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**Environmental tax issues**

**Chapter 4: From Design to Administration: Practical Application of a Carbon Tax –  
Carbon Taxation Handbook**

**Note by the Secretariat**

*Summary*

The Chapter 4, **From Design to Administration: Practical Application of a Carbon Tax**, of the Handbook on Carbon Taxation, is presented to the Committee FOR DISCUSSION at its 20<sup>th</sup> Session.

The note is in line with the Chapter 3 on the Design of a carbon which explores different policy aspects of designing and putting into legislation a carbon tax. This chapter describes different procedures and steps necessary to implement a carbon tax.

Based on the two most used approaches in carbon tax policy, namely the Fuel Approach and the Carbon Emission Approach, the chapter reviews common aspects for the administration of a carbon tax and details specific actions to each approach. It describes a broad range of actions such as coordination among different government entities or different levels of government within the same country or at regional level, interactions with existing laws, as well as information collection for monitoring and evaluation.

The note may need more country practical cases for illustration purposes. However, the Subcommittee intends to have a stand-alone chapter devoted to country practices.

## Chapter 4 From Design to Administration: Practical Application of a Carbon Tax

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## 1. Check list for carbon tax administration

1.

- Which are the necessary organizations (e.g. ministries, agencies, private sector, and civil society representatives) to consider in the administration of a carbon tax scheme? Which relations (e.g. inter-administrative cooperation or public consultations) are beneficial?
- Which are the core elements for good administration considering the legislative previous delimitation (of taxable event, the taxpayers, the tax base and rate, the filing obligations, etc.)?
- What should be the extent of detailed administrative regulations?
- How to facilitate ex-post evaluation?

## 2. Introduction

### 2.1 Viewpoint and structure

2. This chapter is focused on real-world execution and critical administrative considerations once the basic design selections concerning a carbon tax have been made<sup>1</sup>. It discusses the regulatory choices that make the determinations about how the tax will function (facilitating the stakeholders' involvement), as well as the administrators' role in executing them (in concert with orientating taxpayers' behaviour).

3. The administrative aspects are reviewed here in detail: who needs to do what, or how to make the system operate smoothly. In fact, while some core design features need to be part of the initial tax design, other decisions regarding the design of administrative provisions are likely to be made later once the carbon tax scheme is in operation (from its introduction to its evaluation) and may involve diverse institutional levels.

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<sup>1</sup> Fundamental design features are covered in previous chapters, primarily 3A. For the sake of clarity, due to the possible readers' different backgrounds, the chapter avoids technical wording. This chapter aims to address how to execute the basic design choices during the regulatory process, considering implementation (in a narrow sense: put the carbon tax into practice) and on-going administration. There is an "administrative" facet to design issues distinct from fundamental choices, and here this focus is highlighted. Implementation, in its widest sense, would cover the organizations involved and their interactions to better apply the carbon tax, the concrete design of administrative matters through more detailed regulations, and finally the application and control of this tax to promote justice, efficacy and efficiency.

4. Basically these are the essential questions:

(1) How does the institutional or procedural allocation of tasks affect the administrative design process?

(2) What specific administrative challenges are associated with the main approaches to carbon taxation (on fuel or direct emissions)? How can these be managed?

(3) What needs to be done to convert the tax from the foundational governing legislation into an operational instrument? In what ways do the steps with regard to carbon taxes differ from those occurring when handling other kinds of taxes that jurisdictions may be more familiar with (such as, already applicable fuel levies)?

(4) How is the carbon tax monitored over the course of time to allow *ex post* evaluation?

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5. The next sections in this Chapter have been structured to provide answers to these questions.

## 2.2 Main issues in tax administration

6. Establishing a functional administration of a carbon tax is a key issue for policymakers, as it is necessary to ensure that the carbon tax legislation is effective and serves as an operational instrument to reach its goals<sup>3</sup>.

7. It is worth stressing that the fundamental approach to the administration of a carbon tax – like any other kind of tax – is to guarantee that the tax revenue is collected in line with the provisions laid down in the applicable legislation. From the revenue perspective, it is imperative to ensure that the systems put in place to collect this tax are well-functioning, thus helping in parallel to adequately meet its environmental objective. This task is usually given to **tax authorities**, which means that they need to be aware of the specific challenges and expectations when administering a carbon tax.

8. The administration of a carbon tax is mainly affected by this choice: to tax direct **emissions** by measuring them, or to tax **fuels** by using its average carbon content. The differences

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<sup>2</sup> While ex-post evaluations of a carbon tax's effectiveness are not exclusively linked to pure administrative issues, we will consider them due to its significance in a more general policy perspective.

<sup>3</sup> The choices of taxpayer and time of tax payment are aspects we have already dealt with in chapter 3A.

between both approaches will be highlighted in the following pages<sup>4</sup>. Other approaches are possible, such as including an element of carbon dioxide emissions in motor vehicle taxation adopted by many countries across the globe, for example in Africa<sup>5</sup> and in the EU. Such other approaches via other kinds of taxes are, however, outside the scope of this handbook<sup>6</sup>.

9. The major elements of how to administer a carbon tax should be laid down by legislation (i.e. most jurisdictions use an act –law or statute– passed by a national parliament or similar body). However, the decision-making levels competent to regulate more detailed matters for its administration may vary among jurisdictions. **Secondary legal acts** –regulations– are often used to facilitate day-to-day management, once the legislation establishing a carbon tax has been enacted. When setting these rules, attention should be paid to the provision of a basis to obtain the necessary information for continuous improvement of the carbon tax design.

10. To overcome challenges in the administration of a carbon tax, it is important to think of how to use **existing tools** to ensure low administrative costs and generate possible co-benefits. The priorities in the administrative cycle can be reviewed to **recalibrate** or improve them in light of the problems found and the responses given during the implementation phase.

11. In summary, whether a carbon tax is effective in terms of the environmental objectives depends on the legal design of the tax and its administrative application as well. Its effectiveness can be evaluated by ex-post analysis, if the proper data have been captured along the process.

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<sup>4</sup> Rodrigo Pizarro has provided the information about the Chilean carbon tax. Susanne Åkerfeldt and Karl-Anders Stigzelius (Swedish Ministry of Finance) have provided the information about the Swedish carbon tax.

<sup>5</sup> Some countries, particularly in Africa, have adopted a different approach to carbon tax with motor vehicle taxation. Namibia, for example, imposes a carbon emission tax on the carbon emissions of certain vehicles, including passenger vehicles, sport utility vehicles and double cab vehicles with gross vehicle mass of less than 5 tonnes. Another example is the carbon tax in Malawi on registered motor vehicles in the country. The tax ranges between K4000 to K15500 (USD 272 to USD 1052), depending on the engine capacity of the vehicles. Similarly, Zimbabwe has also put in place, through its Income Tax Act, a carbon tax on motor vehicles. Customs and Excise Act 20 of 1998 (Namibia), s 58A, 58B; PWC, ‘Namibia Tax Reference and Rate Card’ (2019) <<https://www.pwc.com/na/en/assets/pdf/namibia-tax-reference-and-rate-card-2019.pdf>>; Edgar Brandt, ‘Namibia: Carbon Tax to Generate Less Revenue Than Expected - SSS’ (AllAfrica, 18 July 2016) <<https://allafrica.com/stories/201607181217.html>> accessed 6 February 2020. Ministry of Finance Economic Planning and Development (Republic of Malawi), ‘2019 - 2020 Budget Statement’. Income Tax Act Chapter 23:06 (Zimbabwe), s 36E, sch 28.

<sup>6</sup> This handbook specifically, as outlined in chapters 2 and 3A deals with carbon taxes via the Direct Emissions Approach or the Fuel Approach. Here we follow the criteria expressed in section 5.1 in Chapter 3A.

*Take-away message: MAIN TOPICS TO ADDRESS*

ALLOCATION OF TASKS → WHO SHOULD CARE?
NEW CHALLENGES → WHAT APPROACH?
OPERATIONAL ASPECTS → HOW TO OFFER GUIDANCE?
CONTINUOUS IMPROVEMENT → WHICH TOOLS?

### 3. Topics to address in the administration of a carbon tax

#### 3.1 Institutions and their responsibilities

##### 3.1.1 Involvement of the administrative agents

12. Policymakers should, at an early stage, decide which public agency will administer the carbon tax and subsequently allocate public funds to it in order to cover the administrative costs (e.g. enough human resources or adequate technologies). This choice will often depend on the way the tax is designed and how tax administration in general is handled within the jurisdiction. The tax authorities usually handle the carbon tax and look for other stakeholders' involvement, both during the administrative design process and once the tax is in place.

13. A carbon tax based on the **Fuel Approach** can be implemented through the existing administrative structure of taxes on fuels. This approach is relatively simple, and there are few new purely administrative issues. The main difference lies in the way the tax rate is calculated before it is included in the tax legislation. Since each fuel has a different carbon content, to estimate emissions correctly, the legislator would need to ensure that the relevant emission factors are available and taken into account when laying down the tax rate in the tax law for each fuel<sup>7</sup>. This is likely to involve cooperation with other relevant Government agencies or authorities.

14. Though tax administration may be organised in a distinct manner in different jurisdictions (tax authorities may be an independent body or part of the Ministry of Finance), the most

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<sup>7</sup> See description in chapter 3A.

common strategy for a carbon tax, under the Fuel Approach, is to assign the administration to the tax authorities (either local tax offices or one central tax authority). Another quite common way of administration is to have taxes administered by the Customs Offices. This choice may be of particular interest if a country's fuel mix consists principally of imported fuels.

15. If the carbon tax follows the **Direct Emissions Approach** the best choice for an administrative body is still likely to be the tax authority<sup>8</sup>. However, it will need to rely on emission data submitted from a technical agency, since it does not have the expertise to monitor or assess pollution data. In many cases the environmental authorities are already in charge of gathering relevant data and have developed reporting and monitoring systems. These data can be used for the calculation of the carbon tax, for example, a Pollution Release and Transfer Registry (PRTR). For example, in Chile the environmental agency used the PRTR system to register facilities and monitor emissions related data.

16. As with the tax authority, the technical agency may be independent or part of another Government office (such as the Ministry of the Environment). On the one hand, this agency must ensure that the measurement of the emissions level is accurate, secure, and verified. Trustworthiness is vital because emissions are tax liable under this scheme. On the other hand, making use in the tax design of information initially collected for the purpose of environmental reporting in accordance with the Intergovernmental Panel on Climate Change (IPCC) regulations could also result eventually in strengthening the mechanisms nationally introduced to fulfil these international obligations.

17. Therefore, devising a sound administrative strategy may require **cooperation** among different agencies and ministries within Government offices and at other lower levels of jurisdiction. This includes gathering the necessary information for making decisions on how to better administer the tax. A basic aspect to keep always in mind, regardless of the design approach chosen (i.e. emissions or fuel), is to what extent existing organizational structures can be used, as this can be a way of keeping administration costs low.

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<sup>8</sup> The administrative issues may differ from the drafting. Depending on national conditions, a jurisdiction may leave the Ministry of Finance in charge of drafting the carbon tax law and its officials would thus need to seek environmental technical assistance. Alternatively, a jurisdiction can ask the Ministry of the Environment to take the lead in the drafting, as the environmental knowledge is fundamental for the design of the carbon tax, and its officials should seek technical assistance in tax matters.

*Take-away message:* EXPLOIT YOUR (COMBINED) ADMINISTRATIVE POTENTIAL

To what extent can you use the existing tax or environmental structures (e.g. to collect fuel taxes or report emissions) to minimize the administrative costs of a carbon tax? What type of cooperation between them could be beneficial?

### 3.1.2 Administration in a regional context

18. The regional context is also a factor to account for when devising administration of the carbon tax to work smoothly<sup>9</sup> on daily basis. On the one hand, administering a carbon tax may present specific challenges in jurisdictions with fiscal federalism, as in case of Spain and Canada where carbon taxes are applied at the sub-national levels; on the other hand, another type of administrative challenges may occur when national carbon taxes are applied in the context of a broader regional area, for instance in the European Union within the EU wide framework of taxation of energy products.

19. Each jurisdiction implementing a carbon tax must respect its own constitutional law, though the policymaker may be inspired by other carbon taxes introduced in adjoining geographical areas (sub-national jurisdictions or neighbouring countries). This makes it easier for operators engaged in activities in more than one area to establish the necessary administrative routines. Special attention should be paid to **enhanced administrative cooperation** in case of cross-border situations (e.g. a big installation located in two jurisdictions, or the risk of double taxation when one jurisdiction takes fuels into account in different time and location conditions).

20. In a **sub-national** jurisdiction, policymakers may need to pay some attention to special situations. Several Spanish Autonomous Communities have adopted taxes on polluting emissions and address them with different administrative details, which complicates compliance<sup>10</sup>. In Canada, the Federal Government has required the Canadian provinces to

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<sup>9</sup> The regional context (different provinces or other sub-national levels within one country, or even neighbouring countries) may influence decisions on the level of the carbon tax rate or measures to alleviate undesired distributional or competitive effects. These aspects have been dealt with in Chapter 3C.

<sup>10</sup> Galicia, Andalucía, Aragón, Castilla-La Mancha, Comunidad Valenciana and Cataluña. The Committee of Experts for the Regional Finance proposed the establishment of a permanent normative Commission where previous communication could take place between tax administrations in cases of new projects regarding



introduce a carbon price of some sort (carbon tax or emissions trading scheme) with a minimum rate determined at the federal level. Having several carbon taxes levied in the same country with too many divergent ways when designing and applying them, may cause inefficiencies and an undesirable burden for the taxpayers. Some sort of administrative channel should be implemented to ensure fluent communication among different tax authorities and avoid problems in implementation.

21. At an international level, a **regional group** of countries may agree on legally binding rules to establish a common framework to administer certain taxes. For example, the EU countries introducing national carbon taxes have done so within the framework of the Energy Taxation Directive (Council Directive 2003/96/EC<sup>11</sup>). Although no specific provisions refer to carbon taxes, this Directive covers all indirect taxes (except value added tax) calculated directly or indirectly on the quantity of energy fuel products. The EU law lays down provisions for the administration of those indirect taxes and allows the movements of goods under a tax suspension regime between tax warehouses within the EU. Any national carbon tax applied in an EU Member State is thus subject to the constraints of this Directive. However, a regional approach could lead to a scaling problem where the system was not well designed or implemented, because it would adversely affect a whole region, and not just one country<sup>12</sup>. So greater attention should be paid to it.

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environmental taxes to be introduced in the system (ADAME MARTÍNEZ, F.: “Los tributos ambientales en España” (Environmental taxes in Spain), Chapter 23, in Cubero Truyo, A. ; Masbernat, P. (dirs.): Protección del medio ambiente. Fiscalidad y otras medidas del derecho al desarrollo, Thomson Reuters Aranzadi, Cizur Menor, 2019, pp. 322-327, 354-355). Andalusia’s Act 18/2003, 29 of December. Aragon’s Act 13/2005, 30 of December (Legislative Decree 1/2007, 18 September). Castile’s Act 16/2005, 29 of December, Catalonia’s Act 12/2014, 10 of October. *See* Secretaría General de Financiación Autonómica y Local, Subdirección General de Relaciones Tributarias con las Comunidades Autónomas: Tributación Autonómica. Medidas 2019, Capítulo III Impuestos propios, Updated 17 June 2019. Available at <http://www.hacienda.gob.es/Documentacion/Publico/PortalVarios/FinanciacionTerritorial/Autonomica/Cap%3%ADtulo%20III%20Tributación%20Autonómica%202019.pdf>

<sup>11</sup> Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0028>.

<sup>12</sup> The functioning of any other market-based instrument regarded when introducing the carbon tax should be monitored to adjust its administration accordingly. This could happen with an emissions trading scheme. For example, Friends of the Earth (Europe) pointed out in 2010 that failure of the EU ETS was leaving Europe failing to meet its share of the climate challenge. By 2010, twenty-one member states were seeking 2012 emission caps higher than 2005 emissions when the EU ETS was launched. It has also been pointed out that the EU ETS has been characterized by policy uncertainty. Friends of the Earth Europe, ‘The EU Emissions Trading System: Failing to Deliver’ (October 2010). Andrei Marcu and others, ‘2018 State of the EU ETS Report’ (2018).

22. **Legislative coordination** among competent jurisdictions to enact a carbon tax is desirable, when regulating its administration issues in a regional context (within or outside the State). It allows a subsequent coherent and easier application of any carbon taxes that would affect the taxpayers. If a tax is levied on fuels, a cooperative administrative system needs to be established to avoid certain risks: fuels could be taxed twice if one jurisdiction lays down the taxable event upon production, and another jurisdiction upon consumption of the same fuel. Technically this may not be considered double taxation legally, but the economic effects might be unfair. Cooperation between tax administrations is needed to check the actual application of the tax and avoid fraud. This situation could not solely occur between different regions in one country, but could also arise between neighbouring countries. Moreover, a jurisdiction could introduce rules stating that a carbon tax on fuels paid in country X will not be reimbursed if the fuel is exported to country Y, as a carbon tax is supposed to incentivize a change of behaviour of consumers in country X and that is not achieved if the fuel in question is exported to another country. However, where the taxpayer is the owner or operator of stationary facilities emitting the taxed pollutant substance, it seems unlikely that specific regulations are needed in neighbouring jurisdictions to avoid this particular problem.

23. Finally, special administrative design challenges may appear with the attempt to give **local** governments an increased revenue stream, and to facilitate public acceptance by a higher visibility of the revenue use for local projects. Such discussions are currently emerging in African countries. In Indonesia, local district and province governments are playing a greater role in administering their areas, but no carbon tax has yet to be introduced, either at national or sub-national level.

*Take-away message:* CONSIDER THE INWARD AND OUTWARD SITUATIONS

<p>In the context of fiscal federalism multi-level decisions on the design and the administration of a carbon tax may influence its efficacy. The administrative channels for fluent communication should be carefully established. The risks of (un) coordinated action in regional groupings or with neighbouring countries need to be assessed.</p>
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### 3.1.3 Stakeholders and public engagement: administration issues

24. To achieve expected benefits through carbon taxation, **expanded cooperation** with the private sector may also be beneficial, seeking for public-private collaboration in line with Sustainable Development Goal 17 in different moments. This section contemplates how the administration can manage the integration of the stakeholders' views (so relevant for public acceptance); and simultaneously stresses the importance of making their participation focus on the administrative issues that might be otherwise underestimated by them (although are key to better achieve carbon taxation objectives).

#### 3.1.3.1 Administering consultations prior to enactment

25. As a starting point, the organizational structure already in use for consultations (e.g. by the tax revenue service or other bodies of the Government) may allow to work more efficiently with stakeholders and to promote positive behavioural changes. The issue of whether stakeholders are involved in the process of drafting a tax varies across jurisdictions.

26. A **consultation** process prior to introducing a new tax or major changes of an existing tax may not be only a way for the policymakers to obtain relevant information to facilitate its future administration, but also a way of getting a wider public acceptance for the new measures. Such an approach is also in line with the principle of openness in providing public information, which prevails in many jurisdictions. Public acceptance is important, and lack of it could lead to failure of the tax.

In France, for example, the inability to communicate the social benefits of the tax led to a loss of public support over time, contributing to the downfall of the tax. Efforts to increase the tax were shelved after protests over rising fuel prices<sup>13</sup>. In Australia, the tax received backlash from the public and the opposition, and in 2014, the

<sup>13</sup> Alexis Rocamora, 'The Rise of Carbon Taxation in France: From Environmental Protection to Low-Carbon Transition' (May 2017) <[https://www.iges.or.jp/en/publication\\_documents/pub/workingpaper/en/5983/The\\_Rise\\_of\\_Carbon\\_Taxation\\_in\\_France\\_Rocamora\\_May\\_2017.pdf](https://www.iges.or.jp/en/publication_documents/pub/workingpaper/en/5983/The_Rise_of_Carbon_Taxation_in_France_Rocamora_May_2017.pdf)>.

Liberal-National coalition 'axed the tax'<sup>14</sup>. Recently in Malawi, citizens have reacted negatively to the introduction of carbon tax, accusing the Government of taxing the same products twice<sup>15</sup>.

27. When conducting a public consultation on the introduction of a carbon tax, it would be advisable for policymakers to engage a broader group of **stakeholders** as compared to other kinds of taxes, where the aim is solely to raise revenues. The stakeholders consulted could be a wide range of bodies, such as potential agencies given the task of administering this tax, the tax authorities and other relevant agencies, business organizations, trade and consumer organizations representing their members who are likely to face the burden of the tax, as well as environmental and technical experts, and national researchers. They could be consulted to supply data relevant for the tax design and tax administration. The necessary information to design the legislation and adopt regulations properly can also be gathered by direct contacts with stakeholders.

28. For example, Sweden and France are countries where the introduction of a carbon tax was the result of proposals from committees of inquiry, which included various experts and business representatives. The tax proposals were sent out for public consultation, enabling more stakeholders to express their views<sup>16</sup>. In many jurisdictions, it is customary to make the draft proposals available for public consultation. Prior to the carbon tax introduction, the South African Ministry of Finance revised its proposal, after a first round of consultations, and sent it out for a second review by stakeholders. This process proved to be instrumental for social acceptance of the tax after several years of deliberations.

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<sup>14</sup> 'Repealing the Carbon Tax' (Australian Government, Department of Agriculture, Water and the Environment) <<https://www.environment.gov.au/climate-change/government/repealing-carbon-tax>> accessed 20 February 2020; Padraig Collins, 'How Not to Introduce a Carbon Tax: The Australian Experience' (2019) <<https://www.irishtimes.com/news/environment/how-not-to-introduce-a-carbon-tax-the-australian-experience-1.3746214>> accessed 20 February 2020.

<sup>15</sup> Yohane Symon, 'MRA Justifies Carbon Tax' (The Times Group, 2 December 2019) <<https://times.mw/mra-justifies-carbon-tax/>> accessed 6 February 2020.

<sup>16</sup> Sometimes, a public consultation may not be particularly useful. In France the proposal to implement carbon tax received strong public support in 2007 and a negative public reaction in 2009, the Government shelved its plans to introduce a carbon emissions tax in 2010. Declan Butler, 'France Unveils Carbon Tax' (Nature, 11 September 2009) <<https://www.nature.com/news/2009/090911/full/news.2009.905.html>> accessed 20 February 2020; Rocamora (n 13).

29. Comments obtained through a public consultation may relate to the undesired distributional effects which may make policymakers consider certain compensatory measures<sup>17</sup>. However, the comments may also very well relate to more direct administrative issues, such as the length of declaration periods, how tax exemptions should be administered, how the tax collection should be designed to prevent tax fraud, how to lower compliance costs, etc. This sort of bidirectional communication is fruitful in order to support an efficient administration and additionally entails greater legitimation.

*Take-away message:* PUBLIC CONSULTATIONS ARE DESIRABLE

Consultations with stakeholders, in their different available modalities, may serve to obtain useful information for an efficient administration, and to gain social acceptance through the broad involvement of stakeholders.

### *3.1.3.2 Information campaigns and post-enactment administration*

30. To pave the way for posterior compliance with administrative requirements and get public acceptance the public consultation could be combined with different **information campaigns** carried out by the relevant authorities, explaining to the public the reasons for the adoption of a carbon tax (e.g. health reasons and reduce risks of mortality), who will be affected, the basics of how the system will work, what the new obligations will be, what outcome is expected (e.g. environmental benefits and revenue use). This transparency effort is needed to pave the way for the normative reform and later to show political accountability and good administrative performance, avoiding risks of corruption.

31. A carbon tax aims to give households and firms incentives to change their behaviour into more low-carbon activities, in the steady process of progressively decarbonising the economy. The effectiveness of a carbon tax is likely to increase if the ultimate aim of the tax is **coherently promoted with public policies**. Campaigns are, however, normally not the task of the tax authority but other public bodies. The Government may implement a carbon tax as part of a package with other measures making it easier for households and firms to make green choices.

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<sup>17</sup> See chapter 3C. To seek public acceptance, depending on national conditions, compensatory measures may take various forms. They are likely to be directed at consumers who would be affected by the distributional effects of the tax in a way that would not be politically desirable. The public acceptance of a carbon tax is an important matter for policymakers to consider and it is discussed in more detail in Chapter X [*to be drafted*].

Making affordable alternatives to fossil fuel use available may often be a key factor to an effective carbon tax. Such measures can include time-limited grants for households to invest in non-fossil heating or cooling equipment, more frequent local public transport options encouraging citizens to leave their car at home when commuting to work, governmental aid to Research, Development and Innovation (R&D+i) for development of more environmentally friendly technical equipment, etc.

*Take-away message:* TRANSPARENCY

Information campaigns help administrative accountability and taxpayers' adaptation avoiding uncertainty. In addition, coherence of public policies should be shown through adequate management of the accompanying support measures.

### 3.1.3.3 *Transition considerations*

32. For the public acceptance of carbon taxation, it could be advisable to **announce** the introduction of the measure well in advance to give time for adjustments. The rationale for using a market-based policy instrument, such as a carbon tax, is that the price signal created by the tax allows for use of alternatives to avoid the tax and thus help reach the objective of the tax, that is the reduction of carbon dioxide emissions. The cost effectiveness lies, hence, in that the society does not 'pick a winner' (e.g. a particular technology or a particular fuel) but rather allows households and firms to choose the appropriate source of energy as they see fit (which typically coincide with less expensive)<sup>18</sup>.

33. A **step-by-step approach** could also ease the transition. Some jurisdictions have laid down a clear trajectory of the trend for the tax rate during a specific time period, and it has been well politically communicated<sup>19</sup>. An early announcement will also give business the incentive to kick-start measures that will reduce the use of carbon dioxide emissions, in line with the existing technologies and their associated costs.

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<sup>18</sup> Such measures, for example, can range from household members putting on an additional sweater to enable a lower temperature indoors to firms investing in a new technology with low or zero carbon dioxide emissions.

<sup>19</sup> This was discussed in Chapter 3B regarding the tax rate and its possible annual increases by the budgetary law.

Sweden provides an example: a tax on the sulphur content in fuels came into effect in 1993, but was approved by Parliament already in 1990. By 1993 the fuel producers had already lowered the sulphur content below the taxable level in most of the volumes of fuels sold.

34. In any case, policymakers should allow a **reasonable time period** between the enactment of a new carbon tax and the date when the legislation will come into force (for example, Chile chose three years). The public authority in charge of the tax collection will need time to register taxpayers and establish relevant forms for filing returns or declarations; the taxpayers will need time to develop proper business routines in their book-keeping, internal systems and procedures to ensure the declarations are accurately completed and payments of the tax amounts are made on time. Taxpayers may also need to consider the effects of the tax on the price of their sales in order to pass the cost of the tax on to the consumers.

35. The length of this transition time will depend on the national conditions in the jurisdiction and the way taxes in general are administered, as well as on the complexity of the tax scheme introduced. Even a relatively simple scheme will, however, need some time to become fully operational. The sole official announcement of a planned implementation of a carbon tax may make authorities and taxpayers start to prepare for the tax, but the final administrative adjustments will not be made until the concrete tax Act is passed by the national parliament or similar regional body.

36. Finally, the time lapse between the decision of a carbon tax law and its actual implementation may also need to be longer if many administrative issues are still left to be decided by lower jurisdiction levels. If a Fuel Approach is chosen there should not be many time constraints as the carbon tax declaration and payment can be closely linked to the already existing fuel taxation. In a Direct Emissions Approach, they also can be closely linked to reporting already taking place in a jurisdiction, but the tax authorities would need some time to seek cooperation with environmental authorities relying on controls made by them.

37. Furthermore, a longer period can be necessary if a broad public consultation was not conducted before the passing of the national carbon tax law. Even with enough advanced notification in relation to the implementation of a new carbon tax, taxpayers (and particularly SMEs) may still face significant challenges related to compliance. Depending on the circumstances, with regard to implementation of a new tax, it can be appropriate for the tax

authority to have a defined transition period, under which taxpayers that demonstrate 'best efforts' in complying with the new carbon tax are not assessed fines and penalties associated with non-compliance.

*Take-away message:* OFFER A REASONABLE TIME FRAME

The announcement of a carbon tax, the steps to be taken and the length of the transition period should be enough to allow administrations' and taxpayer's adjustments, bearing in mind the national circumstances.

### 3.1.4 Coordination with overlapping economic instruments

38. An issue to consider is how to deal with other economic instruments that may already be **in place or planned** to be introduced addressing fully or partially the same objective as the carbon tax (e.g. energy contracts)<sup>20</sup>.

39. The most common issue of concern with respect to overlapping economic instruments relates to carbon taxation and emission trading schemes (e.g. the UK floor price may be a useful example)<sup>21</sup>. Particularly, the fuels used in installations (that is, facilities or establishments) covered by an emission trading scheme could be totally or partially exempted from the carbon tax, and consequently provisions on how to **administer the tax exemption** would have to be laid down.

40. Consider the example of the EU Emissions Trading Scheme (EU ETS), which in addition to all EU countries, is also linked to similar schemes in Iceland, Liechtenstein, Norway, and Switzerland. The States which have introduced national carbon taxes on fuels have taken different approaches on how to deal with the overlapping regimes. Denmark, France, Ireland, Norway, Portugal, and Switzerland grant an exemption from their national carbon taxes to fuels used in installations covered by the EU ETS. Sweden, on the other hand, has in recent years reintroduced parts of the carbon tax on fuels used in some of the Swedish installations that participate in the EU ETS. Coordination must exist between **the tax administration and the registry** of installations covered by the EU ETS. Exactly how this is handled varies across

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<sup>20</sup> See Chapter 3A on fuel taxes and Chapter 6 on overlapping.

<sup>21</sup> How jurisdictions have dealt with potential overlap of related economic instruments, such as carbon taxation in relation to emission trading schemes is dealt in Chapter 8.



countries. For example, following requirements in the Swedish Act of Excise Duties on Energy, it is enough to carry out activities according to the EU ETS in an installation under that scheme and use the fuel there. It is not a task for the tax authority to check whether the EU ETS obligations are fulfilled. Such controls are part of the regulations governing the EU ETS system.

41. Some jurisdictions have addressed overlaps when granting fiscal benefits to the taxpayers regarding **other already existing taxes and schemes**. For example, in South Africa, the 2019 Budget recognised that emission reduction credits could be used to reduce a taxpayer's carbon tax liabilities. Consequently, the tax exemption for income generated from the sale of certified emission reduction credits was repealed. This was to prevent a situation whereby a taxpayer benefits from that exemption and has a reduced carbon tax liability<sup>22</sup>. In other cases, when introducing a carbon tax under the fuel or the emissions approaches, the possible connections previously established between related taxes should be clarified. In African countries, the general practice is that the tax operates alongside other duties or levies aimed at reducing carbon emissions. The duties and levies supplement the carbon tax<sup>23</sup>.

*Take-away message:* AVOID OVERLAPPING

The administration of a carbon tax should consider the interactions with Emissions Trading Schemes, energy contracts or other duties.

### **3.2 Core elements for good administration. Specific issues in the application of a Fuel or Emissions approach**

42. The following are the core features of a carbon tax –to be appraised in the tax law or in secondary regulations depending on the legal sources of each jurisdiction–:

<sup>22</sup> KPMG, 'Carbon Tax: A Burning Issue' (February 2019) <<https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/02/tnf-south-africa-feb25-2019.pdf>>.

<sup>23</sup> Zambia Revenue Authority, 'Tax Information' (2020) <<https://www.zra.org.zm/tax-information/#exd>> accessed 5 February 2020. Customs and Excise Act No 10 of 1983 (Lesotho), Sch 1 part 3D. In Zambia, the Government has put in place a carbon emissions surtax (surtax tariff) on carbon emissions from motor vehicles, as well as an excise duty on hydrocarbon oils such as petrol, diesel, fuel oils and Liquefied Petroleum Gas (LPG). Similarly, Lesotho has implemented an environmental levy on carbon dioxide emissions of motor vehicles, alongside a fuel levy for petroleum oils.

- Taxable event (occurrence of what chargeable events should make the tax due? E.g. consumption/use v emission)
- Taxpayer (who should pay the tax to the public authorities?)<sup>24</sup>
- Tax base and tax rate(s) (what is to be taxed and by which amount?)
- Public body to administer the tax or oversee its administration
- Tax declaration period (time frame to provide data or file the return)
- Information to be given in the tax declaration (concerning the taxpayer or other third parties)
- Administration of possible tax exemptions or other reductions (fiscal benefits) that the taxpayer may apply in his/her carbon tax declaration. Checks need to be made if the requirements are duly met (e.g. possibility to deduct certain amounts from the tax to be paid because of the use of clean technologies, or ask for reimbursements)
- Control mechanisms and tax enforcement regime (penalties in carbon taxation do not present any speciality and usually can be referred to the general applicable regime)

43. Some of these features need to be dealt with in the initial phase of the tax design, as they relate to the very essence of the tax and determine how well it will meet its declared objectives. This is the case with taxpayer and the taxable event, the tax base and tax rate<sup>25</sup>. However, there are many design elements that will, inevitably, be resolved at a later stage during the implementation phase. These elements are further discussed below.

44. Different jurisdictions have adopted different practical solutions when addressing these core elements. Chile and Sweden are taken here into consideration as examples, because they have, respectively, opted for the Direct Emissions Approach and the Fuel Approach. Irrespective of the approach chosen, administrative issues are always **key to the success** of a carbon tax, as their particular case studies show.

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<sup>24</sup> Additionally, some legislators may indicate other person liable as a warrant for the tax debt, and administrative procedures should be applied accordingly (jointly and severally, or in a subsidiary manner). E.g. if the designated taxpayer is who emits the taxed pollutant substance, and does not pay; then the owner of the facilities or activities that are sources of emissions could be also declared liable (as a sort of personal guarantee) to be able to recover the carbon tax.

<sup>25</sup> All of them have already been discussed in chapter 3A.

45. In the table below a comparison is made of the main design features of the carbon taxes with implications on the administration in Sweden (the Fuel Approach) and in Chile (the Direct Emissions Approach).

**Table - Comparison of approaches to administration of carbon taxes: Sweden and Chile**

	Sweden – Fuel Approach	Chile – Direct Emissions Approach
Taxable event	When fuel leaves tax warehouse	The emissions at the facility level
Taxpayer	Authorised warehouse keepers* (fuel distributors or large consumers)	Operator of facility with boiler and turbine with an energy potential of 50MW or more
Tax base	Fossil fuels	CO <sub>2</sub> emissions
Tax rate	In volume or weight units (litres, tons), calculated based on average CO <sub>2</sub> emissions from each fuel type	US\$5 /CO <sub>2</sub> tons
Public body in charge of administration	Tax authority	Tax authority and Ministry of the Environment
Declaration period	Monthly	Facilities are required to report their respective emissions quarterly, but submit a final declaration annually

Information given in tax declaration	Amount of fuels (litres, tons) that left the tax warehouse during the declaration period or was consumed by the warehouse keeper himself	Emissions, provided by the Environmental Authority. The emissions report to the environmental authority requires additional information to verify that it is accurate
Administration of tax exemptions (e.g. for a special activity, special sector)	Deductions in declaration, if relating to warehouse keeper's own consumption; reimbursement application to tax authority in other situations (fuels are bought taxed)	No exemptions, however, power energy facilities who are regulated under formal contracts in the electric energy system have rebates associated with their electric generation tariff law
Control mechanisms	Check volumes declared by taxpayer (and related transactions) according to general tax auditing procedures.	Both the environmental Agency and the Tax Authority can inspect emissions, but at present there is no independent verification system

\* While normally the taxpayer is a registered warehouse keeper the system also, more rarely, allows for other operators to pay tax on a single consignment of fuels.

### 3.3 Considerations regarding detailed administrative regulations to manage the carbon tax

46. Once the basic carbon tax legislation is in place, in most cases, additional detailed administrative regulations are required. The power to decide such regulations is often based on delegating provisions in the tax law (delegated acts) or may follow directly from the

national constitution<sup>26</sup>. Their **nature** will depend on the body that enacts them, and their effects will vary depending on whether they are published or not.

47. From a **timing** perspective, these administrative regulations or information circulars should be drafted and finalized as close to the finalization of the underlying legislation as possible, in order to provide the additional administrative clarity and **certainty** necessary for taxpayers.

48. **Fairness** depends, to a great extent, on **proportionality**. This implies considering the time spent and the management effort demanded to administer any tax, both seen from the public and business perspective. Making proportionate requirements for the administration of a carbon tax will lead to its better acceptability by the taxpayers, and it also will help the tax administration to render a better service. It is important to avoid unnecessary workloads for taxpayers as well as for tax officials (by taking advantage of digitalisation when possible).

49. In order to ensure that the administration of a new carbon tax will work smoothly, taxpayers need **accurate information on their responsibilities with respect to** the carbon tax legislation and how to perform those tasks in detail. While there are variations across jurisdictions in the way this information is passed on and by whom, it is fair to say the prevailing way would be for the tax authority to give this information.

50. Information can be shared with taxpayers through direct contacts, which may be feasible if the taxpayers are a small number of companies or already are well defined, e.g. registered facilities to be covered by a Direct Emissions Tax or if a Fuel Approach carbon tax is introduced to the same group of taxpayers that already are responsible for handling another excise duty of the same fuels covered by a carbon tax. A more common approach would, however, be to **communicate** general information via web sites and other public communication tools, which may be complemented by individual data company-by-company basis at later stages of tax collection and auditing.

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<sup>26</sup> This kind of secondary legislation often relates to measures the tax authorities normally are very familiar with when dealing with other kinds of taxes. The way these more detailed provisions are decided varies between jurisdictions. Lower levels of Government usually decide these more detailed provisions. Examples include Government regulations, decisions or decrees or provisions laid down by the relevant body in charge of the tax administration. Often a combination of them is found.

51. The administrative regulations can include the following **issues** (most of them are not different as compared to other kinds of taxes):

- Criteria for registering taxpayers and the associated timeframe for registration.
- Various forms, such as tax declarations and applications for tax reimbursement (if applicable).
- Information that taxpayers need to include in each declaration.
- Period to file the tax return (e.g. regular dates for its presentation, and determination in case the activity starts later or finish earlier). Possible payment plan (e.g. by instalments fractioning the amount to pay in a given period) and acceptable payment methods. Deadlines may vary depending on the traditions in the jurisdiction (declarations may be required after a month, a quarter of a year, or even yearly).
- Specific book-keeping obligations and records that need to be maintained and the length of time they need to be maintained by the taxpayer (commensurate with the statute of limitations) in order to make them available if a more in-depth audit takes place<sup>27</sup>.

*Take-away message:* ADMINISTRATIVE REGULATIONS

These are important aspects related to administrative regulations: consider their nature, timing, proportionality, accurate content, and its communication. Do not forget to provide criteria for registration, declaration, and book-keeping.

*Take-away message:* ADDITIONAL HINTS FOR CARBON TAX ADMINISTRATION

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<sup>27</sup> Fiscal control is an essential part of any tax system. The way control mechanisms are administered differs between jurisdictions. However, it is more likely that the variation in control is linked to fiscal traditions in the jurisdictions rather than to any special characteristics of a carbon tax. Also, some jurisdictions tend to rely to a large extent on book-keeping checks, while the fiscal control in other jurisdictions more generally includes checks of the premises where the tax liability occurs. The degree of digitalization of tax reporting also varies across jurisdictions. Many developing countries are adopting digital tax declarations systems, which can significantly facilitate the tax administration if extended to cover also a carbon tax. Labour resources can thus be concentrated on tax control in the forms of tax audits and spot-checks.

- Explore and make alternative use of data already available and to the extent legally permissible<sup>28</sup>, though collected for other purposes.
- Maximize the use of existing administrative systems, allowing wise flows of information and providing place and time for foreseeable beneficial interactions.
- Incorporate carbon tax onto existing legislation to adjust the interplay with the provisions dealing with administrative issues.
- Reinforce cooperation with environmental bodies when using a Direct Emissions Approach, safeguarding data protection. It will also contribute to an increased effectiveness in reporting and monitoring emissions for other than tax purposes and would thus give co-benefits to society.

### 3.3.1 Administrative issues in a Fuel Approach and the Swedish example

52. Some administrative issues mainly of interest in the Fuel Approach, are dealt in the following subsections while analysing the Swedish example.

#### 3.3.1.1 Warehouse keepers and registration

53. In order to reduce the administrative burden on the tax authority, it is possible to introduce **thresholds** regarding procedural aspects either in the emissions approach or the fuel approach (e.g. for registration or reimbursement). In fact, this can relate to companies, which may apply to be registered as taxpayers (especially if large consumers can register as taxpayers and can receive and store goods under tax suspension regimes). Or eventually it could be decided that only the tax paid above a certain amount would be reimbursed (even if the fuel is used in an exempted area). There is need to strike a balance between the administrative burden and fairness, or treating small and big operators in a similar way. In terms of administrative control, it would be preferable if the tax collection system could be designed in a way that limits the number of taxpayers.

54. Out of 900.000 registered business companies in Sweden, only around 300 companies are **registered taxpayers** for the carbon tax (so called warehouse keepers working under EU

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<sup>28</sup> Data protection issues should be taken into account and assessed. If necessary, a change in the legislation in force could make it permissible.

harmonized rules), mainly fuel distributors selling taxed fuel to end-consumers. The warehouse keepers are obliged to store fuels in specific premises which need to be approved as storing facilities (tax warehouse) by the tax administration. The tax authorities decide if a company may be granted a **warehouse keeper status**, depending on several criteria, the principal of which is economic situation, and being able to put forward a sound and reliable business idea. The possibility to register as taxpayers in Sweden has also been extended to large consumers, normally engaged in industrial activities. They can store fuels under the tax suspension regime and declare the tax once the actual consumption has occurred, thus avoiding negative liquidity effects.

### 3.3.1.2 Declaration and book-keeping

55. The Swedish carbon tax base covers the **same fuel as the general excise duty** on fuels (named as energy tax in Sweden). The two taxes are handled in the **same tax declaration forms** by the same taxpayers under basically the same administrative rules. This strategic option greatly facilitates the tax administration and makes administrative costs low. The administration costs for the Swedish Tax Agency amount to 0.1 per cent of the total revenues from energy and carbon taxes<sup>29</sup>.

56. If the consumption involves a tax exempted area of activity, this means that the taxpayer declares zero tax. Likewise, the company does not have to buy the fuels at a price including the tax and then subsequently request a reimbursement of the tax paid after the consumption has taken place.

57. A gross declaration is made, which means that deductions are made for deliveries or own use for certain tax-exempted areas (such as export or non-fuel use). In most such cases the recipient of the fuels must be an approved user (approval is given by the tax authorities) to be able to receive the fuels without tax being charged. If the end-consumer buys the fuels fully taxed, they need to ask for a tax reimbursement at a later stage from the Tax Agency, upon showing that the fuels have been consumed for a tax-exempted area. Industrial companies

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<sup>29</sup> Hammar, H.; Åkerfeldt, S.: *CO<sub>2</sub> Taxation in Sweden – 20 Years of Experience and Looking Ahead*, 2011. Available at the link: [https://www.globalutmaning.se/wp-content/uploads/sites/8/2011/10/Swedish\\_Carbon\\_Tax\\_Akerfeldt-Hammar.pdf](https://www.globalutmaning.se/wp-content/uploads/sites/8/2011/10/Swedish_Carbon_Tax_Akerfeldt-Hammar.pdf). [accessed 3 April 2020].



using energy products in metallurgical processes is an example of a tax exempted area of use in Sweden.

58. The Swedish energy tax and carbon tax declaration is filed once a month and the warehouse keeper supplies lump-sum information of the amount of fuels that left the tax suspension regime (by own consumption or deliveries to a company or individual who is not a taxpayer), for which tax has become chargeable during that month. The required data are typically found in the taxpayer's ordinary **book-keeping**, but the Swedish legislation also lays down specific requirements for stock records to be kept by the warehouse keeper. The Tax Agency issues regulations on how these requirements are to be followed in more detail. Taxpayers are further required to keep proper records of all individual transactions, enabling the Tax Agency to do more in-depth checks of the book-keeping at a later stage.

### *3.3.1.3 Tax calculation and tax benefits*

59. How to **administer** possible areas of **tax reductions or exemptions**? Should a reimbursement scheme be introduced? What data must the applicant provide in order to be granted a reimbursement? Could a taxpayer by law be entitled to make deductions in his/her carbon tax declaration also for fuels to be used by others for specific purposes (based on some kind of prior authorization, such as use for industry or agriculture)? Should specific considerations be made with respect to certain types of fuels (e.g. biofuels)?

60. In the Fuel Approach, as previously pointed out, the tax authority does not require specific emissions data reported from a facility. The tax administration only needs to calculate and audit the **taxpayer's amounts of fuel used or sold**. This is a task which tax authorities are normally familiar with. The need for further expertise may, however, be more significant if a jurisdiction chooses to implement exemptions or reimbursement schemes, e.g. for businesses performing a certain environmentally-friendly activity, carbon capture and storage, etcetera. The policymaker must acquire relevant data (such as average emission factors, type of fuels and, in some cases, production processes) to **determine carbon content**, set the formula for calculating the tax and transform it into the weight or volume units used to lay down the tax

rates in the legal text. Once that is made, it is straightforward to apply the carbon tax and calculate future tax rates changes<sup>30</sup>.

#### *3.3.1.4 Securing the payment of the tax debt*

61. A balance is sought between promoting flexibility in the commercial movements and, at the same time, assuring compliance when it comes to the payment of the tax debt. In Sweden, the registered taxpayers (warehouse keepers) are obliged to **provide a guarantee**, following mandatory EU regulations. This provides a secure and tested system for ensuring that tax obligations are met. The fuels must be stored in the specially approved tax warehouses and the warehouse keeper must leave security to cover potential losses in storage or transport between tax warehouses. A guarantee (e.g. a bank guarantee) for each movement of fuels as well as for 10 per cent of the fuels stored on average for one year is required in Sweden.

#### *3.3.1.5 Compliance control and audits*

62. In order to avoid fraud, some penalties may reinforce the violations under the different approaches. In a Fuel Approach, the **volumes** must be checked. Here, anti-fraud and control measures might also need the legislation to allow for checks with others than taxpayers (such as the companies who have bought goods including tax from a taxpayer). This is not different from other kinds of taxes such as VAT, with which controls could be coordinated.

63. Sweden is an example of a country where the tax administration relies on book-keeping checks, which has enabled low administrative costs for both the Tax Authority and the taxpayers while maintaining fiscal control. This also happens with the carbon tax following the Fuel Approach. The taxpayers provide lump sum data in their monthly declarations, and individual transactions need to be recorded in the taxpayer's books to be available if in-depth auditing is eventually performed. The Tax Authority performs basic computer-based **control** of the tax declarations and further audits are handled on a risk analysis-based selection. Basic audits include e.g. comprehensive checks of tax declaration data and annual financial reports. In-depth audits may include visits to the taxpayer's premises and include checks of book-keeping, including individual transaction checks with customers, checks of anti-fraud systems at warehouses. Often such in-depth audits include checking other taxes, such as corporate tax

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<sup>30</sup> See Chapter 3A, where the calculation of the tax rates is described in detail.

and value added tax. Computer support is used as much as possible in the Swedish fiscal controls.

*Take-away message:* RELEVANT DETAILS IN A FUEL APPROACH IN ACCORDANCE WITH THE SWEDISH EXPERIENCE

Consider thresholds for taxpayers' registration. Try to combine time and forms in declarations to lower costs when taxes may have the same tax base. Count on environmental expertise occasionally (e.g. when granting exemptions) and allow tax authority to focus on volumes. Explain if guarantees are required and book-keeping obligations.

### 3.3.2 Administrative issues in a Direct Emissions Approach and the Chilean example

64. In a Direct Emissions Approach, secondary legislation is likely to cover a wider area of measures. The key issue in the design and implementation of the Direct Emissions Approach is putting in place the institutional infrastructure to implement a monitoring, reporting and verification system to capture relevant facility level emissions data<sup>31</sup>. While the Fuel Approach can usually take advantage of the existent tax revenue institutional infrastructure, the Direct Emissions Approach must develop a new one, albeit in the context of the existing institutional infrastructure of the jurisdiction where the tax is implemented.

65. Despite its name, the Direct Emissions Approach does not necessarily require emissions measurement at the facility level (emissions results can be measured, but also be based on calculations based on average carbon content from fuel volumes). What is necessary is **facility level reporting**. Facilities can monitor their emissions through various measurement strategies, monitoring emissions through end of pipe technology, such as Continuous Emissions Monitoring Systems (CEMS), or estimating emissions through emission factors and using energy inputs. Therefore the Direct Emissions Approach may seem more difficult to implement because it may be assumed that direct measurement is required, but this is not necessarily the case if monitoring is carried out through alternative means. Although this initially will be more

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<sup>31</sup> In the Chilean experience, the MRV is a subsystem of the institutional infrastructure and refers exclusively to the system that captures and verifies emissions data. The institutional infrastructure refers to the comprehensive institutional structure that regulates the responsibilities, procedures, protocols and practices to administer the carbon tax. This is constructed through a series of laws, regulations and directives as well as the relations across several public and private agencies.

costly, since a new Agency or, at least, a new reporting system is necessary, environmental emissions reporting at the facility level will serve multiple policy objectives.

66. Thus, a **monitoring, reporting and verification system (MRV)** will need to be developed at a facility level before implementing the carbon tax. The complexity and costs will depend on the infrastructure already in place in the jurisdiction following national or international emissions reporting obligations. More accurate reporting systems will be essential when a system used for international reporting is to be expanded to fill the needs of a well-functioning carbon tax administration.

67. The process of introducing a carbon tax may also entail expanding and **strengthening the administrative capacity**, particularly of environmental agencies, establishing protocols for determining procedural responsibilities, creating more robust information systems, and improving inter-ministerial coordination. In this regard, the Chilean experience provides a clear example that an emissions-based taxation strategy can be implemented in way that is coherent, administratively feasible and at low cost.

68. Let's explain the Chilean case, where the MRV system is a key component of the institutional infrastructure for implementing the carbon tax, as previously mentioned. It is made up of at least four components: the registry of liable entities/taxpayers, which necessarily requires a broader survey of facilities that may be subject to the tax; the measurement (M), regulated under Government guidelines for emissions monitoring and quantification; reporting (R), which stipulates guidelines for emissions reporting; and verification (V), covered under regulatory verification guidelines in the case of third party verification or enforcement in the case of government verification.

### *3.3.2.1 Liable Entities, registration, and declaration*

69. Under the Direct Emissions Approach, many jurisdictions establish emission thresholds to determine from what emissions' level a facility is liable to pay tax on its emissions. Typical thresholds are 10 or 25 thousand tons of CO<sub>2</sub> a year. The problem with this approach is that the Government has to set up the reporting system before making facilities liable; only after facilities start reporting will it be possible to determine if they have passed the legal threshold and, therefore, are liable for paying the emission tax. This may take considerable time.

70. Another approach is the one taken by Chile. It established **technological criteria** to determine which facilities were liable, rather than a threshold of liable emissions. In the Chilean example liable facilities are defined as those that have boilers and turbines with 50 or above MW potential capacity. This identifies only the large installations, which have the expected greatest emissions. Once the liable facilities have been identified and are formally registered, they are liable for all their emissions regardless of the amount. The advantage of this approach is that the liable facilities can be clearly identified without recourse to emissions monitoring. Furthermore, the burden of the reporting is placed on the facilities that are liable. They are interested in developing the most accurate reporting system in order to reduce their tax burden. Finally, the tax can be operational immediately without waiting for a long period of establishing a reporting system.

71. Depending on which entities or facilities are required to pay the tax, the authorities will require a system to register them. The **registry** of liable facilities is a key element in the foundations of the MRV system. It identifies the facilities that may be subject to the tax. The law establishes the criteria that all the individuals and legal bodies meet to be liable.

72. Liable entities will be defined in terms of an **environmental or technological criterion**, either the emissions threshold (e.g. referred to yearly emissions) or a specific characteristic associated with the facilities affected (e.g. use of a certain technology). The tax legislation must give authority to a specific agency to identify and register the liable facilities. This can be the Ministry of the Environment, but it will probably depend on the role of different Agencies in the specific jurisdiction implementing the carbon tax.

73. Detailed regulations will include the specific **steps** or system necessary to ensure that liable facilities register, as well as the **sanctions** for not registering or giving false or insufficient information. The relevant information should include data on the facility, owner or operator, but above all the technology and processes in order to verify that the emissions data is consistent with the fuel consumption or load capacity, among others.

74. Once the entity has registered, the Agency must decide whether the entity is liable. This may involve checking whether it uses certain technologies, as in Chile, or whether its annual emissions surpass the previously determined liability threshold. However, this is only for enforcement purposes; facilities are ultimately responsible for determining whether or not they

are subject to the tax, thus, as with other taxes, placing the burden of **tax declaration** on the liable facility.

### *3.3.2.2 Emissions monitoring and available quantification methodologies*

75. Once liable entities/taxpayers have been registered, an MRV system must be put in place in order to capture the emissions data. Each facility has to report emissions. The authority must establish different **reporting and measurement protocols** for the liable entities. This will **depend on the sector, capacity, and type of technology**. It should be consistent with other existing regulations. For example, large energy installations may already have other legal requirements to put continuous emissions monitoring system (CEMS) in place. These monitoring devices can capture CO<sub>2</sub> data and they can report through the same system. However, these systems are expensive and, if not adequately managed, may be imprecise. Other facilities may prefer to report fuel data and estimate emissions through emission factors. In any of these ways, facilities are making a legally binding declaration of their emissions, which has a direct impact on their tax liability. For example, in the case of Chile initially 11 methodologies for emissions quantification were proposed for the facilities to choose how to report their emissions.

76. The liable facilities must implement the emissions quantification methodologies determined by the protocols of the regulating agencies. These may be difficult and capacity building may be necessary. In general, there are three types of measurement approaches that may vary in different sectors or technologies. These are:

#### *(a) Sampling and measurement:*

77. This comprises the direct quantification of emissions concentrations, using measurement equipment installed at the facility. Both sampling and continuous measurement are among quantification options, including CEMS. CEMS provides hour-by-hour emissions averages over the course of the tax period (e.g. a year).

#### *(b) Discrete sampling:*

78. Monitoring equipment is used to take a sample, which is then analysed in a laboratory or on site. This method is used to determine output concentration and representative flow rate at the time when the measurement is taken.

(c) *Estimation:*

79. This method comprises the indirect quantification of emissions using emission-factors (for the specific production process in question) and annual activity records (such as operating hours and fuel consumption).

*3.3.2.3 Emissions reporting and the roles of the public authorities*

80. Once the facility has chosen the methodology to calculate its emissions, it must report them **periodically**. The emissions reporting process should be based on pre-established guidelines that fix the conditions and **standards** to be met. The tax-liable facility must therefore submit an emissions monitoring or estimation report, in accordance with those general guidelines stipulated by the relevant authority (what, when, where and how to report, etc.). The authority must decide when to require this reporting (which may be every year, or other time periods). The moment will depend on, in turn, when the tax is liable. Reporting can be carried out through various platforms (from paper reporting to digital reporting) and **security** is important, since emissions are directly related to the liable entities tax burden.

81. A jurisdiction choosing a Direct Emissions Approach will still in most cases leave the administration of the carbon tax to the **tax authority** in charge of administering other kinds of taxes in its territory. However, the environmental agency will oversee the actual monitoring and verification of emissions from the facility and report this information to the tax authority. This establishes a different institutional relationship between agencies. It requires agencies such as the tax authority, Ministry of Finance and Ministry of the Environment among others to establish a **permanent dialogue**<sup>32</sup>. Although this may be initially difficult and many conflicts may arise, particularly in the initial phase, ultimately it will benefit all institutions since there will be a better understanding of the objectives and of the carbon tax design. Furthermore, the different Agencies will understand the restrictions and commitments of the other institutions involved.

82. The tax law can be designed in a way that the taxpayer pays the tax based on the amount of emissions given by a certificate of emissions issued by the competent supervising

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<sup>32</sup> It is most likely to be the general tax authority that administers the tax, but nothing would prevent a jurisdiction from actually deciding that the environmental agency also be in charge of the tax collection. In such a situation, someone, as a matter of terminology, could probably call the environmental body a tax authority too.

environmental authority. This would mean that the tax authority does not need to enter an area where their officials have no technical competence. The policymaker could also choose to focus all the administration relating to the liable facilities to the **environmental body**, making it in charge of administering the tax as well as all the monitoring, reporting and verification. And, quite obviously, there are a variety of alternatives in how to **distribute the responsibilities to different agencies** in a way that the policymaker decides is most appropriate in the relevant jurisdiction. Anyway, information flows through clear channels amongst them are important. Even as their roles are being set out, there is need to ensure that the mandates of all the agencies are clearly defined to avoid a situation whereby there are overlapping functions as these could give rise to confusion and conflicts.

#### *3.3.2.4 Emissions registry and verification*

83. In the Direct Emissions Approach with facility level reporting, **verification** is necessary, and this requires setting up the institutional framework to both register liable facilities or installations and establish a periodic reporting system. This may be carried out by Government Agencies through usual enforcement and compliance practices, or by third-party verification. These verification or **certification** agencies must be registered with the competent authorities and must follow the appropriate guidelines and protocols (established by the Government). Once emissions are reported the environmental or technical agencies in charge of overseeing the emissions verify and consolidate this information. After verification or certification, they are sent to the tax authority. Likewise, the tax authority places the responsibility for determining emissions on the liable entities, and their verification on the Environmental Agency.

#### *3.3.2.5 Tax calculation*

84. The tax authority uses the information provided by the environmental authority to calculate the taxes payable.

*Take-away message:* RELEVANT DETAILS IN AN EMISSIONS APPROACH IN ACCORDANCE WITH THE CHILEAN EXPERIENCE

Define liable entities in terms of an environmental or technological criterion monitoring, pay attention to reporting and verification systems. Clarify the roles of the competent public authorities.
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### 3.4 Ex-post evaluation of a carbon tax

85. While the pure administrative design is a pre-condition to be able to implement a carbon tax, it is also advisable to identify early the criteria to evaluate how well the carbon tax is performing, considering the need for further development and the opportunity to make necessary **changes to improve** its design. It is an on-going process to ensure a well-functioning carbon tax scheme is efficiently administrated and fit-for-purpose. If the carbon tax introduction has not been preceded by a comprehensive public consultation, the need for ex-post evaluations may be even more necessary, to avoid criticism on the goals and risk of institutional mistrust by the civil society.

86. For example, the Swedish carbon tax has been in force for close to 30 years and legal changes –minor or major– have been made more or less every year since its introduction. Such changes have included a wide range of **different measures**: the tax rate, the areas covered, the full or partial exemptions and the administrative procedures (e.g. conditions for approval to act as a taxpayer or level of thresholds for tax reimbursements). Guaranteeing that tax is properly collected with no major tax evasion, making sure that the legislation is followed, is obviously a core aspect to take into account when doing ex-post evaluations of the effectiveness of a carbon tax. This ensures a well-functioning tax ready to meet its revenue objectives and consequently the environmental goals. Similarly, after three years of implementation Chile introduced important reforms to its tax, including making precisions with respect to definitions and other procedural aspects.

87. The **evaluation method**, from different points of view (environmental, revenues, administrative effectiveness and simplicity, anti-fraud design, etc.), is a matter for each jurisdiction to decide, based on the traditions in its legal order and the constitutional constraints. Certain permanent **bodies** may be assigned the task to evaluate a tax regularly at predefined times or upon a special mandate from the Government. A special commission for evaluation may also be appointed. In some jurisdictions this may be a task for the tax authorities, while in other it is considered vital that such evaluations are performed by external, independent bodies. For example, where it exists, the Court of Auditors may help with the control of efficiency of the administrative actions when reviewing the tax incentives

granted for environmental purposes. In Spain, the Court of Auditors has published periodical special reports on the control carried out by the tax administration with respect to environmental deductions in the national corporate income tax.

88. The reasons for decisions in favour of changes in a carbon tax design and administration may depend on the **feedback** received from different stakeholders. Amongst them, the desire to increase the environmental impact of the tax, the lobbies arguing for special treatment for specific sectors, the necessary coordination with other measures to foster a transition to a low-carbon economy, as well as the changes the tax authority has found to be advisable during the course of their daily tax administrative work and public consultation initiatives.

89. A frequent dialogue with the relevant stakeholders may be beneficial to understand the needs and the improvements required in each sector. Ultimately, it can result in a modification of the administrative practices or the rules to make them more suitable in accordance with business life.

90. Aiming at applying similar tax provisions in jurisdictions closely connected due to geographical reasons or a major business interaction would be also desirable, as it would not only facilitate the administration for business but also limit the **risk** of carbon leakage<sup>33</sup>.

91. In addition, the existing **international mutual assistance** framework for administrative cooperation (either at bilateral or multilateral level) could quite easily cover carbon taxes (just by expanding its scope). This would allow the State parties to these agreements to realise how these environmental regulations are applied in practice by other jurisdictions (by making use of the possibilities to exchange of information relevant to determining the tax debts or collecting them).

92. Further, the discussions carried out to assess carbon taxes in different **global forum** (such as the UN, the World Bank, or the IMF) in line with their joint efforts towards the achievement of the Sustainable Development Goals, would be very useful.

*Take-away message:* FACILITATE THE EX-POST EVALUATION

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<sup>33</sup> See chapter 3 C, and chapter 1 or 2 about the need to use carbon taxation as widely possible.

To improve the carbon tax design and administration set bodies, methods, and measures to consider possible changes upon feedback received from different stakeholders and strongly enhance the cooperation in the international field

#### 4. Final remarks

93. In the implementation of a carbon tax, the role of the involved competent authorities should be clearly stated. In addition, attention should be paid to inter-administrative cooperation relations (particularly in cases of fiscal federalism or regional groupings). Awareness should be also raised, as public consultations and information campaigns may be beneficial to improve administration. The administrative regulations should provide details of the core elements for good administration and promote compliance (i.e. with greater certainty in the measurement of the tax base, how to deal with filing and reporting obligations, etc.). The administrative requirements should facilitate ex-post evaluation either in a fuel or emissions approach.

<b>Topics to be addressed</b>	<b>Steps in the implementation</b>
Organization of management tasks and relations between different institutions and stakeholders	Identify all the institutions and stakeholders and ensure necessary cooperation and communication
Specific issues in the application of a fuel or emissions approach	Assess the administrative resources needed with each approach
Administrative regulations	Develop legislation adequately to address the needs, while aiming at administrative simplicity
Continuous improvement	Set mechanisms (e.g. proportionate reporting requirements and adequate channels) to

	receive feedback on relevant features of the existing carbon tax design and administration
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[http://ec.europa.eu/taxation\\_customs/tedb/splSearchResult.html](http://ec.europa.eu/taxation_customs/tedb/splSearchResult.html)