Maximising benefits of carbon taxation through revenue use

Insights from a review of international experiences

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April 10, 2025

Institute for Climate Economics

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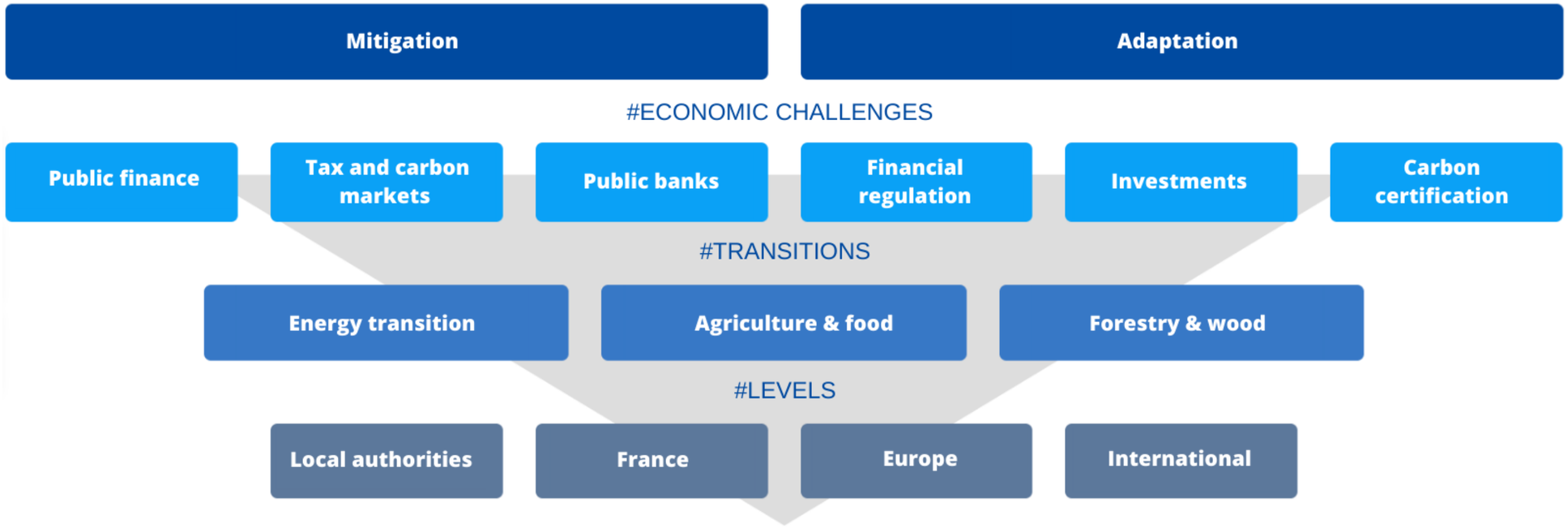
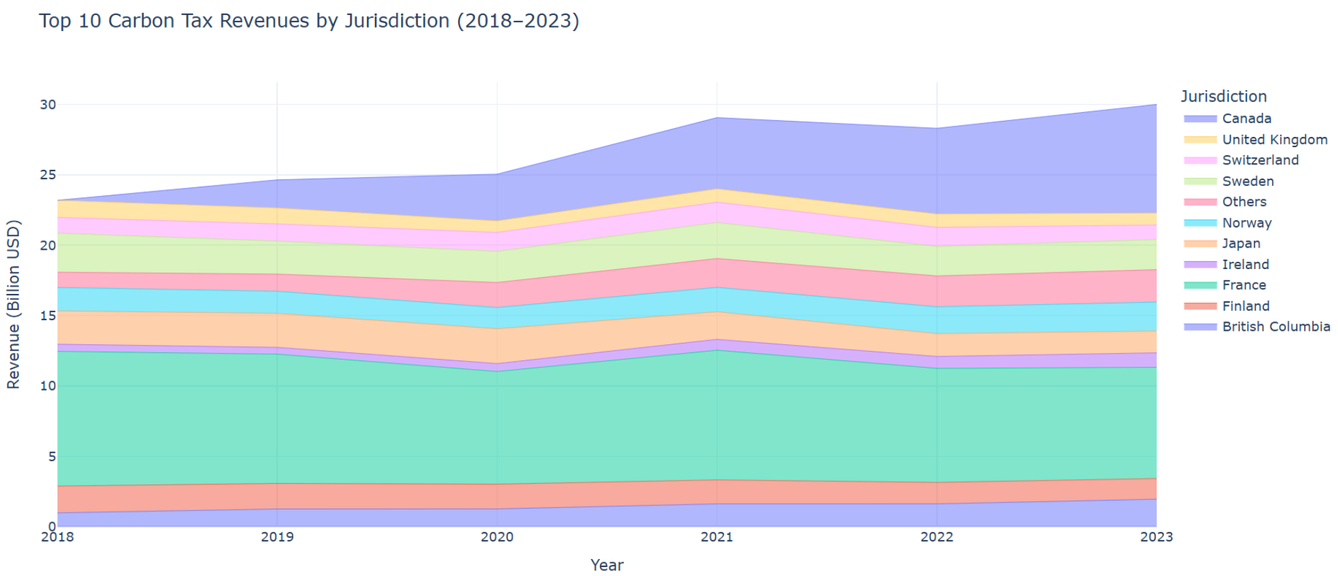


The global landscape of carbon taxation

- In 2023, out of **75 carbon pricing instruments** (CPIs) in place, **60 generated revenues** or had publicly available information on estimated volumes –including **40 carbon taxes**.
- **Around half of CPIs implemented over the past 3 years** or under development/consideration are located in **emerging or developing countries**.
- Revenues generated by CPIs have increased overtime, reaching around **USD 106 billion in 2023** and USD **95 billion in 2022**, from only USD **26 billion in 2015**.
- The **European Union (EU) ETS generated around 44% of global carbon revenues** in 2023.
- **Carbon taxes represented around 30%** of the total carbon pricing revenues in 2023 (USD 32 billion).



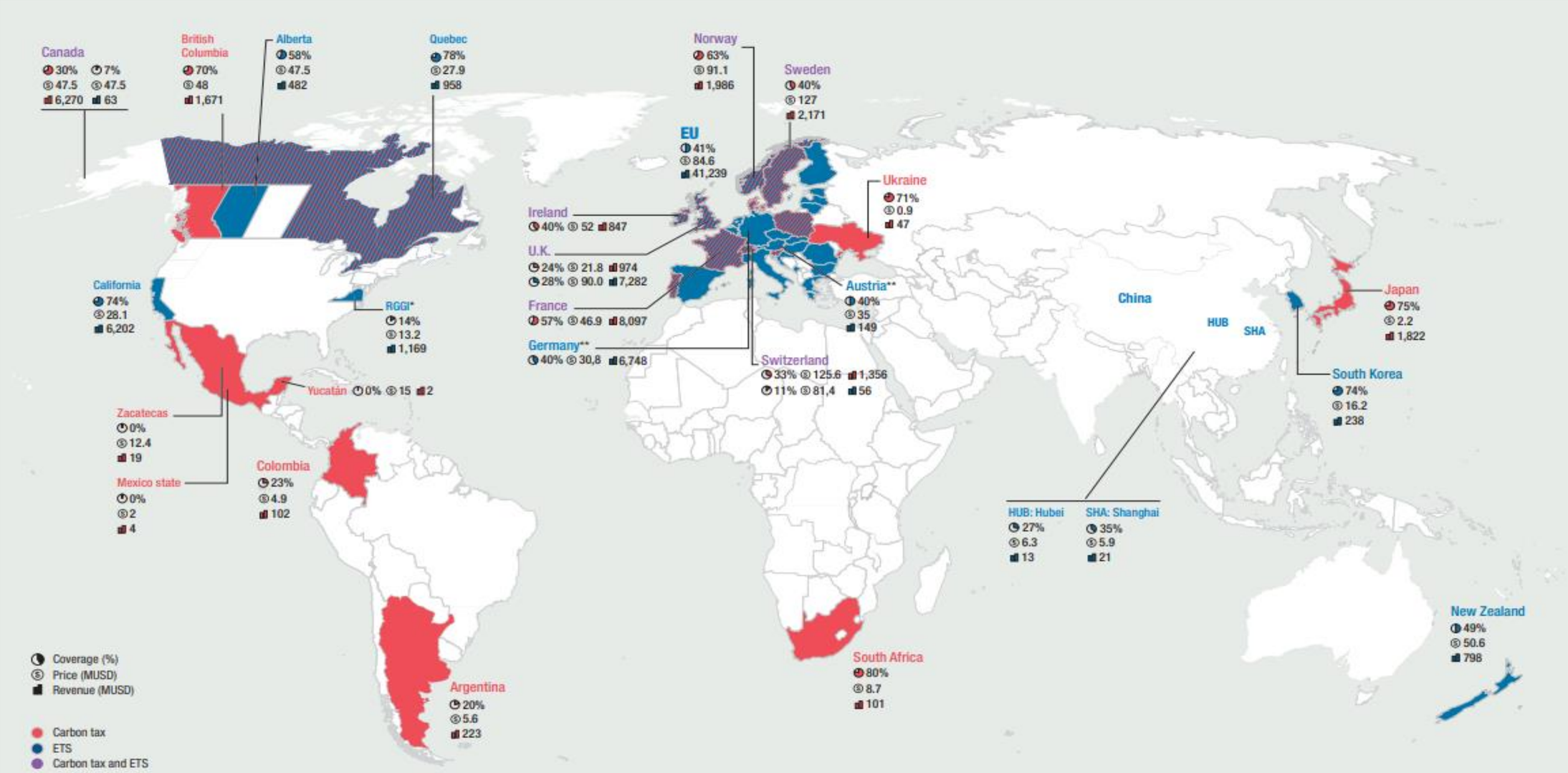
- **Largest revenue generating carbon taxes included France (USD 7,8 billion), Canada, Sweden, Norway, and Japan.**
- In **low- and middle-income countries, the top 5 revenue-generating carbon taxes** in 2023: **Mexico** (USD 445 million)**, Colombia, Argentina, Chile and South Africa** (USD 111 million).

The chain of decisions policy makers are confronted with on the use of carbon revenues can be seen as a four-step process

FIGURE 4. AN ANALYTICAL FRAMEWORK TO EXPLORE THE QUESTION OF THE USE OF CARBON PRICING REVENUES

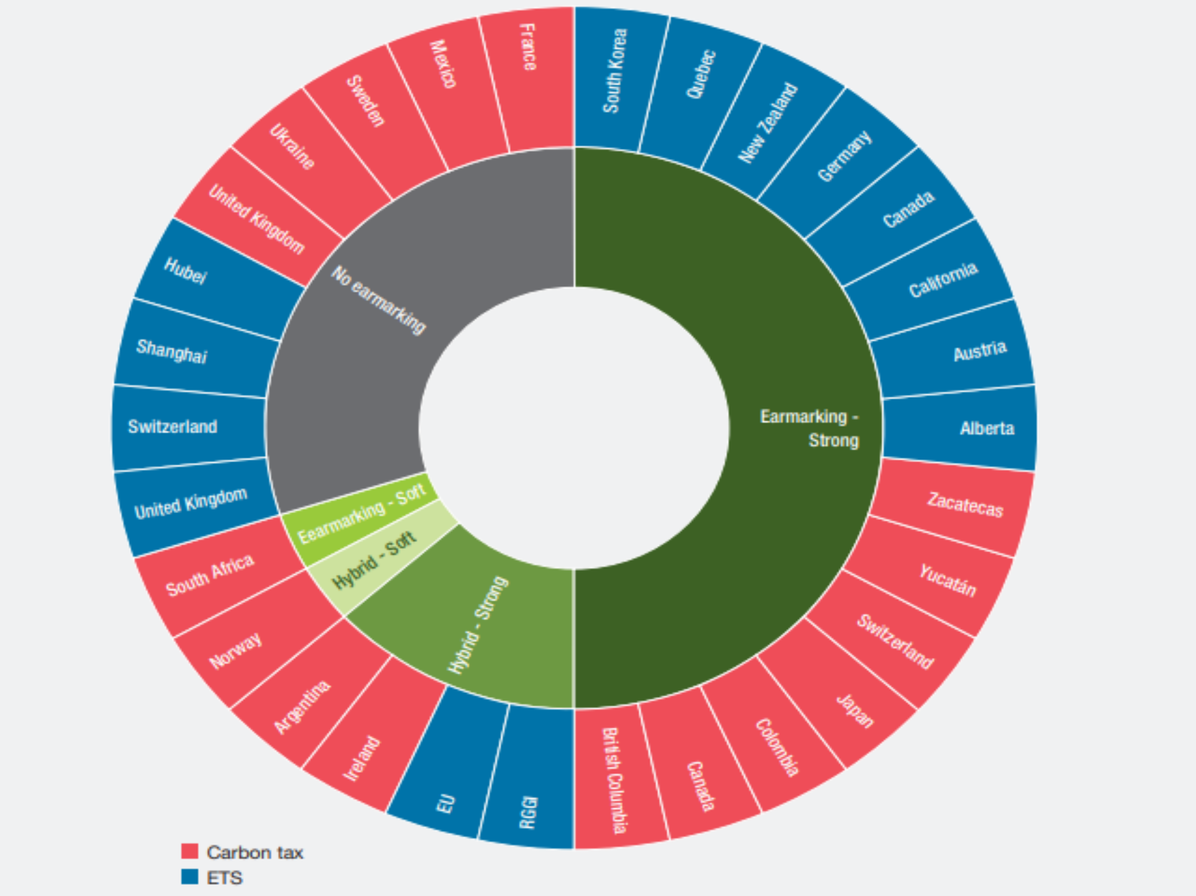
Source: I4CE based on IMF's Green PFM framework.

30 CPIs covered by the analysis, which together make 94% of global carbon pricing revenues (16 CT & 14 ETS) – 2022 data



Strategy: Diversity of policy objectives: a matter of contexts and priorities

FIGURE 7. APPROACHES TO DECISION-MAKING ON CARBON REVENUE



Explanatory note
- Earmarking - Strong: objectives stated in official documents with legal force.
- Earmarking - Soft: political commitments stated in documents without legal force.
- Hybrid - Strong: legal earmarking of part of revenues.
- Hybrid - Soft: political commitments or soft earmarking for part of revenues.
- No earmarking: no policy objectives stated, all revenues go to general budget.

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- 21 out of 30 CPIs had defined objectives as legal or political commitments (earmarking strong or soft)
- Out of 16 carbon taxes, 11 have stated environmental, social, and economic objectives for revenue use:
  - 7 with strong and 1 with soft earmarking
  - 3 with hybrid approaches (only a share of revenues earmarked)
  - 5 no earmarking (general budget)

Examples:

- Ireland: Carbon tax funds are part of the national budget, but since 2020 additional revenue raised by the tax increase each year is tracked independently and ring-fenced for allocation to specific policy objectives.
- Yucatan: strong earmarking with environmental, public health, and disaster risk reduction objectives. Other carbon taxes created at state level in Mexico post-2022 had similar objectives (Guanajuato, Querétaro, Tamaulipas, State of Mexico).

Strategy: Diversity of policy objectives: a matter of contexts and priorities

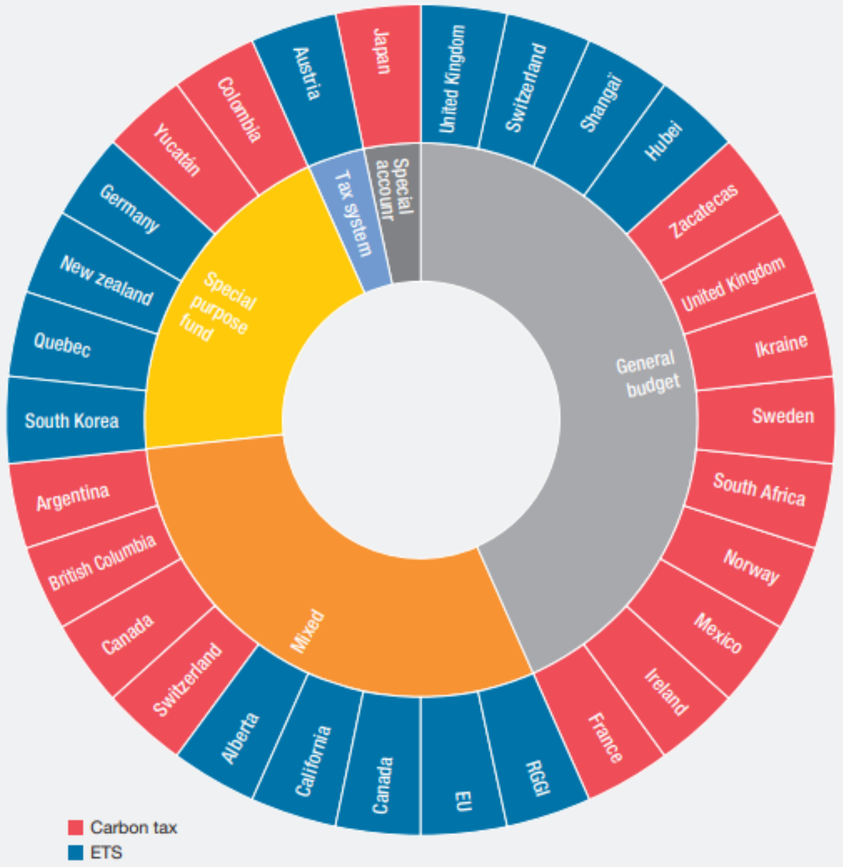
TABLE 5. POLICY OBJECTIVES FOR REVENUE USE OF SELECTED CARBON TAXES

Jurisdiction	Stated policy objectives (2022)	Objectives per category			
		Environmental	Social	Economic	Unspecified
Argentina	To support infrastructure (water and transport) and social housing development, mitigate the increased cost of public transport, support the social security system, and feed national and provinces budgets.	☐	☒	☒	☒
British Columbia (Canada)	To provide relief for households from increased costs linked to the carbon tax, and work with industry to reduce pollution, improve efficiency, and adopt new technologies.	☒	☒	☒	☐
Canada	To return proceeds to provinces of origin, offset the cost of the federal pollution pricing for households, and support SMEs, and indigenous peoples, farmers and other recipients reduce their energy use, costs, and greenhouse gas emissions.	☒	☒	☒	☐
Colombia	To support actions for environmental protection, and substitution of illicit crops	☒	☒	☒	☐
France	No stated objective. Only feeds the general budget and some parts are allocated to local authorities.	☐	☐	☐	☒
Ireland	To support social welfare and prevent fuel poverty to ensure a just transition, invest in retrofitting and green farming. This applies only to part of revenues collected and the rest feeds the general budget.	☒	☒	☒	☒
Japan	To support renewable energy projects and enhance energy-savings measures and clean and efficient use of fossil fuels. Explicitly stated targeted groups include businesses, SMEs, and local governments.	☒	☐	☒	☐
Mexico	No stated objective. Only feeds the general budget.	☐	☐	☐	☒
Norway	To offset tax increase by reducing other taxes. Only for a share of revenues.	☐	☒	☒	☒
South Africa	Soft revenue recycling in place with three axes: i) tax shifting: reducing or not increasing other taxes, ii) tax incentives: including the Energy Efficiency Savings Tax Allowance, iii) budget allocations: to enhance free basic energy, electricity programme, and improved public transport. Support focused on businesses.	☒	☐	☒	☐
Sweden	No stated objective. Only feeds the general budget.	☐	☐	☐	☒
Switzerland	To redistribute revenues to the population through transfers, promote energy efficiency measures in buildings, and support for technology development through the promotion of innovative companies.	☒	☒	☒	☐
UK	No stated objective. Only feeds the general budget.	☐	☐	☐	☒
Ukraine	No stated objective. Only feeds the general budget.	☐	☐	☐	☒
Yucatan (Mexico)	To support actions to provide a healthy environment for the population and to protect them from natural disasters.	☒	☒	☐	☐
Zacatecas (Mexico)	To invest in areas with the greatest environmental vulnerability and social needs, including on disaster risk management.	☒	☒	☐	☐

Source: I4CE based on data collected from official documents.

Operationalisation: A wide array institutional and administrative arrangements

FIGURE 8. CHANNELS FOR CARBON REVENUE USE PER CARBON PRICING INSTRUMENT



Explanatory note Channels for carbon revenue use have been classified in the following categories:
- General budget: through national or subnational budgets.
- Special account: within the budget for a particular purpose.
- Special purpose fund: through a new or existing fund.
- Tax system: using the tax system for transfers or tax credits.
- Mixed: more than one channel including funds, specific programmes, the social security system, the tax system, national or subnational budgets, and other channels.

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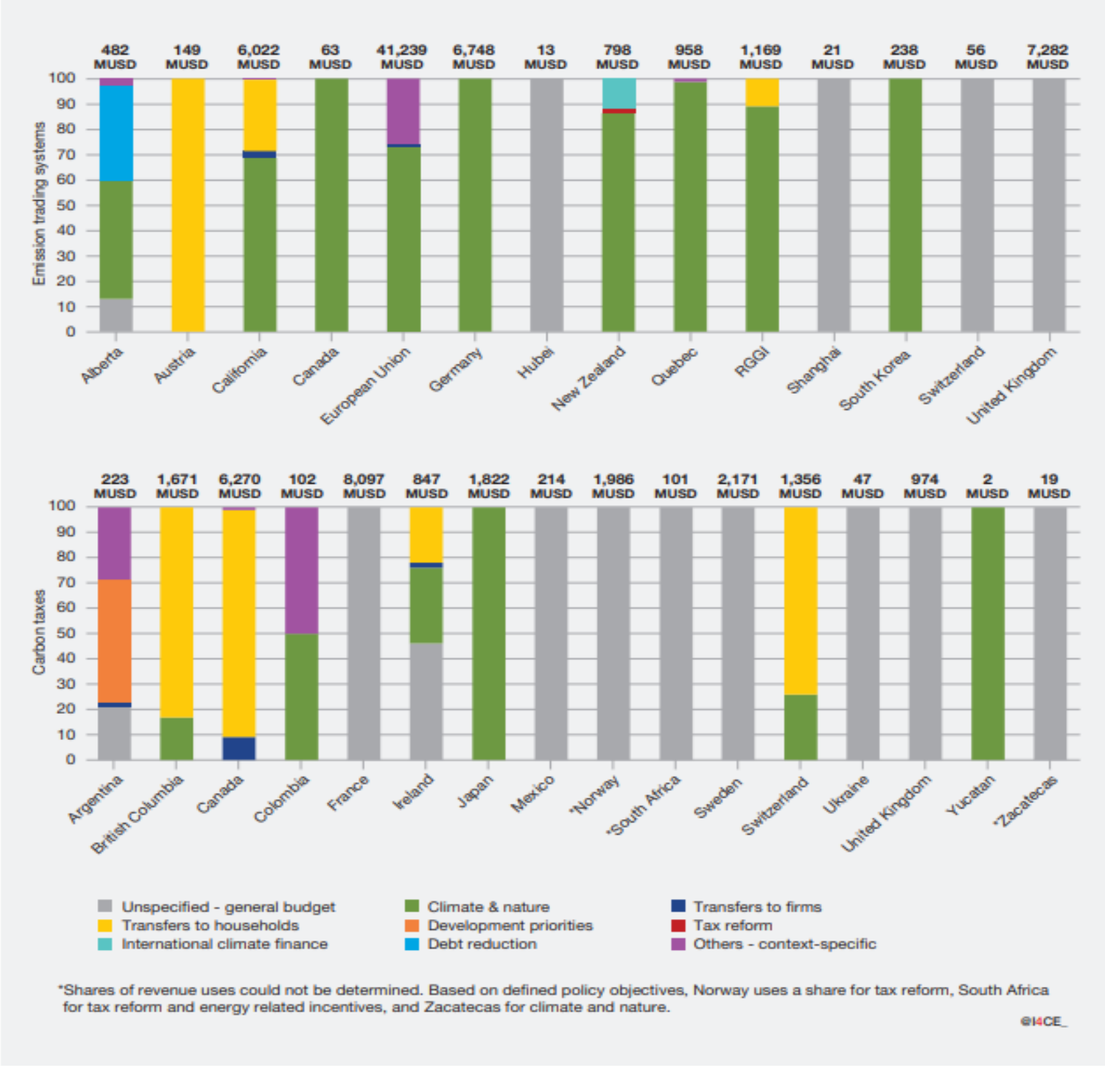
- 23 out of 30 CPIs are using public budgets to channel all or part of carbon revenues.
- 9 out of 16 carbon taxes channel carbon revenues solely through the general budget, while 7 use a set of different channels (including budgets)

Examples:

- Argentina: As determined in the carbon tax law, revenues are channeled through the Social Security System (28.69%), Transport Infrastructure Trust (28.58%), Water Infrastructure Trust (4.31%), National Housing Fund (15.07%), National Treasury (10.40%), Provinces (10.40%), and Public Transport Compensation (2.55%).
- Yucatan: Revenues are transferred to the state’s Environmental Fund.
- Japan: Revenues go to the General Account, are checked by the Ministry of Finance, and then transferred to a Special Account for Energy Measures.
- Switzerland: Two thirds of revenues are redistributed through the social security system, one third appropriated for energy efficiency projects in buildings and allocated through the Technology Fund for the promotion of innovative companies.

Implementation: The key role of transparency and communication

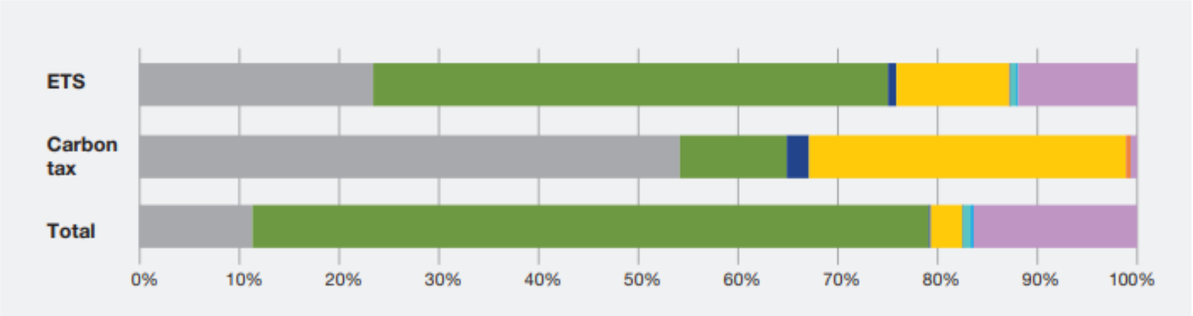
FIGURE 10. SHARES OF CARBON REVENUE USE PER JURISDICTION AND TYPE OF CARBON PRICING INSTRUMENT



Note: Shares of revenue use per category provide a picture of allocations or reported uses depending on data availability.
Source: I4CE based on data collected from official documents and reports of different jurisdictions analysed.

- Around 52% of carbon revenues –USD 47 billion– were used for climate & nature.
- In 9 ETSs and 6 carbon taxes at least a share of revenues used for climate & nature.
- Most carbon tax revenues feed into public budgets, yet 32% were used for transfers to households.

FIGURE 9. AGGREGATED SHARES OF CARBON REVENUE USE PER CATEGORY



Example:

➢ Canada’s Federal Fuel Charge proceeds were 100% returned to the population through the Canada Carbon Rebate.

Earmarking of other environmental taxes – Case of Republic of Korea

- In **South Korea, transportation, energy and environmental taxes are earmarked for pre-designated government programs**. The tax base includes “Gasoline and similar alternative oil” and “Diesel oil and similar alternative oil” (Korean taxation, 2009)

- Use of revenues: In general terms, the **purpose of these revenues is to secure financial resources required for the business to expand traffic facilities**, such as roads and city railroads, and to **foster public traffic infrastructure, the business related to energy and resources, and the business for preservation and improvement of environment** (Traffic, Energy And Environment Tax Act, 2013)

- According to budget bill 2025 (Public Finance of the Republic of Korea, 2025 – p.78), in the case of transportation, energy, and environment taxes, **68% is allocated to the transportation facilities special account, 23% to the environmental improvement special account, 2% to the regional balanced development special account, and 7% to the climate action fund**”

Regarding the **climate action fund**:

- “general account transfers (7% of transportation, energy, and environmental taxes) represent one of the financial resources funding the fund”
- “Expenditure projects in four major areas: greenhouse gas reduction, low-carbon ecosystem creation, carbon neutrality infrastructure construction, and fair transition”

7% earmarked (million won)

	2022	2023	2024	2025
7%	1,076,635	780,297	1,072,806	1,057,336
Total	2,459,423	2,486,723	2,391,807	2,622,389
Share	44%	31%	45%	40%

Climate Response Fund Expenditures by Sector (million won)

	2022	2023	2024	2025
greenhouse gas reduction	949,823	986,624	978,415	860,677
Creating a low-carbon ecosystem	643,599	636,422	606,328	568,427
fair transition	183,654	203,781	197,272	207,735
Building a carbon neutral foundation	576,877	627,591	478,174	686,383
etc	105,470	32,305	131,618	299,167
Total	2,459,423	2,486,723	2,391,807	2,622,389

Implementation: The key role of transparency and communication

- A key challenge regarding carbon taxation can be the lack of relevant data. This issue can cause difficulty in accurately pricing emissions, prioritising sectors, designing complementary policies, avoiding loopholes and increasing public acceptance.

- Jurisdictions can rely on carbon revenues to tackle this issue, through the financing of programs to improve monitoring and data collection.

Example: Colombia’s « Fondo para la Vida y la Biodiversidad », which is 80% financed by the national carbon tax, dedicated around USD 19 million (9% of the overall spending) to ”Strengthening environmental monitoring and follow-up of natural forest areas, other land covers and land transformation dynamics” in the Amazon region.

Evaluation: The need to strengthen practices to assess effectiveness of the use of carbon revenues

Few jurisdictions have taken a step further with ex post evaluations and/or external oversight:

British Columbia

California

- Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds

Canada

- Parliamentary Budget Officer (PBO): Distributional Analysis of the Federal Fuel Charge

EU

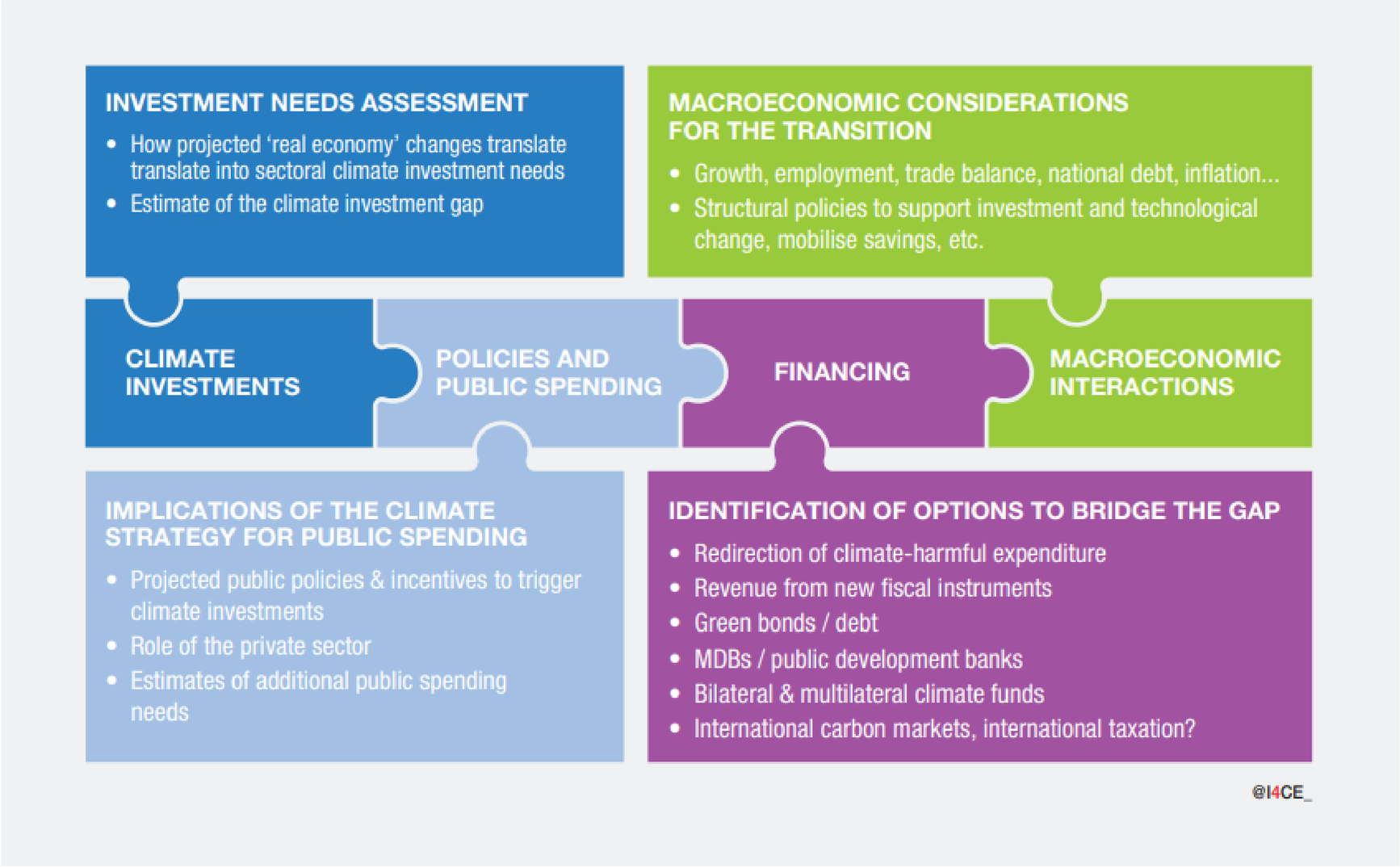
Quebec

Switzerland

New Zeland

Carbon revenues as a key piece of the puzzle of how to fill the finance gap for climate and overall sustainable development goals

FIGURE 11. FINANCING PLANS: KEY BUILDING BLOCKS



- Carbon revenues are already playing a role in financing environment and development objectives.
- In 2023, 57% of carbon revenues were earmarked to environment and development objectives.
- One of the options to consider to bridge the investment gap for climate and sustainable development goals.

Lessons learned

- **Strategy**: To define policy objectives on carbon revenue use, there is no ‘one-size-fits all’ and decisions should be based on country contexts and priorities, striving for policy coherence and alignment with broader climate and development strategies.
- **Operationalisation**: To operationalize these decisions, there is a need to assess trade-offs between different options and to design appropriate governance structures ensuring effective coordination.
- **Implementation**: To implement revenue use choices, transparency and effective communication will be key and have yet to improve, particularly on reporting actual uses.
- **Evaluation**: To evaluate the effectiveness of carbon revenue use and improve accountability, more ex-post evaluations and audits are needed, along with assessments on the link between revenue use and acceptability of carbon pricing.

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Thank you for your attention

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