



**Evaluating  
Brazil's progress  
in implementing  
Environmental  
Performance Review  
recommendations  
and promoting its  
alignment with OECD  
core acquis on the  
environment**





# **Evaluating Brazil's progress in implementing Environmental Performance Review recommendations and promoting its alignment with OECD core acquis on the environment**



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# Foreword

This report is a key output of the OECD-Brazil project “Evaluating Brazil’s progress in implementing Environmental Performance Review recommendations and promoting its alignment with the OECD core acquis on the environment”. The main objective of this project is to help Brazil improve its policies and practices in line with OECD legal instruments related to the environment. The project was made possible by financial support of the United Kingdom’s Prosperity Fund.

Brazil has expressed interest in aligning its policies and practices with the OECD acquis on the environment. In 2017, it requested adherence to 37 out of 46 OECD legal instruments on the environment and waste. However, this report is not linked to the consideration of Brazil’s adherence request.

This report examines Brazil’s alignment with 23 selected OECD legal instruments related to the environment. These include 18 instruments which Brazil has requested to adhere to. The legal instruments were primarily selected for their link to the recommendations of the 2015 OECD Environmental Performance Review (EPR) of Brazil (Annex A). They also form the core of the OECD acquis on the environment. The report also looks at Brazil’s progress in implementing 13 out of the 53 EPR recommendations that are relevant to the OECD acquis. The analysis is based on information submitted by the Brazilian government on its environmental policies to EPOC in September 2019, replies to the OECD Secretariat’s written questions and independent research of publicly available sources.

The report is divided into eleven principal sections, one per group of legal instruments and corresponding EPR recommendations. Each section provides a brief overview of the legal instrument(s) and the context and content of the relevant 2015 EPR recommendation(s). This is followed by a description of the relevant legal and policy framework in Brazil, recent changes to it, the state of their implementation and, where possible, evidence of their effectiveness. Each section closes with possible ways forward to better align Brazil’s legislation, policies and practices with the relevant OECD legal instrument(s). Annex B contains tables summarising the assessment with respect to key provisions of each considered legal instrument. The assessment was discussed with Brazilian stakeholders on 11-12 May 2021.

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# Abbreviations and acronyms

<b>ABEMA</b>	Brazilian Association of State Environment Authorities
<b>ANA</b>	National Water and Sanitation Agency
<b>ANAMMA</b>	National Association of Municipal Environment Agencies
<b>BNDES</b>	Brazilian Development Bank
<b>CAR</b>	Rural Environmental Cadastre
<b>CBD</b>	UN Convention on Biological Diversity
<b>CISAP</b>	Inter-ministerial Commission on Sustainability of the Federal Public Administration
<b>CIDE</b>	Federal fuel tax
<b>CONAMA</b>	National Environmental Council
<b>CRA</b>	Environmental Reserve Quotas
<b>EIA</b>	Environmental Impact Assessment
<b>EPOC</b>	OECD Environment Policy Committee
<b>EPR</b>	Environmental Performance Review
<b>IBAMA</b>	Brazilian Institute of the Environment and Renewable Natural Resources
<b>IBGE</b>	Brazilian Institute of Geography and Statistics
<b>ICMBio</b>	Chico Mendes Institute for Biodiversity Conservation
<b>LCA</b>	Life cycle analysis
<b>MMA</b>	Ministry of the Environment
<b>NO<sub>x</sub></b>	Nitrogen oxides
<b>PES</b>	Payment for ecosystem services
<b>PM</b>	Particulate matter
<b>PNRS</b>	National Solid Waste Policy
<b>PROCEL</b>	National Electricity Conservation Programme
<b>SEA</b>	Strategic Environmental Assessment
<b>SINIMA</b>	National Environmental Information System
<b>SISGEN</b>	National System of Genetic Resource and Associated Traditional Knowledge Management
<b>SO<sub>2</sub></b>	Sulphur dioxide
<b>TCU</b>	Federal Accounting Court

# Executive summary

This report aims to evaluate the alignment of Brazil's environmental legislation, policies and practices with selected 23 OECD legal instruments on the environment. It also assesses the country's progress in implementing the related 13 recommendations of the 2015 OECD Environmental Performance Review of Brazil. The OECD legal instruments covered in this report concern the polluter-pays principle, environmental assessment, integrated pollution prevention and control, environmental performance of government, use of economic instruments and provision of environmental information, as well as water management, biodiversity conservation, energy and air pollution, transport and waste.

The report shows that Brazil has developed sound legislation on environmental information, water and waste management, and biodiversity. However, further efforts are needed to translate legal provisions into effective practices promoting sustainability.

Brazil's legislation on public access to environmental information is in line with good international practice. However, the absence of periodic environmental reporting, poor systematisation of indicators, limited integration between databases and limited information on environmental performance of private companies indicate that Brazil has to make further improvements in its environmental information management if it wants to conform to the OECD legal instruments on this matter.

Brazil is on the right track to implement a water management framework aligned with the OECD legal instrument on water. The country has considerably strengthened its governance structure for water resource management, although local management committees have yet to be established for some water bodies. The water risk management framework has been strengthened. A 2020 law created better conditions for financing water supply and sanitation services. Water quality standards and water monitoring are generally sound. However, monitoring and control of pesticides in water bodies should be strengthened.

In solid waste management, Brazil has developed extended producer responsibility programmes and closed many uncontrolled waste dumps. The waste collection rates and the share of separate collection are slowly increasing. However, non-selective collection and final disposal in landfills continue to dominate, open-air landfills still exist, and waste recovery has not increased since 2010. Hazardous waste management regulations are not sufficiently enforced, with many municipalities tolerating the illegal practice of disposing of hazardous waste in municipal landfills. Considerable efforts will therefore be needed to implement sound waste management principles.

Brazil has a comprehensive and consistent legislative framework for biodiversity conservation and sustainable use. However, the increasing deforestation rates and other strong pressures on Brazil's natural wealth require more efforts at all levels of government to implement these stringent requirements. Economic instruments for biodiversity protection, such as payments for ecosystem services and biodiversity offsets, continue to be used widely but not always effectively. The 2015 adoption of a law on equitable sharing of biodiversity benefits requires due consideration of the interests of traditional communities. This law is a remarkable achievement, but its implementation needs further attention.

Brazil has yet to adopt clear rules for the quantification of environmental compensation for biodiversity loss as part of environmental licensing.

In the other evaluated environmental areas, policies and practices fall behind OECD standards. Brazil has failed to correct problems with environmental impact assessment (EIA) or strengthen the integration of environmental considerations into public policies and plans. Gaps remain in the implementation of the polluter-pays principle, integrated pollution prevention and control, and environmental performance of public facilities. There is ample room to expand the use of economic instruments to achieve environmental objectives, including in the energy and transport sectors.

As regards the polluter-pays principle, Brazil's legislation and policy framework is partially aligned with the relevant OECD legal instruments. However, subsidies for polluting activities, such as fossil fuel and pesticide production, remain high. The regulatory framework for accidental pollution liability is adequate, but recovery of clean-up costs from operators is insufficient.

The legislative framework for EIA of projects (conducted as part of environmental licensing) is adequate, but long-identified deficiencies related to such key aspects as consideration of alternative and public participation have not been rectified. Strategic environmental assessment of plans and programmes is sporadic, with no relevant regulations or implementation guidance.

Brazil applies elements of integrated pollution prevention and control, for example by issuing environmental licences and conducting inspections that cover all environmental media. However, institutional co-ordination, integration of environmental policy instruments with land-use planning and capacity building for environmental monitoring and enforcement agencies, should be strengthened.

Brazil also needs to improve the environmental performance of government operations and buildings by establishing clear goals and support measures, promoting green public procurement and creating mechanisms to track progress. The country's numerous environmental funds are generally professionally managed and well monitored. However, Brazil does not systematically track environment-related expenditure.

The use of economic instruments can be scaled up to support environmental policy objectives. Brazil has made clear progress in expanding the implementation, including effective collection, of waste and water charges. However, the country has not implemented the 2015 EPR recommendation to establish energy excise taxes for all sectors and to link them to environmental parameters (such as CO<sub>2</sub> emissions). Vehicle taxation should also be more closely tied to environmental criteria to promote cleaner transport solutions. With the exception of wastewater effluent charges, Brazil applies no taxes on pollution.

Thanks to its long tradition of promoting renewable energy, Brazil has one of the world's cleanest energy mixes. Energy efficiency labelling has been successful in reducing electricity consumption in households, but there is ample scope for more ambitious energy efficiency programmes. Energy prices do not reflect the social costs related to energy production and consumption. Important progress has been achieved in the field of air pollution control. Notable achievements include new air quality standards (although they are less stringent than international best practice), updated vehicle emissions standards and progress in the establishment of a national air quality monitoring system.

Brazil has strengthened its transport infrastructure planning and investment framework, which brings opportunities to further integrate environmental objectives into the sector. Brazil is progressing in the construction of inter-state railways. At the same time, environmental priorities in the urban public transport sector vary across states and municipalities. The mandatory formulation of local urban mobility plans has been postponed several times and is still not enforced. The National Development Bank has recently scaled down investments in urban public transport systems.

# Table of contents

Foreword	3
Abbreviations and acronyms	4
Executive summary	5
<b>1. The polluter-pays principle</b>	<b>11</b>
OECD requirements and the link with 2015 EPR recommendations	11
Main legislation, policies and practices and recent developments	11
Assessment of alignment and possible ways forward	12
<b>2. Environmental assessment</b>	<b>14</b>
OECD requirements and the link with 2015 EPR recommendations	14
Main legislation, policies and practices and recent developments	14
Assessment of alignment and possible ways forward	16
<b>3. Integrated pollution prevention and control</b>	<b>18</b>
OECD requirements and the link with 2015 EPR recommendations	18
Main legislation, policies and practices and recent developments	18
Assessment of alignment and possible ways forward	19
<b>4. Environmental performance of government</b>	<b>21</b>
OECD requirements and the link with 2015 EPR recommendations	21
Main legislation, policies and practices and recent developments	21
Assessment of alignment and possible ways forward	23
<b>5. Use of economic instruments</b>	<b>24</b>
OECD requirements and the link with 2015 EPR recommendations	24
Main legislation, policies and practices and recent developments	24
Assessment of alignment and possible ways forward	28
<b>6. Environmental information and transparency</b>	<b>29</b>
OECD requirements and the link with 2015 EPR recommendations	29
Main legislation, policies and practices and recent developments	29
Assessment of alignment and possible ways forward	31
<b>7. Water</b>	<b>32</b>
OECD requirements and the link with 2015 EPR recommendations	32

Main legislation, policies and practices and recent developments	32
Assessment of alignment and possible ways forward	34
<b>8. Biodiversity conservation and sustainable use</b>	<b>35</b>
OECD requirements and the link with 2015 EPR recommendations	35
Main legislation, policies and practices and recent developments	35
Assessment of alignment and possible ways forward	40
<b>9. Energy and air pollution</b>	<b>42</b>
OECD requirements and the link with the 2015 EPR recommendations	42
Main legislation, policies and practices and recent developments	43
Assessment of alignment and possible ways forward	46
<b>10. Transport</b>	<b>48</b>
OECD requirements and the link with 2015 EPR recommendations	48
Main legislation, policies and practices and recent developments	48
Assessment of alignment and possible ways forward	51
<b>11. Waste</b>	<b>52</b>
OECD requirements and the link with 2015 EPR recommendations	52
Main legislation, policies and practices and recent developments	53
Assessment of alignment and possible ways forward	55
<b>12. Conclusions</b>	<b>57</b>
References	59
Notes	64
<b>Annex A. Relevant OECD legal instruments and 2015 EPR recommendations</b>	<b>65</b>
<b>Annex B. Assessment of Brazil's alignment with selected OECD legal instruments on environment</b>	<b>67</b>
<b>Tables</b>	
Table 1. Taxation on the use of some natural resources	26
Table 2. Air quality standards according to CONAMA Resolution 491/2018	46
<b>Figures</b>	
Figure 1. Effective fossil carbon rates by country, 2018	25
Figure 2. Water charges collection in state and federal river basins, 2019	27
Figure 3. Deforestation rates in the Legal Amazon region, 1990-20	38
Figure 4. Infraction notices in the Legal Amazon region, 2009-20	38
Figure 5. Energy savings realised through the PROCEL programme, 2013-19	44
Figure 6. Disbursements for urban mobility projects by BNDES, 2007-17	49

## Roadmap for Brazil's alignment with selected OECD legal instruments on the environment

To further align its legislation, policies and practices with the legal instruments covered in this report, Brazil should consider the following steps:

### On the polluter-pays principle:

- Develop a long-term strategy to identify, reduce and eventually phase out financial public support for fossil fuel production.
- Improve data and knowledge of the pesticide market and end public support for pesticide production and consumption.
- Develop guidance for public authorities that execute environmental clean-up activities following events of accidental pollution, including on cost recovery and the development of remediation requirements for liable parties.

### On environmental assessment:

- Introduce and enforce a legal requirement of SEA for spatial plans at all administrative levels as well as for sectoral development plans and programmes.
- Develop methodological and procedural guidance for conducting EIA of projects and SEA of public plans and programmes and build capacity among competent authorities.

### On integrated pollution prevention and control:

- Better link key environmental policy instruments with land-use planning and natural resource management systems.
- Strengthen the capacity of environmental agencies at all government levels, ensuring they have sufficient financial and human resources to effectively monitor and enforce environmental regulations and conditions laid out in permits, including through proactive (planned) compliance monitoring.
- Streamline the multitude of horizontal and vertical co-ordination bodies, with a view to eliminating overlaps and gaps of responsibilities and, ultimately, improving policy coherence and effectiveness.

### On the environmental performance of government:

- Set clear goals to advance sustainable public procurement at all levels of government and ensure effective functioning of the inter-ministerial sustainability commission to track progress.
- Establish requirements, goals and a monitoring system to promote better environmental performance in day-to-day operations of federal institutions, buildings and facilities (e.g. by using less energy, water, paper and other materials).
- Establish a system to track public environment-related expenditure to improve the transparency of the general budget and environmental funds; evaluate the feasibility of "green budgeting" to assess how different budget measures (beyond those decided by the MMA) impact sustainability objectives and help prioritise investments that support the green transition.

### On the use of economic instruments to support environmental goals:

- Establish positive CIDE tax rates for all energy sources, expand the tax base to include energy use in the industrial, commercial and household sectors, and link the tax to their carbon content.
- Link the taxation of vehicles (including heavy-duty ones) to their environmental performance.
- Building on recent progress and the new legislation, continue to expand the use of charges for water supply, sanitation and waste services to encourage efficient use of resources and improve cost recovery.
- Introduce taxes on polluting activities other than wastewater discharges (e.g. on air emissions and pesticide use).

**On environmental information:**

- Regularly publish state of the environment reports, both at the federal and state levels.
- Continue efforts to develop indicators on the implementation of environmental and sustainable development policies and ensure that these are regularly updated and supported by appropriate data sources, definitions and calculation methodologies; enhance consistency between regional and national data.
- Provide public access to information about environmental performance of enterprises, including the register of their pollution releases and compliance records.

**On water:**

- Establish river basin management committees where they are still lacking.
- Expand ANA's efforts to guide and monitor the states' implementation of user charges.
- Establish priorities and criteria for water allocation and strengthen water demand management, including through water use charges.

**On biodiversity:**

- Carefully analyse the drivers of the increasing deforestation rates and develop targeted policy instruments to reverse the trend; develop an effective monitoring system for policy implementation and outcomes, and guarantee that environmental enforcement agencies are equipped with sufficient human and financial resources.
- Continue efforts to prepare, and ensure proper functioning of, the Rural Environmental Cadastre as a prerequisite for effective use of economic instruments for biodiversity conservation.
- Continue to improve knowledge on the economic value of biodiversity and ecosystem services; develop guidance on the assessment of biodiversity loss and ensure these estimates are integrated into decisions on financial compensations for biodiversity loss in environmental licensing.

**On energy and air pollution:**

- Conduct strategic environmental assessments of long-term energy plans.
- Continue to improve energy efficiency, including by establishing mandatory labelling and efficiency standards for new buildings and by continuously expanding and strengthening performance requirements for appliances.
- Continue to develop air quality monitoring systems across all states and ensure that data are comparable; develop a national air pollution control plan to set medium- and long-term goals guiding measures to be taken at the state level.

**On environment and transport:**

- Revitalise investment in urban mobility systems, in particular in cities with high congestion levels.
- Build capacity for local integrated mobility planning, for example by developing training programmes for urban development planners and by developing networks to share good practice among municipalities.

**On waste:**

- Complete the closure of open-air landfills by 2024, as required by law, and actively support municipalities in their efforts through continued capacity building, public funding and public-private partnerships; consider establishing stricter enforcement methods, including sanctions, in case of continued non-compliance.
- Building on recent progress, further expand reverse logistics schemes and establish clear targets and a mechanism for monitoring progress.
- Continue efforts to enhance the economic and financial viability of waste services, also with a view to attracting investment in infrastructure for waste recovery and recycling.
- Strengthen efforts to enforce the hazardous waste management regulations to eliminate the disposal of hazardous waste in municipal landfills.

# 1. The polluter-pays principle

## OECD requirements and the link with 2015 EPR recommendations

Recommendation of the Council on Guiding Principles concerning International Economic Aspects of Environmental Policies, [OECD/LEGAL/0102](#), adopted in 1972, provides that the polluter should bear the cost of pollution control measures decided by public authorities to ensure that the environment is in an acceptable state. It also calls for harmonised implementation of environmental policies by Members and non-Members having adhered to it (hereafter the “Adherents”) in order to avoid trade distortions, and to create the conditions for a progressively more stringent set of environmental standards. Recommendation of the Council on the Implementation of the Polluter-Pays Principle, [OECD/LEGAL/0132](#), adopted in 1974, lays out the general terms for applying the polluter-pays principle and defines the condition for exceptions and temporary deviations from it. It recommends that Adherents not grant assistance to polluters in bearing the costs of pollution control by means of subsidies, tax advantages or other measures, except for well-defined transitional periods. Recommendation of the Council concerning the Application of the Polluter-Pays Principle to Accidental Pollution, [OECD/LEGAL/0251](#), adopted in 1989, determines that the costs of measures to prevent and control accidental pollution at “hazardous installations” should be borne by the operators or other parties responsible for the accident.

The 2015 EPR discussed a number of environmentally harmful subsidies which contradict the concept of internalising environmental costs that lies at the core of the polluter-pays principle. The EPR recommended that Brazil reform the system of environmentally related taxes and charges, possibly within the context of a broader fiscal reform.

## Main legislation, policies and practices and recent developments

Brazilian legislation solemnly recognises the polluter-pays principle. Article 14, paragraph 1 of the Law of the National Policy on the Environment (Federal Law 6938/1981) asserts that “the polluter is obliged, regardless of the existence of guilt, to compensate or repair the damage caused to the environment and to third parties, affected by its activity”.

Brazil imposes taxes and fees on the extraction and use of certain natural resource (see Section 5. on economic instruments), which help internalise the costs of natural resource use and degradation in business activities. At the same time, however, Brazil provides considerable support for the production of environmentally harmful products, such as fossil fuels and pesticides. While not all of these support measures directly subsidise pollution control activities, they artificially reduce the prices of environmentally harmful products and, as such, contradict the idea of internalising environmental costs, as stipulated by Recommendations [OECD/LEGAL/0102](#) and [OECD/LEGAL/0132](#).

The public support for the production and consumption of fossil fuels equalled 1.4% of Brazil’s total tax receipts in 2019 (OECD, 2020). One of the largest support programmes is the Special Tax Regime for Goods Used in the Exploration and Production of Oil and Natural Gas Field (REPETRO), which provides

oil and natural gas operators with exemptions from several taxes and charges<sup>1</sup> and import tax and customs duties. According to the OECD Inventory of Support Measures for Fossil Fuels, this programme results in tax expenditure of BRL 10 billion (USD 1.9 billion) per year (OECD, 2020). In 2017, the programme was renewed until 2040.

Implicit subsidies also exist for pesticides and fertilisers, as their producers are exempt from some federal and state taxes. In addition, pesticide producers benefit from subsidised loans. Direct support for pesticides encourages inefficient use and overconsumption, beyond the legitimate need to confront pest epidemics in a tropical country like Brazil. According to an audit conducted by the Federal Accounting Court (*Tribunal de Contas da União*, TCU) in 2018, tax concessions to the pesticide industry reach more than BRL 1 billion (USD 194 million) annually (TCU, 2018a). A more recent study estimated subsidies at close to BRL 10 billion (ABRASCO, 2020). The TCU audit concluded that these subsidies are not based on long-term social, economic or environmental analyses. Generally, the government's knowledge of the size and characteristics of the Brazilian pesticide market is very limited (TCU, 2018a).

Brazil's National Policy on the Environment creates liability for environmental damage. In line with Recommendation [OECD/LEGAL/0251](#), the policy requires the polluter to remediate the site by mitigating the impact of pollution and restoring its ecological conditions. Going beyond the Recommendation's requirements, Brazil has a strict civil liability regime, meaning there is no need to prove fault or negligence to impose responsibility for remediating environmental damage. Liability is, however, not absolute: the operator's action or inaction has to be one of the relevant causes of the event. In case of accidents caused solely by actions or inactions (when action was required) of a third liable party, or by unforeseeable independent events, the operator cannot be liable. The burden to prove the exception falls upon the operator.

The rules of strict liability and integral compensation of environmental damage allow for the recovery of costs incurred by exceptional public action in events involving accidental pollution. In practice, however, cost recovery suffers from frequent delays and recourse to court appeals. For example, the TCU identified severe delays in the execution of environmental clean-up by the operator of the Fundão mining tailings dam in Mariana, Minas Gerais. An accident at the dam in 2015 led to the contamination of 40 km of the Rio Doce River and caused 18 deaths. By 2019, recovery programmes were still poorly defined, lacking clearly defined actions with pertinent goals, indicators, deadlines, etc. There had been no systematic monitoring of the progress in the implementation of these programmes (TCU, 2019).

## Assessment of alignment and possible ways forward

The polluter-pays principle is prominently featured in Brazil's legislation. However, the tax concessions granted to producers of certain environmentally harmful products (e.g. fossil fuels and pesticides) artificially reduce production costs and hence prices, which in turn may encourage wasteful use and pollution resulting from their consumption. These tax breaks contradict the provision that the costs of goods and services should reflect environmental externalities, as provided for by Recommendation [OECD/LEGAL/0132](#).

Brazil applies a strict environmental liability regime, in which there is no need to prove fault or negligence. This is in line with good international practice and goes beyond the requirements of Recommendation [OECD/LEGAL/0251](#) on the application of the polluter-pays principle to accidental pollution. However, environmental liability is not assigned systematically in practice and, when applied, suffers from frequent delays and recourse to court appeals.

As regards the EPR recommendation to reform the system of environmentally related taxes and charges, Brazil has made little progress in removing support measures to fossil fuel and pesticides producers. The EPR recommendation to remove these implicit subsidies remains valid.

To align with the OECD legal instruments related to the polluter-pays principle, Brazil should:

- Develop a long-term strategy to identify, reduce and eventually phase out financial public support for fossil fuel production
- Improve data and knowledge of the pesticide market, reduce public support for pesticide production and consumption, and raise awareness about the environmental and health consequences of excessive pesticide use as well as alternative pest control methods
- Develop guidance for public authorities that execute environmental clean-up activities following events of accidental pollution, including on cost recovery and the development of remediation requirements for liable parties.

## 2. Environmental assessment

### OECD requirements and the link with 2015 EPR recommendations

The Recommendation of the Council on the Assessment of Projects, Plans and Programmes with Significant Impact on the Environment, [OECD/LEGAL/0172](#), adopted in 1979 and revised in 2019, refers to both environmental impact assessment (EIA) of specific projects and strategic environmental assessment (SEA) of public plans and programmes. It requires that environmental assessment be part of decision-making on projects, plans and programmes and lays out principles for its implementation (including early consideration of alternatives and public participation), with the aim to ensure that Adherents take necessary measures to prevent and remediate environmental impacts.

The 2015 EPR of Brazil identified several procedural and substantial problems in the manner environmental assessments were conducted in Brazil and provided two principal recommendations:

- Streamline the EIA and environmental licensing requirements across and within administrative levels; clarify the boundaries of compensation actions that have socio-environmental objectives and those that pursue social objectives; develop procedural guidance for each stage of the licensing process and build capacity of licensing authorities
- Introduce and enforce a legal requirement of SEA of municipal territorial plans and sectoral development programmes, which should be used to integrate the economic, social and environmental aspects of land use.

### Main legislation, policies and practices and recent developments

EIA was introduced in Brazil's environmental management in 1981 and was later also mentioned in the Federal Constitution. As in many other Latin American countries, EIA is an integral part of the environmental licensing process and a crucial regulatory instrument at all levels of government. Resolution 01/1986 of the National Environmental Council (CONAMA) established the minimum EIA scope (expanded in 1997). Most state agencies have their own requirements, usually depending on the complexity of the activity. Complementary Law 140 adopted in 2011 and the subsequent presidential decree clarified responsibilities among different levels of government, including for environmental licensing and EIA.

Environmental licensing, and EIA supporting it, are mandatory procedures for all projects with potentially significant environmental impacts, although the regulation does not define what "significant impacts" are. Article 5 of CONAMA Resolution 01/1986 mandates analysis of reasonable alternatives. In practice, however, alternatives are rarely seriously considered, given that the analysis only occurs after the conception phase of the project.

The EIA process includes an impact assessment study as well as a simplified, non-technical summary to provide information about the EIA process to people attending public hearings. Both reports are always public. Public hearings are mandatory when requested by more than 50 people, the public prosecutor's

office, or when deemed necessary by the environment agency. However, meaningful public participation rarely happens. Public authorities are consulted according to specific procedures laid out in 2015 government instructions. Post-licence monitoring is regulated by CONAMA Resolutions 1/1986 and 237/1997 but is barely implemented. There are no specific procedures for evaluating transboundary impacts.

The TCU assessed the implementation of the legal requirements for environmental licensing and EIA on various occasions. In its latest 2018 assessment, it noted progress in the execution of impact studies at the federal level, which helped reduce delays in the licensing procedures. At the same time, the assessment noted that a number of methodological deficiencies remained (e.g. insufficient use of guidelines and technical manuals and lack of due assessment of cumulative impacts and synergies for projects executed in the same region). Communication with other governmental bodies had not improved, even with the adoption of a regulation prescribing when mandatory consultation should occur and the forms and procedures to be followed (TCU, 2018b).

In March 2021, the Ministry of Economy issued a general guide for socio-economic impact analysis of infrastructure projects (the ACB Guide). The guide aims to facilitate systematic adoption of socio-economic cost-benefit analysis in the evaluation and selection process of infrastructure projects (including environmental impacts), taking into account direct and indirect impacts throughout the project's life cycle. The methodology established through the guide is mandatory for new large projects.<sup>2</sup> In November 2020, the Investment Partnership Programme, which is part of the Ministry of Economy, published Proposals of Guidelines for Terms of Reference for Environmental Studies to improve and harmonise EIA procedures in environmental licensing processes for oil and gas offshore production, large hydropower plants and offshore wind. Both initiatives can help address some of the weaknesses in the EIA process.

The states' courts of accounts picture a similar situation in environmental licensing procedures conducted by state agencies. Back in 2011, the Court of Accounts of Santa Catarina identified a series of issues, including the lack of transparency of studies and decisions, the issuance of licences before the conclusion of technical impacts assessments of projects and the illegal participation of civil servants without formal jurisdiction in the licensing process (TCE-SC, 2011). In 2016, the court found that 67% of decisions on illegal practices had not been resolved, and 72% of recommendations of good practices had not been adopted (TCE-SC, 2016). More recently, the Court of Accounts of Paraná found that the state agency lacked capacity, a formal system of licensing procedures, and transparency of the licensing documents and procedures (TCE-PR, 2020). Similar issues have also been identified in other states (Santos and Borges, 2019; César and Carneiro, 2017).

A study concerning the licensing practices in the four south-eastern states (Minas Gerais, São Paulo, Rio de Janeiro, and Espírito Santo) identified that some phases of the environmental licensing procedure are frequently omitted. This is a result of reclassification of potential impacts caused by projects from "intense" to "moderate" or "minimum", which exempts the project from a full impact assessment study (Oliveira et al., 2016). This practice of weakening the requirement of a three-phase procedure for projects with a substantial impact is common. Another frequent practice at all levels of government is the "slicing" of installation licences, i.e. the issuance of a licence for a part of the project (e.g. a segment of a highway or a construction site) before full completion of the preliminary licence procedure. This practice hinders the possibility of confirming the environmental viability of a project before it starts to be implemented, thwarting the requirement of prevention, precaution and reasonable consideration of alternatives.

A proposal for a new General Law of Environmental Licensing (PL 3724/2004) has been discussed in the Chamber of Deputies since 2004. The most recent version of the proposal aims to simplify environmental licensing procedures. The draft law would introduce automatic approval of licences in the absence of response from the competent authority after a predetermined deadline. It would also create a fast-track, simplified EIA and a single-phase licensing procedure for certain activity sectors and make SEA a substitute for project-level EIA.<sup>3</sup>

The proposal has been criticised for eliminating or considerably reducing environmental licence requirements for new infrastructure projects and other economic activities, based on the understanding that environmental assessments are cumbersome processes that need to be simplified (rather than become more efficient and effective). Concerns have been raised that the proposed law will create loopholes, as many activities will no longer require a licence. In addition, the proposed procedural timeframes may be too short for environmental agencies to appropriately assess the benefits and risks of the proposed project or to effectively involve the public (Abessa et al., 2019; Sánchez et al., 2019; Bragagnolo et al., 2017).

There is no legal obligation for SEA in Brazil. The state of São Paulo has a framework law on SEA (State Law 13798/2009 on the state climate preparedness policy) that formally recognises SEA as one of the policy instruments available to state authorities responsible for planning and assessing environmental impacts of projects. Implementation of SEA remains, however, non-compulsory. In 2018, Pará adopted state laws 8602/2018 and 8633/2018 recommending the integration of social, environmental, and land-use policies based on SEA. The use of SEA is also recommended by a resolution of the state environmental council (COEMA Resolution 126). Nonetheless, there are no cases of implementation of the SEA policy framework in that state. Ceará conducted an SEA of the state's sanitation and water management policies as part of a voluntary effort to modernise the state's water management framework (Ceará, 2017). There are other examples of SEA conducted in Brazil, notably in the states of Minas Gerais, Bahia, São Paulo, Ceará, Mato Grosso do Sul and Rio de Janeiro. The federal government commissioned a SEA of the tourism industry on the northeast coast in the mid-2000s (La Rovere, 2016; LIMA, 2021; 2011; 2007).

In many cases, the effectiveness of SEAs is limited by low quality and methodological deficiencies. In a review of three SEAs realised in Brazil – on a development plan for the northeast coast, on a seaport-industrial complex in Bahia and on a mining-chemical complex in the Pantanal region – Silva et al. (2014) found that the studies lacked clear goals, identification of strategic alternatives, opportunities for public participation as well as monitoring mechanisms. In addition, SEA tends to be detached and integrated only in later stages of the planning and decision-making processes.

The draft federal General Law of Environmental Licensing introduces a possibility for environmental agencies at all levels of government to perform SEA of policies, plans or programmes. It is an important step towards the adoption of SEA as part of public decision making. However, the proposal does not fully align with the Recommendation [OECD/LEGAL/0172](#), as it does not introduce a legal requirement of SEA, not even for municipal land-use plans. In addition, the proposal establishes SEA as a substitute for the environmental licensing procedure for projects. Projects included in governmental plans and programmes that have been subject to a SEA would not need to pass through an EIA or an environmental licensing procedure. Critics argue that the legislative proposal does not resolve the deficiencies identified in previous SEA experiences, as it lays out no methodological and/or procedural requirements to guarantee the quality and effectiveness of SEA. For example, it does not define which elements to assess, which institutions and economic sectors to engage, and how SEA conclusions would be integrated into planning and decision making (Sánchez et al., 2019).

## Assessment of alignment and possible ways forward

In line with Recommendation [OECD/LEGAL/0172](#), Brazilian legislation requires EIA for all activities with a potentially significant environmental impact. It is an integral part of the environmental licensing process. However, Brazil needs to address the weaknesses and deficiencies identified in current EIAs practices in order to align with the key elements for environmental assessments laid out in the recommendation. This includes the establishment of a clear scope as well as procedures for the assessment of environmental impacts and determination of relevant mitigation measures, objective consideration of alternatives,

appropriate consultation of public authorities and the public, systematic post-licensing monitoring, as well as procedures to assess transboundary impacts. The recent initiatives of the Ministry of Economy, which provide guidance on the scope and procedure of EIA of certain infrastructure projects, are a step in the right direction.

At present, EIAs often give insufficient consideration to potential mitigation measures, location, scale and technological alternatives. They also rarely adhere to the available guidelines and technical manuals. The law provides for consultation of public authorities and the public, but procedural incongruities persist. There is no systematic monitoring of implementation of EIA conclusions and no procedures to assess transboundary impacts.

Brazil does not require SEA for governmental plans or programmes, as recommended by Recommendation [OECD/LEGAL/0172](#). However, SEA has been used in several states, including Minas Gerais, Bahia and São Paulo. The examples of SEAs conducted in the country suffer from shortcomings similar to those of the EIA process. This is largely due to the limited technical capacity and lack of methodological and procedural guidance. Assessments are often conducted at too late a stage in the planning and decision-making process to have an impact on the decision. The draft new federal environmental licensing law does not remedy the deficiencies of current EIA and SEA practices.

Given these weaknesses, the 2015 EPR recommendations on EIA and SEA remain valid.

In order to better align with the OECD Recommendation on environmental assessment, Brazil should:

- Introduce and enforce a legal requirement of SEA for spatial plans at all administrative levels as well as for sectoral development plans and programmes
- Develop methodological and procedural guidance for conducting EIA of projects and SEA of public plans and programmes and build capacity among competent authorities.

## 3. Integrated pollution prevention and control

### OECD requirements and the link with 2015 EPR recommendations

The Recommendation of the Council on Integrated Pollution Prevention and Control, [OECD/LEGAL/0256](#), adopted in 1991, lays out guidelines for a holistic approach that considers the effects of pollutants on all environmental media (air, water, soil) along their entire life cycle. It also lists a number of management instruments supporting integrated pollution prevention and control, including the issuance of single environmental permits, conducting cross-media inspections, and linking environmental instruments with land-use planning and natural resource management. It also promotes the establishment of efficient co-ordinating mechanisms within and among government bodies as well as the use of life-cycle analysis (LCA) for products or substances potentially harmful to the environment.

The 2015 EPR analysed general regulatory and economic aspects of pollution control in Brazil. It noted the potential to better integrate land-use planning with water resource management, and to integrate federal and state permit systems for water use. It also noted considerable challenges related to the inspection, monitoring and enforcement of environmental licences that define pollution prevention and control requirements. It recommended that Brazil create a network of regulators at all administrative levels and to enhance their capacity. It also recommended to streamline the multitude of horizontal and vertical co-ordination bodies.

### Main legislation, policies and practices and recent developments

In line with the provisions of Recommendation [OECD/LEGAL/0256](#), Brazil has an integrated, cross-media permitting system, meaning that environmental licences cover emissions to various environmental media (e.g. air, water, land) as well as other environmental effects (e.g. the use of energy, water and raw materials). Some activities require separate permits, including water abstraction for manufacturing, hydroelectric power generation and wastewater discharges. There is potential to better co-ordinate permits across levels of government. For example, as already noted in the 2015 EPR, the lack of integration of federal and state water use permit systems hampers integrated water resources management in shared river basins.

Generally, the environmental authority that issues an environmental licence is responsible for the post-licence monitoring and enforcement. Higher-level agencies can inspect a site licensed by a lower-level one, but must inform that licensing authority and defer to it for imposing possible sanctions. In line with the provisions of the Recommendation, inspections are mostly cross-media. The financial and human resources to monitor and enforce environmental licences vary widely across the country.

Due to resource constraints, inspections are usually conducted in response to complaints or incidents. IBAMA lacks sufficient financial and human resources to adequately execute its mandate. Its work force of environmental field officers has declined by some 40% over the 2010s (New York Times, 2019). Enforcement action fell sharply in 2019 and 2020 (New York Times, 2020; Reuters, 2020), a decline that coincided with increasing deforestation rates in the Amazon (see Section 8. ).

In order to address shared environmental responsibilities, a number of inter-institutional bodies co-ordinate regulatory actions. These include, for example, CONAMA (the main body for vertical co-operation on environmental policy), the National Tripartite Technical Commission (an advisory body that aims to strengthen co-ordination between the three levels of government) and the National Water Resources Council (an advisory body that formulates the National Water Resources Policy). However, despite the abundance of federal-state collaboration mechanisms, the ties between levels of government are seen as weak and riddled with conflict (OECD, 2015a).

The integration of environmental policy instruments with land-use planning and natural resources management, another approach Recommendation [OECD/LEGAL/0256](#) provides for, could be further enhanced. The criticism about a disconnect between the environmental licensing process and land use and river basin planning (OECD, 2015; ABEMA, 2013) remains valid. The draft new federal environmental licensing law (see Section 2. ) does not seem to address this issue. Municipal land-use plans combine but do not integrate individual components on sanitation, transport, housing, etc. In addition, land use planning is detached from water resource management, which can be partly explained by the mismatch between the municipal and river basin planning scales.

The Recommendation further promotes complementary use of effects-oriented measures (e.g. environmental quality objectives) and source-oriented measures (e.g. emission limits). Brazilian legislation requires that effluent discharge limits be harmonised with use categories for the aquatic body and its quality standards (CONAMA 357/2005) (although implementation is not always integrated; see Section 7. on water). In most other areas, however, source-oriented measures (such as emission limits) and effects-oriented measures (such as environmental quality objectives) are not integrated. Emission limits for atmospheric pollutants, for example, are not linked to air quality standards or actual air quality in the airshed.

In line with Recommendation [OECD/LEGAL/0256](#), Brazil has adopted international standards for LCA. The Brazilian standardisation agency (*Associação Brasileira de Normas Técnicas*, ABNT) has formally adopted ISO technical standards for LCA through norms NBR ISO 14040:2009 (2014) on principles and framework of LCA and NBR ISO 14044:2009 (2014) on requirements and guidelines for LCA (ABNT, 2014). The 2010 National Solid Waste Policy (see Section 11. ) adopts a life-cycle-oriented approach to sustainable material management and recommends the use of LCA. However, LCA remains voluntary, poorly known and hardly practised (including in waste management) (de Souza et al., 2016). Academic literature has suggested that the lack of a standardised methodology and government incentives are holding back wider LCA application in Brazil. One study concluded that the greatest pressure for its adoption in the country comes from the private sector, as a response to consumer pressure and associated reputational risks (Coelho Filho et al., 2015).

## Assessment of alignment and possible ways forward

Brazil aligns partly with the provisions of Recommendation [OECD/LEGAL/0256](#) on Integrated Pollution Prevention and Control. In line with the Recommendation, Brazil issues single permits that cover all environmental media and conducts cross-media inspections. However, the capacity of environmental authorities to monitor and enforce conditions laid out in environmental permits continues to vary widely across the country. The federal environmental agency IBAMA has seen significant cuts in the number of

its enforcement staff over the past decade and recent budget cuts risks decreasing its enforcement capacity further. Despite many federal-state collaboration mechanisms, the co-ordination between levels of government on environmental management remains weak.

In line with the Recommendation, Brazil has adopted international standards for LCA, even though the application of the concept remains limited to date. Adopting a legislative or policy framework regulating the LCA approach in policies or projects could help promote its uptake. Environmental policy instruments are insufficiently linked with land-use planning and natural resource management systems. The recommendations of the 2015 EPR on integrating land-use planning with water resource management have not been addressed either and remain valid.

To improve alignment with the OECD legal instrument on integrated pollution prevention and control, Brazil should:

- Better link key environmental policy instruments with land-use planning and natural resource management systems
- Strengthen the capacity of environmental agencies at all government levels, ensuring they have sufficient financial and human resources to effectively monitor and enforce environmental regulations and conditions laid out in permits, including through proactive (planned) compliance monitoring
- Streamline the multitude of horizontal and vertical co-ordination bodies, with a view to eliminating overlaps and gaps of responsibilities and, ultimately, improving policy coherence and effectiveness.

## 4. Environmental performance of government

### OECD requirements and the link with 2015 EPR recommendations

Recommendation of the Council on Improving the Environmental Performance of Government, [OECD/LEGAL/0283](#), adopted in 1996, recommends that Adherents develop goals and strategies for continually improving the environmental performance of their governments by integrating environmental considerations into all facets of government operations, buildings and facilities. It requires Adherents to set goals and timeframes for optimising the use of energy, water and materials in day-to-day operations and construction or renovation of buildings. It also calls to establish policies for green public procurement, to apply sound management principles for government-owned or operated facilities, and to establish appropriate systems to monitor progress.

Recommendation of the Council on Good Practices for Public Environmental Expenditure Management, [OECD/LEGAL/0345](#), adopted in 2006, lays out principles and good practices for public expenditure on environmental programmes to ensure these programmes are environmentally effective, economically efficient and managed in accordance with sound principles of public finance. The Recommendation instructs Adherents to establish clear environmental priorities and sources of funding to achieve them, to regularly review spending programmes and to modify or terminate them when the review finds that their objectives are not being achieved.

The 2015 EPR analysed policies and programmes aimed at strengthening the environmental performances of public institutions. Recognising the growing but still small volume of green public procurement, it recommended Brazil regularly update the catalogue of sustainable products for green public procurement. As regards environmental expenditure management, the EPR noted that a large share of resources are channelled through environmental funds with partly overlapping objectives. It recommended Brazil to streamline funds dedicated to environmental management and projects; systematically monitor the use of environmental funds to ensure that it is in line with policy priorities, transparent and cost-effective.

### Main legislation, policies and practices and recent developments

In line with Recommendation [OECD/LEGAL/0283](#), Brazil has a number of programmes to foster more efficient and sustainable practices among public institutions. This includes the Environmental Agenda in the Public Administration (A3P) programme, created in 2011 to promote the diffusion of good practices across different levels of government in areas such as water and energy efficiency or separate solid waste collection and recycling. The programme includes a national forum, an award for best practices, labels and pilot projects. Participating institutions sign a “terms of adherence” agreement with the Ministry of the

Environment (MMA). More than 1 000 government bodies participate in the programme, up from 318 in 2010 (MMA, 2021). Engagement in the programme was found to have a positive impact on the implementation of sustainability practices (TCU, 2014). In addition, PROCEL, the national energy efficiency programme (Section 9. ), has a specific component directed at enhancing energy efficiency in public institutions through the development of guidelines and trainings provided to sanitation companies.

Sustainable government practices are also stipulated in the legislation. Both the current General Law on Public Procurement (Law 8666/1993) and the Public Bidding and Administrative Contracts Law (Law 14133/2021) require that all public procurements consider the sustainability of products and services. The 2021 law also requires that public bidding encourage innovation and the selection process consider products' life cycles. Decree 7746/2012 established criteria, practices and general guidelines of sustainability in federal government contracts. It also created an Inter-ministerial Commission on Sustainability of the Federal Public Administration (*Comissão Interministerial de Sustentabilidade na Administração Pública*, CISAP) as a cross-sector advisory body. The Sustainable Public Procurement and Eco-labelling (SPPEL) programme was created in 2013 to promote progress in sustainable public procurement across levels of government. Since 2017 it has also been advising the CISAP commission. In 2015, the government defined best practices and adopted indicators for monitoring of electricity and water consumption of federal public administrations.

However, contrary to the provisions of the Recommendation, no clear goals for improving the performance of governmental operations, buildings and facilities have been set, and no common system or methodology for monitoring progress has been established. In 2017, a TCU audit concluded that Decree 7746/2012 had little effect and that entities of the federal public administration had made little progress in the adoption of sustainable criteria and practices in procurement. It also found that limited progress had been made with respect to more efficient and sustainable public buildings and waste management practices (TCU, 2017). The TCU decision was reaffirmed in 2019. The CISAP commission has not been active following its establishment; its last meeting was held in 2018.

Among the nine states that provided information for this report on the setting and implementation of sustainability goals for public buildings and facilities, five declared no policies in the field.<sup>4</sup> The states of São Paulo, Santa Catarina and Ceará declared to apply some sustainability criteria in public procurements, but the implementation is lagging. For example, only 4% of goods purchased by the state of São Paulo were selected based on sustainability criteria. Only Ceará declared to have clear guidelines for water and energy use that are monitored by a state commission. Fortaleza, the capital of Ceará, has been implementing programmes to incentivise the use of renewable energy and solar energy production in municipal buildings.

Brazil does not have a system to systematically monitor public environment-related expenditure, which is the focus of Recommendation [OECD/LEGAL/0345](#). A distinct feature of public environment-related spending is the use of dedicated funds (budgetary and extra-budgetary) for implementation of environmental policies and programmes. The key funds feature professional management by independent financial institutions (such as the Brazilian Development Bank, BNDES and Caixa Econômica Federal, a public bank). Since the 2015 EPR, two new funds have been created: the Environmental Compensation Fund (ICMBio, 2018) and the National Sharing of Benefits Fund (BNDES, 2019). The overall effectiveness of public environmental spending is hampered by overlapping objectives of the different funds. In addition, there are problems with effective spending of resources: less than 10% of the funds collected are spent (TNC, 2018).

## Assessment of alignment and possible ways forward

Brazil is partly aligned with Recommendation [OECD/LEGAL/0283](#) on Improving the Environmental Performance of Government. It has established programmes to promote the diffusion of sustainable government practices across governmental institutions and passed legislation promoting sustainable government practices through public procurement. However, no specific goals have been set, either for public procurement or for environmental performance of public facilities and buildings. There is no mechanism to monitor progress in these areas. The committee responsible for executing the federal green public procurement policy has not met since 2018. Overall, current efforts have not yet led to visible progress in the implementation of actions for the promotion of sustainable practices among federal government institutions. Only a few states have set sustainability goals for public procurement, buildings or facilities.

The major national environmental funds that handle a considerable share of environment-related expenditure, are professionally managed and well monitored, in line with the provisions of Recommendation [OECD/LEGAL/0345](#) on Good Practices for Public Environmental Expenditure Management. Two new major federal funds have been created since 2015. However, Brazil does not have a system to regularly monitor public environment-related expenditure. The effectiveness of environment-related expenditure is also hampered by the overlapping objectives of the various funds and the low utilisation of their assets.

The EPR recommendations to streamline funds dedicated to environmental management and projects and to expand sustainable public procurement remain valid.

To better align with the OECD Recommendations on the environmental performance of government, Brazil should:

- Set clear goals to advance sustainable public procurement at all levels of government and ensure effective functioning of the inter-ministerial sustainability commission to track progress
- Establish requirements, goals and a monitoring system to promote better environmental performance in day-to-day operations of federal institutions, buildings and facilities (e.g. by using less energy, water, paper and other materials)
- Establish a system to track public environment-related expenditure to improve the transparency of the general budget and environmental funds; evaluate the feasibility of “green budgeting” to assess how different budget measures (beyond those decided by the MMA) impact sustainability objectives and help prioritise investments that support the green transition.

## 5. Use of economic instruments

### OECD requirements and the link with 2015 EPR recommendations

The Recommendation of the Council on the Use of Economic Instruments in Environmental Policy, [OECD/LEGAL/0258](#), adopted in 1991, recommends that Adherents make greater and more consistent use of economic instruments (such as emission charges and taxes, user charges, product charges, marketable permits of pollution emission levels and deposit-refund systems) as a complement or as a substitute to other policy instruments. The Recommendation's Annex provides guidelines and principles for the use of various types of economic instruments.

The 2015 EPR of Brazil examined the use of economic instruments for all major environmental sectors. Some of its key recommendations were to:

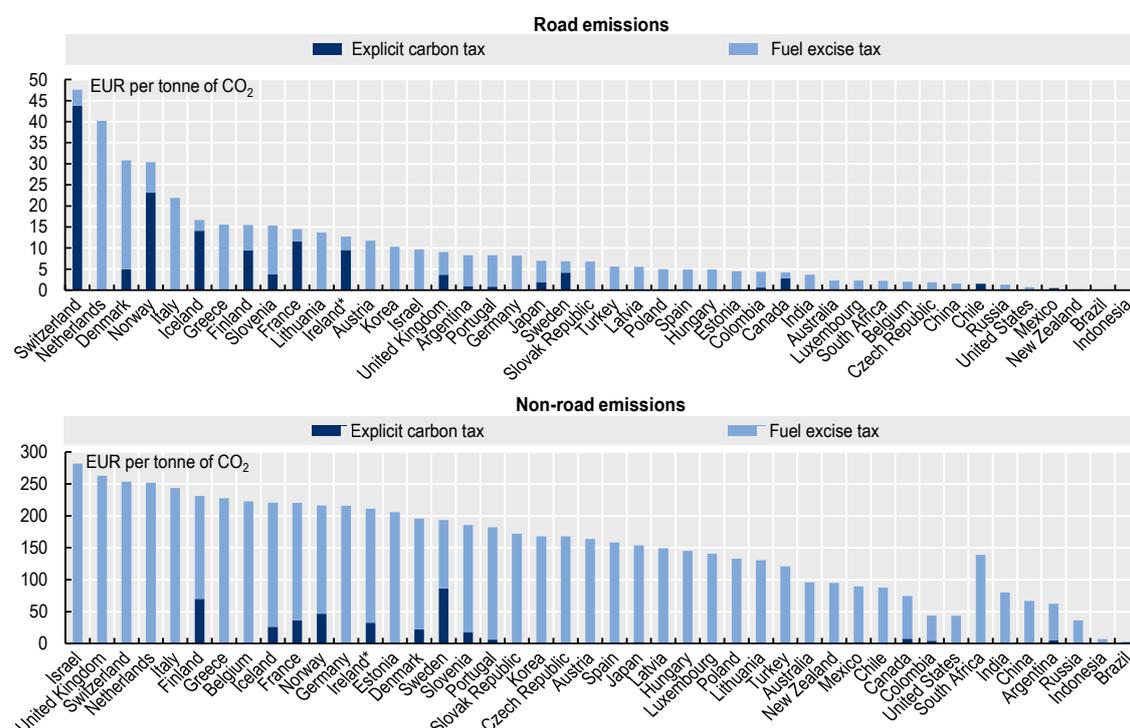
- Increase and expand energy taxes and link them to environmental parameters (such as emissions of CO<sub>2</sub> and local air pollutants)
- Align vehicle taxation to environmental performance
- Introduce taxes on pollution (e.g. air emissions), waste (e.g. packaging materials) and resource use (e.g. minerals)
- Ensure that water abstraction and pollution charges reflect scarcity and pressures on the environment and are consistently applied across river basins and throughout the country
- Extend the application of user charges for water supply, sanitation and waste services and enforce their collection to encourage efficient use of resources, increase cost recovery, improve investment viability and leverage private sector resources.

### Main legislation, policies and practices and recent developments

As regards the energy sector, Recommendation [OECD/LEGAL/0258](#) provides that energy pricing should take environmental factors into account, for example in the form of excise taxes. Brazil introduced a federal fuel excise tax (the CIDE tax) on imports and retail sales of certain energy sources in 2001. While originally levied on petrol, diesel, kerosene, fuel oil, LNG and ethanol, the tax rate has been zero for all fuels except petrol and diesel since 2004. Since 2018, the tax rate for diesel was set to zero again too, meaning that only petrol is subject to a small tax of BRL 100 per m<sup>3</sup> of petrol (about USD 0.02 per litre). The tax is based on volume and is hence not linked to the fuel's carbon content or emissions of air pollutants resulting from their combustion.

Because the energy excise taxes are limited to petrol used in road transport and their low rates, the effective tax rate on energy use is among the lowest among OECD and G20 members (Figure 1).

Figure 1. Effective fossil carbon rates by country, 2018



Note: This figure excludes emissions from biofuels. 2018 tax rates as applicable on 1 July 2018. CO<sub>2</sub> emissions are calculated based on energy use data for 2016 from IEA (2018), World Energy Statistics and Balances.

The data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD (2019), *Taxing Energy Use 2019: Using Taxes for Climate Action*, OECD Publishing, Paris.

The Annex of Recommendation [OECD/LEGAL/0258](#) also stipulates that vehicle taxes should be aligned with environmental objectives. Brazil applies an annual motor vehicle ownership tax (IPVA) and a tax on vehicle purchase or registration, levied at the state level. The Constitution allows for differentiated IPVA rates according to “type and use”. Each state has autonomy to decide on the rates applied. According to the Brazilian Association on Electric Vehicles, in 2017 seven states imposed zero IPVA rates for full electric vehicles, while at least three states granted discounts of 50% (ABVE, 2017).<sup>5</sup> The registration tax is not differentiated according to environmental criteria.

Vehicle retail sales are subject to a federal tax on manufactured products (IPI tax), which has been partially aligned with environmental factors since 2018. For light-duty vehicles, the tax rate varies between 7% and 25%, depending on the vehicle’s fuel type, weight, and the size and energy efficiency of the engine. Diesel light-duty vehicles are subject to the highest rate (25%); petrol vehicles to 7% to 25% rates; and electric, hybrid and flexible cars to 7-20% rates. IPI for heavy-duty vehicles are not differentiated by environmental criteria.

Brazil levies no specific taxes on pollution (e.g. on the emission of atmospheric pollutants, the use of fertilisers or pesticides, or on packaging material such as plastic), with the exception of wastewater discharges (see below).

The use of natural resources is subject to fees and royalties. Their revenue is partially allocated to environmental protection (Table 1). Albeit not attached to environmental performance, these fees and charges contribute to putting a price on natural resources. Brazil’s wide use of payments for ecosystem services (see Section 8. on biodiversity) also promotes sustainable use of natural resources.

**Table 1. Taxation on the use of some natural resources**

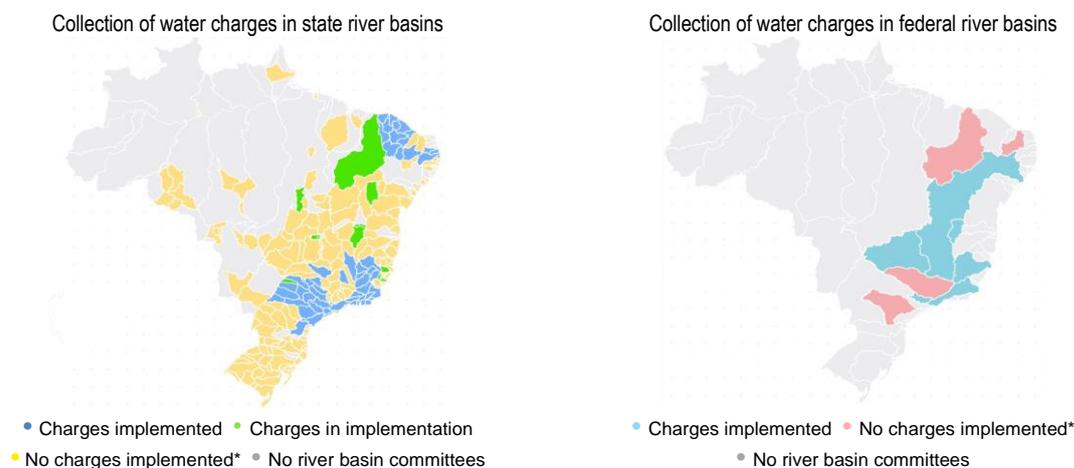
<b>Natural resource</b>	<b>Rates</b>	<b>Legal basis</b>
Petroleum extraction	- Royalties: 5% to 15% of total revenues from oil and natural gas exploration from off-shore fields. - Special participation: 10% to 40% of net revenue of greatly productive oil fields.	Law 9478/1997 Law 12858/2013
Mineral extraction	From 1% to 4% of total sale or export value, depending on type of mineral: - Minerals used in construction, ornamental rocks and mineral water: 1% - Gold: 1.5% - Diamonds and other mineral substances: 2% - Bauxite, manganese, niobium, halite: 3% - Iron: 2% to 3.5%	Law 7990/1989 Law 13540/2017
Hydroelectric power	7% of revenue from energy production.	Law 9648/1998
Rural land use	- Annual tax on the ownership, dominium and possession of rural land. Rates range from 0.3% to 20%, depending on total area and use of the land (the larger and less used, the higher the rates).	Law 9393/1996

Source: Based on Brazilian legislation.

The implementation of water abstraction and pollution charges has progressed. The law requires that water charges be set by river basin councils in a participative manner. They are levied on users who abstract raw water or discharge effluents directly into water bodies. Federal Water Law 9433/1997 attributes two functions to water charges: economic (to encourage efficient water use and internalise environmental costs) and fiscal (revenues can be used to finance measures foreseen by river basin plans).

The number of river basins that have implemented water charges has been consistently increasing, due in part to the technical support from the National Water and Sanitation Agency (ANA) in helping states to establish river basin committees. By the end of 2018, six states had state-level basins that implemented water charges: Ceará, Rio de Janeiro, São Paulo, Minas Gerais, Paraná and Paraíba. The amount of financial resources levied through water charges by federal and state river basins has increased from BRL 86 million in 2009 to more than BRL 500 million in 2019 (ANA, 2020; 2018).<sup>6</sup> The sanitation sector accounts for about 60% of the total amount. In 2019, 94% of the charges imposed were collected. Progress in the implementation of charges varies widely across the country, however. Most state and federal river basins that have water charges are in the Southeast and Northeast regions of the country. There are few functioning river basin committees in the Centre-West and South regions and virtually none in the North (Figure 2). Barriers to the adoption of water charges range from the government's unwillingness to charge for water to the absence of river basin committees and the lack of capacity in water management agencies (OECD, 2017).

**Figure 2. Water charges collection in state and federal river basins, 2019**



Note: Maps exclude the hydroelectric sector.

Source: ANA (2020).

The implementation of user charges for the provision of water supply and sanitation services is regulated by Law 11445/2007 as well as the recently approved Water Services Financial Viability Law (Law 14026/2020). The new law emphasises cost recovery for service providers through collection of user charges. It also requires that municipalities institute charges on waste collection by July 2021 and imposes sanctions on municipalities for failure to comply.

The extent to which water user charges cover the costs of service provision varies widely across the country. In 16 of the 27 states (including all the south-eastern and southern states) charges generally cover operating costs, while 11 states cannot rely only on user charges to recover water supply and sanitation costs. Seven states (all in the north and the northeast) had cost recovery rates below 80% in 2019 (MDR, 2019a).

The implementation of charges for waste collection by municipalities has slightly increased over the last decade. According to the Ministry of Regional Development, 45% of municipalities charged for the service of collection, transport and disposal of municipal solid waste in 2019, compared to 40% in 2013 (MDR, 2019b, 2015).<sup>7</sup> Regional differences persist. The percentage of municipalities that apply waste charges ranges from 84% in the South region to 49% in the Southeast, 26% in the Centre-West, 18% in the North and 7.8% in the Northeast. Cost recovery through charges is gradually improving also in municipal waste management. In 2019, more than 6% of municipalities declared full cost recovery (2% in 2015), while in less than 70% the charges covered less than half of service costs, compared to 81% in 2015 (MDR, 2019b; 2015).

Current discussions on fiscal reform concentrate around three legislative proposals, all of which aim to enhance the efficiency of the tax system. None of them is related specifically to environmental objectives, although one proposal would change the current tax system on fuels and vehicles. Different civil society organisations have presented amendment proposals with the aim of including green elements into the tax reform. These would include mechanisms to end subsidies to highly-polluting activities, the expansion of the CIDE tax to sectors other than road transport and its transformation into a carbon tax, and promotion of “green” economic sectors (such as recycling, ecotourism and electric cars) through tax benefits.

## Assessment of alignment and possible ways forward

Brazil's system of taxes and charges is partially aligned with Recommendation [OECD/LEGAL/0258](#) on the use of economic instruments in environmental policy. The country applies fees and royalties to resources extraction and use (petroleum extraction, mineral extraction, use of hydroelectric resources and rural land use). However, in most other areas economic instruments are undeveloped. For example, environmental costs resulting from the generation and consumption of energy are not reflected in prices, as required by the Recommendation. Only petrol is subject to a small fuel excise tax that is not linked to environmental criteria such as carbon or sulphur content. Also in contrast to the provisions of the Recommendation, Brazil does not provide strong incentives for efficient and low-carbon vehicles through transport taxation. Taxes on other polluting products or activities (e.g. atmospheric emissions, fertilisers, pesticides, packaging, etc.) do not exist. There is little assessment of the potential benefits of economic instruments to achieve policy goals in different sectors.

In line with Recommendation [OECD/LEGAL/0258](#), the implementation of water abstraction and pollution charges has progressed well. However, institutional barriers, including capacity gaps and absence of river basin committees, are holding back the implementation in several rivers basins in the North and Centre-West regions.

The implementation of user charges for municipal waste collection and treatment is also expanding. A growing number of municipalities manage to recover their operational costs for waste services through charges. The recent legal requirements for municipalities to implement waste charges by July 2021 should help accelerate the positive trends. However, in the vast majority of municipalities charges remain too low or poorly collected to recover costs.

Brazil has been made little progress in the implementation of recommendations of the 2015 EPR on green taxation. Some states have started to apply a lower vehicle ownership tax on electric vehicles, thereby encouraging their purchase. However, instead of expanding the CIDE tax, Brazil has been applying a zero tax rate to diesel since 2018, while fuels other than petrol remain untaxed. The tax remains unlinked to CO<sub>2</sub> or atmospheric emissions. No new taxes on pollution, waste or resource use have been introduced. Planned tax reforms do not include a focus on environmental objectives.

In order to better align its practices with the OECD Recommendation on economic instruments, Brazil should:

- Establish positive CIDE tax rates for all energy sources, expand the tax base to include energy use in the industrial, commercial and household sectors, and link the tax to their carbon content
- Link the taxation of vehicles (including heavy-duty ones) to their environmental performance
- Building on recent progress and the new legislation, continue to expand the use of charges for water supply, sanitation and waste services to encourage efficient use of resources and improve cost recovery
- Introduce taxes on polluting activities other than wastewater discharges (e.g. on air emissions and pesticide use).

## 6. Environmental information and transparency

### OECD requirements and the link with 2015 EPR recommendations

Recommendation of the Council on Reporting on the State of the Environment, [OECD/LEGAL/0170](#), adopted in 1979, provides that Adherents improve environmental reporting and prepare periodic national state of the environment reports. Recommendation of the Council on Environmental Indicators and Information, [OECD/LEGAL/0257](#), adopted in 1991, recommends that countries develop indicators to measure environmental performance and link environmental and economic information to support the integration of environmental and economic decision-making. Recommendation of the Council on Environmental Information, [OECD/LEGAL/0296](#), adopted in 1998, provides that countries should take all necessary actions to increase the availability to the public of environmental information held by public authorities, improve the quality, relevance and comparability of data and promote periodic, publicly accessible environmental reporting by enterprises. It also provides for public access to information on non-compliance and sanctions for violation of environmental laws.

The 2015 EPR of Brazil reported that Brazil was working to implement a National Panel of Environmental Indicators and to enhance transparency of sectoral and environmental policies. It recommended that Brazil develop a uniform system for the collection and management of environmental data, including on environmental law implementation (input, output and outcome indicators) and economic aspects of environmental policies (expenditure and revenue accounts; environment-related goods, services and employment).

### Main legislation, policies and practices and recent developments

The National Environmental Information System (SINIMA), created in 1981, brings together the production, collection, maintenance and dissemination of environmental information. IBAMA collects most data in various environmental fields, including exploitation of flora and fauna resources, residues and emissions, and land use changes. IBAMA's data is available online.

In contrast to the provisions of Recommendation [OECD/LEGAL/0170](#), Brazil does not periodically publish environmental data, indicators and related government actions in a state of the environment report or another unified document. Law 7804/1989 requires IBAMA to develop Environmental Quality Reports to synthesise information on the state and management of natural resources. The latest such report was published in 2013 (IBAMA, 2019). Brazil is preparing an Environmental Quality Report 2020, due to be published in 2021, and intends to publish SOEs more regularly in the future. At the state level, nearly 60 environmental quality reports were published by ten states between 2012 and 2020.

In keeping with Recommendation [OECD/LEGAL/0257](#), Brazil's statistics institute IBGE has published sustainable development indicator reports since 2002 (the latest one in 2015). More recently, the MMA has developed a set of key environmental indicators (the National Panel of Environmental Indicators) consolidating available environmental data to monitor the implementation of environmental and sustainable development policies (e.g. to measure progress towards the environmental dimension of the SDGs). In 2017, it published 19 indicators accompanied by a database and a dashboard. Much of this information has, however, not been updated since (the latest data are mostly from 2016-17). The indicators would also benefit from clearer data sources, definitions and calculation methodologies. The Federal Development Strategy 2020-31 includes targets and indicators for environmental performance in the next decade.

Several sectoral information systems make important contributions to the collection of environmental data and indicators. These include the Information System on Brazilian Biodiversity (hosted by the Ministry of Science, Technology and Innovation), the National Solid Waste Management Information System (SINIR), the National Sanitation Information System (SNIS) and the National Water Resources Information System (SNIRH). Additional environmental information systems are under development, including an integrated air quality system and an information management system for contaminated sites.

The integration of environmental data has progressed slowly. A uniform system of relevant data stored by environmental and other relevant public agencies was required by Law 12651/2012 and recommended by the TCU in 2016. The TCU urged the integration of the federal and state databases on Documents of Forest Origin (which provides data on the transportation and use of native wood), the Federal Technical Cadastre for Potentially Pollutant Activities, the database of environmental licences, the National System of Rural Environmental Registry (*Sistema Nacional do Cadastro Ambiental Rural*, CAR) and systems for deforestation monitoring, as well as data from the Federal Tax Bureau and the National Department of Transportation. Some progress has been made since: the Federal Technical Cadastre for Potentially Pollutant Activities, for example, is now integrated with databases of 19 states. There is also some interagency data exchange in other areas. Several other TCU recommendations have not, however, been implemented yet.

Law 12 527/2011 regulates broad access to public information, as promoted by Recommendation [OECD/LEGAL/0296](#). It promotes a culture of transparency in the public administration and requires that all public documents be publicly disclosed and that data confidentiality be exceptional. The law is followed well at the federal level, but its implementation at the state and municipal levels varies. IBGE estimates that only one in five municipalities had implemented the law by 2015. The Open Data Decree 8777/2016 demanded that all federal agencies and ministries report annually on advances and challenges in ensuring public availability of data. Six out of eight federal agencies with environmental responsibilities did not do so in 2020 (Imaflora, 2021). The MMA adopted an Open Data Plan in 2017.

IBAMA maintains the Federal Technical Register of Potentially Polluting or Natural Resource Consuming Activities.<sup>8</sup> Participation in the register is mandatory for companies that are involved in potentially polluting activities, use products of flora and fauna, or are required to obtain an environmental licence from IBAMA or a state or local government. According to Law 6938/1981, companies must submit annual reports to the registry, which includes information on process inputs (e.g. energy and raw material use), products and by-products, and environmental impacts (air emissions, wastewater effluents and waste generation). This registry is similar to pollution release and transfer registers (PRTRs) that exist in most OECD member countries and are subject to the Recommendation of the Council on Establishing and Implementing Pollutant Release and Transfer Registers, [OECD/LEGAL/0440](#). Part of the register is open to the public. For example, in 2020, IBAMA published waste (including hazardous waste) generation data of more than 60 000 companies collected through the federal technical registry.

IBAMA publishes information on applications for and issuance of environmental permits (permits themselves are available upon request). Self-monitoring reports by enterprises to competent authorities are also available to the public upon request, with the exception of data self-declared by operators to be

commercially confidential. General information about individual companies' compliance with environmental requirements is publicly accessible, but not inspection reports.

## Assessment of alignment and possible ways forward

Environmental information remains fragmented. Several institutions collect, consolidate and publish environment-related data. Brazil does not publish periodic state of the environment reports despite having to do so by national law and in contrast to the provisions of Recommendation [OECD/LEGAL/0170](#). In 2017, the MMA published a set of key environmental indicators (the National Panel of Environmental Indicators) to track progress in implementing environmental and sustainable development policies. This is in line with the requirements of Recommendation [OECD/LEGAL/0257](#). However, data sources, definitions and calculation methodologies for these indicators need to be clarified and updated. The law guarantees public access to information held by public institutions, but its implementation by state and local authorities has proven challenging.

The recommendation of the 2015 EPR to develop a uniform system for the collection and management of environmental data, including on environmental law implementation and economic aspects of environmental policies, remains valid.

To facilitate its alignment with the OECD Recommendations on environmental information, Brazil should:

- Regularly publish state of the environment reports, both at the federal and state levels
- Continue efforts to develop indicators on the implementation of environmental and sustainable development policies and ensure that these are regularly updated and supported by appropriate data sources, definitions and calculation methodologies; enhance consistency between regional and national data
- Provide public access to information about environmental performance of enterprises, including the register of their pollution releases and compliance records.

## 7. Water

### OECD requirements and the link with 2015 EPR recommendations

The Recommendation of the Council on Water, [OECD/LEGAL/0434](#), adopted in 2016, provides for Adherents to set up long-term water management plans, address water quantity through water demand management policies, and improve water quality. It also recommends implementing a water risk management policy and improving policy coherence across sectors potentially affected by water risk. Enhancing the effectiveness of water governance (e.g. through the establishment of river basin committees) and ensuring sustainable financing of water services and infrastructures (e.g. through the establishment of water charges) are also supported by this Recommendation.

The 2015 EPR of Brazil acknowledged that Brazil had introduced modern instruments of integrated water resource management, noting that there was room to expand and more effectively implement water resources management plans. It demonstrated that water quality was low in many densely populated urban areas, often due to the insufficient infrastructure for sewage collection and treatment. The EPR recommended that Brazil establish consistent and compatible criteria for water allocation and ensure that wastewater discharge limits are set in accordance with use-based water quality standards.

### Main legislation, policies and practices and recent developments

The 1997 National Water Resources Policy Law created a series of bodies and mechanisms aimed at structuring a decentralised, participatory and integrated water management system. In line with the Recommendation's provisions on good water governance, the law established clear responsibilities for water policy making at all levels of government as well as mechanisms for co-ordination and public engagement (OECD, 2015b). Water resource plans prepared at the national, state and river basin levels lay out priorities, programmes and projects and include "operational manuals for implementation". However, the process of establishing river basin committees (the basic unit of water resource planning) has been uneven; most river basins in the Amazon and many in the Centre-West region are still not established. The number of state river basin committees increased from 30 in 1997 to 213 in May 2021; another ten inter-state river basin committees are managed by the federal government. Together, they cover 40% of the Brazilian territory, 83% of municipalities, 84% of the population and 91% of GDP. All states have developed or are developing water resource plans.

The National Water Management Pact is a good example of a co-operation strategy involving authorities from all administrative levels (OECD, 2015b). The pact is based on contractual agreements between ANA, state governments and state water resource councils that identify key water management challenges, establish time-specific management targets to address them, and make particular institutions responsible for their achievement. A dedicated fund has been created to give states performance-based incentives to achieve the targets. Other notable programmes are the Programme for Strengthening State Water Management Institutions (PROGESTÃO) and the Basin Committees Strengthening Programme

(PROCOMITÊS), both implemented by ANA. Brazil is also active in international fora and partnerships on water management. ANA has been collaborating with the OECD since 2012 to enhance water governance at the federal and state levels. This collaboration has included three rounds of “policy dialogue” on water management.

A key component of Recommendation [OECD/LEGAL/0434](#) is the establishment of effective water demand management policies and water allocation regimes. As discussed in Section 5. , Brazil has expanded the use of water charges, which can help stimulate efficiency water consumption. ANA is supporting the implementation of water charges in the states of Rio Grande do Norte, Goiás and Espírito Santo. In many cases, charges are still too low to have a significant impact on demand (OECD, 2017).

Water allocation processes are based on direct negotiation among water users and the competent water management body. Since 2015, 51 water allocation processes have been completed in 14 states. Water allocation regimes are determined in water resources management plans, but many of them lack clear priorities and criteria for allocation decisions and, more generally, tend to be poorly implemented (OECD, 2017).

National water quality standards have been set by CONAMA Resolution 357/2005 according to water resources’ current ecological status, predominant use and water quality goals.<sup>9</sup> Discharge limits must be set in accordance with use-based water quality standards. However, a series of exceptions are allowed by the resolution, allowing for discharge levels beyond regular use-based limits in cases of public interest, for a limited time and after an impact assessment.

Water quality is monitored well. As of 2021, ANA manages nearly 2 500 water quality monitoring stations. Another 720 monitoring stations were run by state agencies (ANA, 2020). ANA also operates a National Water Quality Monitoring Network (RNQA) that involves all state authorities. Extensive use of pesticides in Brazil creates severe risks to water quality. Pesticide residues have been detected in rivers and drinking water nationwide (Braga et al., 2020). The federal government monitors pesticides pollution in drinking water, but not ambient water. This makes it difficult to assess whether the situation in the field corresponds to the estimated risks reported by pesticide producing companies (TCU, 2016a). In addition, Presidential Decree 9759/2019 dissolved the multi-stakeholder National Council for Food and Nutrition Security (CONSEA) responsible for advising governmental bodies on policies related to the control of pesticides in food and drinking water.

In line with the Recommendation’s provisions on sustainable financing, investment and pricing policy for water and water services, Brazil adopted a new legal framework for water service provision in 2020 (Law 14026/2020). The law aims at attracting private investment and ensuring financial viability of urban water distribution systems. It established the goal of universal urban water supply and 90% coverage of sewage collection by 2033. To achieve these ambitious goals, the law gave ANA the powers of a federal regulator of sanitation services. ANA would set sanitation quality and efficiency standards and regulate tariffs for public sanitation services. ANA has already implemented user charges in six of the nine interstate watersheds. The law also transferred to the state the responsibility for providing water services if they cover more than one municipality. This is intended to increase the scale of future water infrastructure investments.

Lastly, Recommendation [OECD/LEGAL/0434](#) suggests that Adherents adopt a water risk management policy. The National Water Management Pact fosters risk management by supporting states in diagnosing their own challenges and building awareness of water risks. The new law also established clearer criteria and responsibilities for water allocation in case of water shortage or pollution risk. For example, ANA may recommend that the water management authority give priority to human or animal consumption. The water management authority may impose supplementary user charges to stimulate water savings and recover the costs of emergency management. In addition, ANA has launched several initiatives to strengthen risk management and disaster preparedness. This includes a Drought Monitor Programme, a Flood Vulnerability Atlas and a National Water Security Plan (PNSH), developed jointly with the Ministry of

Regional Development in 2019. The PNSH defines interventions to guarantee water supply for human consumption and productive activities in case of critical events such as droughts and floods. It also outlines an investment plan to 2035 to reduce the risk of water scarcity.

## Assessment of alignment and possible ways forward

In line with the provisions for good water governance of [OECD/LEGAL/0434](#), Brazil has established effective mechanisms for inter-governmental collaboration and stakeholder engagement. ANA has established several programmes that aim to strengthen collaboration between the federal and state water management agencies and support implementation of water policies at the sub-national level. Despite progress, many river basin committees have not been established, especially in the Amazon and the Centre-West region. The federal and state water use permit systems are not integrated in shared river basins (Section 3. ).

Brazil has established national water quality standards corresponding to various water uses. Wastewater discharge limits are usually set in accordance with use-based water quality standards. River basin management plans, which formalise water allocation regimes, are poorly implemented. Charges for water use are increasingly applied, but are generally too low to influence decisions about water allocation.

Law 14026/2020 strengthened Brazil's policy on sustainable financing of water and sanitation services, in line with the Recommendation's provision on financing and investment. Brazil has also made important steps to improve risk management and prepare for critical events such as floods and droughts.

To further align its policies and practices with the OECD Recommendation on water, Brazil should:

- Establish river basin management committees where they are still lacking
- Expand ANA's efforts to guide and monitor the states' implementation of user charges
- Establish priorities and criteria for water allocation and strengthen water demand management, including through water use charges.

## 8. Biodiversity conservation and sustainable use

### OECD requirements and the link with 2015 EPR recommendations

The Recommendation of the Council on the Use of Economic Instruments in Promoting the Conservation and Sustainable Use of Biodiversity, [OECD/LEGAL/0326](#), adopted in 2004, calls upon Adherents to establish and apply a policy framework aimed at ensuring efficient long-term conservation and sustainable use of biodiversity and its related resources. This implies making greater and more consistent use of economic instruments in applying biodiversity policies, integrating biodiversity resources into sectoral policies, and ensuring the equitable sharing of benefits coming from biodiversity conservation and use. The Recommendation also promotes economic valuation of biodiversity.

The 2015 EPR of Brazil provides a comprehensive analysis of biodiversity-related policies, including the effectiveness of protected areas in conserving biodiversity and promoting its sustainable use. With respect to the use of economic instruments for biodiversity protection, the EPR recommended that Brazil:

- Adopt an overarching federal law on payments for ecosystem services (PES) to provide a framework for PES implementation and improve consistency across state regulations and programmes
- Put in place a countrywide monitoring system for PES programmes, possibly within the framework of a federal PES law, with a view to verifying their effectiveness in maintaining the ecosystem services that are being paid for
- Clarify the rules for biodiversity and monetary compensations that are part of the licensing process; improve the quantification of impact of infrastructure projects on biodiversity and ecosystems and the definition of associated compensatory measures

### Main legislation, policies and practices and recent developments

Brazil has adopted a comprehensive set of policies and instruments on biodiversity conservation and sustainable use of lands. Article 225 of the Constitution obliges public authorities to preserve and monitor biodiversity and its use, and create special protected areas of land of environmental interest. Federal Law 9985/2000 established the National System of Protected Areas – a system of federal, state, municipal and private areas subject to special land and environmental regulations. As of early 2021, Brazil had 2 500 conservation units, including 798 integral protection conservation units with strict protection. Many conservation units have management systems that involve the public, including traditional and indigenous populations.

The total protected area corresponds to around 18.7% of the territory. This exceeds Brazil's international commitment to protect at least 17% of land by 2020 made under the UN Convention on Biological Diversity

(CBD). Moreover, 26.5% of Brazil's marine territories have an environmental conservation status (CNUC, 2021). The legislation also recognises the biodiversity significance of indigenous lands that account for around 13% of the country's territory (mostly in the Amazon region).

Brazil uses several market-based instruments for biodiversity conservation. It has implemented several PES schemes at all levels of government. Some notable examples were described in the 2015 EPR of Brazil. The review indicated that state PES regulations are highly heterogeneous, that many programmes are not systematically monitored and that their environmental effectiveness is not clear (OECD, 2015a).

The Amazonas state programme Bolsa Floresta provides monthly cash payments to families living in protected areas in exchange for forest conservation efforts, benefitting nearly 40 000 people living on 11 million hectares of forests (FAS-AM, 2020). The federal Bolsa Verde programme, which built on the Bolsa Floresta initiative and had a positive effect on reducing deforestation (Yin Wong et al., 2019), was discontinued in 2018. However, the federal government has established the Floresta+ programme (regulated by MMA Ordinance 288/2020) as a new instrument to promote development of national PES markets. Under the programme, a pilot project (financed by the Green Climate Fund) will provide some USD 90 million to smallholders and local and indigenous communities for conservation and restoration efforts in the Legal Amazon. Two pillars have been added to the programme since its establishment: the Floresta + Carbono programme, which supports smallholders and traditional and indigenous communities, and the Floresta + Empreendedor programme, which aims to promote business development and private sector investments in forest conservation.

Brazil has also started a programme of private investments in conservation units called “Adopt a park”. The programme encourages businesses and non-profit organisations to contribute financially to the conservation of chosen units and be recognised as “Amazon's partners”. Eight conservation units have already been adopted, totalling 121 thousand hectares. Partnerships with the private sector can be a successful tool to leverage private investments in biodiversity conservation.

The 2012 Forest Code authorised the federal government to promote sustainability through the establishment of PES programmes and defined a set of ecological services that could be protected or promoted through PES. Although the Forest Code provides a general framework for the establishment of federal PES programmes, until recently there were no harmonised rules for different federal, state and municipal programmes. The new law on PES (Law 14119/2021) addresses this issue: it establishes a national policy framework for PES as well as a system to monitor its effectiveness. In addition, the government established the Secretariat of the Amazon and Environmental Services within the MMA to formulate policies and strategies regarding environmental services.

The Forest Code has also established an innovative system of biodiversity offsets. It created obligations for private land owners to preserve minimal percentages of native forests on their lands. If those percentages are not respected, land owners have to either enrol in a recovery of degraded areas programme (*Programa de Regularização Ambiental*, PRA) or acquire permits that allow for continued agricultural use of degraded areas. These permits (Environmental Reserve Quotas, CRA) can be bought from land owners (private or public) that have excess native forest on their lands as a means of financially stimulating the maintenance of those excess forests. By creating demand for forested lands and encouraging forest conservation, CRAs constitute an innovative economic mechanism for biodiversity consideration.

Clear property rights and transparent information on land use are important preconditions for proper functioning of CRAs, PES, and other market-based instruments for biodiversity conservation. The Forest Code aimed at achieving this through the establishment of a public land registry, the Rural Environmental Cadastre (*Cadastro Ambiental Rural*, CAR). Private land owners declare to the CAR the environmental conditions of their lands (the size and perimeter of the native forest area, degraded areas that have to be recovered, etc.), which are then verified and validated by state or municipal environmental or land-use

agencies. States transmit this information to the national cadastre. However, states apply different criteria in validating private entries, which may undermine their reliability (MPF, 2020).

After multiple delays of mandatory inscription of lands in the CAR, a 2019 law established 31 December 2020 as the final registration deadline. Lands can be registered after that date, but access to financing and tax benefits cannot be granted to owners of lands not registered in the CAR. According to the government, 6.5 million rural properties were registered in the CAR as of 31 January 2021, totalling an area of 543.7 million hectares (exceeding the area eligible for registration). Verification of information provided by private owners to state agencies is advancing well in most states. However, there is evidence of inaccuracies in the current CAR and its validation procedures. For example, in 12 states more than 100% of the state's total surface area is inscribed in the CAR. Four of those states have more than 150% overstatement, and another two more than 140% (Chiavari et al., 2020). In addition, there are numerous instances of overlaps between private lands in the CAR and areas recognised as indigenous lands (which cannot be owned or occupied by private entities). These are indications of serious inconsistencies in the validation procedures and a reflection of land-ownership uncertainties in Brazil.

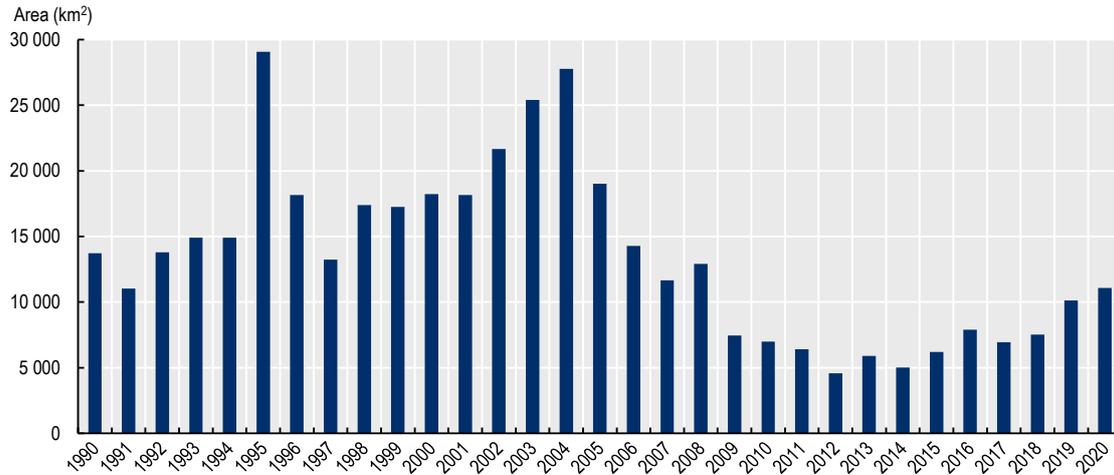
The implementation of these instruments needs to be carefully monitored to ensure effective long-term conservation and sustainable use of biodiversity and its related resources, as provided in Recommendation [OECD/LEGAL/0326](#). Brazil achieved a remarkable reduction of deforestation – a key indicator of efficient long-term conservation and sustainable use of biodiversity – between 2005 and 2014. In 2014, deforestation in the area known as the “Legal Amazon”<sup>10</sup> was 75% below the peak of 2005 (Figure 3). The considerable decline in deforestation rates was driven by effective policies, including the establishment of conservation units, recognition of land rights of traditional communities, and co-ordinated implementation of the Action Plan for Prevention and Control of Deforestation in the Legal Amazon. The latter plan addressed illegal activities related to deforestation through monitoring and enforcement (OECD, 2015a).

Since 2015, however, deforestation rates have risen again, reaching decade-high peaks in 2019 and 2020 (Figure 3). Deforestation rates inside protected areas have risen by more than 40% in 2019/2020 compared to 2018/2019 (INPE, 2020a), raising concerns that a long trend of reduced deforestation in those areas may be reversed. Forest fires have also increased, not only in the Amazon, but also in other megadiverse biomes such as the Pantanal (a 529% increase from 2018 to 2019) and the Cerrado (INPE, 2020b).

Responding to these developments, Decree 10142/2019 created the inter-ministerial Executive Commission for the Control of Illegal Deforestation and Recovery of Native Vegetation (CONAVEG) co-ordinated by the MMA. In 2020, CONAVEG developed the National Plan for the Control of Illegal Deforestation and Recovery of Native Vegetation. IBAMA and ICMBio expanded their fire prevention and control activities and hired some 3 400 people for fire brigades in 2020). Under operation “Verde Brasil” (Green Brazil), the armed forces were deployed in the Legal Amazon to fight forest fires and combat environmental crimes in 2019 and 2020.

In April 2021, the Brazilian government presented the Amazon Plan 2021/22, which includes a new official goal to curb deforestation in the Amazon to the 2016-20 recorded average by 2022 (CNN, 2021). This implies bringing deforestation down to approximately 8 700 km<sup>2</sup>, nearly 30% down from the level recorded in 2020. To achieve this, the plan aims to strengthen and merge surveillance and enforcement agencies and further advance land regularisation. It also emphasised the need to bring new economic alternatives to people living in the region. Details are yet to be developed. Also in April 2021, the government committed to reach zero illegal deforestation by 2030. This goal, in turn, will require a reduction in deforestation by 15% to 20% per year from the 2020 levels (Reuters, 2021).

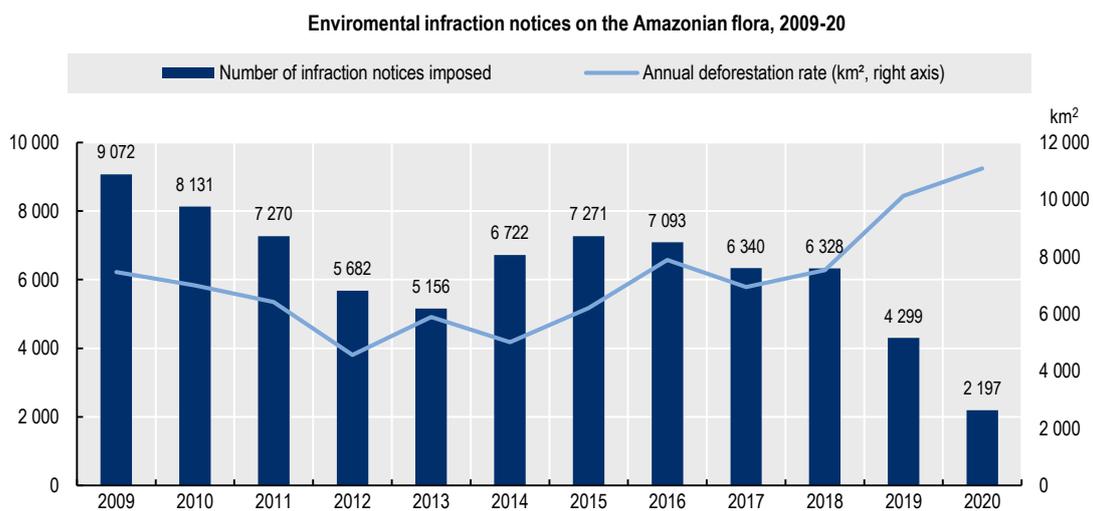
**Figure 3. Deforestation rates in the Legal Amazon region, 1990-20**



Source: INPE (2020c), TerraBrasilis PRODES.

Official data show that the number of infraction notices related to illegal deforestation issued by IBAMA in 2020 was the lowest since 1995 (Figure 4). In 2019, just over 2 000 infractions were filed, 67% below the average over 2009-18. In addition, less than one out of seven fines was paid by offenders in 2019, representing a mere 0.4% (BRL 17 million out of BRL 1.4 billion) of the total value of fines imposed that year (IBAMA, 2020a). Considering that most of deforestation in Brazil is estimated to be illegal (ICV, 2019), the increase in deforestation rates may be a direct consequence of the reduced compliance monitoring and enforcement since 2019 (Section 3. ). In addition to IBAMA, the federal police and, in protected areas, ICMBio carry out inspection and investigation activities. The number of operations and procedures initiated by IBAMA and the federal police increased between 2018 and 2019.

**Figure 4. Infraction notices in the Legal Amazon region, 2009-20**



Source: Ibama (2020b), “Consulta de Autuações Ambientais e Embargos”; INPE (2020c), TerraBrasilis PRODES.

Law 9985/2000 requires operators of projects capable of causing a major environmental impact to contribute financially to the creation or consolidation of conservation units, preferably in the area or biome of the project. This “environmental compensation” is the only mechanism to compensate biodiversity loss

in Brazil. It is supposed to compensate impacts that could not be avoided or mitigated by other measures determined in the course of the environmental licensing procedure. The compensation amount, as determined by Decree 6848/2009, may reach 0.5% of the cost of the project, depending on the degree of impact, which is defined in the project's environmental licensing process. While this methodology allows for some degree of differentiation of the compensation amount depending on the magnitude of the non-mitigated impacts, it does not adequately reflect the value of the loss. As a consequence, low-cost projects with substantial negative impact on valuable biodiversity or ecosystems (e.g. small hydroelectric plants on rivers with endemic species, irrigation projects abstracting water from water-sensitive areas) pay only minor financial compensation.

The Federal Supreme Court (STF) found in 2008 (ADI 3378) that the then minimum financial compensation of 0.5% of the cost was at odds with the constitutional principle of full reparation of environmental harm. However, a 2009 decree *limited* the compensation to 0.5% of the cost, maintaining the gap between the compensation and the harm. There is an ongoing challenge before the STF against the 2009 decree on the same grounds.

In 2016, the TCU recognised that the management of resources from environmental compensation by ICMBio, the federal executive agency overseeing federal protected areas, has improved and that resources were invested in goods and services that helped improve the operational capacity of conservation units (TCU, 2016b). At the same time, it noted that the entities responsible for administering environmental compensation at the federal level (IBAMA, ICMBio and the Federal Environmental Compensation Committee) suffered from the absence of clear criteria in validating the project cost declared by the operator and the lack of methodologies to measure the degree of impact on biodiversity and ecosystems.

The situation at the state level is similar. A study analysing the legislation and practice on environmental compensation in five states (Amazonas, Bahia, Mato Grosso do Sul, Paraná and Rio de Janeiro) found that states reproduce the federal approach to calculating the amount of compensation even if their own methodologies to assess impacts are more precise, as in Rio de Janeiro (Fonseca and Leite, 2016).

Brazil ratified the Nagoya Protocol on Access and Benefit Sharing to the UN CBD in March 2021. Nevertheless, Brazil has adopted a law regulating access and equitable sharing of benefits arising from the use of genetic resources and the associated traditional knowledge (Law 13123/2015). The law created a National System of Genetic Resource and Associated Traditional Knowledge Management (SISGEN), to which businesses and researchers have to declare the scientific research or product development that use genetic resources and the associated traditional knowledge. The law also established a National Programme on Sharing of Benefits. It mandates that part of the annual revenue from commercial use of the product or research stemming from genetic resources and associated traditional knowledge be deposited in the National Sharing of Benefits Fund (managed by the government jointly with civil society representatives). As of April 2021, nearly 60 000 access declarations have been registered in SISGEN (SISGEN, 2020). However, the National Sharing of Benefits Fund is still being structured, with the contract for its management signed between the MMA and the BNDES only in 2019 (BNDES, 2019).

Although Brazil has ratified the Convention on Indigenous and Tribal Peoples of the International Labour Organisation, there is very little experience of effective consultations with traditional communities. A key feature of effective implementation of an equitable sharing of benefits framework in Brazil is the requirement to develop and implement community protocols devising how consultation procedures are to be developed in each community. Through these protocols, indigenous communities can determine the process for granting access to their traditional knowledge as well as establish parameters of free, prior and informed consent and benefit-sharing agreements. If effectively implemented, such protocols can play a fundamental role in ensuring adequate consultation and engagement on, and compensation for, access to traditional knowledge (Guetta and Bensusan, 2018).

The 2015 EPR reported that a few studies had attempted to determine the economic value of biodiversity and ecosystems. It noted that such studies were rarely used in decision-making processes. Technical protocols and other norms guiding the assessment of economic value of biodiversity and ecosystems for purposes of licensing or environmental compensation have yet to be developed (TNC, 2018; Fonseca and Leite, 2016). The project Natural Capital Accounting and Valuation of Ecosystem Services implemented by the UN Statistics Division and IBGE is helping to produce data and build capacity on environmental-economic accounting, particularly ecosystem accounting. As part of the project's outputs, ecosystem accounts of land use in Brazilian biomes were published in 2020. The project's recommendations may help create an analytical basis for considering the economic value of biodiversity and ecosystems in environmental assessments and mainstreaming biodiversity into sectoral policies.

## Assessment of alignment and possible ways forward

Brazil has developed a comprehensive and stringent policy framework for the protection and sustainable use of biodiversity that is largely consistent with the provisions of Recommendation [OECD/LEGAL/0326](#), as well as the UN CBD. Among the key legislation are the 2000 law establishing the National System of Protected Areas, the 2012 Forest Code, which regulates the protection of private forests and the CAR, and the 2015 law on equitable sharing of benefits arising from the use of genetic resources and the associated traditional knowledge.

As in most countries, the biodiversity policy largely relies on regulatory approaches, with a particular focus on conservation units, which cover some 18% of the Brazilian territory. Brazil has also integrated an important number of economic instruments into its biodiversity policy framework. Among them are large-scale PES systems and conditional cash-transfer programmes such as Bolsa Floresta and Bolsa Verde (discontinued in 2018), which aim to increase income and improve living conditions of rural populations by scaling up sustainable economic use of environmental assets. In line with the 2015 EPR recommendations, Brazil recently adopted a PES framework law, which creates a federal PES programme and a system to better monitor the effectiveness of PES schemes.

The 2012 Forest Code established an innovative mechanism through which land owners who do not meet their conservation obligations can purchase credits from land owners with access to native vegetation. This offset mechanism, as well as other economic instruments for biodiversity conservation, rely on clear land rights and information on land use, which the CAR aims to provide. The registration of land rights and use in the CAR has progressed well. However, inconsistencies and inaccuracies need to be addressed to allow for the proper functioning of the offsets and other instruments reliant on the CAR. Proper functioning of the CAR and granting of appropriate land titles is important to fight land grabbing that could lead to illegal deforestation. Brazil makes little use of other economic instruments (e.g. taxes, charges and fees) to discourage activities that are potentially harmful to biodiversity. With regard to equitable sharing of biodiversity benefits, Brazil needs to operationalise the National Sharing of Benefits Fund and ensure due consultation with traditional communities.

Effective implementation of the many ambitious and innovative biodiversity policies has become more challenging in recent years. The establishment of a vast protected area network, new land tenure regularisation, advanced monitoring systems, strict enforcement, and promotion of sustainable natural resource use helped cut deforestation by 75% between 2005 and 2014. However, the annual forest loss has been on the rise again since 2015, reaching decade highs in 2019 and 2020.

The economic valuation of biodiversity and ecosystem services, stipulated by Recommendation [OECD/LEGAL/0326](#), is still in early stages. The lack of such information and technical guidance on how to evaluate biodiversity loss hampers not only effective policy making but also the definition of environmental compensation payments for projects causing harm to biodiversity. Hence, environmental compensation

payments are not proportional to the ecological damage. Brazil has yet to clarify the rules for biodiversity and finance compensations in the licensing process, as recommended by the 2015 EPR.

In order to enhance its alignment with the OECD Recommendation related to biodiversity protection, Brazil should:

- Carefully analyse the drivers of the increasing deforestation rates and develop targeted policy instruments to reverse the trend; develop an effective monitoring system for policy implementation and outcomes, and guarantee that environmental enforcement agencies are equipped with sufficient human and financial resources
- Continue efforts to prepare, and ensure proper functioning of, the Rural Environmental Cadastre to improve security of land tenure and allow for effective use of economic instruments for biodiversity conservation
- Continue to improve knowledge on the economic value of biodiversity and ecosystem services; develop guidance on the assessment of biodiversity loss and ensure these estimates are integrated into decisions on financial compensations for biodiversity loss in environmental licensing.

## 9. Energy and air pollution

### OECD requirements and the link with the 2015 EPR recommendations

The Recommendation of the Council concerning the Reduction of Environmental Impacts from Energy Production and Use, [OECD/LEGAL/0149](#), adopted in 1976, stipulates that Adherents should ensure their long-term environmental and energy policies are integrated at all stages (from policy formulation to implementation) with the aim of improving energy conservation and energy efficiency as well as reducing environmental impacts of energy production and use. Environmental costs should be integrated into the price of energy, and appropriate measures should be taken to protect the environment from surface mining of coal and exploration and exploitation of off-shore oil and gas resources.

Recommendation of the Council on the Reduction of Environmental Impacts from Energy Use in the Household and Commercial Sectors, [OECD/LEGAL/0157](#), adopted in 1977, lays out policy instruments to promote clean and efficient energy use in these sectors, including demand management, pricing (e.g. taxation), financing, regulation and information programmes. Recommendation of the Council on Environmentally Favourable Energy Options and their Implementation, [OECD/LEGAL/0221](#), adopted in 1985, recommends that Adherents promote environmentally favourable energy options and remove barriers to their adoption.

Recommendation of the Council on the Control of Air Pollution from Fossil Fuel Combustion, [OECD/LEGAL/0217](#), adopted in 1985, endorses policies to effectively control air pollution resulting from emissions of sulphur oxides and nitrogen oxides (NO<sub>x</sub>), hydrocarbons and particulate matter (PM) from stationary and mobile sources. Countries should promote environmentally friendly vehicles and implement emission standards and fuel efficiency standards for vehicles.

The 2015 EPR of Brazil highlighted that despite Brazil's relatively clean energy production structure, further efforts should be made to reduce air pollution and enhance energy efficiency. It made two recommendations in this regard:

- Strengthen measures to improve energy efficiency by introducing energy standards for buildings and appliances, integrating them into social housing programmes and using mandatory fuel economy standards and labelling to promote a shift towards more efficient vehicles
- Develop an effective nationwide air quality monitoring system, with consistent methodologies and data collection across states

The EPR also noted that better integration between the regulatory and institutional frameworks for the environmental and energy sectors would allow a shift from project-based planning to more strategic integration of energy development and conservation objectives. It suggested that Brazil consider using strategic environmental assessment procedures for hydropower development, and adjusting energy taxes to reflect the environmental costs of fuel combustion.

## Main legislation, policies and practices and recent developments

The expansion and maintenance of the national-scale energy production and distribution infrastructure are based on a 10-year Energy Expansion Plan (PDE) that is revised annually, as well as on a long-term 30-year National Energy Plan (PNE). The technical background of the plan is formulated by the publicly-owned Energy Research Office under the supervision of the Ministry of Mining and Energy (MME). The long-term plans are mandatory for public institutions and indicative for the private sector. The long-term planning process facilitates the integration of economic and social concerns with environmental ones, as suggested by Recommendation [OECD/LEGAL/0149](#). PDE 2030 includes a chapter on socio-environmental sustainability. The long-term plan, PNE 2050, establishes socio-environmental sustainability as one of its four main objectives (alongside energy security, adequate return on investment and energy access and affordability).

The quality of technical background studies has improved with time and contributed to the growth of renewable energy in Brazil's energy matrix, for example by improving the rules for public tenders. This can be considered a good practice and should be maintained. The National Council on Energy Policy, a multi-stakeholder council advising the President on strategic decisions for the energy sector, provides an opportunity to engage different sectors and stakeholders in the sector's long-term planning.

Nevertheless, there is room for deepening the integration of environmental objectives into the long-term planning and decision-making processes in the energy sector. While both the medium and long-term plan consider environmental dimensions, they do not undergo SEA, which would help identify environmentally sustainable alternatives at a strategic, sector-wide or regional level. Instead, mitigation measures and alternatives are left to each project's environmental licensing procedure. Indeed, government planning and investment decisions, for example on electricity, have been criticised for not being sufficiently linked to a long-term vision and goals for the energy mix (IEMA, 2016). As discussed in Section 5. , social and environmental costs are not reflected in energy prices.

Energy efficiency improvements are pursued through a range of measures. Brazil has made progress in the implementation of energy efficiency standards, whose coverage increased from 2% of final energy use to 7% in 2018, in part thanks to the introduction of mandatory minimum performance standards for appliances. The National Electricity Conservation Programme (*Programa Nacional de Conservação de Energia Elétrica*, PROCEL) promotes more efficient energy use in various sectors (including buildings, appliances and industry), supports public lighting programmes (such as Reluz) and conducts public education campaigns as well as training for policy makers and industrial and commercial sector representatives. According to PROCEL, a total of BRL 3.2 billion has been invested and 173 billion kWh have been saved since the programme's establishment in 1986. However, the energy savings achieved through the programme have plateaued in 2017-19 (Figure 5). Indeed, Brazil achieved only marginal overall energy efficiency gains in the first half of the 2010s; and has lost some of those gains since (IEA, 2021).

Coal, roughly three quarters of which is imported, accounts for 5% of the total energy supply. Most domestic supply comes from surface mines. Domestic oil and natural gas production covers only a small share of domestic demand and is mostly produced offshore. Obligations, conditions and restrictions on extraction processes are determined case by case through environmental licensing. Brazil has established legislation on oil spill prevention and preparedness.<sup>11</sup> However, effective implementation of the legislation is hampered by lack of procedural guidance and clear institutional responsibilities (Soares et al., 2020).

In line with Recommendation [OECD/LEGAL/0157](#), Brazil has adopted specific measures to encourage clean and efficient energy use in the household and commercial sectors. The main measures are implemented through efficiency standards and labelling policies for electric equipment and appliances (e.g. lamps, air conditioners, refrigerators and freezers). Since 2014, new federal public buildings (as well

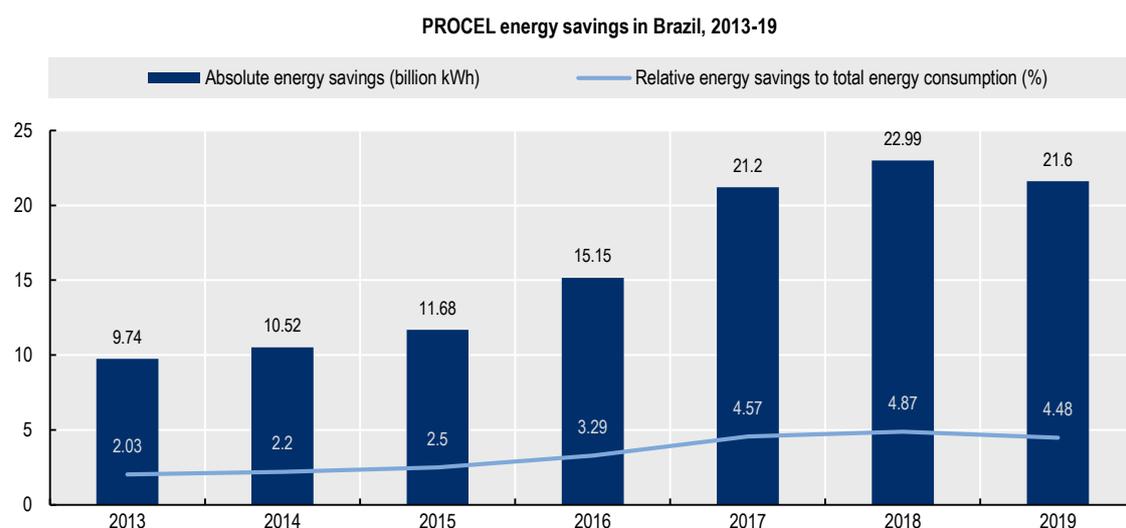
as those undergoing retrofit) must be designed and constructed in line with the level “A” energy efficiency label. However, there are no efficiency standards for residential or commercial buildings.

Brazil has no compulsory labelling requirements for buildings’ energy performance (EPE, 2019), although the possibility of their introduction is now being studied. A voluntary energy efficiency labelling scheme has been in place since 2009. A new method for assessing energy performance of commercial, service and public buildings was approved in March 2021. It allows certification of “near zero energy buildings”. The Ministry of Mines and Energy is part of the International Energy Agency’s Technological Collaboration Programme on Energy in Buildings and Communities.

Brazil has a long tradition of promoting renewable energy sources, as recommended by [OECD/LEGAL/0221](#). In 2019, renewable energy (excluding solid biomass) accounted for 21.7% of energy supply (OECD, 2021), one of the highest shares in the world, thanks to high reliance on hydropower and bioenergy. The National Biofuels Policy (known as RenovaBio) was established by Law 13576/2017 and officially launched in December 2019. RenovaBio sets mandatory annual decarbonisation targets for transport fuels, with the overall aim to reduce their carbon intensity by 10% by 2030 compared with 2018. Fuel distributors can meet their obligations by purchasing so-called “decarbonisation credits” sold by certified biofuel producers. These certificates are traded in the Brazilian stock exchange. In addition, Brazil has recently launched the Fuel for Future programme that promotes low-carbon fuels and development of new technologies, such as carbon capture, use and storage and use of biofuels in aviation. In the power sector, renewable energy sources have been promoted through power auctions since 2009. In addition, BNDES provides preferential credit lines for wind and solar power projects as well as biofuel production.

There are also examples of local initiatives to promote green buildings and small-scale solar energy generation, such as in the city of Salvador. According to the National Association of Municipal Environment Agencies (ANAMMA), Salvador implemented a Green Property and Land Tax in 2015, offering a 10% tax discount for buildings with above-average efficiency in the use of resources as well as for those using solar energy. At the state level, ABEMA reports that Ceará, the Federal District and Goiás have adopted tax incentives to promote solar, wind and biomass electricity in residential and commercial buildings.

**Figure 5. Energy savings realised through the PROCEL programme, 2013-19**



Source: Eletrobras (2020).

In accordance with the provisions of [OECD/LEGAL/0217](#), Brazil has established legislation to regulate air emissions resulting from energy production and consumption. CONAMA Resolution 382/2006 regulates

air emissions from point sources and sets sector-specific standards for carbon monoxide (CO), NO<sub>x</sub>, sulphur dioxide (SO<sub>2</sub>), PM and hydrocarbons. Also in line with the Recommendation, a number of cities, metropolitan regions and states have carried out inventories of air emissions. At the national level, an inventory for vehicle emissions has been developed. However, there is little progress towards implementing a national inventory of air pollutant emissions.

Brazil has been regulating vehicle emissions since 1986 through the Vehicle Emission Control Programme (PROCONVE) created by CONAMA Resolution 18/1986. The last updates to the PROCONVE emission standards (2018 and 2019) adopted parameters equivalent to Euro 6 for heavy-duty vehicles and US Tier 3 standards for light vehicles. For heavy-duty vehicles, new PROCONVE P-8 standards will be phased in starting in 2022. For light-duty vehicles, PROCONVE L-7 standards will be applied in 2022; the next generation L-8 standards will be introduced in 2025 and become more stringent over time. The new standards constitute an important improvement. Brazil has also strengthened standards for motorcycles, establishing PROMOT M-5 standards as of 2023. Despite the new standards, Brazil does not require in-use testing or post-production monitoring of vehicles (ICCT, 2020).

Until recently, Brazil had no mandatory fuel economy standards. It established a voluntary labelling scheme in 2008 and provided in 2013-17 tax incentives to automotive companies that invested in energy efficiency. However, these measures had only a modest impact on the overall fuel efficiency of the vehicle fleet. In 2018, Brazil launched the Rota 2030 (Route 2030) programme (under Law 13755/2018), which introduced mandatory efficiency standards and mandatory labelling for light-weight vehicles, as well as fines for non-compliant companies. Car producers are required to improve the average fuel efficiency of their vehicles by 11% over 2017-22 and comply with the labelling rules by 2023. Fuel efficiency and labelling parameters for heavy-duty vehicles are subject to studies to be completed by 2023. These parameters have to be set by 2027, and compliance will become mandatory in 2032.

### ***Air quality***

Brazil has adopted mandatory but modest national air quality standards. CONAMA Resolution 491/2018 established as “goal standards” the air quality values cited in the 2005 World Health Organisation (WHO) guidelines. The goal standards are mandatory only for CO and lead. As for particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), SO<sub>2</sub>, NO<sub>2</sub> and ozone (O<sub>3</sub>), three “intermediate standards” were determined, the first of which (Intermediate Standard 1) is mandatory for all states (Table 2). States can adopt stricter standards if they wish to. The 2018 resolution requires that states publish a report every three years analysing the feasibility of adopting more stringent Intermediate Standards 2 and 3. The resolution also stipulates that in 2023 the MMA shall synthesise air quality monitoring data submitted by states and propose guidelines for adopting more stringent national air quality standards for CONAMA’s consideration.

**Table 2. Air quality standards according to CONAMA Resolution 491/2018**

Air Pollutant	Reference Period	Intermediate Standard 1 (Mandatory since 2018, µg/m <sup>3</sup> )	Intermediate Standard 2 (µg/m <sup>3</sup> )	Intermediate Standard 3 (µg/m <sup>3</sup> )	Goal Standard - 2005 WHO values	
					µg/m <sup>3</sup>	ppm
PM <sub>10</sub>	24 hours	120	100	75	50	-
	Annual	40	35	30	20	-
PM <sub>2.5</sub>	24 hours	60	50	37	25	-
	Annual	20	17	15	10	-
SO <sub>2</sub>	24 hours	125	50	30	20	-
	Annual	40	30	20	-	-
NO <sub>2</sub>	1 hour	260	240	220	200	-
	Annual	60	50	45	40	-
O <sub>3</sub>	8 hours	140	130	120	100	-
Smoke	24 hours	120	100	75	50	-
	Annual	40	35	30	20	-
CO	8 hours	-	-	-	-	-
Total suspended particles	24 hours	-	-	-	240	9
	Annual	-	-	-	80	-
Lead	Annual	-	-	-	0,5	-

Source: CONAMA resolution 491/2018.

In line with the recommendations of the 2015 EPR, Brazil is advancing in the development of a national air quality monitoring system. CONAMA Resolution 491/2018 determined that states are responsible for monitoring air quality and putting in place emergency measures in case of critical air pollution events. It also requires states to formulate emission control plans with goals and monitoring parameters by November 2021, and to publish annual air quality reports. The resolution mandated the MMA to publish a technical guidance manual for air quality control, establishing common methods and criteria for air quality monitoring to be followed by states. This guide was issued in 2019.

According to ABEMA, only 13 of the 27 states have functioning air quality monitoring stations. In some regions, the only existing monitoring stations are managed by private entities as part of compensation measures defined in environmental licences for polluting activities. State and municipal agencies and private entities follow different monitoring protocols, which weakens the comparability of data. The MMA is supporting the establishment of air quality monitoring structures in states currently lacking one. It is also developing an integrated national air monitoring network that would compile monitoring data generated by state and district monitoring stations with the aim to provide real-time air quality information to the public through digital platforms.

### Assessment of alignment and possible ways forward

In line with the provisions of Recommendation [OECD/LEGAL/0149](#), Brazil's long-term energy planning considers environmental impacts. However, long-term plans do not undergo SEA, meaning that there is no analysis of potential mitigation measures or alternatives on a strategic, sector-wide or regional levels. Brazil has also adopted policies and programmes to promote energy conservation and efficiency. Nevertheless, there is ample scope to deepen and expand energy efficiency programmes. For example, establishing building codes and expanding and strengthening standards for key energy-consuming

appliances (such as air conditioners) could bring considerable energy savings in the residential and commercial sectors. Social costs (including environmental costs) are not reflected in energy prices. There is also room to strengthen demand management, as recommended by Recommendation [OECD/LEGAL/0157](#) on the Reduction of Environmental Impacts from Energy Use in the Household and Commercial Sectors.

As recommended by [OECD/LEGAL/0221](#), Brazil has a long tradition of promoting environmentally favourable energy options. Thanks to long-standing investment in hydropower and biofuels, its share of renewable energy in total supply is among the highest in the world. The most important instruments currently used to promote renewables include a biofuel obligation for transport fuel distributors and investment support.

In line with Recommendation [OECD/LEGAL/0217](#) on air pollution resulting from fossil fuel consumption, Brazil has adopted air emission standards both for stationary and mobile sources. Brazil considerably strengthened vehicle emission standards in 2018 and 2019. Furthermore, Brazil has introduced mandatory fuel efficiency standards for light vehicles in 2018. Fuel economy labelling for light vehicles will become mandatory in 2023. There is no national inventory of air pollutant emissions, but several inventories have been carried out at the local level.

In keeping with the 2015 EPR recommendation, Brazil is advancing with the development of a national air quality monitoring system. Establishing a complete air quality monitoring system is an important prerequisite for enforcing legal pollution limits, increasing public awareness of air pollution, and assessing the effectiveness of air pollution control policies. The technical guide issued by the MMA in 2019 is an important step towards the implementation of a coherent nationwide air quality monitoring system. Its implementation is slow, with only 13 of the 27 states having functioning monitoring systems in early 2021 and issues of data comparability also persist. The MMA is supporting the establishment monitoring systems in states lacking them with the aim to build an integrated national system that would provide real-time air quality information from across Brazil.

In order to achieve better alignment with the OECD Recommendations related to energy and air pollution, Brazil should:

- Conduct strategic environmental assessments of long-term energy plans
- Continue to improve energy efficiency, including by establishing mandatory labelling and efficiency standards for new buildings and by continuously expanding and strengthening performance requirements for appliances
- Continue efforts to establish a national air quality monitoring system covering all states. Work towards the development of a national air emissions inventory. Develop a national air pollution control plan to set medium- and long-term goals guiding measures to be taken at the state level.

# 10. Transport

## OECD requirements and the link with 2015 EPR recommendations

Recommendation of the Council on Traffic Limitation and Low-Cost Improvement of the Urban Environment, [OECD/LEGAL/0131](#), adopted in 1974, encourages Adherents to achieve better balance between private and public transport through expanding and improving the quality of public transport services. This implies, for example, improved traffic management, giving priority to public transportation and provision of bicycle-designated lanes. The Recommendation of the Council on Assessment and Decision-Making for Integrated Transport and Environment Policy, [OECD/LEGAL/0325](#), adopted in 2004, states that a systematic evaluation of economic, social and environmental effects should underpin all transport plans and programmes and all major transport sector investments.

The 2015 EPR of Brazil recognised that road transport is responsible for a significant share of energy consumption, greenhouse gas emissions and air pollution. It recommended that Brazil:

- Consider extending the use of instruments such as road tolls, congestion charges, parking fees and restrictions on car circulation to moderate the use of private vehicles
- Continue to scale up investment in railways and urban public transport systems

## Main legislation, policies and practices and recent developments

Urban mobility infrastructure and traffic control are primarily municipal responsibilities. In accordance with Recommendation [OECD/LEGAL/0131](#), the 2012 National Policy on Urban Mobility (Law 12587/2012) authorises municipalities to use a range of instruments to guide urban mobility, including restrictions on car circulation, stricter air quality and emission limits for certain locations and periods, parking fees and limitations on public parking, public transport corridors and road tolls. Revenues from tolls are earmarked to subsidise public transport. The law empowered the federal government to stimulate the adoption of sustainable urban mobility alternatives through financing and planning support to local authorities.

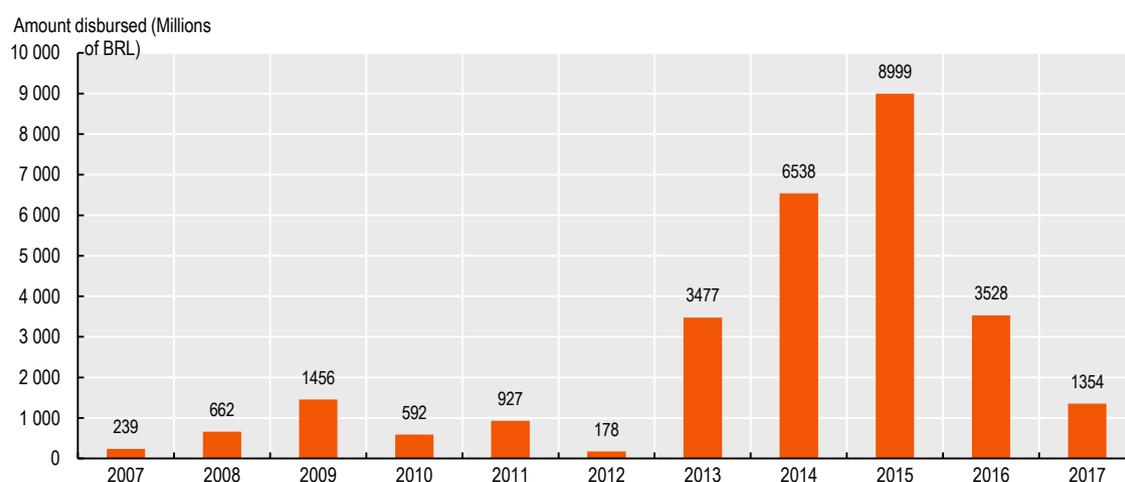
Law 12587/2012 required municipalities with more than 20 000 residents to formulate a municipal urban mobility plan integrated with land-use planning. Most municipalities, however, lack the necessary financial resources and technical capacity. This has delayed investment in public transport. According to the government, less than 20% of municipalities with more than 20 000 residents had adopted a plan by early 2020. The adoption of municipal urban mobility plans was initially required by January 2015, but multiple subsequent laws and regulations postponed this deadline. The latest legislative change, adopted in May 2020, requires municipalities of more than 250 000 residents to adopt a plan by April 2022, smaller ones – by April 2023. The original 2012 mandate envisaged rigorous sanctions against municipalities that have not adopted a plan on time, depriving them of federal resources for urban mobility projects until the plan is in place. However, the 2020 law allowed municipalities without a local mobility plan to have access to federal resources on urban mobility if resources are used for the formulation and adoption of a plan.

Implementation of the national urban mobility policy and integration of environmental concerns in urban planning varies throughout the more than 5 500 municipalities. ANAMMA reports good practices in several cities, including São Paulo, where hundreds of kilometres of bicycle networks, bus corridors and sidewalks have been created. Rio de Janeiro, a member of the C40 Cities Climate Leadership Group, signed the “Declaration of Streets Free of Fossil Fuels C40”<sup>12</sup>, committing to purchase only zero-emission buses from January 2025 and to create a zero-emission zone in the city by 2030. In Curitiba, a project financed by the Inter-American Development Bank provides for replacement of diesel-based buses by electric models and investments in transport infrastructure. In Recife, an experimental river mobility service is using small electric boats (Barco Solar) to connect two banks of the Capibaribe River. The Ministry of Regional Development is supporting sustainable urban mobility projects.

Although urban mobility policies fall chiefly under the responsibility of municipal governments, some elements of public transport systems are under states’ jurisdiction, such as inter-municipal transport and tax incentives for sustainable urban mobility policies. ABEMA reports that the state of Ceará has made efforts to integrate state-run metro and tram lines with municipality-built bicycle lanes in the state capital Fortaleza. According to ABEMA, Fortaleza has nearly tripled the length of its bike lanes and launched a pilot project on shared electric cars. The Federal District (which combines the competencies of states and municipalities) has expanded its dedicated public transport corridors and has implemented the largest cycleway network in the country (550km), as well as started pilot projects on the use of electric cars and buses. At the same time, many states (including Amazonas, Mato Grosso do Sul, Pará, Santa Catarina, Minas Gerais and Goiás) have not undertaken any recent action on urban mobility.

Given the difficulty many municipalities face in investing in urban mobility infrastructure, injection of federal funds and lending from the BNDES for urban mobility projects increased in the early 2010s, arriving at BRL 8.9 billion in 2015. In the following years, disbursements dropped drastically, however, to BRL 1.3 billion in 2017 (Figure 6). There was only one new urban mobility project approved by the bank in 2019, in the rural municipality of Sorocaba, state of São Paulo (BNDES, 2020). BNDES estimates that investments of BRL 234 billion would be needed to install adequate urban mobility infrastructure in Brazil’s 15 larger metropolitan areas over 12 years (Santos et al., 2015). BNDES support for investment in urban mobility is complemented by funding from the Ministry of Regional Development, regional development banks and state and municipal governments. However, the current level of public financing of urban mobility projects remains insufficient.

**Figure 6. Disbursements for urban mobility projects by BNDES, 2007-17**



Source: Amicci and Malburg (2018).

In line with [OECD/LEGAL/0325](#), Brazil is making efforts to improve transport planning so that it integrates economic, social and environmental effects. In 2019, it established the Environmental Management Committee (COGEA) within the Ministry of Transport to promote social and environmental responsibility in national transport infrastructure projects. In addition, the ministry launched sustainability guidelines in February 2020 to inform and harmonise EIA for transport projects. Ordinance 123/2020 of the Ministry of Infrastructure instituted the Integrated Transport Planning Policy. The policy requires long-term integrated transport planning of federal road, rail, waterway and airway systems, and their connections to local and states transport systems. A key element of the new integrated planning approach is the National Logistics Plan (NLP) to 2035, currently under consultation, whose objective is to increase the efficiency of the transport system, improve mobility services for users and decrease transport-related pollution. A National Urban Development Policy is also being elaborated by the Ministry of Regional Development.

While a step in the right direction, the plan's environmental considerations are limited to a short discussion of the impact on CO<sub>2</sub> emissions. The plan includes specific environmental goals and performance indicators. However, it is not subject to SEA. The previous NLP issued in 2018 for the period until 2025 did not include an analysis of environmental impacts.

Cross-sectoral co-ordination mechanisms that would allow to integrate environmental concerns into transport policies should be strengthened. The National Council for Integration of Transport Policies was created in 2008 as a multi-stakeholder body to advise the President on the formulation of integrated policies on transport infrastructure, innovation and financial viability of the sector, and to facilitate cross-sector collaboration on transport planning. However, the council was dissolved in 2019.<sup>13</sup> Another mechanism for cross-sectoral co-operation is the Council of the Programme for Partnership to Investments. The programme was created by in 2016 to amplify and strengthen the co-operation between the state and the private sector for the execution of public infrastructure projects. However, this ministerial-level council focuses on concessions for public infrastructure rather than sectoral planning and is not supported by technical expertise necessary for long-term planning of transport infrastructure.

A new environmental performance index (IDA) has been developed to assess the efficiency and quality of environmental management in transport infrastructure projects overseen by the National Land Transport Agency, National Waterway Transport Agency and National Civil Aviation Agency. However, at the project level, environmental licensing and public consultation happen only after the conception phase, which prevents consideration of alternatives, including the “zero”, non-implementation option. The National Land Transport Agency's public consultation procedures target economic players interested in participating in the project and not the affected communities (ANTT, 2020a). This impedes the fair integration of social and environmental costs into the project. The contract for the construction of the Ferrogrão railway – a major infrastructure project connecting the soy-producing state of Mato Grosso with the ports of Pará – defined the costs of related environmental measures as BRL 31 million, or 0.4% of the total cost, prior to the beginning of the environmental licensing procedure and before public hearings and consultations on the project's impacts (ANTT, 2020b).

In line with the recommendations of the 2015 EPR, investment in railways is being scaled up and the planning, environmental licensing and public procurement for the development of major railway projects are advancing. In September 2020, IBAMA issued an installation licence for the Centre-East Integration Railway. Public procurement procedures for the installation of the railway's first segment was approved two months later (Government of Brazil, 2020a; Ministry of the Economy, 2020). The railway is designed to connect the North and Northeast regions. Economic and technical viability studies of the Ferrogrão Railway were sent to the TCU for approval in July 2020. According to the Ministry of Infrastructure, public and private investments in these railways will reach BRL 14 billion within a decade from their approval (Government of Brazil, 2020b).

## Assessment of alignment and possible ways forward

The National Policy on Urban Mobility Law provides a legal basis for integrated urban planning in major cities. In line with Recommendation [OECD/LEGAL/0131](#), it empowers municipalities to implement a range of policies to support public transport options and modern traffic management, such as restrictions on car circulation, stricter air pollution limits for certain locations and periods, parking fees and limitations on public parking, public transport corridors and road tolls. Several cities are setting good examples of how to promote public and low-carbon transport options (such as walking and cycling). At the same time, many cities have struggled to develop urban mobility plans (as legally required) to implement the instruments provided for by National Policy on Urban Mobility and guide investment in urban mobility systems.

Brazil has taken steps to improve long-term planning for the transport sector. However, consideration of environmental impacts in transport planning remains limited. The establishment of an Environmental Management Committee within the Ministry of Transport has a potential to strengthen the integration of environmental objectives into the sector, which is the focus of Recommendation [OECD/LEGAL/0325](#). However, following the dissolution of cross-sectoral councils, there is a need to improve the involvement of other ministries and stakeholders in the decision making process. At the project level, too, environmental assessment and public consultation occur only after the conception phase, which prevents realistic and neutral consideration of alternatives. Co-ordination between the ministries responsible for transport, infrastructure, planning and the environment, and consultation with stakeholders and the general public, could be improved. BNDES is scaling down disbursements for the expansion of urban transport systems. On the other hand, and in line with the EPR recommendation to scale up investment in rail infrastructure, Brazil is advancing with the development of two major inter-regional railways, which have the potential to reduce road traffic and associated greenhouse gas emissions.

To better align its policies and practices with the OECD Recommendations on transport, Brazil should:

- Strengthen the consideration of environmental effects of transport programmes and infrastructure as part of national transport planning
- Revitalise investment in urban mobility systems, in particular in cities with high congestion levels
- Build capacity for local integrated mobility planning, for example by developing training programmes for urban development planners and by developing networks to share good practice among municipalities.

# 11. Waste

## OECD requirements and the link with 2015 EPR recommendations

The Recommendation of the Council on a Comprehensive Waste Management Policy, [OECD/LEGAL/0147](#), adopted in 1976 calls for comprehensive management of waste, which protects the environment in its entirety, reduces waste at source, promotes recycling and recovery of waste, and makes adequate administrative arrangements through economic instruments and cost allocation and appropriate data collection and access to information.

The objective of the Recommendation of the Council concerning the Re-Use and Recycling of Beverage Containers, [OECD/LEGAL/0159](#), adopted in 1978, is to ensure that environmental costs arising from the production, use and discarding of beverage containers are borne by producers and users, and to promote recycling and re-use of beverage containers. The Recommendation of the Council on Waste Paper Recovery, [OECD/LEGAL/0184](#), adopted in 1980, aims to encourage waste paper recovery to increase both demand for recycled paper and supply of waste paper, while taking due account of social costs and benefits.

Finally, the Recommendation of the Council on the Environmentally Sound Management of Waste, [OECD/LEGAL/0329](#), adopted in 2004, aims to ensure that the management of waste throughout the OECD area is carried out in an economically efficient manner, resulting in a minimum of negative impacts on the environment. It envisages implementation by Adherents of 11 general policy principles, combined with six types of practical measures to be implemented at the facility level.<sup>14</sup>

The 2015 EPR of Brazil welcomed the National Solid Waste Policy (PNRS) of 2010, which established key principles and directives for sound waste management compatible with OECD standards, but warned that implementation of the policy was challenged by lack of consistent waste data and capacity and resource gaps at the municipal level. The EPR provided two key recommendations with regard to waste management:

- Better enforce hazardous waste management regulations to eliminate the disposal of hazardous waste in municipal landfills without prior treatment
- Establish the National Solid Waste Management Information System, as required by law, and use it to facilitate the implementation of 'reverse logistics' programmes for key product waste streams

The EPR also suggested to introduce taxes on waste (e.g. packaging materials) and to extend the application of user charges for waste services and enforce their collection, with a view to encouraging efficient use of resources, increasing cost recovery, improving investment financial viability and leveraging private sector resources. It also suggested to encourage stronger inter-municipal collaboration to achieve economies of scale in providing waste treatment services.

## Main legislation, policies and practices and recent developments

Brazil's legal and regulatory framework provides a sound basis for comprehensive waste management. The 2010 National Solid Waste Policy (PNRS) set principles, objectives, instruments and guidelines on solid waste management, including hazardous waste, in line with the relevant Recommendations. It introduced concepts little known in Brazil before, such as collection of recyclable materials, environmentally appropriate final disposal of solid waste, integrated solid waste management, and extended producer responsibility (referred to as "reverse logistics" in Brazil), in line with the principles and instruments promoted by Recommendations [OECD/LEGAL/0147](#) and [OECD/LEGAL/0329](#).

Municipalities are responsible for solid waste management, while the federal law regulates hazardous waste management. The PNRS obliges all legal entities that generate waste to develop solid waste management plans (with the exception of commercial establishments that generate the equivalent of household waste). Such plans have been taken into account as part of the environmental licensing process since 2010. Operators of such facilities have to prove, as a condition for obtaining an environmental licence, that they have the technical and financial capacity to properly manage and dispose of the waste.

The PNRS also required municipalities to adopt waste management plans by August 2012. However, in 2017 merely 55% of municipalities had such plans (MMA, 2020). The PNRS further established a deadline for closing open-air landfills by 2014. As a vast number of municipalities have not achieved this target, the deadline was later differentiated depending on the size of municipality, with a final date being July 2021. In 2020, the deadline was revised again, in line with the new legal framework for water supply and sanitation (Law 14026/2020). The new legislation established 31 December 2020 as a deadline for implementation, but provided exceptions for municipalities that by that date have developed a municipal (or inter-municipal) solid waste management plan as well as waste collection mechanisms that guarantee economic and financial sustainability. For those municipalities, the deadline varies between August 2021 and August 2024.<sup>15</sup> The government also adopted a Zero Dumpsite Programme in 2019 to accelerate the closure of open landfills.

The National Solid Waste Plan, adopted in 2012, is a strategic document that operationalises the PNRS. In July 2020, the MMA presented a new draft National Solid Waste Plan. It sets nine goals for solid waste management, accompanied by 19 indicators. It also includes a description of three programmes to be implemented in the coming years: the National Zero Waste Programme; the National Programme to Combat Waste at Sea; and the National Reverse Logistics Programme. The plan aims to achieve universal waste collection by 2036 and to offer selective collection to 72.6% of the population by 2040.

The implementation of reversed logistic schemes has well advanced since the adoption of the PNRS in 2010. Recent developments include the establishment of a reverse logistics system for medicines and their packaging (through Decree 10 388/2020), goals for the collection of lubricating oils (Inter-ministerial Ordinance 475/2019), adoption of a sectoral agreement for the implementation of a reverse logistics system for lead acid batteries in 2019, adoption of "terms of commitment" to implement a steel packaging reverse logistics system in 2018, and launch of a reverse logistics scheme for fluorescent lamps in 2017. In addition, a sectoral agreement for household electric and electronic products and their components was agreed in 2019, with rules for implementation defined in 2020 (through Decree 10240/2020).

A sectoral agreement on general packaging waste was formalised between the federal, state and municipal authorities, industry and waste pickers' organisations in 2015. The agreement covered different packaging materials, including cardboard, plastics and glass. The goals of this agreement were to provide structural support to the organisation of waste pickers, increase the number of voluntary drop-off points for waste collection, and undertake awareness-raising activities (CEMPRE, 2019; Abrelpe, 2018). According to the MMA, support to more than 800 waste picker cooperatives has been provided since, and more than 2 000 voluntary drop-offs points have been installed. The agreement does not, however, cover incentives for the use of recycled materials (e.g. through public purchase programmes). In 2020, new goals were set

under specific “terms of commitments” signed for aluminium, other metal and glass packaging. The MMA also presented a legislative proposal to establish a dedicated reverse logistics system for glass packaging in early 2021. The stated objective of the proposal is to improve the structure, implementation and operationalisation of reverse logistics for glass packaging.

The PNRS was an important step towards better cost allocation and the use of economic instruments for waste management. It facilitated public financing for the waste sector, with priority access given to private-public consortia. It also supported waste collection with the participation of waste pickers, who play an important role in waste separation and recycling. Still, the majority of municipalities do not charge for their waste management activities and very few are able to collect sufficient resources to cover their operating costs, which in turn means there is little incentive for investment (see Section 5. ). Most municipalities that charge for waste collection do so through property and land taxes, with no link to the volume of waste collected. Fixed charges may be easier to administer, but they provide no incentive to generate less waste or to sort for recycling. To address this, Law 14026/2020 made the introduction of collection mechanisms that guarantee economic and financial sustainability of waste services (e.g. through adequate waste charging) a condition for being granted an extension of the deadline for closing open-air dump sites.

Brazil’s waste policy explicitly promotes social inclusion and economic emancipation of waste pickers. Waste pickers are responsible for some 20% of the waste separated for recycling. They are also the main contributor the high recycling rates of aluminium cans, PET bottles and paper (the government estimates that 97% of aluminium cans, 55% of PET bottles and 67% of recyclable paper were recycled in 2020). The 2020 draft revision of the National Solid Waste Plan sets a target to increase the percentage of municipalities with formal contracts for handling recyclable materials by co-operatives and waste pickers’ associations from 7.9% in 2020 to 95% in 2040. Achieving this will require significant increases in financing to pay for services provided by waste pickers. In 2017, only 169 municipalities paid for selective collection of waste by waste pickers’ organisations (MMA, 2020).

As regards information management, one of the main tools is the National Sanitation Information System (SNIS), which was established in 2002 and relies on self-reported data from municipalities. The amount and quality of information have visibly improved since the adoption of the PNRS. The MMA recently launched a digital solid waste management map which transparently showcases the situation of solid waste management practices across the country. However, municipal participation is still far from universal (with some 40% of municipalities not providing information to the system), leading to considerable data gaps. The quality of municipal information on waste provided to various public bodies also remains an issue, as it often leads to significant discrepancies. In 2019, Brazil established a National Solid Waste Management Information System (SINIR), which combines the information available through the SNIS from local and state waste management plans, as well as companies’ solid waste management plans. Providing information to the system is a condition for accessing waste management funding from the MMA. Information can be accessed through a single website (<https://sinir.gov.br/>). Brazil also has a National Inventory of Industrial Solid Waste, established in 2002 and upgraded in 2021.

Looking at waste management performance, the generation of municipal solid waste is still significantly below the OECD average (about 380 kg/capita compared to 525 kg in the OECD), reflecting the difference in income levels. The volume of municipal solid waste grew considerably in the first half of the 2010s, but has stabilised since. The service collection coverage has increased in recent years and varies from above 90% in the southern and central parts of Brazil to around 80% in northern regions (Abrelpe, 2019). Almost all cities with more than 1 million residents have separate waste collection systems. However, less than a third of municipalities of less than 30 000 people have separate collection initiatives. Overall, despite progress, only 22% of municipalities offered selective collection in 2018 (CEMPRE, 2019).<sup>16</sup>

Landfilling continues to dominate in Brazil, accounting for some 98% of municipal solid waste disposal (compared to the OECD average of 39%). While the share of municipalities that dispose waste in an

environmentally appropriate manner has increased from 29% in 2010 to 60%, the disposal of waste in open-air landfills continues to be a reality in many Brazilian municipalities (MMA, 2020; Abrelpe, 2019). The government estimates that there are some 2 700 unauthorised landfill sites in 1 600 municipalities. The recycling rate has not significantly increased over the past decade and was estimated at 2.2% in 2020, with the lack of waste separation at source being partly offset by informal recyclers. The recycling rate varies between 0.2% and 5.4% across states. According to the Brazilian Institute of Applied Economic Research, Brazil loses about BRL 8 billion per year by burying materials that could be recycled (CEMPRE, 2019).

The establishment of reverse logistics schemes has borne fruit and starts to show visible progress in certain waste streams. Brazil processed 94% of empty pesticide containers in 2018 (of which 93% were recycled and 7% incinerated). About 95% of collected lubricating oils packaging was recycled in 2019 (Abrelpe, 2019). Improvements are also visible in the number of tyres and lamps that are managed soundly, while the collection of packaging is increasing. A number of initiatives to promote recycling are implemented at the state level. For example, Minas Gerais has recently updated its recycling policy to require state administrations to use recycled paper for at least 50% of the total paper used in printed matter, envelopes, publications, packaging, etc. At the national level, public procurement laws, which require that all public procurements consider the sustainability of products and services (see Section 4. ), have the potential to promote the use of recyclable paper.

Hazardous waste management is regulated at the federal level. Legal entities managing hazardous waste must register with the National Registry of Hazardous Waste Operators and notify the relevant environmental and sanitary authorities of the quantity, nature and temporary or final destination of waste under their responsibility, as well as of any accidents related to hazardous waste (in addition to preparing waste management plans, in accordance with the PNRS). Brazilian legislation prohibits the disposal of hazardous waste in landfills. However, as there is a lack of hazardous waste landfills or treatment facilities, many municipalities tolerate the illegal practice of disposing of hazardous waste in municipal landfills. Collection of information on the generation and treatment of hazardous waste generation remains a crucial precondition for better enforcement of hazardous waste management regulations and for ending the disposal of hazardous waste in municipal landfills without prior treatment, as recommended by the 2015 EPR.

## Assessment of alignment and possible ways forward

Brazil's legal framework is well aligned with the OECD recommendations on solid waste management. The adoption of the PNRS in 2010 can be considered a milestone for waste management, setting clear principles, objectives, instruments and guidelines on solid waste management in line with the provisions of Recommendations [OECD/LEGAL/0147](#) and [OECD/LEGAL/0329](#). Requirements for waste management plans are generally consistent with the core performance elements recommended by the OECD.

Application of the legal provisions remains, however, a considerable challenge. Despite visible progress in some aspects, e.g. the replacement of some open-air landfills with sanitary landfills, higher waste collection and treatment rates and the expansion of reverse logistics schemes, the PNRS's priorities and objectives are not yet sufficiently reflected in waste management practices. A decade after the policy's adoption, waste management continues to concentrate on non-selective collection and final disposal in landfills, open-air landfills still exist, and the share of waste that is recovered has not changed since 2010. Selective waste collection, a precondition for recycling and reuse, is increasing, but on much slower pace than expected. Most Brazilian municipalities still struggle with low technical, administrative and financial capacity.

The establishment of the reverse logistics system for packaging in 2015 was an important step towards alignment with Recommendations [OECD/LEGAL/0159](#) and [OECD/LEGAL/0184](#) on beverage containers and waste paper recycling. Brazil has high recovery rates for beverage containers (notably aluminium cans, but also glass bottles) thanks to the longstanding and active participation of waste pickers. To improve recycling rates even further, investment in separate collection and recycling infrastructure and continued engagement of waste pickers (as envisaged by the government) will be paramount.

In line with the recommendations of the 2015 EPR, Brazil has launched a national solid waste management information system to integrate federal, state and municipal waste management data. This is a welcome development, as the lack of comprehensive, coherent and comparable data remains a key impediment to sound waste management. The new system, which is expected to contain comprehensive information by 2025-28, has the potential to become a powerful tool to better monitor and enforce regulations and to better track progress towards national goals.

The 2015 EPR also recommended to better enforce hazardous waste management regulations. This recommendation remains valid. The disposal of such wastes in municipal landfills without prior treatment legislation and standards in force remains a common practice, despite being prohibited by legislation and standards in force.

Going forward, Brazil should take the following steps to further improve its policies and practices related to waste management in conformity with relevant OECD Recommendations:

- Complete the closure of open-air landfills by 2024, as required by law, and actively support municipalities in their efforts through continued capacity building, public funding and public-private partnerships; consider establishing stricter enforcement methods, including sanctions, in case of continued non-compliance
- Building on recent progress, further expand reverse logistics schemes and establish clear targets and a mechanism for monitoring progress
- Continue efforts to enhance the economic and financial viability of waste services, also with a view to attracting investment in infrastructure for waste recovery and recycling
- Strengthen efforts to enforce the hazardous waste management regulations to eliminate the disposal of hazardous waste in municipal landfills.

## 12. Conclusions

During the last five years, Brazil faced major environmental challenges, including two bursts of mining dams, the worst oil spill in the history of the country and a peak in deforestation and forest fires. These challenges were coupled with persistent social and economic problems, aggravated by the COVID-19 crisis. While on the whole Brazil is not yet aligned with the OECD's environmental standards and good practices, extensive environmental legislation and an active civil society puts Brazil in a good position to achieve an acceptable degree of alignment.

In order to achieve this, Brazil needs to enhance and more effectively employ the policies the country has already started to develop. In many policy areas, the legislation and regulations match and sometimes go beyond the provisions of the relevant OECD Recommendations on the environment. As already flagged in the 2015 EPR of Brazil, the challenge going forward is to put the legal provisions into reality. It is a matter of securing sufficient financial and human resources, improving co-ordination across levels of government and ensuring effective policy implementation, including compliance assurance, at the subnational level.

In the area of biodiversity, Brazil has continued to advance the use of economic instruments, both through new legislation and by putting in place administrative prerequisites for successful implementation of the instruments (such as the development of the Rural Environmental Cadastre). Brazil has shown its capacity to effectively curb the loss of biodiverse ecosystems and control deforestation. The policies that have contributed to this success need to be maintained, reinforced and expanded to confront the recent peaks in deforestation and biodiversity loss.

Brazil's legislation on water is well aligned with good international practice, but it demands better implementation. The same applies to the field of waste management. Air quality control, despite being underdeveloped and facing a number of implementation challenges, could use the country's water management experience as a model for the implementation of a national policy on air quality. In the infrastructure sector, energy policies are already designed according to well-structured planning frameworks, which allows for more effective integration of environmental aspects into the sector with relatively small efforts.

A reform of the EIA process, currently the single most important regulatory instrument for controlling negative environmental impacts of economic activity in Brazil, could benefit from the high-quality evaluations and recommendations made by Courts of Audits and academia. Environmental assessments should advance towards better evaluation and more effective mitigation of impacts rather than towards procedural simplification. SEA, if implemented well, can be a potent instrument to make sectoral and local planning better aligned with environmental concerns.

Brazil's alignment with the polluter-pays principle requires adoption of major reforms designed to cut subsidies for environmentally harmful activities. The alignment with the integrated pollution prevention and control approach could also be strengthened by better co-ordination across government agencies, better integration of environmental instruments into land-use planning and ensuring sufficient human and financial resources for environmental monitoring and enforcement. Control of accidental pollution, including oil spills, is another area where a better institutional set-up and guidance is needed to better implement the existing legislation. To improve the environmental performance of public institutions, Brazil needs to set clear goals and revive the institutional mechanisms designed to guide actions and track progress.

It is important to stress that Brazil has made limited progress in implementing the recommendations of the 2015 EPR. Hence, with a few exceptions, these recommendations remain valid. This means that Brazil's federal government needs to better engage its executive agencies as well as state and local officials to accelerate advancements in the implementation of good OECD practices in the country.

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## Notes

<sup>1</sup> Including the social contributions PIS and COFINS, the federal tax on manufactured products (IPI), the levy on freight charged by Brazilian and foreign navigation companies operating in Brazilian ports (AFRMM) and, in some cases, the state-level value added tax ICMS.

<sup>2</sup> As defined within the Inter-ministerial Committee for Infrastructure Planning (created by Decree 10526/2020).

<sup>3</sup> In most states, the licensing process has three stages. A *preliminary licence* is granted at the initial stage of the activity, approving its location and establishing basic requirements and conditions to be met in the next stages. An EIA and its corresponding report may be required at this stage, as well as other environmental studies depending on the activity's environmental risk. The developer should elaborate the engineering design of the project following the conditions defined in the preliminary licence. An *installation licence* authorises the construction or expansion of a facility or activity in accordance with its conditions (e.g. covering air emissions, wastewater discharges, waste management and a variety of environmental and social mitigation measures). An *operating licence* authorises the operation of the activity or facility after the environmental authority verifies compliance with the requirements in the prior two licences.

<sup>4</sup> These include: Amazonas, Federal District, Pará, Minas Gerais and Goiás.

<sup>5</sup> Maranhão, Piauí, Ceará, Rio Grande do Norte, Pernambuco, Sergipe and Rio Grande do Sul applied zero IPVA rates for full electric vehicles, while São Paulo, Rio de Janeiro and Mato Grosso do Sul granted 50% discounts.

<sup>6</sup> Responsibility for water resource management is divided between the national government, for federal rivers, and the states, for state rivers – including tributaries of federal rivers – and groundwater.

<sup>7</sup> The authors of the diagnostics acknowledged that the data collected have some limitations, since only around 3 700 of the 5 500 municipalities were part of the study, with most of the smaller localities from the north and northeast regions were excluded from it because of lack of data.

<sup>8</sup> Separate registers exist for hazardous waste operators and individuals or companies harvesting timber from converted lands on native forests.

<sup>9</sup> Legislation on water quality was subsequently amended and revised through Resolutions 370/2006, 397/2008, 410/2009 and 430/2011, complemented by Resolution 393/2007.

<sup>10</sup> The Legal Amazon super-region corresponds to an area larger than the Amazon biome, encompassing both the Amazonian forest (about 4.1 million km<sup>2</sup>) and transitional vegetation (1 million km<sup>2</sup>). The Legal Amazon covers nearly nine states: Amazonas, Pará, Acre, Roraima, Rondônia, Amapá and Tocantins, and parts of Mato Grosso and Maranhão.

<sup>11</sup> Recommendation [OECD/LEGAL/0149](#) requires that arrangements be made to prevent oil spills, but the topic is covered separately by Recommendation [OECD/LEGAL/0191](#) of the Council concerning Certain Financial Aspects of Actions by Public Authorities to Prevent and Control Oil Spills, which is beyond the scope of this report.

<sup>12</sup> <https://www.c40.org/other/green-and-healthy-streets>.

<sup>13</sup> A National Council of Secretaries of Transport was established in 2020 to co-ordinate transport policies between the federal and state levels.

<sup>14</sup> The legal instruments regarding trans-frontier movements of waste are not covered in this report.

<sup>15</sup> The deadlines are: August 2021 for capitals and municipalities in metropolitan regions; August 2022 for municipalities with a population of over 100 000 inhabitants and municipalities located close to a border; August 2023 for municipalities with a population between 50 and 100 000; and August 2024 for municipalities with a population below 50 000 inhabitants.

<sup>16</sup> Selective collection may be limited to provision of voluntary delivery points for the population or to simple formalisation of agreements with co-operatives of pickers' organisations.

# Annex A. Relevant OECD legal instruments and 2015 EPR recommendations

Legal Instruments	EPR Recommendations
<p><b>Implementation of the Polluter-Pays Principle</b>  <a href="#">OECD/LEGAL/0132</a>-Recommendation of the Council on the Implementation of the Polluter-Pays Principle  <a href="#">OECD/LEGAL/0102</a>-Recommendation of the Council on Guiding Principles concerning International Economic Aspects of Environmental Policies*  <a href="#">OECD/LEGAL/0251</a>-Recommendation of the Council concerning the Application of the Polluter-Pays Principle to Accidental Pollution</p>	<ul style="list-style-type: none"> <li>Reform the system of environmentally related taxes and charges, possibly within the context of a broader fiscal reform.</li> </ul>
<p><b>Key environmental policy instruments</b>  <a href="#">OECD/LEGAL/0172</a>-Recommendation of the Council on the Assessment of Projects, Plans and Programmes with Significant Impact on the Environment*  <a href="#">OECD/LEGAL/0256</a>-Recommendation of the Council on Integrated Pollution Prevention and Control*  <a href="#">OECD/LEGAL/0345</a>-Recommendation of the Council on Good Practices for Public Environmental Expenditure Management*  <a href="#">OECD/LEGAL/0283</a>-Recommendation of the Council on Improving the Environmental Performance of Government*  <a href="#">OECD/LEGAL/0258</a>-Recommendation of the Council on the Use of Economic Instruments in Environmental Policy*</p>	<ul style="list-style-type: none"> <li>Introduce and enforce a legal requirement of strategic environmental assessment of municipal territorial plans and sectoral development programmes, which should be used to integrate the economic, social and environmental aspects of land use.</li> <li>Streamline the environmental impact assessment and environmental licensing requirements across and within administrative levels; clarify the boundaries of compensation actions that have socio-environmental objectives and those that pursue social objectives; develop procedural guidance for each stage of the licensing process and build capacity of licensing authorities.</li> <li>Streamline funds dedicated to environmental management and projects; systematically monitor the use of environmental funds to ensure that it is in line with policy priorities, transparent and cost-effective.</li> <li>Reform the system of environmentally related taxes and charges, possibly within the context of a broader fiscal reform, including: maintaining positive rates for the federal CIDE tax on petrol and diesel and adjusting them to reflect fuel carbon content and emissions of local air pollutants; applying the CIDE to fuels used for aviation and stationary purposes (e.g. industry); introducing taxes on pollution (e.g. air emissions), waste (e.g. packaging materials) and resource use (e.g. minerals), and aligning vehicle taxation to environmental performance; ensuring that water abstraction and pollution charges reflect scarcity and pressures on the environment and are consistently applied across river basins and throughout the country (as required by law).</li> <li>Extend the use of user charges for water supply, sanitation and waste services and enforce their collection to encourage efficient use of resources, increase cost recovery, improve investment financial viability and leverage private sector resources.</li> </ul>

Legal Instruments	EPR Recommendations
<p><b>Environmental information</b>  <a href="#">OECD/LEGAL/0296</a>-Recommendation of the Council on Environmental Information*  <a href="#">OECD/LEGAL/0257</a>-Recommendation of the Council on Environmental Indicators and Information*  <a href="#">OECD/LEGAL/0170</a>-Recommendation of the Council on Reporting on the State of the Environment*</p>	<ul style="list-style-type: none"> <li>• Develop a uniform system for the collection and management of environmental data, including on environmental law implementation (input, output and outcome indicators) and economic aspects of environmental policies (expenditure and revenue accounts; environment-related goods, services and employment).</li> </ul>
<p><b>Water management</b>  <a href="#">OECD/LEGAL/0434</a>-Recommendation of the Council on Water*</p>	<ul style="list-style-type: none"> <li>• Establish consistent and compatible criteria for water allocation and ensure that discharge limits are set in accordance with use-based water quality standards.</li> </ul>
<p><b>Biodiversity conservation and sustainable use</b>  <a href="#">OECD/LEGAL/0326</a>-Recommendation of the OECD Council on the Use of Economic Instruments in promoting the Conservation and Sustainable Use of Biodiversity</p>	<ul style="list-style-type: none"> <li>• Continue discussing the current federal legislation proposal and adopt an overarching federal payments for ecosystem services (PES) law to provide a framework for PES implementation and improve consistency across state regulations and programmes.</li> <li>• Put in place a countrywide monitoring system for PES programmes, possibly within the framework of a federal PES law, with a view to verifying their effectiveness in maintaining the ecosystem services that are being paid for.</li> <li>• Clarify the rules for biodiversity and finance compensations in the framework of the licensing process; improve the quantification of the impact of infrastructure projects on biodiversity and ecosystems and the definition of the associated compensatory measures.</li> </ul>
<p><b>Energy and air pollution</b>  <a href="#">OECD/LEGAL/0149</a>-Recommendation of the Council concerning the Reduction of Environmental Impacts from Energy Production and Use*  <a href="#">OECD/LEGAL/0221</a>-Recommendation of the Council on Environmentally Favourable Energy Options and their Implementation*  <a href="#">OECD/LEGAL/0157</a>-Recommendation of the Council on the Reduction of Environmental Impacts from Energy Use in the Household and Commercial Sectors*  <a href="#">OECD/LEGAL/0217</a>-Recommendation of the Council on the Control of Air Pollution from Fossil Fuel Combustion*</p>	<ul style="list-style-type: none"> <li>• Strengthen measures to improve energy efficiency by introducing energy standards for buildings and appliances, integrating them into social housing programmes and using mandatory fuel economy standards and labelling to promote a shift towards more efficient vehicles.</li> <li>• Develop an effective nationwide air quality monitoring system, with consistent methodologies and data collection across states.</li> </ul>
<p><b>Transport</b>  <a href="#">OECD/LEGAL/0325</a>-Recommendation of the Council on Assessment and Decision-Making for Integrated Transport and Environment Policy*  <a href="#">OECD/LEGAL/0131</a>-Recommendation of the Council on Traffic Limitation and Low-Cost Improvement of the Urban Environment*</p>	<ul style="list-style-type: none"> <li>• Continue to scale up investment in railways and urban public transport systems; consider extending the use of instruments such as road tolls, congestion charges, parking fees and restrictions on car circulation to moderate the use of private vehicles.</li> </ul>
<p><b>Waste</b>  <a href="#">OECD/LEGAL/0147</a>-Recommendation of the Council on a Comprehensive Waste Management Policy  <a href="#">OECD/LEGAL/0159</a>-Recommendation of the Council concerning the Re-Use and Recycling of Beverage Containers  <a href="#">OECD/LEGAL/0184</a>-Recommendation of the Council on Waste Paper Recovery*  <a href="#">OECD/LEGAL/0329</a>-Recommendation of the Council on the Environmentally Sound Management of Waste*</p>	<ul style="list-style-type: none"> <li>• Better enforce hazardous waste management regulations to eliminate the disposal of hazardous waste in municipal landfills without prior treatment.</li> <li>• Establish the National Solid Waste Management Information System, as required by law, and use it to facilitate the implementation of “reverse logistics” programmes for key product waste streams.</li> </ul>

\* These legal instruments Brazil has officially requested adherence to.

## Annex B. Assessment of Brazil's alignment with selected OECD legal instruments on environment

This Annex summarises the evaluation of the alignment of Brazil's legislation, policies and practices to each OECD legal instrument on environment, including waste. The degrees are attributed according to the following criteria:

- **Not aligned:** the legislation, policies and practices are not in line with the OECD legal instrument.
- **Low alignment:** elements of legislation or policy are in line with the legal instrument, but are not implemented appropriately; the legislation, policies and practices are in line with some of the instrument's requirements, but not with others.
- **Medium alignment:** the legislation or policy are in line with the legal instrument; there are examples of good practices but no coherent implementation; the legislation, policies and practices are in line with some of the instrument's requirements, but not with others.
- **Aligned:** the legislation, policy framework and governmental practice are in line with the main provisions of the OECD legal instruments, even if improvements could be foreseen.

**Table B.1. Alignment with legal instruments related to the polluter-pays principle**

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0102:</a> Recommendation on Guiding Principles concerning International Economic Aspects of Environmental Policies	Common standards and regulation for polluting products, striving for international harmonisation and more stringent standards	<b>Aligned:</b> Brazil's legislation recognises the polluter-pays principle. In many policy areas Brazil harmonises its environment-related standards with international good practices (e.g. for vehicle emissions).
<a href="#">OECD/LEGAL/0132:</a> Recommendation on the Implementation of the Polluter-Pays Principle	No subsidies or tax advantages for pollution control	<b>Medium alignment:</b> Certain environmentally related taxes contribute to the practical application of the polluter pays principle. At the same time, subsidies for polluting activities are high and not justified by the criteria outlined by the instrument.
<a href="#">OECD/LEGAL/0251:</a> Recommendation concerning the Application of the Polluter-Pays Principle to Accidental Pollution	Operators bear the costs of preventing and controlling accidental pollution	<b>Aligned:</b> Brazil has a strict liability rule (regardless of guilt).
	Expeditious recovery from responsible operators of pollution control and remediation costs incurred by public authorities	<b>Aligned:</b> Legislation allows for cost recovery, although in practice it is not expeditious.

Table B.2. Alignment with the legal instrument on environmental assessment

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0172</a> : Recommendation on the Assessment of Projects, Plans and Programmes with Significant Impact on the Environment	Use of environmental assessment as part of the decision-making of projects, plans and programmes	<b>Medium alignment:</b> Environmental assessment is obligatory for all activities with a potentially significant environmental impact, but there is no legal requirement for environmental assessment of public plans and programmes.
	Clear scope and procedures for environmental assessment	<b>Low alignment:</b> Procedural incongruities persist.
	Analysis of reasonable alternatives	<b>Not aligned:</b> Projects are analysed when installation decisions have been made.
	Consultation with public authorities	<b>Aligned:</b> Government stakeholders are consulted during the process, although the assessment process would benefit from better guidance on consultation procedures.
	Public information and participation	<b>Aligned:</b> Procedures for public participation are adopted, although in practice participation is not always meaningful.
	Post-assessment monitoring of environmental effects	<b>Not aligned:</b> There is no systematic monitoring of implementation or efficacy of assessment conclusions.
	Environmental assessment of transboundary impacts	<b>Not aligned:</b> There are no specific procedures for assessing transboundary impacts.

Table B.3. Alignment with the legal instrument on integrated pollution prevention and control

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0256</a> : Recommendation on Integrated Pollution Prevention and Control	Institutional co-ordination for integrated environmental management	<b>Medium alignment:</b> Despite the existence of numerous federal-state collaboration mechanisms, co-ordination challenges persist, for example in shared river basins and between agencies responsible for water and land use management.
	Single permits for all releases and processes and integrated inspections	<b>Aligned:</b> Conditions of installation licences cover all environmental impacts, inspections are mostly cross-media.
	Use life cycle analysis of products	<b>Medium alignment:</b> Brazil has adopted international standards for life cycle analysis, but their application remains limited.

Table B.4. Alignment with legal instruments on environmental performance of government

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0283</a> : Recommendation on Improving the Environmental Performance of Government	Sound environmental management of government facilities	<b>Low alignment:</b> Brazil established programmes to promote the diffusion of sustainable government practices. However, no goals have been set for improving the environmental performance of public buildings and facilities, and there is no mechanism to monitor progress.
	Implementation of sustainable public procurement	<b>Low alignment:</b> Legislation requires that public procurement consider sustainability of products and services acquired. However, no targets have been set. The council responsible for executing the policy has been dissolved. There is no mechanism to monitor progress.
<a href="#">OECD/LEGAL/0345</a> : Recommendation on Good Practices for Public Environmental Expenditure Management	Clear priorities and sources of funding	<b>Aligned:</b> Environmental funds have clear objectives and revenue sources, even though gaps and overlaps exist.
	Objective evaluation methods	<b>Aligned:</b> The two largest federal environment-related funds have sound monitoring systems.
	Appropriate financial management; accountability and transparency	<b>Aligned:</b> Environmental funds are managed professionally by independent institutions.

Table B.5. Alignment with the legal instrument on the use of economic instruments

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0258</a> : Recommendation on the Use of Economic Instruments in Environmental Policy	Use of economic instruments in accordance with the guidelines laid out in the Recommendation	<b>Medium alignment:</b> Several economic instruments are used: natural resource taxes, payments for ecosystem services and user charges. User charges for urban water supply, sanitation and solid waste collection services are mandated by law, their use is increasing. Energy and transport taxes are not aligned with environmental objectives. Implementation of water abstraction and effluent charges is improving. There are no other taxes on polluting activities or products (e.g. on air emissions, pesticides).

Table B.6. Alignment with legal instruments on environmental information

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0170</a> : Recommendation on Reporting on the State of the Environment	Periodic publication of reports with comparable data on the environment and its changes over time	<b>Medium alignment:</b> A range of environmental data are published, but the national synthesis Environmental Quality Report, mandated by law, has not been issued since 2013.
<a href="#">OECD/LEGAL/0257</a> : Recommendation on Environmental Indicators and Information	Use of environmental indicators to measure environmental performance and better integrate environmental and economic decision-making	<b>Medium alignment:</b> IBGE has published environmental indicators since 2002. In 2017, MMA introduced key indicators to monitor implementation of environmental and sustainable development policies. However, data sources, definitions and calculation methodologies for these indicators must be clarified and updated.
<a href="#">OECD/LEGAL/0296</a> : Recommendation on Environmental Information	Easy public access to environmental information, including with regard to environmental performance of enterprises (e.g. emission levels, compliance records)	<b>Aligned:</b> National Access to Information Law guarantees access to environmental information, although implementation is inconsistent. Polluters must report inputs and environmental impacts (air emissions, effluents and waste generation) to a federal registry. Information on pollutant releases and compliance is partially available to the public.

Table B.7. Alignment with the legal instrument on water

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0434</a> : Recommendation on Water	Good water governance	<b>Aligned:</b> River basin committees provide for multi-stakeholder consultation and cross-sector co-ordination. However, such committees have not yet been established for all river basins. Brazil has established effective mechanisms for inter-governmental collaboration on various water management issues.
	Effective water demand management policies and water allocation regimes	<b>Medium alignment:</b> Water allocation regimes are defined in river basin management plans, but these are poorly implemented. More river basins have established user charges, but these are often too low to influence water allocation or consumption decisions.
	Policies and standards to prevent, reduce and manage water pollution	<b>Aligned:</b> The policy framework for water quality is adequate. Monitoring is conducted well, although there is room to improve monitoring of water contamination by pesticides in surface waters.
	Management of water risks and disasters	<b>Aligned:</b> A 2020 Law improves water allocation in situations of water scarcity. The 2019 National Water Security Plan defines interventions to secure water supply in the event of floods or droughts. Drought and flood information systems reinforce risk surveillance.
	Sustainable financing, investment and pricing for water and water services	<b>Medium alignment:</b> A 2020 law strengthens potential for investment in, and sustainable financing of, water supply and sanitation, but more progress is needed on water pricing.

Table B.8. Alignment with the legal instrument on biodiversity

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0326</a> : Recommendation on the Use of Economic Instruments in promoting the Conservation and Sustainable Use of Biodiversity	A policy framework aimed at ensuring efficient long-term conservation and sustainable use of biodiversity and its related resources.	<b>Medium alignment:</b> Brazil has a comprehensive and stringent legal framework for biodiversity protection, which includes a national system of conservation units and requirements for protecting native flora on private lands. However, some successful policies have recently been withdrawn. After a decade of constant decline, deforestation rates are rising again since 2015.
	Consistent use of market instruments for sustainable use of biodiversity	<b>Aligned:</b> Market-based instruments are used to encourage sustainable use of natural assets (e.g. through PES programmes) and to support land owners who comply with conservation requirements.
	Equitable sharing of benefits coming from biodiversity conservation and use	<b>Medium alignment:</b> The legal framework for benefit sharing was adopted in 2015. However, the National Sharing of Benefits Fund is not yet operational. In practice, ensuring free, prior and informed consultation of traditional communities presents a major challenge.
	Use of biodiversity impact assessments and economic valuation of biodiversity	<b>Not aligned:</b> There are few examples of economic valuation of biodiversity and ecosystem services and no guidance on how to conduct it. Consequently, environmental compensation payments from projects causing biodiversity loss are not proportional to the ecological damage.

Table B.9. Alignment with legal instruments on energy and air pollution

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0149</a> : Recommendation concerning the Reduction of Environmental Impacts from Energy Production and Use	Integration of environmental policies and energy policies at the policy formulation and implementation stage	<b>Medium alignment:</b> Long-term planning of energy infrastructure declares integration of environmental concerns, but in practice it is limited. There is no SEA of energy sector plans.
	Promotion of energy conservation measures	<b>Aligned:</b> Several programmes and policies aims to foster energy efficiency, including PROCEL, mandatory efficiency requirements for appliances and labelling programmes. However, there is ample room to further strengthen energy efficiency policies.
	Integration of environmental costs into the price of energy	<b>Not aligned:</b> Social costs (including environmental costs) are not reflected in energy prices.
	Minimisation of environmental impacts of offshore oil and gas exploration and exploitation and surface mining of coal	<b>Medium alignment:</b> Environmental impacts from offshore oil and gas exploration and exploitation and surface mining of coal are mostly addressed through environmental licencing. Legislation for oil spills preparedness and prevention is poorly implemented.
<a href="#">OECD/LEGAL/0157</a> : Recommendation on the Reduction of Environmental Impacts from Energy Use in the Household and Commercial Sectors	Implementation of demand management and energy conservation policies, including through the use of economic instruments (pricing, financing) and regulation	<b>Medium alignment:</b> The PROCEL programme has been responsible for some energy efficiency gains. In addition, Brazil has adopted labels and efficiency standards for appliances used in the residential and commercial sectors. No mandatory standards or labelling requirements exist for buildings. In the virtual absence of energy excise taxes, little incentives for energy conservation are provided through prices.
<a href="#">OECD/LEGAL/0221</a> : Recommendation on Environmentally Favourable Energy Options and their Implementation	Reduction of barriers to, and use of incentives for, investments environmentally favourable energy options	<b>Aligned:</b> Brazil has a long tradition of promoting renewable energy sources, including through investment support (e.g. soft loans) and blending requirements for biofuels. Renewable electricity generation is mainly promoted through auctions.

<a href="#">OECD/LEGAL/0217</a> : Recommendation on the Control of Air Pollution from Fossil Fuel Combustion	Implementation of emission standards for large stationary installations and monitoring of air emissions	<b>Medium alignment:</b> A 2006 CONAMA resolution regulates air emissions from point sources. Some cities and states developed inventories of air emissions, but Brazil lacks a national inventory of air pollutant emissions. Brazil is the process of developing a national system for air quality monitoring. However, half of Brazil's states lack functioning air quality monitoring stations.
	Implementation of emission standards and fuel efficiency standards for vehicles, promotion of environmentally friendly vehicles	<b>Aligned:</b> The Vehicle Emission Control Programme established mandatory maximum emission levels for light and heavy-duty vehicles; standards were strengthened in 2018 and 2019. Brazil has introduced mandatory fuel economy standards for light-duty vehicles in 2018.

**Table B.10. Alignment with legal instruments on transport**

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0131</a> : Recommendation on Traffic Limitation and Low-Cost Improvement of the Urban Environment	Traffic management, promotion of public transportation, comprehensive land use and transport planning	<b>Low alignment:</b> Legislation allows for the use of a range of instruments for urban mobility planning. Implementation is, however, limited due to multiple postponements of requirements for urban mobility plans and capacity limits. BNDES is scaling down investments in the expansion of urban transport systems.
<a href="#">OECD/LEGAL/0325</a> : Recommendation on Assessment and Decision-Making for Integrated Transport and Environment Policy	Integration of environmental concerns into decision-making on transport policies	<b>Medium alignment:</b> Brazil has taken steps to strengthen long-term planning and the integration of environmental aspects in the transport sector. There is, however, no SEA of national transport policies and investment and a lack of cross-sectoral co-ordination at the national level. At the project level, environmental impacts are only considered after the decision is made.

**Table B.11. Alignment with legal instruments on waste**

OECD legal instrument	Key requirements	Assessment of alignment
<a href="#">OECD/LEGAL/0147</a> : Recommendation on a Comprehensive Waste Management Policy	Promotion of waste reduction at source, waste recycling and recovery, use economic instruments, collection of and access to information	<b>Aligned:</b> The 2010 National Solid Waste Policy sets clear principles, objectives, instruments and guidelines on solid waste management. The legal provisions are, however, not adequately applied in practice.
<a href="#">OECD/LEGAL/0159</a> : Recommendation concerning the Re-Use and Recycling of Beverage Containers	Environmental costs arising from the production, use and discharge of beverage containers are born by producers and users	<b>Medium alignment:</b> Beverage containers are covered by the reverse logistics scheme for packaging materials. In addition, waste pickers helped achieve a high recycling rate e.g. of aluminium bottles. However, results for other packaging materials are still early, due to the lack of adequate collection systems, notably in rural areas. There are no other instruments (e.g. taxes) to internalise environmental costs.
	Systems of beverage distribution by refillable containers; promotion of recycling of disposed-of containers	<b>Medium alignment:</b> Although there is no regulated system for beverage distribution by refillable containers, the government estimates that 80% of glass beverage containers are "returnable". There are also examples of returnable plastic bottles.
<a href="#">OECD/LEGAL/0184</a> : Recommendation on Waste Paper Recovery	Increased use of recycled fibres in paper products; increased recovery of waste paper for paper and board production	<b>Medium alignment:</b> The 2015 sectorial agreement on packaging waste aims at increasing the recovery rate of packaging waste (including paper). The agreement does not include measures to promote the use of recycled material (e.g. public purchase programmes) or education measures.
<a href="#">OECD/LEGAL/0329</a> : Recommendation on the Environmentally Sound Management of Waste	Regulatory framework for waste management facilities and waste generators	<b>Aligned:</b> The 2010 National Solid Waste Policy sets clear responsibilities and requirements for entities generating waste. Requirements for waste management plans are generally consistent with OECD core performance elements. However, the legal provisions are not sufficiently applied in practice.

	<p>Adequate administrative arrangements (data collection, separate collection of waste, training of authorities).</p>	<p><b>Medium alignment:</b> The National Sanitation Information System has been in place since 2002. The amount and quality of information have visibly improved over the past decade. Nearly all large cities (with more than 1 million inhabitants) offer some type of separate collection. However, the overall number of municipalities with separate collection infrastructure is still low.</p>
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