be the only classification criterion. An assessment or assumption by statistical agencies of the impact of a subsidy is therefore not required. However, the intention is not always known or is not always specifically named.

(16) The existing SEEA CF definition should be upheld in general, despite the potential

[4] SNA 2025 9.38

[5] ESTAT environmental subsidies and similar transfers - Guidelines 2015

for inflation of this measure (sometimes called “greenwashing”). Its advantage is that it is straightforward and that, as statisticians, we can refer to the original purpose of granting a transfer without being required to evaluate its effectiveness, which would be difficult or impossible to do consistently across countries. However, if national circumstances require it, the technical nature can be used as an auxiliary parameter for the classification if it becomes clear that the corresponding technology is essentially promoted for environmental policy objectives. It can therefore be useful to use a list of products/activities that are understood to be environmentally friendly as a decision-making aid. However, if such a list is used this should also be communicated.

(17) Subsidies and similar transfers meant to support climate change mitigation should be treated as part of Environmental Subsidies and Similar Transfers and should follow the same rules. They are part of the climate change mitigation expenditures of the government.

Potential environmental damaging subsidies (PEDS)

(18) Currently, the SEEA CF 2012 does not address Potentially Environmentally Damaging Subsidies (PEDS). It is also clearly stated that “*In some cases, there is interest in the value of so-called implicit subsidies, for example, through tax exemptions or preferential tax rates. However, as there are no transactions recorded in relation to these amounts following standard national accounts principles, no estimates of the values of these flows are included in the SEEA*”[6]

(19) It is therefore clear that PEDS must generally meet the requirements for subsidies and comparable transfers. However, within these subsidies and comparable transfers, we need to identify those that should be classified as "Potentially Environmentally Damaging" based on clear delimitation criteria.

(20) For reasons of systemic consistency, it is advisable to use the definition of environmental taxes as a basis here. Accordingly, PEDS could be considered as subsidies and comparable transfers for production, use, consumption, or operation of a physical unit (or a proxy for it) of something that has a proven, specific, negative impact on the environment. This means that, like taxes, the subsidy must directly relate to a physical unit. It cannot be a general support of consumption, production or a sector.

(21) Following this definition, capping energy prices (and having the state cover the costs beyond this cap) would be considered a PEDS. However, increasing social assistance in response to higher energy prices or distributing general financial aid for this reason would not be classified as such. Support of production would also be considered PEDS if the support is directly related to a physical unit with a negative environmental impact – e.g. extraction of resources, or if it reduces the prices of products that have such a negative effect.

(22) It must also be recognised that the assessment of PEDS as supporting potential negative environmental impacts only ever relates to the respective country. However, while they may have a negative impact on environmental use in the country where they are paid/received or where a tax is not levied (especially if this country has a relatively high environmental standard), they may prevent an even greater impact on the environment in other countries. In particular for global environmental im-

[6] SEEA CF 2012 4.129

pacts—such as GHG emissions—a reduction in certain PEDS could even be counter-productive from a national environmental perspective. These could on a global level act like ESST.

Environmental Taxes

General

(23) "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."[7] While the general definition of an environmental tax appears to be comprehensive, one should add that such a tax can relate either to a direct physical environmental impact (like an emission) or to the operation of something expected to have generally negative environmental effects.

(24) The SNA 2025 stipulates in 8.88 that taxes should be recorded on an accrual basis, that is, when the activities, transactions or other events occur that create the liabilities to pay taxes. This is not necessarily the same time as when the tax authorities were notified, when a tax demand was issued, when the tax was due to be paid or when the payment was actually made. However, this transaction is also not necessarily the point in time when the event occurs that classifies an environmental tax as an environmental tax. In the case of taxes on carbon-based energy carriers, for example, the time of an economic transaction (sale) is regularly the relevant time for taxation, while the environmental impact arises from their later combustion.

(25) Similar discrepancies can occur with the entity that carries out the transaction of the tax to the state. Strictly speaking the taxable event according to SNA would e.g. be for a fuel tax - depending on national tax legislations - the point in time when the fuel is sold or put onto the market. Likewise, the unit obliged paying the tax could be different; either the buyer or the first or last seller in the chain. In business accounting, taxes on production, except invoiced VAT, are usually regarded as costs of production that may be charged against sales or other receipts when calculating profits for tax or other purposes. (Part of the) tax therefore becomes part of the price of a good[8].

(26) Thus, depending on the design of a country's tax system, the situation may arise that the timing and unit of taxation under SNA differ from the units that make use of a good and thus classify the tax as an environmental tax, or the period this good is used and it exerts its environmental impact.

(27) Depending on how the national accounts account for the tax in this case, it may therefore make sense to present an alternative accrual method in addition to the national accounts' accrual accounting method, which allocates the tax to the entity that by performing an action uses the physical unit that classifies the tax as an environmental tax (e.g. combusting the fuel); even if this unit is not performing a monetary transfer to the government. This allows both a meaningful comparison with

[7] SEEA CF 2012 4.150

[8] A good example of this is the German energy tax on fuels. The tax liability arises here when the product is first placed on the market; the person liable to pay the tax is usually the person placing the product on the market. The latter then regularly displays this tax as a price component but remains being the person liable to pay the tax (not only to collect it in the name of the government).

the tax total in the national accounts and a meaningful offsetting with the physical material and energy flows. The date and the economic branch or sectoral allocation of the respective tax should in any case be clearly published in case of doubt. Different allocations may be useful for different comparisons. The SEEA CF should be concretised and supplemented accordingly.

(28) In general, taxes can be viewed from (two) different perspectives: as government revenues or as expenditures by enterprises and private households. Currently, the SEEA CF only recognises the actual taxes paid to the domestic general government, as government tax revenues provide the relevant information. However, this is a one-sided approach. While the quota of environmental tax revenues in relation to total tax revenues can provide information on ecological tax reforms, it is becoming more and more relevant to consider the costs of using the environment at the individual or economic sector level. Currently, taxes paid by domestic units to foreign governments are not included in the SEEA CF view. An inclusion of such taxes paid by domestic units paid abroad seems desirable. However, information availability seems poor. If such an inclusion would succeed, taxes paid to foreign governments should be presented separately, as they contribute to foreign tax income and might relate to impacts on foreign environments and their environmental flows.

Classifications

(29) Four types of environment-related taxes are currently differentiated in the SEEA CF 2012. Taxes on energy, pollution, transport and resources. Taxes on CO_2 and other GHG emissions are to be classified—separately, if possible—under energy taxes[9]. This categorisation clearly falls short. It is no longer sufficient for a meaningful analysis. Furthermore, the political significance of (fossil) energy sources has been relativized. Today, they are no longer seen solely as a source of energy, but also as a source of future emissions or a reduction in existing resources, the extraction of which also has a considerable impact on the surrounding environment and biodiversity. In addition, the increasing importance of renewable resources should also be considered in the subdivision.

(30) A more detailed presentation of the taxes should therefore be provided, which also better enables different possible combinations. As early as 2001, Eurostat, the European Commission's Directorate-General for the Environment and Directorate-General for Taxation and Customs Union, the OECD and the IEA agreed on a more detailed list of bases for environmental taxes. However, even this list - which has been revised several times in the meantime - falls short, particularly with regard to the taxation of renewable energies. However, it could serve as a starting point for a more comprehensive categorisation of environmental taxes. A corresponding subdivision for the presentation of environmental taxes could then look as follows:

- Taxes related to sale, purchase or import of energy carriers
    - Carbon-based energy carriers[10]
        - Fossil carbon-based energy carrier.
        - Non-fossil or secondary material carbon-based energy carrier (e.g. biomass for energetic use, biogas, bioethanol, hydrotreated vegetable oils, etc.).

[9] SEEA CF 2012 4.155

[10] A detailed subdivision according to energy carrier or use (e.g. transport) would be conceivable here.

        - Secondary energy like electricity or produced heat/cold.
- Taxes on the operation of facilities for using carbon-based or secondary energy carriers (excluding vehicles) depending or regard-less of their actual usage (e.g. one-off operation permits, specific taxes on the output etc.).
- Transport Taxes
    - Tax related to ownership or operation of a vehicle.[11]
    - Taxes on transport services
        - Road tolls.
        - Waterway tolls.
        - Air transport duties.
        - Other.
- Taxes on use or extraction of natural resources and taxes on the operation of related equipment.
    - Taxes on extraction, direct use or harvest of geothermal, solar, wind, water energy or related equipment.[12]
    - Taxes on the extraction of fossil fuels or related equipment.
    - Taxes on the extraction of other resources or related equipment.
- Pollution taxes.
    - Taxes on Emissions to air.
        - Taxes on GHG-Emissions from energetic use[13]
        - Taxes on other GHG-Emissions.[14]
        - Taxes on other emissions to air.
    - Taxes on emissions into water.[15]
    - Other Pollution Taxes

(31) Such a subdivision would, for example, allow energy and emissions-related taxes to be combined flexibly and sensibly. This is e.g. relevant in the area of fossil fuels in particular. There is a very strong relationship between the perceived and politically enforced taxation of energy sources and the emissions addressed.

(32) In order to make the different taxation systems more comparable and to enable meaningful comparisons, e.g. with the physical emissions, the SEEA CF should therefore foresee a much more detailed classification, which also allows meaningful relationships to the CEP where possible.

Tax abatements (environmental taxes)

(33) In general, all tax abatements on environmental taxes are already netted against these. This means that the state's revenue or the tax burden of taxpayers is already

[11] A subdivision according to vehicle type could be additional.
[12] These energy sources could be own sub-categories.
[13] A detailed subdivision according to energy carrier or use (e.g. transport) would be conceivable here.
[14] A detailed subdivision according to GHG would be conceivable here.
[15] A subdivision according to the relevant substance inputs would be possible.

shown reduced by any abatement. A presentation of the tax abatements for environmental taxes is therefore of little relevance for the aggregated view, as they are implicitly already recognised as different taxation for environmental taxes. However, it can still be relevant when it comes to more detailed considerations, e.g. to evaluate general support from the state for a certain part of the economy or product. While the tax law regularly states the tax base, which is also the basis for categorisation as an environmental tax, it is not always clear what the normal tax rate is and what is a reduction. In case of doubt, it will only be possible to assume the highest taxation rate. In principle, however, the tax base specified in the law should serve as the starting point for the calculation and no conversion - e.g. with coefficients - into other units should take place. However, this also means that if different products are taxed differently, this is not a tax abatement. If, for example, a litre of petrol and a litre of diesel are named in the law as the basis and are taxed differently, then they are two different tax bases that must be considered separately. There should be no conversion and, based on this, no comparison based on energy density, emission coefficients, etc.

(34) A tax base can be taxed differently for very different reasons - environmental or otherwise. This is particularly the case if the tax base itself is already the proxy for something else. For example, the tax on fossil fuels for road transport has often been seen as a proxy for mileage and thus the utilisation of infrastructure. This problem already exists in the accounts on environmental taxes and is reflected there in the different levels of taxation in the sectors. In order to maintain the necessary coherence, this has to be ignored identically when considering the tax measures.

(35) The allocations by sector and period of tax abatements of environmental taxes should be identical to the presentation of environmental taxes. When presenting the tax abatements of the environmental taxes, it should always be stated that these have already been considered in the environmental taxes by economic activity accounts and are not to be deducted again. In addition, the comparative taxation should always be stated - i.e. what the tax abatement has been calculated against.

(36) Even though a tax abatement on an environmentally related tax may be widely perceived as potentially harmful to the environment, it can be granted with the intention of promoting environmentally friendly behaviour. One example would be a reduction in motor vehicle tax for lower-emission vehicles.

Tax abatements

Non-environmental taxes

(37) In addition to the tax abatements for dedicated environmental taxes, abatements can also be granted for other property or income taxes, transfer taxes or excise duties. Unlike the tax abatements for environmental taxes, these are not yet implicitly covered by the SEEA CF. Tax abatements can be granted with the intention of promoting environmentally friendly behaviour or/and could have potential environmentally damaging impact.

(38) Both, abatements to support environmentally friendly behaviour or that could have a negative environmental impact should not be counted as subsidies or transfers, as they are generally not based on a transaction. They should be used alongside them as a supplement and, if aggregated, should not be labelled as subsidies.

General (environmental and non- environmental taxes)

(39) Even if tax abatements are not subsidies, their presentation should generally be orientated to that of PEDS and ESST. And here, too, there will be cases that fall into both the one and the other category, so that it must also be possible to represent an intersection here.

(40) The collection of tax abatements with the intention of promoting environmentally friendly behaviour should be simple in comparison. The intention is either stated in the law or can also be concluded via technical nature, as is the case with ESST. In this respect, the identical methods for identification as for ESST should be used here.

(41) The identification of tax abatements that are potentially harmful is correspondingly more difficult. Often there is no directly measurable relationship between the tax abatement and the environmental impact and the relationship can have varying degrees of intensity. The identical standards should be applied here, as with PEDS, where the problem is identical.

(42) In general, tax abatements can occur at the time of the actual tax payment or at a later date and lead to refunds. They can be due to different tax rates and thus could be recognised directly in the tax payment. However, they can financially also subsequently come into effect - sometimes only upon request. If these refunds are based on an incorrect tax base (e.g. overestimated), they should not be treated as tax abatements under the SEEA CF.

(43) A special case is when a tax is reimbursed to an entity other than the one that paid it. Provisions must be made for this on a case-by-case basis, as this may in specific cases already also be considered a subsidy or transfer.

(44) When presenting the tax reductions, a distinction must be made between positive intention and potential impact. Double categorisation must be possible accordingly.

Emission (and similar environmental related) certificates

(45) Guidance on how to handle permits for the use of the environment as a sink — such as in Emission Trading Schemes (ETSs) — can currently be found in paragraphs 4.182 - 4.189 of the SEEA CF 2012. They are currently considered a special form of energy tax. However, this does not do justice to the complexity and increasing significance of ETSs. The classification as energy tax is questionable, since ETS could also include emissions from non-energetic uses. Finally, with international tradability schemes, government revenues and the expenditures of greenhouse gas emitters may diverge significantly at the national level. Therefore, it is necessary to examine the topic of ETS more closely.

(46) The SNA 2025 states that “An emissions permit (cap-and-trade) system is a flexible market mechanism that establishes a maximum level of pollution – a cap. Enterprises must have a permit to cover each unit of pollution they produce. Each permit stipulates the amount of greenhouse gas emissions that can be emitted (quota). Payments for such emission permits are recorded as prepaid taxes on production, with taxes recorded at the time of surrender, at issuance prices. As such, they qualify as a category of other accounts receivable/payable.”[16] But this very simple view

[16] SNA 2025 12.146

certainly falls short from an environmental-economic perspective.

(47) The cost of acquiring ETS permits — often referred to as (part of) the CO_2 price — is of significant environmental policy importance. During the discussions to update SNA it was discussed to separate ETS permits into a tax component and a securities component using a split asset approach. Although this method appears to solve many issues at first glance, it is not well suited to accounting for multinational ETSs or for permits allocated for free. To the best of our knowledge most current ETSs do not allow for the traceability of individual certificates — unlike banknotes, which have a serial number — but are instead organized more like a securities deposit system. Once sold, a certificate is no longer distinguishable from others. This makes it very difficult, as proposed in the context of the SNA reform, to determine the difference between the original purchase price on the primary market and the market value. Certificates in a depository do not show their original purchase price anymore, especially if they have already been traded multiple times.

(48) In the case of multinational certificates, the issue arises that it is nearly impossible to determine whether all nationally issued certificates have indeed been returned for compensation of emissions in one of the participating countries. From the European Emissions Trading System, we know that some member states on balance obtain around half of the necessary certificates to offset the emissions on their territory from abroad. We cannot assume that certificates in international systems are mostly used domestically or that imports and exports balance each other out.

(49) Finally, the timing of accounting prescribed by the national accounts is not ideal for environmental economic accounting and its environmental policy information requirements. For these reasons (among others), we recommend that ETS permits be accounted for in the revised SEEA CF as non-produced, non-financial assets, rather than as taxes.[17].

(50) These permits should be accounted for in physical units and valued at market price throughout their lifetimes. All equivalent permits should have the same value, regardless of how they were distributed. When the emissions occur, an expense reflecting the current market value of the corresponding permits should be recorded in the emitting entity's account at this time in accordance with the accrual principal. The financial position of the issuing government should not be affected by shifts in the secondary market for permits. ETS permits allocated for free are transfers but not necessarily PEDS. This depends on the circumstances under which they are granted.[18]

[17] Details on this proposed treatment may be found in a companion paper, *Accounting for Emission Trading Schemes in SEEA* (Chambers 2024), that has been presented and discussed at the 30th London Group Meeting.

[18] They could even be ESST if they are granted as a reward for saving emissions or incentive to environmentally friendly behaviour (e.g. free certificates for operators of electric vehicles).