

Environmental taxation – a general SEEA concept?

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Introduction

- (1) *The current revision of the SEEA Central Framework provides an opportunity not only to address specific issues that have emerged since the publication of the 2012 Framework, but also to consider whether some of the underlying concepts are sufficiently general to remain useful in the future. This is particularly relevant for **environmentally related taxes and emission trading schemes**, which are among the areas currently being considered in the update process.*
- (2) The SEEA CF, the SNA and Government Finance Statistics often describe the same underlying economic events, but from different perspectives. The SNA is concerned with the organisation and functioning of the economy, including production, transactions and institutional arrangements. Government Finance Statistics focus on government revenue, expenditure, financing and other aspects of public finances. The SEEA, in contrast, is concerned with the relationship between economic activity and the environment. These different purposes mean that the systems do not necessarily need identical definitions and classifications.
- (3) Differences in definitions should therefore not automatically be regarded as inconsistencies. They can be necessary to provide the perspective required for a particular analytical purpose. For example, the fact that a payment may be classified differently in the SNA, Government Finance Statistics and the SEEA does not in itself mean that one of the systems is wrong. Rather, the different classifications may allow users to examine the same underlying event from different perspectives.
- (4) This distinction is particularly important when considering environmentally related taxes and other policy instruments. The current SEEA CF contains specific concepts and treatments for environmental taxes and related transactions. The ongoing update has also identified a number of related issues. **Guidance Note C6** considers potentially environmentally damaging subsidies and related transfers, while **Guidance Note C7** addresses environmental tax abatements and reliefs. Other work in the update process considers emission trading and emission permits. The fact that these issues are being considered separately illustrates how new or more complex policy instruments can create questions that are not always directly answered by the existing concepts of the Framework. The Guidance Note process is therefore addressing a number of individual cases that have arisen since the 2012 CF.
- (5) Emission trading is a particularly useful example. Emission trading schemes are a relatively recent policy instrument compared with traditional environmental taxes. Their institutional and financial arrangements

can differ substantially, and their treatment also interacts with developments in the SNA. The current update work on natural resources and environmental transactions explicitly includes emission trading and emission permits among the issues being considered. **Guidance Note A9.1** focuses on natural resource accounting concepts in relation to the 2025 SNA, while the update work on environmental transactions includes emission trading and emission permits.

- (6) This raises a broader question for the revision. **The SEEA CF should remain useful for policy instruments that do not yet exist today.** It is impossible to predict which new instruments governments will introduce over the coming decades. The purpose of the revision should therefore not be limited to finding an appropriate treatment for today's taxes, subsidies or emission trading schemes. It should also be considered whether the Framework can provide a sufficiently general basis for assessing new instruments when they emerge.
- (7) This is particularly important because the SEEA CF is intended to provide a framework that can remain relevant over a long period. A framework that requires a new conceptual discussion every time a new environmental policy instrument is introduced would be difficult to maintain. The current revision therefore offers an opportunity to identify the **general principles underlying the treatment of environmentally related economic instruments**, rather than addressing each new instrument only through a separate technical solution.
- (8) This does not mean that the SEEA should adopt the definitions used in the SNA or Government Finance Statistics simply to ensure that financial or other products can be built around SEEA concepts. Such alignment may be useful where the different systems have a common purpose, but it should not determine the conceptual design of the SEEA. The starting point should remain the purpose of environmental-economic accounting and the perspective it provides.
- (9) Against this background, this paper explores whether the treatment of environmentally related taxes, emission trading and comparable policy instruments could be based on a **general SEEA approach**. The intention is not to develop a new framework or to prescribe detailed accounting rules for every individual instrument. Rather, the aim is to examine whether the current revision can clarify the underlying principles sufficiently to allow **new and currently unknown policy instruments to be assessed against the SEEA CF without requiring a new revision of the Framework each time**.
- (10) In doing so, the paper starts from a broader conceptual question that becomes visible when examining the current update issues: the SEEA CF describes relationships between the economy and the environment, but some of the underlying system boundaries and principles are not always stated as explicit, general concepts. The discussions in **Guidance Notes B1/B5 and B3**, as well as the current work on environmental transactions, provide relevant examples of where such clarification may be useful.
- (11) The following sections therefore examine whether a more general approach can be identified and made explicit as part of the current revision, using environmentally related taxes and emission trading as the main examples.

1. Different perspectives require room for different definitions

- (12) The SEEA CF, the SNA and Government Finance Statistics often describe the same underlying events, but they do so from different perspectives. This is not only a difference in presentation. It can also affect which concepts and definitions are appropriate.
- (13) The **SNA** is concerned with the economic system and the relationships between institutional units. Government Finance Statistics focus on government revenue, expenditure, financing and the financial position of government. The **SEEA** adds the environmental perspective and is concerned with the relationship between economic activity and the environment.
- (14) These different purposes do not necessarily require the same definitions. On the contrary, **different definitions may be necessary if they allow each system to answer its specific analytical questions**. This should not be regarded as an inconsistency between the systems. It is a consequence of looking at the same underlying reality from different perspectives.
- (15) This principle is already visible in the SEEA CF 2012. A good example is the definition of an environmental tax. Paragraph 4.149 starts from the SNA definition of taxes as compulsory, unrequited payments to government. Paragraph 4.150 then adds the SEEA criterion: a tax is considered environmental if its tax base is a physical unit, or a proxy for one, of something with a proven, specific negative impact on the environment. Paragraph 4.154 explicitly describes this as a SEEA-specific approach, distinguishing it from the definition of environmental taxes commonly used in economic literature.
- (16) This raises an important question for the revision. **Why should the SEEA environmental classification necessarily depend on the prior classification of a payment as a tax in the SNA?**
- (17) The existing approach is understandable from the perspective of harmonisation. It ensures that the SEEA starts from an established economic concept and then adds an environmental dimension. However, it also means that the environmental classification is partly dependent on a classification made for a different analytical purpose.
- (18) This becomes particularly relevant when considering payments that have an environmental purpose or environmental effect but do not necessarily fit neatly into the SNA concept of a tax. The issue is not whether the SNA classification is correct. It may be entirely correct for the purposes of the SNA. The question is whether that classification should automatically determine the starting point for the SEEA's environmental perspective.
- (19) The same issue arises more generally when comparing the SEEA with Government Finance Statistics. A payment may be important from the perspective of government revenue and expenditure, and its institutional or legal form may be essential for GFS. From the SEEA perspective, however, another characteristic may be more relevant: **the relationship of the payment to the environment**.
- (20) This does not mean that the SEEA should ignore SNA or GFS classifications. They remain important descriptions of the underlying economic and insti-

tutional arrangements. The point is different: **the SEEA should not necessarily have to adopt a definition simply because another statistical system uses it.** Where the SEEA has a different analytical purpose, it may require its own definition.

- (21) This distinction is particularly important for the current SEEA CF revision. The Guidance Notes on **potentially environmentally damaging subsidies and related transfers (C6)** and on **environmental tax abatements and reliefs (C7)** illustrate that the environmental perspective cannot always be addressed simply by applying existing economic classifications. The current update is therefore already dealing with cases where the relationship between existing SNA concepts and SEEA-specific environmental concepts needs to be examined.
- (22) The issue is not to create different definitions wherever possible. **The aim should be to use common definitions where the analytical purpose is the same, but to allow a different definition where the environmental perspective requires it.** This would provide consistency between the systems without making the SEEA dependent on the conceptual boundaries of another system.
- (23) This distinction also helps to put the current discussion of environmental taxes and other instruments into perspective. The question is not whether the SNA definition of a tax is appropriate within the SNA. It is. The question is **whether SNA defined “tax” is the appropriate starting point for the SEEA when the purpose is to identify the environmental relevance of a payment.**
- (24) That question becomes increasingly important when considering new policy instruments. If every new instrument first has to be fitted into an existing SNA category before it can be assessed from the SEEA perspective, the SEEA may become dependent on classifications that were developed for other purposes. A more general SEEA approach could instead allow the environmental relevance of an instrument to be assessed directly, while its SNA and GFS classification could remain unchanged.
- (25) The objective of the current revision should therefore not be to eliminate differences between the statistical systems. **It should be to make clear where common concepts are appropriate and where different perspectives require different concepts.**

2. A need for a more general principle for government-initiated instruments

- (26) The discussion above points to a more general issue. The SEEA CF contains specific concepts for environmental taxes, subsidies and transfers, but it does not appear to provide a single, general principle for dealing with **government-initiated payments and other changes in economic positions that may be relevant from an environmental perspective.**
- (27) This becomes increasingly apparent when looking at new policy instruments. An instrument may be created by government, may involve payments between different parties, may create or change rights, or may affect the financial position of an economic unit without fitting neatly into one of the categories for which the SEEA CF currently provides specific guidance.

- (28) *The consequence is that each new instrument may require a separate discussion of how it should be classified. The current work on potentially environmentally damaging subsidies and related transfers in **Guidance Note C6**, environmental tax abatements and reliefs in **Guidance Note C7**, and the work relating to emission trading illustrates this situation.*
- (29) *This raises a question for the revision: **Could the SEEA CF provide a more general principle that can be applied to government-initiated environmental instruments, instead of requiring a new conceptual solution for each individual instrument?***
- (30) *Such a principle would not replace the classifications of the SNA or Government Finance Statistics. Those classifications would continue to describe the economic and institutional arrangements from their respective perspectives. The purpose would instead be to provide the SEEA with a basis for determining whether and how an instrument is relevant from an environmental perspective.*
- (31) *This could make the Framework more robust when new policy instruments emerge. It would also reduce the need to resolve every new instrument through a separate conceptual debate or, potentially, through another revision of the Framework.*

3. What makes a tax an environmental tax from the SEEA perspective?

- (32) *The existing definition of environmental taxes provides a useful starting point for this discussion.*
- (33) *The SEEA CF 2012 first refers to the SNA concept of a tax. Paragraph 4.149 describes taxes as compulsory, unrequited payments to government. Paragraph 4.150 then introduces the additional SEEA criterion: the tax base must be a physical unit, or a proxy for one, of something that has a proven, specific negative impact on the environment.*
- (34) *This approach has an important consequence. The environmental character of a payment is determined **not by the use of the revenue or by the stated purpose of the government**, but by the relationship between the tax base and the environmental impact. Paragraph 4.152 explains this principle further.*
- (35) *For the revision, however, it may be worth reconsidering whether the first step – establishing that a payment is a tax according to the SNA – needs to be a necessary condition for its classification as an environmental tax in the SEEA.*
- (36) *The question is not whether the SNA tax definition is appropriate. It is appropriate for the SNA. The question is whether the SEEA needs to make the **economic form of the payment** the first condition for applying its environmental criterion.*
- (37) *A possible alternative would be to start from the environmental relationship itself and then determine the relevant economic consequence. Under such an approach, the key question would be whether a compulsory government-initiated charge or comparable economic intervention is related*

to a physical activity, resource or environmental impact covered by the SEEA, rather than whether the payment has first been classified as a tax under the SNA.

- (38) This would preserve the SNA classification for SNA purposes while allowing the SEEA to apply its environmental perspective independently.

4. Does an environmental tax necessarily correspond to a specific cash flow?

- (39) A further question follows from this approach. A tax is normally understood as a payment, and the SNA definition referred to in SEEA CF 2012, paragraph 4.149, is expressed in terms of payments to government. However, from the SEEA perspective, it may be useful to distinguish between the **economic instrument or obligation** and the particular cash flow through which it is settled.
- (40) An environmental policy instrument may change the economic position of an enterprise or household without the environmental relevance being fully captured by a single, identifiable payment at the same point in time. The relevant economic effect may instead arise through the creation, cancellation or change in a financial or other economic position.
- (41) This raises a further question for the revision: **Should the SEEA concept of an environmental tax necessarily be tied to a specific monetary flow, or should it be possible to identify the environmental tax at the level of the underlying economic obligation or intervention?**
- (42) This question is relevant because otherwise the SEEA classification could depend on the particular institutional or financial arrangement used to implement an environmental policy. Two instruments with the same environmental purpose and effect could potentially receive different SEEA treatment simply because the associated economic positions are structured differently.
- (43) The issue therefore deserves consideration as part of the revision, particularly in the context of emission trading and other instruments where the environmental intervention, the rights created by government and the resulting economic flows may not correspond to a simple tax payment.

5. When should an environmental tax be recorded?

- (44) A further issue concerns the time at which an environmental tax should be recorded in the SEEA.
- (45) The SNA follows an accrual principle. Under the 2025 SNA, taxes and other compulsory transfers are recorded when the activity, transaction or other event occurs that creates the government's claim to the tax (SNA 2025, para. 4.202). The timing is therefore linked to the economic and legal event that creates the tax liability. This is appropriate for the SNA, as it reflects the relationship between government and the taxpayer.

- (46) *For the SEEA, however, a different timing principle may be more appropriate. The environmental relevance of a tax is based on the relationship between the tax base and an environmental impact (SEEA CF 2012, paras. 4.150–4.152). It would therefore seem logical to consider recording the environmental tax at the time when the relevant environmental impact or intervention takes place.*
- (47) *This can lead to different points in time. For example, an energy tax may become legally due when an energy product is placed on the market, while the environmental impact associated with its use occurs later, when the fuel is combusted. The SNA recording therefore follows the creation of the tax liability, whereas the SEEA could consider the environmental event as the relevant point of reference.*
- (48) *The current SEEA CF does not provide a general rule for this distinction. As part of the revision, it could therefore be considered whether an environmental accrual principle should be introduced: the environmental tax would be recorded in the period in which the relevant environmental impact occurs, rather than necessarily in the period in which the legal tax liability arises.*

6. To which economic unit should an environmental tax be attributed?

- (49) *A related issue concerns the economic unit to which an environmental tax should be attributed.*
- (50) *Under the SNA approach, the tax is attributed to the institutional unit that is liable for the tax. The SEEA CF 2012 follows this approach in paragraph 4.149 by defining taxes as payments made by institutional units to government units. However, the unit legally liable for a tax is not necessarily the unit whose activity directly causes the environmental impact.*
- (51) *For the SEEA, it could therefore be considered whether the environmental tax should instead be attributed to the economic unit whose activity directly causes the relevant environmental impact.*
- (52) *For example, an energy tax may legally arise when an energy product is placed on the market and may therefore be attributed, from the SNA perspective, to the unit liable for the tax at that point. The environmental impact, however, occurs when the energy is used or combusted. From the SEEA perspective, the tax could therefore be attributed to the unit whose activity causes that environmental impact, irrespective of how the legal tax liability is organised.*
- (53) *This would establish a direct link between the environmental impact and the economic activity causing it. It would also mean that the SEEA attribution does not necessarily follow the legal allocation of the tax within the economy.*
- (54) *The current SEEA CF does not appear to provide such a general attribution principle. The revision could therefore consider whether an explicit principle should be introduced, under which environmental taxes are attributed to the economic unit whose activity directly causes the relevant environmental impact, while the legal tax liability remains recorded according to the SNA rules.*

7. Looking beyond the legal and institutional form of an instrument

- (55) *The existing SEEA CF already provides some indications that the legal form or designation of an instrument should not be the only consideration. Paragraph 4.148, for example, notes that taxes may be labelled in different ways and that the underlying basis of the payment therefore needs to be considered. Paragraph 4.149 then defines taxes by reference to compulsory, unrequited payments to government, including payments in cash or in kind. For environmental taxes, however, paragraph 4.150 explicitly starts from payments that are regarded as taxes in the SNA and then applies the SEEA criterion concerning their environmental relevance.*
- (56) *This creates a distinction that may be worth making more explicit in the revision. The **SNA classification of an economic transaction** and the **environmental relevance of an instrument** are not necessarily the same question. Whether an instrument is classified as a tax, a transaction in an asset, a service, or another type of economic transaction is important for describing the economic relationships between institutional units. For the SEEA, however, the relevant question may be whether and how the instrument is connected to an environmental impact or intervention.*
- (57) *The current treatment of emission trading illustrates this point particularly well. For tradable emission permits, the SEEA CF explicitly follows the SNA decisions on the appropriate accounting treatment (para. 4.185). At the same time, the SEEA CF specifies that the taxes associated with permits are recorded in relation to the emissions, with the tax for a permit surrendered in respect of emissions in period t accrued in relation to those emissions (para. 4.186), and classifies these payments as environmental taxes (para. 4.187).*
- (58) *Thus, the treatment of an emission trading scheme already combines two perspectives: the economic and institutional treatment of the rights follows the SNA, while the environmental relevance and timing of the associated tax are linked to the emissions. This suggests that the revision could consider whether these two perspectives should be **more clearly separated conceptually**.*
- (59) *The question would therefore not be whether the SNA treatment of the underlying economic transactions is appropriate. Rather, it is whether the **environmental classification of an instrument should depend on its particular legal or institutional form within the economy**.*
- (60) *This question is also relevant to the ongoing work on natural resources. **Guidance Note A9.1** identifies economic ownership and depletion as one of the issues arising from the 2025 SNA update and explicitly notes the need to consider the implications for the SEEA CF. The Guidance Note also distinguishes the natural-resource accounting issues from the SNA's economic ownership concepts and identifies emission trading as a separate issue to be considered in the update.*
- (61) *This does not imply that ownership rights or institutional arrangements are irrelevant to the SEEA. They are necessary for describing the economic transactions and positions recorded in the accounts. The question is more specific: **should those arrangements determine the environmental perspective, or should the environmental relevance of an instrument be capable of***

being identified independently of its particular institutional design?

- (62) From this perspective, different instruments could potentially be treated according to a common environmental principle even where their legal and economic implementation differs. A government could, for example, use a tax, a levy, a charge, the allocation or sale of a right, or another economic instrument to address an environmental pressure. The SNA may need to distinguish these arrangements. For the SEEA, the fact that the same environmental objective is implemented through different institutional arrangements should not necessarily lead to different conclusions about the instrument's environmental relevance.

The instrument should not necessarily be equated with the monetary flow

- (63) This also raises a related question concerning the relationship between an environmental instrument and a particular monetary transaction.
- (64) The existing CF defines taxes as payments to government, including payments in cash or in kind (para. 4.149). It therefore provides a clear accounting basis for recording the associated economic transaction. However, this does not necessarily mean that the **environmental relevance of the instrument itself** has to be identified with one particular monetary flow.
- (65) The current discussion of tax abatements and reliefs illustrates the issue. **Guidance Note C7** notes that tax abatements and tax reliefs are not covered in the SEEA CF 2012 and describes them as largely implicit transactions that are not described in either the SNA or the SEEA. The purpose of the Guidance Note is specifically to consider how environmentally related tax abatements and reliefs could be incorporated into the SEEA CF.
- (66) This suggests that the revision should distinguish more clearly between **the environmental policy instrument, the economic positions or obligations created by that instrument, and the monetary transactions through which those arrangements may be implemented or settled**.
- (67) Such a distinction would make the SEEA less dependent on the particular financial or institutional design chosen for an environmental policy. The relevant question would then be whether an instrument has an environmental relationship that should be represented in the SEEA, rather than whether that relationship can first be mapped onto one specific type of SNA transaction.
- (68) This would not replace the SNA classification of the underlying economic transactions. It would provide an additional SEEA perspective alongside it.

8. A general SEEA approach

8.1 Need for a general principle

- (69) The considerations above point to the need for a **general SEEA principle** for identifying and measuring environmentally related policy instruments. Such a principle should not depend on the legal form of an instrument, on the institutional arrangements chosen within the economy, or on whether the instrument happens to fit an existing SNA category.
- (70) The starting point should be the relationship between the **environment and**

the economy.

8.2 The environmental relationship is the starting point

- (71) *The primary criterion should be the existence of a physical flow across the environment–economy boundary.*
- (72) *Where a natural input moves from the environment into the economy, or a residual moves from the economy into the environment, the environmental relevance of the associated economic activity and of any policy instrument should be determined by reference to this physical relationship.*
- (73) *This is the perspective that distinguishes the SEEA from an accounting system concerned primarily with relationships between institutional units within the economy. The current SEEA CF already places physical flows at the centre of its description of the relationship between the environment and the economy. At the same time, the current update process has identified the need to clarify the environment–economy boundary. Guidance Note B3 explicitly identifies this boundary as central to the determination of physical flows and discusses the limitations of relying on the SNA production boundary for this purpose.*
- (74) *For the revised SEEA, the physical relationship with the environment should therefore be established before considering how the corresponding rights, obligations or transactions are organised within the economy.*

8.3 Environmental assets are determined by their physical relationship to the environment

- (75) *This principle also has consequences for the treatment of environmental assets: For the purpose of deciding whether a resource belongs to the environmental side of the SEEA, the relevant criterion should be its **physical location and relationship to the environment**. As long as a natural resource remains in situ in the environment, it belongs to the environment for SEEA purposes.*
- (76) *The fact that an economic unit has acquired ownership, an extraction right, a concession, a licence or another economic right relating to the resource does not, by itself, move the resource from the environment into the economy.*
- (77) *The economic rights established within the economy may become relevant for the **monetary valuation of the resulting economic position**. They should not, however, determine whether the underlying resource is part of the environment in the first place.*
- (78) *This distinction is particularly relevant in the current revision. **Guidance Note A9.1** identifies economic ownership and depletion of natural resources as issues requiring consideration in the light of the 2025 SNA. The revision therefore provides an opportunity to make explicit that the environmental and economic perspectives can have different entry points.*

8.4 Environmentally related taxation should be defined from the SEEA perspective

- (79) *The same principle should apply to taxation: The SEEA should not leave the general concept of **environmentally related taxation** conceptually dependent on whether the SNA classifies a particular payment as a tax. The SNA*

itself is not a legal-tax classification: it applies its own statistical definition. There is therefore no reason why the SEEA should surrender the conceptual definition of environmentally related taxation to the SNA.

- (80) The relevant SEEA question is whether a taxation instrument is connected to an environmental impact.
- (81) The existing SEEA CF provides an important starting point here. Under paragraph 4.150, an environmental tax is identified by reference to a tax base that is a physical unit, or a proxy for one, of something that has a **proven, specific and negative impact on the environment**. Paragraphs 4.152–4.154 make clear that the environmental character of the tax is not determined by its purpose, policy intention or the use of the revenue.
- (82) That principle should be retained and strengthened: **environmentally related taxation is based on the demonstrated environmental impact of the tax base, not on the intention behind the tax**.
- (83) At the same time, the broader SEEA concept should not be restricted to payments that satisfy the existing SNA definition of a tax. An environmentally related compulsory payment may be directed to government, but it may also be directed to another designated economic unit. The identity of the recipient should therefore not determine whether an instrument is environmentally relevant.
- (84) The term “**environmentally related taxation**” can consequently serve as the broader SEEA concept, while the narrower term “**environmental tax**” can retain the specific criterion established in the current CF.

8.5 The monetary value should reflect the change in the economic position

- (85) Once the environmental relationship has been established, the next question is its **monetary expression**.
- (86) The relevant monetary amount should reflect the economic consequence of the environmental intervention, in particular the change in the relevant economic asset or liability position.
- (87) This means that the monetary amount should not necessarily be identified with the amount that an economic unit has paid, or will have to pay, as a consequence of the instrument.
- (88) This distinction is essential where an environmental policy instrument creates or affects rights that can be traded or otherwise acquire a market value. The economic value relevant to the SEEA may arise from a **change in the economic position of the affected unit**, independently of the particular payment through which the policy instrument was implemented.
- (89) The environmental event therefore comes first: **the monetary consequence is derived from the change in the economic position resulting from that environmental event**.

8.6 Timing and attribution should follow the environmental event

- (90) This principle also provides the basis for determining **when and to whom** the monetary effect should be attributed.

- (91) *The relevant point in time should be the point at which the **environmental impact or intervention occurs**.*
- (92) *The relevant economic unit should be the unit whose activity **directly causes that environmental impact or intervention**.*
- (93) *This is different from simply assigning the amount to the unit that is legally liable for a payment, or recording it when a contractual payment is made. The legal obligation may arise at another point in time and may involve another economic unit.*
- (94) *The SEEA should therefore establish an environmental accrual principle under which the monetary consequence is recorded when the relevant environmental event occurs and is attributed to the economic unit whose activity causes that event.*
- (95) *This would provide a consistent rule for instruments whose legal and financial arrangements differ substantially from the underlying environmental relationship.*

8.7 The physical-flow criterion should remain primary

- (96) *The physical-flow criterion should remain the **primary basis** for this approach. A complementary criterion is needed only where no physical flow across the environment–economy boundary occurs because the instrument **prevents, avoids or maintains an environmental condition**.*
- (97) *For example, an instrument may prevent an environmental pressure that would otherwise result from economic activity or may maintain an environmental condition by restricting an activity. In such cases, the absence of an actual physical flow does not mean that there is no environmental relationship.*
- (98) *But this secondary criterion must not become a general **environmental-purpose test**. An instrument is not environmentally relevant merely because its stated purpose is environmental. There must be a demonstrable relationship to an environmental impact, environmental condition or prevented environmental change.*

8.8 The resulting principle

- (99) *The proposed approach can therefore be expressed in a simple sequence:*
First, identify the physical relationship between the economic activity and the environment.
Second, determine whether the activity causes a physical flow across the environment–economy boundary.
Third, where no physical flow occurs because an environmental change is prevented, avoided or maintained, identify the demonstrable environmental change or condition concerned.
Fourth, identify the economic unit whose activity directly causes the environmental impact or intervention and the point in time at which it occurs.
Finally, determine the monetary consequence from the resulting change in the economic position of that unit.
- (100) *Under this approach, the legal form of the instrument, the identity of the recipient of a compulsory payment, the ownership structure of rights within*

*the economy and the timing of contractual payments are **not the starting point for determining environmental relevance.***

- (101) *They are consequences or characteristics of the economic implementation of the instrument. The SEEA instead starts with the environmental relationship and then determines its economic and monetary expression.*

9. Testing the approach: Emission Trading Schemes

- (102) *Emission Trading Schemes (ETS) provide a useful test of the proposed approach because they combine a clearly identifiable environmental impact with complex economic arrangements concerning emission allowances.*
- (103) *The current SEEA CF already recognises the specific difficulties of emission trading. Paragraph 4.183 distinguishes different cases depending on whether emission permits constitute economic assets. For tradable permits under a cap-and-trade scheme, paragraph 4.185 refers to the SNA treatment. Paragraph 4.186 provides that payments associated with emission permits are recorded as taxes on production when the emissions occur, while paragraph 4.187 classifies these payments as environmental taxes. The current CF therefore already links the timing of the environmental tax to the emission rather than simply to the payment for the permit.*
- (104) *The proposed approach takes the **emission itself as the starting point**. The economic arrangements surrounding the allowance do not change the environmental event.*

9.1 The emission determines the timing and the relevant value

- (105) *When an enterprise emits one tonne of CO₂, one unit of the limited emission capacity represented by the ETS is consumed. The environmental event therefore occurs at the time of the emission, irrespective of whether the corresponding allowance was purchased previously, received free of charge, or will only be acquired subsequently.*
- (106) *The monetary amount should likewise be determined at that point in time. It should reflect the **current economic value of the emission capacity consumed**, as indicated by the current market price of the relevant allowance.*
- (107) *For example, if an allowance is worth €80 when the emission occurs, the SEEA amount associated with the emission is €80:*
whether the allowance was previously purchased for €20;
whether it was received free of charge;
whether it was purchased previously for €120; or
whether it is purchased only after the emission for €95.
- (108) *The historical acquisition price and the subsequent settlement price describe separate economic events. They do not determine the monetary value of the environmental event.*

9.2 The change in the economic position

- (109) *The emission therefore results, at the time of emission, in a reduction in the economic position of the emitting enterprise corresponding to the current value of the emission capacity consumed.*

- (110) *Where an allowance is already held, this corresponds to the consumption of an asset. Where the allowance still has to be acquired, the emission nevertheless creates the relevant economic consequence; the subsequent acquisition is the settlement of that consequence rather than the event that determines its environmental value.*
- (111) *Free allocation does not alter this principle. An allowance received without payment may nevertheless have a market value. If its value is €80 when the enterprise emits one tonne, the environmental amount is €80.*

9.3 Attribution

- (112) *The environmental effect should be attributed to the **economic unit whose activity directly causes the emission**. It should therefore not depend on who originally acquired or received the allowance, or on which unit subsequently makes the payment required to settle the obligation.*
- (113) *This follows directly from the general approach: the environmental event determines the timing, the activity causing the event determines the attribution, and the change in the economic position provides the basis for the monetary measurement.*

9.4 Result of the test

- (114) *The ETS example shows that the proposed approach can distinguish between:*
- *the environmental event — the emission;*
 - *the environmental capacity consumed — the corresponding emission allowance;*
 - *the resulting change in the economic position; and*
 - *the financial transactions used to acquire or settle the allowance.*
- (115) *The first three determine the SEEA environmental measurement. The fourth describes how the resulting economic position is implemented within the economy.*
- (116) *This treatment works in the same way for purchased, freely allocated, previously held and subsequently acquired allowances. It therefore does not require a separate conceptual rule for each ETS arrangement.*
- (117) *The ETS test consequently supports the general principle: the environmental effect is determined by the environmental event and its economic consequence, not by the particular financial transaction through which the policy instrument is implemented.*

10. Implications for the SEEA CF revision

- (118) *The discussion above suggests that the revision of the SEEA CF does not require a separate conceptual solution for each environmental taxation instrument or comparable monetary policy instrument. Instead, the Framework should establish a **general SEEA approach** that can be applied consistently to existing and future instruments.*
- (119) *For the purposes of this discussion, environmental policy instruments are understood in a functional sense as instruments that impose a **compulsory***

economic burden in connection with an environmental impact or environmental resource. This includes environmental taxation and comparable compulsory monetary instruments, such as emission trading schemes. Purely regulatory requirements that prescribe technical or behavioural measures without imposing such a monetary obligation are outside the scope of this discussion.

- (120) The proposed approach starts from the **environmental relationship**, rather than from the legal or institutional form of the instrument. The primary criterion is a physical flow across the environment–economy boundary. Where no physical flow occurs because an environmental change is prevented, avoided or maintained, a complementary criterion may be required, provided that the environmental relationship is demonstrable and is not based merely on the stated purpose or intention of the instrument.
- (121) The environmental relationship should also not be reduced to a single category of “environmental tax” or to a single environmental objective. An instrument may affect several environmental resources, environmental pressures or environmental conditions at the same time, and these effects may differ in direction or intensity. The relevant environmental relationships should therefore be identified separately.
- (122) The environmental perspective should furthermore be independent of the allocation of rights within the economy. A natural resource remains part of the environment as long as it remains in situ, irrespective of ownership, extraction rights or other economic rights. Such rights become relevant for determining the resulting economic position and its monetary value, but not for deciding whether the underlying resource belongs to the environmental side of the SEEA.
- (123) For environmentally related taxation, the existing SEEA criterion should be retained within this broader approach. In particular, the environmental relevance of a tax should continue to be based on a **proven, specific and negative environmental impact of its tax base**, rather than on the purpose or intention of the tax. At the same time, the broader SEEA concept should not depend on the legal or institutional form of the payment or on whether the recipient is government.
- (124) Once the environmental relationship has been identified, the **timing and attribution** should follow the environmental event. The relevant economic unit is the unit whose activity directly causes the environmental impact. The monetary amount should reflect the resulting change in the economic position at that point in time, rather than simply the amount paid or payable under the particular instrument.
- (125) The ETS test illustrates how this approach can be applied even where the underlying economic arrangements are complex. The environmental event remains the emission; the relevant monetary amount is the current value of the emission capacity consumed at the time of the emission. Whether the allowance was purchased, freely allocated, previously held or acquired subsequently does not change the value of the environmental event.

A necessary foundation: a clear environment–economy boundary

- (126) A prerequisite for applying this approach consistently is a clear and sufficiently general definition of the environment–economy boundary.

- (127) *The boundary determines whether a physical resource, material or residual is still part of the environment or has crossed into the economy. It should therefore be defined independently of the allocation of economic rights within the economy. The fact that an economic unit holds a right relating to a resource should not, by itself, determine whether that resource has crossed the boundary.*
- (128) *This issue is particularly important in the context of the current update work. Guidance Note B3 identifies the environment–economy boundary as a central issue for determining physical flows and discusses the limitations of relying on the SNA production boundary for this purpose. The revision should therefore use the opportunity to make this boundary an explicit and coherent element of the SEEA CF rather than leaving it implicit across individual accounting rules.*
- (129) *A clear boundary would also provide the basis for applying the proposed approach to future environmental taxation and comparable monetary instruments. Once it is clear what constitutes the environmental side of the SEEA, new instruments can be assessed against the same principles without requiring a new conceptual solution each time a new policy mechanism is introduced.*

11. Conclusion

- (130) *The proposed change is not intended to create a new framework alongside the SEEA CF. It is intended to **make explicit and operational a perspective that is already inherent in the SEEA**: the description of the relationship between the environment and the economy.*
- (131) *The revision should establish a general principle: **Identify the environmental relationship first; determine the relevant environmental event and its timing; attribute it to the economic activity directly causing the environmental impact; and derive its monetary expression from the resulting change in the economic position. The legal and institutional form of the instrument is considered subsequently.***
- (132) *Applied to environmental taxation and comparable monetary instruments, this principle would provide a consistent basis for dealing with existing instruments such as environmental taxes and ETS, while also allowing future instruments to be assessed without requiring a new conceptual treatment for each individual case.*
- (133) *The **clear definition of the environment–economy boundary is a necessary prerequisite** for this approach. It establishes the physical basis from which environmental relevance can be determined and prevents the allocation of economic rights within the economy from inadvertently determining what belongs to the environmental side of the SEEA.*
- (134) *The proposed approach would thus provide the revised SEEA CF with a **general and future-proof basis for the treatment of environmentally related taxation and comparable monetary policy instruments**, while preserving the distinct perspective of the SEEA on the relationship between the economy and the environment.*

12. Annex: Proposed text for the revised SEEA CF

- (135) *The following text provides a concrete drafting proposal for incorporation into a revised SEEA Central Framework. It builds on concepts that are already established in the current SEEA CF, in particular the physical relationship between the environment and the economy, the definition of environmental assets, and the existing criterion for identifying environmental taxes.*
- (136) *The proposal is intended to **replace and consolidate the relevant existing provisions on environmental taxation and comparable monetary instruments**. In particular, the current general provisions on environmental taxes in Chapter IV would need to be revised and substantially shortened where their content is superseded by the general principles proposed below. The specific provisions on emission permits and emission trading schemes would likewise need to be replaced or amended to the extent that they rely on the current SNA-based treatment set out in paragraphs 4.183–4.187.*
- (137) *The proposal does **not** seek to replace the existing SEEA concepts concerning physical flows or environmental assets. Rather, it makes these concepts more explicit as the basis for the treatment of environmentally related monetary instruments. In particular, the existing SEEA distinction between the environment and the economy and the definition of environmental assets provide the foundation for the proposed approach.*
- (138) *At the same time, the proposal introduces a different conceptual starting point for environmentally related taxation and comparable monetary instruments. The classification of an instrument as a tax or other payment in the SNA is not taken as the prerequisite for determining its environmental relevance. The SNA definitions and classifications remain applicable within the SNA; the SEEA applies its own concepts where necessary to describe the relationship between economic activity and the environment.*
- (139) *The proposal therefore represents a **targeted revision of the existing SEEA CF**, rather than an additional interpretative layer. Its incorporation would require consequential amendments to the relevant provisions of Chapter IV and to the current provisions on emission permits and emission trading, while the underlying SEEA framework for physical flows and environmental assets would remain in place.*
- (140) *The text below is intended as **draft replacement text for those provisions**.*

General principles

- (141) *Environmentally related taxation and comparable compulsory monetary instruments are identified from the perspective of the relationship between the economy and the environment. Their classification in the SEEA does not depend on their legal form, institutional arrangement or classification in other statistical systems.*
- (142) *For the purposes of the SEEA, **environmentally related taxation** is identified independently of whether the corresponding payment is classified as a tax in the national accounts. Comparable environmentally related monetary instruments include, for example, emission trading schemes and other compulsory monetary arrangements that are directly linked to an environmental impact or the use of an environmental resource.*

- (143) The environmental relevance of an instrument is determined by its **relationship with the environment**, rather than by its stated policy purpose or intention. The primary criterion is a physical flow across the environment–economy boundary. Where an instrument is directly associated with a physical flow from the environment to the economy or from the economy to the environment, the relevant environmental relationship is identified by reference to that flow.
- (144) Where no physical flow occurs because an environmental impact is prevented, avoided or otherwise maintained, an instrument may nevertheless have an environmental relationship. In such cases, the relevant environmental relationship shall be identified by reference to the demonstrable environmental impact or environmental condition concerned. The stated purpose or intention of the instrument, on its own, is not sufficient to establish environmental relevance.
- (145) An environmentally related monetary instrument may be associated with several environmental resources, environmental pressures or environmental conditions. The relevant environmental relationships shall therefore be identified separately. An instrument is not required to have a single environmental objective or to belong to a single environmental category.

Environmental taxation

- (146) For the purposes of the SEEA, **environmentally related taxation** is taxation associated with a tax base that is a physical unit, or a proxy for a physical unit, of something that has a **proven, specific and negative impact on the environment**.
- (147) The environmental character of taxation is determined by the environmental impact associated with the tax base and **not by the purpose or intention of the taxation**.
- (148) The legal designation of a payment as a tax, levy, fee or charge does not, by itself, determine its environmental classification in the SEEA. Similarly, the classification of the payment in the national accounts does not, by itself, determine whether it constitutes environmentally related taxation in the SEEA.
- (149) This approach does not replace the definition of taxes used in the national accounts. The SNA definition applies within the SNA. The SEEA applies the concept of environmentally related taxation for the purpose of describing the relationship between economic activity and the environment.
- (150) **Timing and attribution**
- (151) The environmental effect of environmentally related taxation and comparable monetary instruments shall be recorded at the time at which the relevant **environmental event** occurs.
- (152) Where the instrument is associated with a physical flow, the relevant time is the time at which the physical flow crosses the environment–economy boundary.
- (153) The environmental effect shall be attributed to the economic unit whose activity **directly causes the environmental impact or intervention**. Attribution shall therefore not depend solely on the unit that is legally liable for

a payment, holds the relevant economic right, or subsequently makes or receives the corresponding payment.

Monetary measurement

- (154) The monetary amount associated with an environmentally related monetary instrument shall reflect the **economic value associated with the environmental event at the time at which that event occurs.***
- (155) The amount paid or payable under the instrument does not necessarily constitute the monetary measure of the environmental event. In particular, the historical acquisition cost or subsequent settlement amount of a related economic right does not determine the value of the environmental event itself.*
- (156) Where an environmental event results in the consumption or loss of an economic asset or another identifiable economic value, the corresponding change in the economic position of the affected economic unit shall be taken into account in determining the monetary amount.*

Emission trading schemes

- (157) Emission trading schemes provide a specific application of these principles. Under a cap-and-trade scheme, the relevant environmental event is the **emission**. At the time of the emission, the corresponding emission capacity is consumed. The monetary amount associated with the environmental event shall therefore be measured by the **current economic value of the emission capacity consumed at the time of the emission.***
- (158) Where a market price is available, the current market price of the corresponding emission allowance shall be used. This treatment applies irrespective of whether the corresponding allowance was purchased previously, received free of charge, held by the emitting unit for another reason, or acquired after the emission.*
- (159) For example, where an allowance has a market value of 80 monetary units at the time of an emission, the environmental event is measured at 80 monetary units, irrespective of whether the allowance was previously acquired for 20 monetary units, received free of charge, acquired for 120 monetary units, or subsequently purchased for a different amount.*
- (160) The acquisition, holding, sale and subsequent settlement of emission allowances are separate economic events. They do not change the monetary value attributed to the environmental event that occurred at the time of the emission.*

Environment–economy boundary

- (161) The application of these principles requires a clearly defined and consistently applied environment–economy boundary.*
- (162) For the identification of environmental flows and environmental events, the boundary is determined by the physical relationship between the environment and the economy. The allocation of ownership, extraction rights,*

licences or other economic rights between economic units does not, by itself, determine whether a natural resource belongs to the environmental side of the SEEA.

- (163) *A natural resource that remains in situ in the environment remains on the environmental side of the SEEA, irrespective of the economic rights established over that resource. Such rights may be relevant for the recording and valuation of the resulting economic position, but do not, by themselves, determine the physical boundary between the environment and the economy.*