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Incorporating environmental
provisions in regional trade
agreements in chapters
and articles dealing with
trade in services

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Abstract

Incorporating environmental provisions in regional trade agreements in chapters and articles dealing with trade in services

Christophe Bellmann and Alena Bulatnikova

Trade in environmentally-related services plays a critical role in addressing global sustainability concerns such as climate change, eco-system degradation or pollution. It facilitates the diffusion of environmental technologies and allows firms to exploit comparative advantages and economies of scale. Regional Trade Agreements (RTAs) are increasingly used as a vehicle to regulate and foster international trade in environmental services.

Based on an analysis of existing provisions in recent agreements aiming at fostering deep economic integration, this report explores ways in which RTAs can incorporate environmental objectives in chapters and articles related to trade in services. These examples range from general commitments to co-operate on environmental goods and services, through horizontal provisions guaranteeing the right to regulate or to protect the environment, to specific commitments on market access and national treatment, or disciplines designed to promote regulatory cooperation and good regulatory practices. These different avenues point to the need for a holistic approach in incorporating environmental considerations in services related provisions. Parties interested in promoting and facilitating trade in environmental services through RTAs would not only need to look at environment and sustainability chapters, but may also wish to do it through specific commitments on market access and national treatment as well as sectoral provisions or annexes on regulatory co-operation.

JEL classification: F13, F18, R11, Q56

Keywords: Regional trade agreements, environmental provisions, trade and environment, environment policy, trade policy, environmental goods and services, international regulatory co-operation

Résumé

Le commerce des services liés à l'environnement joue un rôle essentiel dans la résolution des problèmes de durabilité mondiale tels que le changement climatique, la dégradation des écosystèmes ou la pollution. Il facilite la diffusion des technologies environnementales et permet aux entreprises d'exploiter les avantages comparatifs et les économies d'échelle. Les accords commerciaux régionaux (ACR) sont de plus en plus utilisés comme un véhicule pour réglementer et encourager le commerce international des services environnementaux.

Sur la base d'une analyse des dispositions existantes dans les accords récents visant à favoriser une intégration économique profonde, ce rapport explore les moyens par lesquels les ACR peuvent incorporer des objectifs environnementaux dans les chapitres et articles relatifs au commerce des services. Ces exemples vont d'engagements généraux de coopération sur les biens et services environnementaux, en passant par des dispositions horizontales garantissant le droit de réglementer ou de protéger l'environnement, jusqu'à des engagements spécifiques sur l'accès aux marchés et le traitement national, ou des disciplines conçues pour promouvoir la coopération réglementaire et les bonnes pratiques réglementaires. Ces différentes voies mettent en évidence la nécessité d'une approche globale pour intégrer les considérations environnementales dans les dispositions relatives aux services. Les parties intéressées à promouvoir et faciliter le commerce des services environnementaux dans le cadre d'ACR ne doivent pas seulement examiner les chapitres sur l'environnement et la durabilité, mais peuvent également le faire à travers des engagements spécifiques sur l'accès aux marchés et le traitement national ainsi que des dispositions ou annexes sectorielles en matière de coopération réglementaire.

Classification JEL: F13, F18, R11, Q56

Mots clés:

Accords commerciaux régionaux, accords de libre-échange, dispositions environnementales, commerce et environnement, politique environnementale, politique commerciale, biens et services environnementaux, coopération internationale en matière de réglementation

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Executive Summary

Services constitute the backbone of today's world economy. They account for two thirds of global economic output and are indispensable to a wide range of production processes, by providing connectivity through logistics, transportation, or communication. Technological innovations and the digitisation of the economy have enabled trade in a wide range of services which were traditionally non-tradable, making services the most dynamic component of international trade, accounting for nearly half of total flows.

Driven by the rise in environmental regulations and a growing public awareness of sustainability challenges, environmentally-related services have grown from a niche activity focused on abatement of industrial emissions, to a large industry spanning several sectors from prevention or control of environmental problems to the diffusion of clean energy technologies. Today, trade in these services plays a critical role in addressing global sustainability concerns such as climate change, eco-system degradation or pollution. It facilitates the diffusion of environmental technologies and allows firms to exploit comparative advantages and economies of scale.

Building on existing multilateral obligations, Regional Trade Agreements (RTAs) are increasingly used as a vehicle to regulate and foster international trade in services. According to Monteiro (2016^[1]), among the 270 RTAs notified to the General Agreement on Tariff and Trade (GATT) and World Trade Organization (WTO) between 1956 and May 2016, 101 contained schedules of commitments on environmental services. In addition to facilitating trade in environmental services, RTAs also contain broader provisions dealing with environmental aspects of trade in services such as disciplines aimed at striking a balance between the right to regulate for environmental purposes while avoiding unnecessary barriers to trade. Based on an analysis of existing provisions in recent agreements aiming at fostering deep economic integration, this report explores ways in which RTAs can incorporate environmental objectives in chapters and articles related to trade in services.

A core challenge in this analysis relates to the definition of environmental services. Division 94 of the UN Central Product Classification (CPC) uses a narrow definition of environmental services which focuses on the collection, treatment and disposal of liquid or solid wastes. Despite its gradual evolution, many critics argue that this classification is outdated and too narrowly defined. They point to the fact that a wide range of environmental services linked to the production and delivery of specific environmental goods or technologies, and numerous services inherent to emerging business models focused on sustainability, are not captured under Division 94.

Notwithstanding these limitations, RTAs have been used as the preferred avenue to undertake commitments in environmental services both within and outside of Division 94. Parties to such agreements are often willing to undertake more ambitious commitments in terms of scope and coverage compared to their multilateral obligations. They have also expanded the range of disciplines related to the environmental aspects of services trade in the regulatory sphere. As a result, environmental provisions related to services in RTAs stem across a range of chapters dealing with trade and environment or sustainable development, trade in services or regulatory cooperation. They can be broadly organised under six main categories: (i) provisions dealing with objective and scope, (ii) exceptions for environmental purposes, (iii) licensing or qualification requirements and procedures (iv) cooperation on environmental goods and services, (v) schedule of commitments, and (vi) regulatory cooperation and good regulatory practices.

These provisions essentially have two main objectives. The first, consists in reaffirming the right and the flexibility to regulate for environmental purposes. The negotiating approach used both multilaterally and in the context of RTAs provides a lot of flexibilities for Parties to reflect sensitivities or environmental priorities in individual schedules of commitments by including limitations on the scope of all commitments and sectoral limitations applying to particular services.

Environmental considerations can also be integrated in horizontal disciplines through general exception clauses following the model of the WTO General Agreement on Trade in Services (GATS) Article XIV or specific references to the right to regulate for environmental purposes. Similarly, Parties can incorporate the protection of the environment as one of the objectives of regulatory co-operation, list environmental considerations as an element to review in regulatory impact assessment or *ex post* evaluations, and introduce non-regression clauses providing that regulatory co-operation should not result in lower environmental protection.

The second objective pursued by environmental provisions related to services consists in removing trade barriers affecting environmental services and reducing costs associated with regulatory heterogeneity across jurisdictions, for example, through cooperation on environmental goods and services, liberalisation commitments in specific sectors, or limiting divergences in environmental regulations or standards.

A major challenge in this area relates to the definition of what constitutes environmental services beyond the narrow set of services covered under CPC Division 94. In the absence of an extended definition, establishing a credible list of services with solid environmental credentials remains a challenge. Based on existing precedents, several options can be envisaged. First, Parties can simply remove services restrictions across the board as is usually done with goods. Second, governments can identify a list of services at the five-digit level under the CPC classification, which are exclusively or predominantly linked to the environment. Third, Parties can liberalise services associated with particular environmental goods, or environmentally sound technologies. Fourth, Parties can identify services relevant to the environment through the use of “ex out”, which allows for further differentiation of services within subclasses of the CPC classification at the five-digit level. Annexes to this report provide an illustrative list of services under these different approaches.

Finally, in addition to market access and national treatment commitments, regulatory cooperation can provide a critical complementary avenue to facilitate trade in environmental services and create further market access opportunities. Such cooperation in the design and implementation in domestic regulations can contribute to reducing the costs for exporters -and particularly small and medium enterprises- associated with unnecessary regulatory divergences across jurisdictions. Besides horizontal provisions on regulatory cooperation or good regulatory practices, this can be achieved by including specific provisions on regulatory cooperation related to services in dedicated chapters or annexes dealing with key environmental sectors such as renewable energy or energy efficiency.

Overall, these different options point to the need for a holistic and consistent approach in incorporating environmental considerations in services related provisions. Parties interested in liberalising environmental services should not only look at environment and sustainability chapters, but may also wish to engage with other chapters on trade in services and their related schedules of commitment as well as regulatory co-operation.

1. Introduction

Global economic integration supported by international cooperative arrangements such as bilateral and regional trade agreements (RTAs), has largely contributed to economic growth and development worldwide. In recent years, however, the impacts of RTAs on social and environmental objectives have been under growing public scrutiny and the lack of provisions dealing explicitly with the environment has been subject to criticism in domestic and international debates. Reflecting sustainability concerns more effectively in trade agreements has therefore become a priority for many governments and a *sine qua non* condition to ensure public acceptability.

According to the WTO database on regional trade agreements, around 40% of the agreements covering both goods and services contain provisions related to the environment.¹ These provisions tend to be concentrated in dedicated chapters dealing with trade and environment or trade and sustainable development. In 2016, the OECD Joint Working Party on Trade and Environment (JWPTE) embarked on a project called “Greening RTAs” to investigate in what ways RTAs could also incorporate environmental objectives in chapters and articles that are not specific to the environment to secure policy coherence within these agreements.

This report explores ways in which RTAs can incorporate environmental objectives in chapters and articles related to trade in services. Services constitute today the most dynamic component of international trade. In terms of value addition, they account for nearly half of the total value of international trade in goods and services (WTO, 2019^[2]). This is largely due to technological innovations and the digitisation of the economy, which have enabled trade in a wide range of services which were traditionally non-tradable, because they had to be delivered face-to-face, in a fixed location.

In the environmental sphere, services have also benefited from the rise in regulations dealing with sustainability concerns, and a growing public awareness of environmental challenges. Many of them are closely linked to the production and supply of environmental goods and delivered as a package a phenomenon often described as the servitisation of manufacturing (Cadestin and Miroudot, 2020^[3]). Others are more broadly associated with specific technologies such as clean energy technologies or inherent to particular business models as illustrated by product services system (PSS) which substitute services for the sale of goods themselves. Today, trade in those services plays an essential role in addressing global problems such as climate change, eco-system degradation or pollution by supporting the diffusion and rapid scaling up of environmental technologies and allowing firms to exploit comparative advantages and economies of scale.

Building on existing multilateral obligations, RTAs are increasingly used as a vehicle to regulate and foster trade in services including those related to the environment. The present analysis focuses on possible approaches to reflect environmental concerns in RTAs based on a review of existing practices at the international level.

Section 2 highlights the relevance of services and services trade to achieve environmental objectives and discuss some of the conceptual and practical challenges linked to the definition and liberalisation of environmental services.

¹ WTO Regional trade agreements database : <http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx>

Section 3 looks at how these issues are addressed at the World Trade Organization (WTO) by reviewing existing disciplines, their implementation as well as the experience in negotiating new commitments in environmental services. Section 4 covers existing practices in RTAs to the extent that they go beyond disciplines in the WTO. In doing so, it focuses on a range of recent deep integration agreements.² Based on this analysis, Section 5 explores possible ways to further incorporate environmental objectives in RTAs. Finally, Section 6 summarises the main findings.

² Agreements covered in the analysis include the Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu on Economic Cooperation; the Australia-Hong Kong Free Trade Agreement; the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP); the EFTA – Montenegro Free Trade Agreement; the EU-Canada Comprehensive Economic and Trade Agreement (CETA); the EU-Japan Economic Partnership Agreement; the EU–New Zealand Free Trade Agreement; the EU–United Kingdom Trade and Cooperation Agreement; the EU–Vietnam trade and investment agreement; the Pacific Agreement on Closer Economic Relations Plus (PACER Plus); and the United States-Mexico-Canada Agreement (USMCA).

2. The relevance of services trade in achieving environmental objectives

Services constitute the backbone of today's global economy. According to the WTO World Trade Report 2019, they account for two thirds of global economic output and foreign direct investment worldwide and provide up to 80 percent of jobs in more advanced economies (WTO, 2019^[2]). Services also serve as inputs or “facilitator” in many production processes by providing connectivity (e.g., through logistics, transportation, or communication) and enhancing the productivity of factors of production (e.g., through education, or research and development). From an environmental perspective, services play a critical role in addressing global challenges such as climate change, eco-system degradation or soil and water pollution. With appropriate safeguards and regulations in place, trade in services allows firms to exploit comparative advantages and economies of scale and can reduce the cost of preventing and controlling pollution or accelerate the diffusion of clean energy technologies.

2.1. Defining environmental services

The environmental services sector is hard to describe as one coherent sector, and its definition has been subject to many debates. Services are usually classified based on the Central Product Classification (CPC) developed by the United Nations Statistical Commission. The CPC is a coding system, going up to 5 digits at its most detailed level, which covers all goods and services and serves, among other things, as international standard for compiling data on international trade in services. The first provisional Central Product Classification (CPC prov.)³ was published in 1991 and was used as a basis for the sectoral classification of services used in the WTO, namely document MTN.GNS/W/120, usually referred to as “W/120”.⁴ This services classification serves as common reference to describe the liberalisation commitments undertaken by members in WTO negotiations or in regional trade agreements.

The 1991 provisional version of the CPC identified seven types of environmental services including sewage services (94010); refuse disposal services (94020); sanitation services (94030); cleaning of exhaust gases (94040); noise abatement service (94050); nature and landscape protection services (94060); and other environmental protection services (94090). These categories were reflected in section 6 of the WTO W/120 list which groups environmental services under four main sub-headings:

6.A.: Sewage services (CPC prov. 94010)

6.B.: Refuse disposal services (CPC prov. 94020)

6.C.: Sanitation services (CPC prov. 94030)

6.D.: Other (generally interpreted as comprising the remaining elements of the CPC's environmental services category, namely the cleaning of exhaust gases, noise abatement services, nature and landscape protection services and other environmental protection services not elsewhere classified.)

Since the early 90s, the UN's Central Product Classification went through a number of revisions. The latest revision is the 2.1 version of August 2015.⁵ In this latest version, environmental services are grouped under

³ See <https://unstats.un.org/unsd/classifications/Econ/CPC.cshhtml>.

⁴ See https://www.wto.org/gatt_docs/English/SULPDF/92120215.pdf.

⁵ See <https://unstats.un.org/unsd/classifications/unsdclassifications/cpcv21.pdf>.

Division 94 and comprise activities such as wastewater treatment (CPC 941), the collection and management of hazardous and non-hazardous waste (CPC 942-943), remediation and clean up services (CPC 944), sanitation and similar services (CPC 945), and other environmental protection services not elsewhere specified (CPC 949).⁶ While the 2015 version provides a more disaggregated set of services, it still focuses mainly on the collection, treatment, or disposal of liquid or solid wastes.

Despite its gradual evolution, many critics argue that the classification is outdated and too narrowly defined (Jacob and Møller, 2017^[4]; Sauvage and Timiliotis, 2017^[5]; de Melo and Vijil, 2014^[6]). To the extent that the CPC and W/120 serve as a basis for describing services commitments in free trade agreements, such a narrow definition may result in a range of services not being captured in efforts aimed at liberalising services potentially relevant for achieving environmental objectives.

First, as illustrated in Table 1, several services with clear environmental end-uses exist in other Divisions of the CPC 2.1.

Table 1. Examples of services with clear environmental end-use outside of Division 94 of CPC 2.1

Division	Subclass	CPC 2.1 Code
Constructions (53)	Sewage and water treatment plants	53253
Construction services (54)	Septic system installation services	54342
Professional, technical and business services (83)	Urban planning services	83221
	Engineering services for waste management projects	83326
	Engineering services for water, sewerage and drainage projects	83327
	Engineering services for power projects	83324
	Environmental consulting services	83931
Other manufacturing services; publishing, printing and reproduction services; materials recovery services (89)	Metal waste and scrap recovery (recycling) services, on a fee or contract basis	89410
	Non-metal waste and scrap recovery (recycling) services, on a fee or contract basis	89420
Services of membership organizations (95)	Services furnished by environmental advocacy groups	95992

Source: APEC (2020^[7])

Second, some experts argue that the classification fails to reflect the evolution in the environmental industry which has grown from a niche activity focussed on abatement of industrial emissions, to a large industry spanning several sectors and activities ranging from prevention or control of environmental problems to the diffusion of clean energy technologies (Sauvage and Timiliotis, 2017^[5]). This evolution has been driven by various factors, including the rise in regulations dealing with sustainability concerns, growing public awareness of environmental challenges and a trend towards privatisation and liberalisation of services which has generated private sector demand for a broad range of environmental services (Geloso Grosso, 2007^[8]).

Beyond CPC Division 94, environmental services are often associated with particular technologies. They can also be sold together with specific environmental goods, as a package or bundle. Finally, a wide range of environmental services can be directly associated with specific business models.

Renewable energy services provide an example of a sector which encompass a wide range of services associated with the generation, transmission, distribution, and sale of electricity from specific technologies such as wind, solar, biomass, biofuels, or geothermal energy. Work by APEC identifies services associated with renewable energy through virtually all stages of project operations from planning, design, R&D through

⁶ For a more disaggregated list of environmental service at the 5-digit level, see Annex B.1.

construction, and assembly operation to maintenance or repair of renewable energy installations (APEC, 2017^[9]). Looking at the US solar, wind, small hydropower, and geothermal sectors, the US International Trade Commission comes to a similar list of services indispensable to the development and functioning of renewable energy projects (USITC, 2013^[10]). In the CPC, such services would be mostly considered as scientific and technical consulting; services required for electricity distribution; professional services; construction and engineering services; management consultancy and financial control; equipment maintenance and repair or computer-related services.

In the area of climate change, (Kim, 2011^[11]) identifies a series of services linked to key mitigation technologies in seven economic sectors highlighted in the fourth IPCC assessment report (see Table 2). In addition to services under CPC 94, other professional technical and business services (CPC 83) and construction services (CPC 54) are the two categories that appear the most frequently across all seven key sectors. Telecommunication, broadcasting and information supply services (CPC 84) are particularly relevant to the energy supply, buildings, transport, and industry sectors. Other relevant types of services include passenger transport services (CPC 64), financial and related services (CPC 71) or support services to agriculture, hunting, forestry, fishing, mining and utilities (CPC 86).

Table 2. Examples of key sectoral mitigation technologies and complementary services

Sector	Key mitigation technologies	Complementary services
Energy supply	Carbon capture and storage	- Pre-construction power plant services (e.g., technical testing and analysis services for a feasibility study'; services related to site selection). - Construction services for facilities; engineering services for power projects. - Monitoring services.
	Combined heat and power	
	Renewable energy power plants	
Transport	Alternative fuel vehicles	- Services related to fuel delivery systems (e.g., recharging facilities for electric vehicles). - Design and engineering services.
	Energy efficient passenger jet aircraft	
Buildings	Energy efficient operation of buildings (smart buildings)	- Architectural and engineering services to design and construct smart buildings. - Information technology and telecommunication services. - Electrical installation (e.g., smart sector network); energy performance contracting services.
Industry	Energy efficient motor systems	- Engineering services for industrial projects. - Installation and operation. - Design and modification.
Waste	Incineration and industrial co-combustion for waste to energy	- Engineering services for waste management projects. - Design of equipment for handling, storing, and transporting solid, liquid, or hazardous waste.
	Landfill gas recovery	Sanitary landfill services.
	Waste-water treatment plants	- Engineering services for water, sewerage, and drainage projects. - Design, management, and operation services of waste-water treatment plants.

Source: Kim (2011^[11])

Beyond specific technologies, many environmental services are closely linked to the production and delivery of environmental goods and sold as a package, a phenomenon often referred to as a phenomenon often described as the servitisation of manufacturing (de Melo and Vijil, 2014^[6]; Cadestin and Miroudot, 2020^[3]). To illustrate this point, the Swedish National Board of Trade (2014^[12]) identified a set of services directly accompanying the sales of selected environmental goods, drawing on interviews with firms selling those goods. The list encompasses services such as assembly and installation, testing and analysis services, educational and advisory services, maintenance and repair or R&D services to list just a few (see Table 3). The complementarity between environmental goods and services can also be measured econometrically. According to (Nordås and Steenblik, 2021^[13]), a 10% increase in exports of machinery and equipment is associated with about 4% increase in maintenance and repair services.

Looking similarly at a sample of 41 firms selling services related to the circular economy, Tamminen et al. (2020^[14]) found that a wide range of services were directly linked to their circular economy activities with the most traded ones including IT services; other professional, technical, and business services (such as technical testing or environmental consulting services); leasing or rental services; R&D services; maintenance, repair, and installation and professional services related to construction services. Here again, most of these services would fall outside of CPC Division 94 and therefore run the risk of being

excluded from efforts aimed at liberalising environmental services in free trade agreements. They are nonetheless essential for the delivery of the environmental performance associated with goods, or technologies and as such play a critical role in advancing environmental objectives.

Table 3. List of services accompanying environmental goods

Types of services	Purposes of the services	Stage in relation to the delivery of goods
Assembly and installation	Guarantee the basic functioning of the product	In connection with delivery (when associated with spare parts it can be a part of after-sales)
Technical testing and analysis services	Guarantee the basic functioning of the product, e.g., fulfill regulatory demands	In connection with delivery After delivery
Educational services	Guarantee a proper use of the product; improve product and user efficiency	In connection with delivery
Advisory and consultative services	Increase customer satisfaction; fulfill regulatory demands	Before delivery
Maintenance and repair services	Guarantee the basic functioning of the product	After delivery
Computer services	Guarantee the basic functioning of the product	Before delivery In connection with delivery After delivery
R&D	Customize the product, e.g., fulfill regulatory demands and adapt to local conditions	Before delivery After delivery (related to upgrades)
Environmental protection services	Comply with regulations	Before delivery After delivery

Source: Swedish National Board of Trade (2014^[12])

Finally, new business models have emerged, in recent years, involving new types of services many of which may not even appear in the CPC or W/120 classification. In the context of the circular economy, for example, models often referred to as product services system (PSS) increasingly substitute services for the sale of goods themselves (OECD, 2019^[15]). With the product ownership remaining with the supplier, these models generate incentives for companies to maximise resource efficiency and ultimately reduce environmental challenges associated with resource extraction, consumption, and disposal. Examples include the renting of textiles or clothing, or car sharing but also results-based PSS focusing on the attainment of a desired result agreed with the customer (e.g., pest-control services or lighting services under which clients pay for a specific level of brightness). These models have been largely enabled by technological innovation in areas such as artificial intelligence or the digitisation of the economy as illustrated by the case of online platform such as Airbnb or Spotify to list just a few. These innovations have not only allowed the rapid scaling up of such services but also their tradability.

In short, these examples illustrate the difficulty in arriving at an exhaustive list or definition of environmental services. While some services clearly have an environmental nature, in many cases, the environmental purpose largely depends on the service's end-use and is a matter of degree. Depending on the type of project involved, some construction services or IT services may or may not contribute to the achievement of environmental objectives.

This poses a particular challenge when classifying services. By definition, services classifications, be it under the CPC or the W120 classification, need to establish mutually exclusive categories. In other words, the environmental services division cannot include services that fall within the scope of other sectors, such as business, construction, engineering, or education (APEC, 2020^[17]). Either the service is considered

purely environmental, or it is considered as falling under a different category even if it can be applied to the environmental industry. As a result, a range of dual use services would not adequately fall into a broader category of environmental services – a reality which has prompted calls for distinguishing between "core" environmental services (as defined under CPC 94 and in the W/120) and broader environmentally related services which can nonetheless constitute essential inputs to environmental projects such as design, architecture, construction, consulting, engineering, or computer services.⁷

2.2. Key features of trade in environmental services

Services constitute today the most dynamic component of international trade. In recent years, many services sectors which were traditionally non-tradable, because they had to be delivered face-to-face in a fixed location, have become highly tradable. This is largely due to technological innovation and the digitisation of the economy as illustrated by the proliferation of e-learning platform, or the outsourcing of business processes. As a result, between 2005 and 2017, trade in services driven by distribution and financial services have expanded faster than trade in goods. In terms of value addition, services now account for nearly half of the total value of international goods and services trade. (WTO, 2019^[2]).

Despite the growing importance of services trade, measuring accurately the value of cross border flows in services remains challenging. The difficulty relates both to the scarcity of reliable data and to definitional issues. Unlike goods, services are not directly observed crossing border. This intangible nature makes it notoriously difficult to collect data on cross-border trade in services. As highlighted earlier, the definition of environmental services has also been subject to ongoing discussion in the international arena. Depending on what is included in the definition, the trade figures may vary significantly.

Keeping these limitations in mind, the WTO estimated that the value of trade in environmental services under CPC Division 94 reached USD 20 billion in 2017. While this only represented 0.2 percent of global services trade, the WTO note that the market has been growing at a rate of 4 percent every year since 2005 and is expected to continue to do so in the near future. According to a different study by UNEP, global trade in environmentally, sound technologies including environmental goods and services grew from USD 0.9 trillion in 2006 to USD 1.4 trillion in 2016. Renewable energy technologies represented more than 30 percent of total trade, followed by wastewater management and water treatment, and solid and hazardous waste management technologies (UNEP, 2018^[16]). More generally, the Environmental Business international Inc., estimate that environmental services represent more than 65 percent of the market value of the whole environmental industry (EBI, 2017^[17]).

Environmental services, like any other services, can be traded through any of the four modes of supply defined by the WTO. Table 4 provides a short description of those modes of supply and provides, for each of them, examples of environmental services being delivered under this mode. Traditionally, most services tended to be exported through commercial presence (Mode 3) and this applied to environmental services as well. In recent years however, the introduction of new technologies, the decreasing cost of communications and the rapid digitisation of the economy has largely benefited cross-border supply, making mode 1 the primary mode of service supply (WTO, 2018^[18]). For example, progress in information technologies and highly sophisticated digital equipment allow for the remote monitoring of the performance of wind turbines, a service which would have been delivered either through mode 3 or mode 4 in the past.

⁷ For a detailed list of core environmental services and broader environmentally-related services proposed in the literature, see (Sauvage and Timiliotis, 2017^[5]).

Table 4. Trade in services related to the environment under different modes of supply

Mode of supply	Example in the environmental field
<i>Mode 1 — Cross border trade</i> Services supplied from the territory of one Member into the territory of any other Member	A company receives a sustainability impact assessment report from an environmental consultant based in a foreign country through telecommunications or postal infrastructure
<i>Mode 2 — Consumption abroad</i> Services supplied in the territory of one Member to the service consumer of any other Member	A national from the importing country travels abroad to receive a training on how to operate or repair a piece of equipment in a wind energy project.
<i>Mode 3 — Commercial presence</i> Services supplied by a service supplier of one Member, through commercial presence, in the territory of any other Member	A locally-established affiliate, subsidiary, or representative office of a foreign-owned and — controlled company provides design, construction, and installation services for a wastewater treatment facility.
<i>Mode 4 — Presence of natural persons</i> Services supplied by a service supplier of one Member, through the presence of natural persons of a Member in the territory of any other Member	A foreign national travels to the importing country to provide maintenance services in a sewage facility as an independent supplier (e.g. consultant, specialist) or employee of a service supplier in the exporting economy.

Source: Adapted from GATS

Confirming this trend, Tamminen et al. (2020^[14]) find that out of a sample of 41 firms involved in the circular economy, over half of the service providers exported services related to the circular economy digitally through mode 1, making it the first mode of supply even before commercial presence.

2.3. The drivers and barriers of trade in environmental services

Trade in environmental services is largely driven by efforts and regulations to address environmental problems along with rapidly changing consumer preferences (WTO, 2019). By imposing stricter environmental obligations on domestic producers, regulations contribute to increasing the size of the market for environmental goods and services ultimately resulting in higher exports. Confirming this hypothesis Sauvage (2014^[19]) shows, for example, a clear positive relationship between the stringency of a country's environmental regulation and its share of world exports in environmental goods. In a similar vein, services restrictions applied domestically have direct negative effects on export performances in core environmental services by making domestic firms less competitive than their foreign counterparts (Rouzet and Spinelli, 2016^[20]).

Besides domestic measures implemented by the countries of the exporters, a wide range of policy measures in importing countries may affect trade in environmental services. Unlike goods, services crossing borders are intangible and not subject to customs controls or tariffs at the border. Trade restricting measures affecting services rather take the form of regulatory measures and requirements, also referred to as behind the border measures. Examples of such barriers include market access restrictions (e.g., limitations on the number of services suppliers, the total value of services transactions or operations, or the number of natural persons allowed in the country) and regulatory requirements (e.g., public monopolies restricting entry of private services providers, limited recognition of qualifications, labour market tests or costly and time-consuming visa applications) (Sauvage and Timiliotis, 2017^[5]; Benz and Jaax, 2020^[21]). In the case of digital trade in services, barriers also include open data limitations or restrictions on data flows and localisation requirements. In most cases, such restrictions do not specifically target environmental services and tend to affect services trade in general. In many cases, environmental services including those relying on state-of-the-art technology often face less trade barriers than traditional sectors, probably because of the absence of import competing firms at the domestic level pushing for protectionist measures (Tamminen et al., 2020^[14]; Ferencz, 2019^[22]).

In the environmental sphere, challenges arise mostly from the divergent nature of domestic regulations including qualification requirements and procedures, technical standards, and licensing requirements (APEC, 2020^[7]). In this area, a 2016 APEC Policy Support Unit survey of regulatory measures identified 12 major categories of regulatory measures affecting core environmental services with licensing and approval procedures being the predominant measure applied in the region (Table 5) (APEC, 2016^[23]). While such regulations may entail specific discrimination against foreign providers, in many cases it is rather the divergent nature across jurisdictions of non-discriminatory regulations, technical standards or licensing requirements which impose additional costs on exporters. This regulatory heterogeneity, even if resulting from legitimate differences across jurisdictions tends to segment international markets and prevent the exploitation of economies of scale. This has prompted calls for good regulatory practices and international regulatory cooperation where countries would trade off the benefits of maintaining different domestic regulations against the benefits of integrating markets through some enhanced regulatory convergence (Mattoo, 2016^[24]).

Table 5. Regulatory Measures Affecting Environmental Services

Measures	Form of control
Limits on foreign investment	Investment screening or approval requirements, foreign equity limits, limits on foreign shareholding.
Restrictions on type of legal entity	Joint venture, local incorporation requirements, local presence requirements.
Restrictions on scope of service	Limits on number or type of services, geographical or location requirements.
Economic needs tests	Limits on the number of service suppliers based on economic need.
Licensing and approval procedures	Authorization, approval requirements and associated requirements.
Nationality and residency requirements	Mandated citizenship or residency for establishment or services delivery.
Controls on workers	Controls on employment/hiring foreign workers, temporary entry requirements for business persons (excludes general visa controls), labor controls.
Professional qualification requirements	Qualification and licensing requirements for workers.
Government procurement restrictions	Whether services are open or closed to foreign participation, existence of preferences for domestic providers.
Controls on use of land	Restrictions/limitations on foreign land ownership.
Local content requirements	Mandated use of domestic content or service providers, domestically manufactured goods or technology or workers.
State owned enterprises	Where there are state owned enterprises in the provision of environmental or similar services.
Other	Existence of preferential subsidies for domestic suppliers, existence of government incentives for environmental services.

Source: APEC (2016^[23])

Note: The inventory is based on a survey of regulatory measures in environmental services for sewerage treatment, waste collection, treatment and disposal, sanitation, remediation services across APEC economies.

Finally, besides services trade-related measures, the close link between environmental goods and services calls for addressing trade barriers affecting environmental goods and services simultaneously. Since many environmental services are provided jointly with specific goods as a package, tariffs or non-tariff measures affecting goods such as differences in recycling requirements or energy efficiency standards across jurisdictions may ultimately reduce trade in accompanying services.

3. Services in the multilateral trade regime

3.1. The General Agreement on Trade in Services (GATS)

In the World Trade Organization, services are governed by the General Agreements on Trade in Services (GATS). The Agreement adopts a comprehensive approach to trade in services, covering all four modes of delivery and all services, with the exception of services provided in the exercise of governmental authority and the bulk of air transport services.⁸ By contrast, it only imposes limited obligations applying across-the-board. These include most importantly the most-favoured-nation (MFN) treatment obligation (i.e. to grant substantially the same treatment to all foreign services and service suppliers);⁹ a transparency obligation (i.e. the publication of all services measures that are generally applicable); and the review of administrative decisions (i.e. to maintain tribunals or procedures that enable foreign suppliers to seek review of, and redress for, administrative decisions affecting trade in services) (WTO, 2019^[2]).

Additional disciplines such as market access commitments or national treatment obligations only apply to the services sector that a member has inscribed in its schedule of commitments, and only when no limitations have been listed under any of the modes of supply. These schedules have been established as a result of the Uruguay Round negotiations in 1994 and mostly remain unchanged today.¹⁰ Market access commitments relate to limitations on the number, volume, or value of services to be exported, the number of natural persons that may be employed, the type of legal entity through which a service is supplied or limitations on the participation of foreign capital. National treatment commitments refer to the obligation for a member to accord to foreign services and foreign services providers a treatment no less favourable than that it accords to its domestic like services and service suppliers. The schedules guarantee a minimum level of access and non-discriminatory conditions to all other members but do not prevent importing governments from applying more favourable conditions than this minimum. Overall, this approach allows for significant flexibility in the design of disciplines applying to different services sector, with each WTO member having an individualised set of commitments reflecting its national specificities. Members also have a lot of leeway in the way in which they describe their respective commitments. In practice however, all members have used the W/120 classification to describe the sectors where they undertook commitments when drafting their schedules.

Finally, the Agreement contains good governance provisions in sectors where a member has undertaken commitments. Article VI for example deals with domestic regulations and requires that all measures of general application affecting trade in services shall be administered in a reasonable, objective, and impartial manner. With a view to ensuring that measures related to qualification requirements and procedures, technical standards and licensing requirements and procedures do not constitute unnecessary barriers to trade in services, Article VI:4 specifically calls upon WTO members to develop additional

⁸ The first exception is further defined in Article I:3 (c), which states that “a service supplied in the exercise of government authority” means “any service which is supplied neither on a commercial basis, nor in competition with one or more service suppliers”. From an environmental perspective it remains unclear however, how and when this scope exclusion would apply to environmental services provided by the public sector (Geloso Grosso, 2007^[8]).

⁹ It should be noted however that members had the possibility to adopt MFN exemptions in certain circumstance, for example to protect a preferential treatment granted to particular trading partners.

¹⁰ In the course of ongoing negotiations under the built-in agenda and later the Doha Round, several Members tabled offers to expand their schedule of commitments, but these negotiations remain unfinished.

disciplines. These negotiations have been going on as part of the built-in agenda and more recently under a joint statement initiative on domestic regulations among a sub-set of WTO members.

From an environmental perspective, several provisions are particularly relevant. First, the GATS explicitly recognises in its preamble “the right of Members to regulate and to introduce new regulations, on the supply of services within their territories in order to meet their national policy objectives...”. This provision is broad and confirms that the agreement does not limit the ability of members to introduce environmental regulations. If such regulations ultimately breach obligations under the GATS, they may still be permitted under the general exceptions provided under Article XIV which mirrors GATT Article XX and states that nothing in this agreement shall “*prevent the adoption and enforcement of measures necessary to [...] protect human, animal or plant life or health*” provided that “*such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where like conditions prevail, or a disguised restriction on trade in services*”.

Article VII deals among others with the recognition of requirements, licenses or certification granted in a particular country based on an agreement or arrangement with the country concerned or autonomously. According to paragraph 2, a member party to such an arrangement or agreement shall afford opportunities for other members to join or negotiate comparable ones. Finally, paragraph 5 encourages members to base mutual recognition on multilaterally agreed criteria, and to work with relevant intergovernmental and non-governmental organisations towards the establishment and adoption of common international standards. These provisions mirror, to some extent, provisions in the Agreement on Technical Barriers to Trade and the Agreement on Sanitary and Phytosanitary Measures in the realm of goods, which encourage harmonisation and mutual recognition of regulations and the use of international standards. As highlighted above this is particularly important in the environmental sphere, where ensuring interoperability if not harmonisation of environmental requirements plays a critical role in reducing costs of compliance with diverging regulations across jurisdictions and enhances the effectiveness of environmental regulations (Bellmann and van der Ven, 2020^[25]).

Besides those horizontal provisions, individual members have undertaken market access and national treatment commitments dealing specifically with environmental services. Such commitments constitute the floor or the basis on which ongoing negotiations build, be it in a multilateral or regional context (see also Section 3). A closer look at WTO schedules reveals however that several members have included environment-related limitations to their market access or national treatment commitments (Geloso Grosso, 2007^[8]). This is partly because many environmental services under CPC Division 94, such as solid waste management and wastewater treatment, tend to be delivered by public utilities. In practice, these restrictions include both horizontal limitations defining the scope of all their commitments, and sectoral limitations targeting particularly environmental services. These can be comprehensive or only targeting specific modes of delivery (e.g., Mode 3).

For example, under Mode 3, the EU included a horizontal limitation stating that “in all EU Member States, services deemed to be public services at the national or local level may be subject to a public monopoly or exclusive rights granted to private companies”. Such limitations affect the ability of foreign service providers to establish a commercial presence in the EU to deliver services considered as “public services”. It further clarifies that “there are public services in sectors such as R&D services in the social sciences and humanities, testing and technical analysis services, environmental services, health services, transportation services and auxiliary services related to all means of transport”. Others circumscribed more specifically those limitations to certain sectors. For example, the US included limitations applying to all modes of delivery in its sectoral commitments on environmental services, specifying that liberalisation commitments were limited to services “contracted by the private sector”. In a similar vein, China excluded any environmental quality monitoring and pollution source inspection from its environmental services schedule keeping them fully unbound (APEC, 2020^[7]). Finally, some members included limitations for certain modes of delivery targeting specific environmental sectors such as exempting public monopolies in clean water,

sewerage systems from liberalisation commitments under mode 3 thereby limiting the ability of foreign providers to establish commercial presence only in these sectors.¹¹

3.2. Ongoing negotiations on environmental services

Besides administering existing provisions and commitments under the GATS, the multilateral trade system also provides a forum for ongoing negotiations on trade in services. Environmental services have been addressed under both the built-in agenda - later incorporated under the Doha Round - and since 2001, in the context of dedicated negotiations on environmental goods and services (EGS) as mandated under paragraph 31 (iii) of the Doha Ministerial Declaration which instructed members to negotiate the reduction or, as appropriate, elimination of tariff and non-tariff barriers on environmental goods and services.

Services negotiations under the Doha Round were structured around requests and offers and saw several members tabling market access offers improving on their existing commitments in environmental services (see Table 9 in Section 4). In the EGS talks, a particular challenge related to the definition of environmental services in light of the narrow definition of environmental services in W/120 (see Section 2). In the absence of an agreement to update Division 94 of the CPC, several approaches have been suggested to overcome this challenge.

The EU, for example, proposed an approach centred around “core” environmental services such as those under Division 94, and a list of services with a clear environmental end-use but classified elsewhere in the CPC or W/120. Such related services included for example business services with environmental component, some R&D services, consulting, contracting, and engineering with environmental component or construction, distribution and transport services with environment components. Such services would form a “cluster” or “checklist” used as an aide-memoire during the sectoral negotiations, the result of which would be scheduled in the relevant GATS sectors.¹² Around the same time, the OECD released a classification of environmental services to help policymakers modernise the GATS classification (OECD/Eurostat, 1999^[26]). The approach was close to the proposal by the EU and divided environmental services in two main categories, namely services provided for specific environmental media (e.g., waste management or air pollution control) and services provided for one or more environmental objectives, including environmental protection, pollution control, remediation, or prevention activity (e.g. environmental R&D, design, consulting, and engineering, environmental education, etc.). Annex A provides a comparison between these different classifications.

At the other side of the spectrum, India proposed to move away from an approach based on defining *ex ante* environmental services and suggested to link market access concessions to existing environmental projects.¹³ Under this approach, services required for the implementation of an environmental project certified by a designated national authority would benefit from temporary reduced or eliminated trade barriers.

Others still, pointed to the fact that having a uniform classification system was not required for undertaking specific commitments, as GATS allows members to use any system they wish. Members could limit their liberalisation commitment in a particular sector to those services specifically related to the environment, for example, by specifying in their schedules that a commitment only applies to construction services in

¹¹ See for example market access limitations under Mode 3 in the Dominican Republic.

¹² See WTO Document S/CSS/W/38, 22 December 2000.

¹³ See submissions by India: "An Alternative Approach for Negotiations under Paragraph 31(iii)", 3 June 2005, TN/TE/W/51, "Structural Dimensions of the Environmental Project Approach", 4 July 2005, TN/TE/W/54, and "Procedural and Technical Aspects of the Environmental Project Approach, 19 September 2005, TN/TE/W/60.

industrial projects aimed at mitigating climate change through energy efficiency improvement (Monkelbaan, 2013^[27]).

During the Doha Round, negotiations followed a “request-offer” approach to establish new market access commitments whereby specific Members would receive requests from one or a group of Members to open up certain services sectors and respond by tabling an offer reflecting the commitment the Member was ready to take in this area. Following the 2005 Hong Kong Ministerial Conference, a group of WTO Members sent a collective request seeking commitments across all environmental services subsectors, with the exception of services for the collection, purification and distribution of natural water for human use considered as too controversial (Claro et al., 2007^[28]). It also recognised the important relation between the liberalisation of environmental services and other related services, such as construction, engineering, technical testing and analysis, or management consulting. The request nonetheless stated that liberalisation would not “...impair the ability of governments to impose performance and quality controls on environmental services and to otherwise ensure that service suppliers are fully qualified and carry out their tasks in an environmentally sound manner.”

In light of continuous disagreement among members on definition and the approach to open markets in environmental goods and services, a sub-group of 46 WTO members launched in 2014 a plurilateral initiative for an Environmental Goods Agreement (EGA). The talks initially built on a 2012 decision by Asia-Pacific Economic Cooperation (APEC) economies to cut tariffs voluntarily to 5% or less on 54 environmental goods. The initiative however did not envisage to cover environmental services at least not in its initial stage. Despite active engagement by a wide range of members, the talks ultimately failed to reach consensus and, since December 2016, these negotiations have not been active.

After several years of relatively dormant debates, discussions on environmental services in the WTO received renewed impetus in 2020 in the form of two new initiatives. The first, launched in November by 53 members, aims to initiate a structured discussion on trade and environmental sustainability (TESSD) in the WTO.¹⁴ It intends to complement and support the work of the Committee on Trade and Environment (CTE) and other relevant WTO Bodies by promoting transparency, identifying areas for future work within the WTO, and supporting technical assistance.

On 15 December 2021, Ministers from 71 WTO members signed on to a statement under the initiative instructing, among other things, participants “to explore opportunities and possible approaches for promoting and facilitating trade in environmental goods and services to meet environmental and climate goals, including through addressing supply chain, technical and regulatory requirements.” Members further agreed to hold a high-level event at the end of 2022 to take stock of progress achieved and adopt a workplan towards MC13.¹⁵

Besides TESSD, environmental services have also been discussed in the context of the Informal Dialogue on Plastic and Environmentally Sustainable Plastic Trade (IDP) initiated in November 2020, by a group of 16 WTO members, led by China and Fiji. Discussions in the first year culminated with a Ministerial Statement released on 15 December 2021, and signed by 67 co-sponsors in which Ministers agree to hold dedicated discussions with a view to identify best practices and share experiences regarding “how to promote trade in goods and services including the use of technologies that can reduce plastic pollution.”

In parallel, exploratory discussions without prejudice to members’ negotiating positions have continued in the context of the Special Sessions of the Committee on Trade and Services (CTS-SS). In these deliberations, various members shared their domestic experiences and expressed their specific interests and questions regarding the further liberalisation of environmental services. Aspects discussed included proposals to go beyond the core environmental services included in Division 94 of the CPC and to identify

¹⁴ See WTO document WT/CTE/W/249, 17 November 2020.

¹⁵ See WTO document WT/MIN(21)/6.

“additional services sectors where international trade liberalisation and improved GATS commitments could significantly contribute to advancing global action on environmental issues”.¹⁶ A proposal by Australia, Canada, Mexico, New Zealand, Switzerland and the United Kingdom, in particular, highlighted the importance of engineering services, architectural services, construction services, distribution services or consulting services (see Table 6).¹⁷

¹⁶ See WTO document JOB/SERV/299/Rev.1.

¹⁷ Ibid.

Table 6. Examples of other services related to the environment

Division	Sub-class	CPC Code
Engineering services	Advisory and consultative engineering services, which could include a study on the environmental impact of a project	CPC 86721
	Engineering design services for the construction of civil engineering works, which could include services for the "construction of sanitation works such as sewage systems, industrial and solid waste treatment plants	CPC 86724
	Other engineering services, which could include contamination studies and quality management	CPC 86729
	Integrated engineering and project management services for water supply and sanitation works turnkey projects	CPC 86732
	Integrated engineering services for the construction of manufacturing turnkey projects, which could include "pollution and effluent control	CPC 86733
Architectural services	Advisory and pre-design architectural services, which could include preliminary studies on climatic and environmental analysis	CPC 86711
	Architectural design services, which could include the selection of which material to be used and which mechanical and electrical systems to be installed.	CPC 86712
Construction services	Construction of waterworks	CPC 5133
	Construction of water and sewer mains	CPC 5135
	Water well drilling	CPC 5152
	Water plumbing and drain laying work which includes septic tank installation	CPC 51620
	Thermal insulation	CPC 51650
Distribution services	Wholesale trade of construction materials, which could include eco-friendly construction materials	CPC 622275
	Wholesale trade services of waste and scrap and materials for recycling	CPC 62278
	Wholesale trade of civil engineering machinery and equipment	CPC 622283
Consulting services	Management consulting services	CPC 865
	Services related to management consulting	CPC 866
	Related scientific and technical consulting services	CPC 8675

Source: WTO document JOB/SERV/299/Rev.1

Finally, at the margins of the 11th WTO Ministerial Conference in 2017, a subgroup of WTO members launched a Joint Initiative on Services Domestic Regulation with a view to limiting the trade restrictive effects of measures relating to licensing and qualification requirements and procedures as well as technical standards. On 2 December 2021, 67 members participating in the initiative announced that they had reached an agreement on a set of good regulatory practices aimed at reducing administrative costs and creating a more transparent operating environment.

The disciplines which will be applied on a “most-favoured nation” basis (i.e., to the rest of the WTO membership) seek to make the domestic processes regulating the authorisation to supply a service clearer, more predictable and more transparent. The disciplines also provide flexibilities to preserve space for regulatory differences, for example, by allowing participants to implement certain obligations “to the extent

practicable", or simply "encouraging" them to take certain actions. They also envisage longer transition periods for developing countries participating in the plurilateral initiative and the possibility for least developed countries to only apply the disciplines after they graduate from their LDC status.

The disciplines do not particularly target environmental services. The only explicit reference to the environment is found in paragraph 22 of section II dealing with the development of measures relating to the authorisation for the supply of a service. They require participants to ensure that "such measures are based on objective and transparent criteria." Building on provisions existing in RTAs, footnote 17 clarifies that "such criteria may include, inter alia, competence and the ability to supply a service, including to do so in a manner consistent with a member's regulatory requirements, such as health and environmental requirements." Besides this reference, the domestic regulation disciplines will likely benefit trade in environmental services as any other sectors. In this respect, the OECD and WTO estimate that they could save businesses, and especially small businesses, around USD 150 billion annually in costs (OECD/WTO, 2021^[29]).

4. Environmental provisions in RTAs chapters and articles dealing with services

Building on existing disciplines and commitments in the WTO, RTAs are increasingly used as a vehicle to further regulate and foster trade in services. According to Monteiro (2016^[1]), in the 270 RTAs notified to the GATT or the WTO between 1956 and May 2016, 129 agreements included references to trade in environmental goods, services and technologies. 26 referred to the promotion of trade in environmental goods and services and 101 contained schedules of commitments on environmental services (Monteiro, 2016^[1]). In those agreements, environment-related provisions can be broadly organised under six main categories: namely provisions dealing with (i) objective and scope, (ii) exceptions for environmental purposes, (iii) licensing or qualification requirements and procedures (iv) cooperation on environmental goods and services, (v) schedule of commitments, and (vi) regulatory cooperation and good regulatory practices. The following sections look at these different categories based on existing precedents.

4.1. Objectives and scope

References to the environment in the objectives and scope of RTA chapters dealing with trade in services tend to mirror language from the GATS preamble by recognising the right of members to regulate in order to meet national policy objectives. They diverge however from the GATS by referring to the right to adopt regulatory measures necessary to pursue legitimate policy objectives, with environmental protection being listed as one example of legitimate objective together with public health, safety, or social protection. For example, in article 8.1.2 of the EU-Japan Economic Partnership Agreement,¹⁸ the parties affirm “*their right to adopt within their territories regulatory measures necessary to achieve legitimate policy objectives, such as the protection of public health, safety, the environment or public morals, social or consumer protection or the promotion and protection of cultural diversity*”.¹⁹ Certain services can also be excluded from the scope of certain disciplines. Article 12.2 of the EU-Canada Comprehensive Economic and Trade Agreement (CETA) for example, excludes from the scope of the disciplines on domestic regulations, licensing and qualification requirements, or procedures relating to the collection, purification, and distribution of water.

4.2. Exceptions for environmental purposes

When dealing with general exceptions, most RTAs either mirror or directly incorporate *mutatis mutandis* the language of Article XIV of GATS which states that nothing in this agreement shall “*prevent the adoption and enforcement of measures necessary to [...] protect human, animal or plant life or health*” provided that “*such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable*

¹⁸ See <http://trade.ec.europa.eu/doclib/press/index.cfm?id=1684>.

¹⁹ Similar provisions exist in article EU–New Zealand Free Trade Agreement, <http://trade.ec.europa.eu/doclib/press/index.cfm?id=1867>, in the EU–Vietnam trade and investment agreement <http://trade.ec.europa.eu/doclib/press/index.cfm?id=1437>, or more recently in the EU–United Kingdom Trade and Cooperation Agreement, https://ec.europa.eu/info/strategy/relations-non-eu-countries/relations-united-kingdom/eu-uk-trade-and-cooperation-agreement_en.

discrimination between countries where like conditions prevail, or a disguised restriction on trade in services.” In several RTAs however, parties go slightly beyond the language of GATS Article XIV by clarifying that general exceptions also cover environmental measures necessary to protect human, animal or plant life or health (see examples in Table 7). Besides chapters dealing with cross-border trade in services some RTAs also involve similar exceptions applied to services in other chapters. For example, in USMCA a separate provision recognising environmental measures as exceptions is included in the chapter for Government Procurement that also covers “a good, service, or any combination thereof”.²⁰

Table 7. General exceptions applicable to cross-border trade in services

Agreement	Provisions on general exceptions
Australia-Hong Kong Free Trade Agreement	For the purposes of Chapter 7 (Cross-Border Trade in Services), Chapter 8 (Financial Services), Chapter 9 (Telecommunications), Chapter 10 (Movement of Natural Persons) and Chapter 11 (Electronic Commerce), Article XIV of GATS is incorporated into and made part of this Agreement, mutatis mutandis. The Parties understand that the measures referred to in Article XIV(b) of GATS include environmental measures necessary to protect human, animal or plant life or health. ²¹
United States – Mexico – Canada Agreement (USMCA/CUSMA/T-MEC)	The Parties understand that the measures referred to in Article XX(b) of the GATT 1994 and GATS Article XIV(b) include environmental measures necessary to protect human, animal, or plant life or health, and that Article XX(g) of the GATT 1994 applies to measures relating to the conservation of living and non-living exhaustible natural resources. ²²
Pacific Agreement on Closer Economic Relations Plus (PACER Plus)	The Parties understand that the measures referred to in Article XIV(b) of the GATS include environmental measures necessary to protect human, animal or plant life or health. ²³

Source: Author's elaboration

4.3. Licensing or qualification requirements and procedures

Some agreements explicitly refer to the protection of the environment as one recognised criterion in the selection procedure for the granting of services licences or qualification requirements. Article 15.8 of the USMCA for example states that if a party adopts or maintains a measure relating to licensing or qualification requirements and procedures, affecting trade in services, it shall ensure that it is based on criteria that are objective and transparent. It further clarifies that these criteria may include environmental impacts. Similarly, the EU-UK Trade and Cooperation Agreement provides that if the number of licences available for a given activity is limited because of the scarcity of available natural resources or technical capacity, a party shall “*apply a selection procedure [...] which provides full guarantees of impartiality,*

²⁰ United States-Mexico-Canada Agreement (USMCA/CUSMA/T-MEC), Chapter 13, Article 3(2) <https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between>.

²¹ Australia-Hong Kong Free Trade Agreement, Article 19.3.2 <https://www.dfat.gov.au/trade/agreements/in-force/a-hkfta/a-hkfta-text/Pages/default>.

²² United States-Mexico-Canada Agreement (USMCA/CUSMA/T-MEC), Article 32.1.3 <https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between>.

²³ Pacific Agreement on Closer Economic Relations Plus (PACER Plus), Chapter 11.1.4 <https://www.dfat.gov.au/trade/agreements/in-force/pacer/documents>.

objectivity and transparency [...]. In establishing such selection rules, a party may consider legitimate policy objectives, including considerations of protection of the environment.²⁴

4.4. Cooperation on environmental goods and services (EGS)

Several RTAs contain explicit calls for cooperation on environmental goods and services (see Table 8). While some agreements simply make references to environmental services without defining them precisely, others are more specific in establishing the scope of such commitments. Agreements by EFTA countries for example make specific references to both services beneficial for the environment and energy efficient services. Article 275.5(a) of the EU-Colombia and Peru FTA makes specific references goods, services and technologies that can contribute to climate change mitigation or adaptation, taking into account developing countries' circumstances. Similar provisions are found in the CETA between the EU and Canada or in the EU-UK Trade and Cooperation Agreement (see Table 8). In the absence of a defined list, Article 19.4 of the Korea-Peru FTA calls on Parties to “identify a list of environmental goods and services of mutual interest, modified upon request, and to facilitate their trade”. The Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu on Economic Cooperation goes one step further and refers both to services that fall under the WTO classification MTN.GNS/W/120 or the Provisional Central Product Classification, 1991 and those directly related to the investment, sale, delivery or installation of a set of 132 environmental goods to be liberalised immediately upon entry into force of the agreement.²⁵ In doing so it establishes a clear link between a cluster of goods and services to be liberalised simultaneously.

²⁴ See Article 5.10 of the EU-UK Trade and Cooperation Agreement https://ec.europa.eu/info/strategy/relations-non-eu-countries/relations-united-kingdom/eu-uk-trade-and-cooperation-agreement_en#freetradeagreement.

²⁵ See Chapter 17, Article 3 of the Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu on Economic Cooperation, https://www.treaties.mfat.govt.nz/search/details/t/3795/c_1.

Table 8. Examples of provisions on cooperation in environmental goods and services

Agreement	Provisions on cooperation
United States – Mexico – Canada Agreement (USMCA/CUSMA/T-MEC)	The Parties shall cooperate in international fora on ways to further facilitate and liberalize global trade in environmental goods and services, and may develop cooperative projects on environmental goods and services to address current and future global environmental challenges. ²⁶
EU – Japan Economic Partnership Agreement	Recognising the importance of cooperation on trade-related and investment-related aspects of environmental and labour policies in order to achieve the objectives of this Agreement, the Parties may [...] (c) cooperate to facilitate and promote trade and investment in environmental goods and services, in a manner consistent with this Agreement, including through the exchange of information. ²⁷
EFTA- Montenegro	The Parties shall strive to facilitate and promote foreign investment, trade in and dissemination of goods and services beneficial to the environment, including environmental technologies, sustainable renewable energy, energy-efficient and eco-labelled goods and services, including through addressing related non-tariff barriers. ²⁸
Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu on Economic Cooperation	The Parties recognise that facilitating trade in environmental goods and services through elimination of tariff and non-tariff barriers can enhance economic performance and address global environmental challenges including climate change; natural resources protection; water, soil and air pollution; management of waste and waste water; and depletion of the ozone layer. ²⁹
Comprehensive Economic and Trade Agreement (CETA) between Canada, and the EU and its Member States	1. The Parties are resolved to make efforts to facilitate and promote trade and investment in environmental goods and services, including through addressing the reduction of non-tariff barriers related to these goods and services. 2. The Parties shall, consistent with their international obligations, pay special attention to facilitating the removal of obstacles to trade or investment in goods and services of particular relevance for climate change mitigation and in particular trade or investment in renewable energy goods and related services. ³⁰
EU-Colombia and Peru	Facilitating the removal of trade and investment barriers to enable access to, innovation, development, and deployment of goods, services and technologies that can contribute to climate change mitigation or adaptation, taking into account developing countries' circumstances. ³¹
Peru - Korea Free Trade Agreement	1. The Parties shall strive to facilitate and promote trade and foreign direct investment in environmental goods and services. 2. The Parties agree to identify a list of environmental goods and services of mutual interest and to facilitate their trade. Such list could be modified upon request of either Party. ³²

²⁶ See Article 24.24.4 of the United States-Mexico-Canada Agreement (USMCA/CUSMA/T-MEC), <https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/agreement-between>.

²⁷ See Article 16.12(c) of the EU – Japan Economic Partnership Agreement, <http://trade.ec.europa.eu/doclib/press/index.cfm?id=1684>.

²⁸ See Art. 37 of the EFTA – Montenegro Agreement <https://www.efta.int/media/documents/legal-texts/free-trade-relations/montenegro/montenegro-main-agreement.pdf>.

²⁹ See Chapter 17, Article 3 of the Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu on Economic Cooperation, https://www.treaties.mfat.govt.nz/search/details/t/3795/c_1.

³⁰ See Art. 24.9 of the Comprehensive Economic and Trade Agreement (CETA) between Canada, and the EU and its Member States <https://ec.europa.eu/trade/policy/in-focus/ceta/ceta-chapter-by-chapter/>.

³¹ See Art. 275.5(a) of the Trade Agreement between the EU, Colombia and Peru https://trade.ec.europa.eu/doclib/docs/2011/march/tradoc_147704.pdf.

³² See Art. 19.4 of the Peru – Korea Free Trade Agreement (KPFTA) http://www.sice.oas.org/tpd/per_kor/per_kor_texts_e/per_kor_toc_e.asp.

EU-UK Trade and Cooperation Agreement	1. The Parties confirm their commitment to enhancing the contribution of trade and investment to the goal of sustainable development in its economic, social and environmental dimensions. 2. Pursuant to paragraph 1, the Parties shall continue to promote: ...(b) trade and investment in environmental goods and services, such as renewable energy and energy efficient products and services, including through addressing related non-tariff barriers or through the adoption of policy frameworks conducive to the deployment of the best available solutions; (c) trade in goods and services that contribute to enhanced social conditions and environmentally sound practices, including those subject to voluntary sustainability assurance schemes such as fair and ethical trade schemes and eco-labels.³³
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Source: Author's elaboration

In terms of obligations, most agreements simply include a best endeavor commitment to cooperate in international fora to facilitate and promote trade and investment on EGS. Others, however, envisage additional or more binding commitments. In the case of the USMCA, for example, parties commit not only to cooperate, but also to develop cooperative projects on environmental goods and services to address global environmental challenges. Chapter 17, Article 3 of the Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu includes a set of firm commitments stating that *"parties shall facilitate the movement of business persons involved in the sale, delivery or installation of environmental goods or the supply of environmental services" [...]* and *"encourage the application of good regulatory principles to the design of any future standards and regulations relating to environmental goods and services, including transparency, proportionality, a preference for least trade-distorting measures, and the use of internationally agreed standards."*

4.5. Schedule of specific commitments

In comparison to specific commitments taken under the GATS, parties are significantly improving the depth and scope of their market access and national treatment commitments on environmental services under RTAs. To illustrate this point, Table 9 provides an overview of existing commitments in WTO schedules of commitments, offers made in the course of WTO negotiations on services and commitments undertaken in the context of RTAs. It focuses on OECD members and selected emerging economies' commitments in core environmental services as classified under section 6 of W/120. The areas highlighted in grey shows the sectors where those economies have undertaken liberalisation commitments in RTAs that go beyond their GATS commitments or liberalisation offers tabled in the course of the Doha negotiations (GATS plus commitments). It clearly illustrates how RTAs have been used as the preferred avenue to increase international commitments compared to the multilateral level.

³³ See Art. 405 of the EU-UK Trade and Cooperation Agreement EUR-Lex - 22021A0430(01) - EN - EUR-Lex (europa.eu).

Table 9. WTO and RTA commitments on environmental services

Member	Commitment/Offer by sub-sector on environmental services			
	Sewage services	Refuse disposal services	Sanitation & similar services	Other
Australia	I	I	I	I
Canada	X	X	X	X
Chile	N	N	N	N
China	I	I	I	I
European Union	I	I	I	I
Iceland	X	X	X	I
India		I	I	
Israel	X	X	X	X
Japan	I	I	I	I
Korea, Republic of	I	I	N	I
Malaysia	N	N	N	N
Mexico	I	N	I	N
New Zealand	x	x	x	x
Norway	I	I	I	I
Russian Federation	X	I	X	X
Singapore	N	N	I	I
South Africa	X	X	X	x
Switzerland	I	I	I	I
Turkey	X	X	X	N
United States of America	X	X	X	X

Note: On the basis of 139 of the 161 RTAs notified under GATS. Only sector-specific commitments/limitations are taken into account.

Source: adapted from JOB/SERV/299/Rev.1

X:	Means that a specific commitment has been undertaken under GATS.
x (italic):	Means that a new or improved commitment has been offered during the course of WTO services negotiations.
I:	Means that a commitment improving upon the GATS commitment or GATS offer was undertaken in an RTA.
N:	Means that a commitment was undertaken in an RTA where no commitment or offer had been made under GATS.
Highlighted in grey:	Members that have undertaken commitments in RTAs that go beyond GATS commitments and offers.

Apart from commitments on environmental services as defined under Division 94 of the CPC, parties of different RTAs are liberalising market access and national treatment commitments on a range of other environment-related sectors including business services, energy related activities, or distribution services to list just a few. This is particularly the case for agreements adopting a negative list approach such as those promoted by the US under which all market access and national treatment barriers are eliminated

unless specific reservations are made.³⁴ Other examples include commitments undertaken by the EU and its trading partners under the EU-Singapore,³⁵ EU-Korea,³⁶ or EU-Viet Nam,³⁷ FTAs where recycling services are fully liberalised in the schedule on liberalisation for establishment.³⁸

In practice, it should be noted that services trade liberalisation commitments under the GATS or RTAs do not necessarily reflect the *de facto* trade regime. For most services sectors, applied regulatory regimes are often more open than the level of restrictiveness bound in GATS schedules. This difference between bound and applied regimes is usually referred to as “water” in GATS or RTA commitments. According to Miroudot et al. (2010^[30]) it is difficult to conclude that preferential *treatment* is actually offered in RTAs as we do not know about the *de facto* trade regime, but at least the legal framework is more favourable to services trade bilaterally with non-discrimination disciplines in more sectors.” Similarly, de Melo and Vijil (2014^[6]) state that “commitments are only a rough indicator of applied policies [...] as we do not know the *de facto* trade regime”.

To measure the difference between multilateral and regional commitments, a recent OECD study assesses the extent to which RTA commitments improve on GATS schedules using the OECD Services Trade Restrictiveness Index (STRI)³⁹ as reference, and compare them with applied regimes (Benz and Jaax, 2020^[21]). While environmental services under Division 94 of the CPC are not covered in the STRI,⁴⁰ the analysis show that for most services, RTA commitments significantly expand on GATS schedules by eliminating between 40% and 70% of the “water” in the GATS (Benz and Rozensteine, 2021^[31]). In short, while RTA commitments do not really open new market opportunities, they provide legal security and predictability by consolidating autonomous policy reforms and reducing the scope for introducing new restrictive policies in the future.

From a more defensive perspective, certain GATS plus commitments under RTAs also envisage specific limitations applied horizontally to all sectors or to specific environment-related services by listing a range of non-conforming measures. For example, Slovakia imposes a residency requirement, under the EU-UK Agreement, for the processing and recycling of used batteries and accumulators, waste oils, old cars and waste from electrical and electronic equipment. Similarly, in the EU-Japan agreement, services of basic

³⁴ Under a negative list approach, all sectors are being liberalised by default and parties only list sectors and measures that are not subject to liberalisation. By contrast a positive list approach consists in undertaking liberalisation commitments only in sectors which are explicitly listed in the schedules of commitments. All non-listed sectors or measures are by default considered as unbound.

³⁵ See Appendix 8-A of the EU-Singapore Free Trade Agreement [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22019A1114\(01\)&from=EN#page=256](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22019A1114(01)&from=EN#page=256).

³⁶ See Annex 7-A -2 of the EU-Korea Free Trade Agreement, [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22019A1114\(01\)&from=EN#page=256](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22019A1114(01)&from=EN#page=256).

³⁷ See Appendix 8-A and B of the EU-Viet Nam Free Trade Agreement, [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22019A1114\(01\)&from=EN#page=256](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22019A1114(01)&from=EN#page=256).

³⁸ In the case of Viet Nam however, foreign-invested enterprises are restricted from collecting refuse directly from households. They are only permitted to provide services at the refuse collection points as specified by local municipal and provincial authorities.

³⁹ The OECD STRI provides information on regulations affecting trade in services in 22 sectors across all OECD members and a few non-OECD countries accounting for over 80% of global trade in services. See https://qdd.oecd.org/subject.aspx?Subject=063bee63-475f-427c-8b50-c19bffa7392d&_ga=2.241390086.52137652.1620998455-551991496.1616681100.

⁴⁰ At the time of writing the sectoral expansion of the STRI to environmental services under CPC Division 94 is still underway. The Secretariat is also developing a complementary stand-alone indicator - the Green STRI - designed to capture country level trade restrictions to a broader set of environmentally related services, including those already covered in the existing STRI database such as engineering, architecture, construction, or distribution.

geological, geodetic and mining consulting as well as related environmental protection consulting services in the territory of Croatia can be carried out only jointly with or through domestic legal persons. These measures essentially aim at protecting the environment and provide examples of how such considerations can be reflected in individual schedules of commitments. For illustrative purposes, Table 10 below provides a few examples of limitations or non-confirming measures in RTAs related to the environment. It shows measures affecting either all sectors, or only environmental services under CPC Division 94, or other services related to the environment in other Divisions such as business services, energy related activities or distribution services.

Table 10. Examples of limitations or non-conforming measures in RTAs related to the environment

Agreement	Sector	Limitation or non-confirming measure
United States-Mexico-Canada Agreement (USMCA/CUSMA/T-MEC)	All	National Treatment – Market Access Description: Investment and Cross-Border Trade in Services In order to evaluate an application submitted for its consideration [...], the <i>CNIE</i> shall take into account the following criteria: [...] (c) The compliance with the environmental provisions contained in the environmental legislation. Measures: Foreign Investment Law (<i>Ley de Inversion Extranjera</i>), Title VI, Chapter III.
Pacific Agreement on Closer Economic Relations Plus (PACER Plus)	All	Pacific Agreement on Closer Economic Relations Plus (PACER Plus) All (Horizontal commitment) Schedule of specific services commitments by the Cook Islands: Limitations on market access: ... Investments in the following areas are reserved to Cook Islanders and to enterprises fully-owned by Cook Islanders: ... Eco-tourism.
EU - Viet Nam	ENVIRONMENTAL SERVICES	For Mode 1 In EU: Unbound, except for consulting services.
EU - Japan	ENVIRONMENTAL SERVICES processing and recycling of used batteries and accumulators, old cars and waste from electrical and electronic equipment; protection of ambient air and climate cleaning services of exhaust gases	Market access Description: Only entities established in Sweden or having their principal seat in Sweden are eligible for accreditation to perform control services of exhaust gas (CPC 9404). Measures: The Vehicles Act (2002:574).
EU - Japan	BUSINESS SERVICES (e) Related scientific and technical consulting services (CPC 8675)	Cross-border trade in services – Market access Services of basic geological, geodetic and mining consulting as well as related environmental protection consulting services in the territory of Croatia can be carried out only jointly with or through domestic legal persons. Measure: Ordinance on requirements for issuing approvals to legal persons for performing professional environmental protection activities (OG No.57/10), Arts. 32-35.
EU - Japan	ENERGY RELATED ACTIVITIES	Investment liberalisation – Market access and Cross-border trade in services – Market access Description: Mining and prospecting activities covered by Act of the Slovak Republic 44/1988 on protection and exploitation of natural resources are regulated on a non-discriminatory basis, including through public policy measures seeking to ensure the conservation and protection of natural resources and the environment such as the authorisation or prohibition of certain mining technologies. [...] Measure: Act 51/1988 on Mining, Explosives and State Mining Administration; and Act 569/2007 on Geological Activity.
EU-UK	ENERGY RELATED ACTIVITIES	Mining and quarrying (ISIC Rev. 3.1 10, 11, 12, 13, 14, CPC 5115, 7131, 8675, 883)

		With respect to investment liberalisation – Market access, National treatment and Cross-border services – Local presence: Description: In SK: For mining, activities related to mining and geological activity, incorporation in the EEA is required (no branching). Mining and prospecting activities covered by Act of the Slovak Republic 44/1988 on protection and exploitation of natural resources are regulated on a non-discriminatory basis, including through public policy measures seeking to ensure the conservation and protection of natural resources and the environment such as the authorisation or prohibition of certain mining technologies. For greater certainty, such measures include the prohibition of the use of cyanide leaching in the treatment or refining of minerals, the requirement of a specific authorisation in the case of fracking for activities of prospecting, exploration or extraction of oil and gas, as well as prior approval by local referendum in the case of nuclear/radioactive mineral resources. This does not increase the non-conforming aspects of the existing measure for which the reservation is taken. (ISIC Rev. 3.1 10, 3.1 11, 3.1 12, 3.1 13, 3.1 14, CPC 5115, 7131, 8675 and 883). Measure: SK: Act 51/1988 on Mining, Explosives and State Mining Administration; and Act 569/2007 on Geological Activity, Act 44/1988 on protection and exploitation of natural resources.
EU-UK	DISTRIBUTION SERVICES	Distribution services (CPC 3546, 631, 632 except 63211, 63297, 62276, part of 621). With respect to Investment liberalisation – Market access: Description: In PT: A specific authorisation scheme exists for the installation of certain retail establishments and shopping centres. This relates to shopping centres that have a gross leasable area equal or greater than 8,000 m², and retail establishments having a sales area equal or exceeding 2,000 m², when located outside shopping centres. Main criteria: Contribution to a multiplicity of commercial offers; assessment of services to consumer; quality of employment and corporate social responsibility; integration in urban environment; contribution to eco-efficiency (CPC 631, 632 except 63211, 63297). Measures: PT: Decree-Law No. 10/2015, 16 January
EU-UK	ENVIRONMENTAL SERVICES Sub-sector: Environmental services – processing and recycling of used batteries and accumulators, old cars and waste from electrical and electronic equipment; protection of ambient air and climate cleaning services of exhaust gases	Environmental services (Part of CPC 9402, 9404). Cross-border trade in services. Description: In SE: Only entities established in Sweden or having their principal seat in Sweden are eligible for accreditation to perform control services of exhaust gas (CPC 9404). In SK: For processing and recycling of used batteries and accumulators, waste oils, old cars and waste from electrical and electronic equipment, incorporation in the EEA is required (residency requirement) (part of CPC 9402). Measures: SE: The Vehicles Act (2002:574). SK: Act 79/2015 on Waste.

Source: Authors elaboration

4.6. Good regulatory practices and international regulatory co-operation⁴¹

A number of recent RTAs aimed at promoting deep integration include disciplines on good regulatory practices (GRP) and international regulatory co-operation provisions (IRC) which go beyond WTO disciplines. These provisions usually promote enhanced coordination among parties in the design, development, enforcement, or assessment of their regulations. While, in some RTAs, these provisions are limited to regulations, standards and conformity assessment procedures applied to goods, several agreements extend those disciplines to services regulations. This is for example the case of the USMCA, CETA, EU-Japan or EU-UK to list just a few.

Horizontal GRP/IRC chapters usually cover *ex-ante* and *ex-post* regulatory assessment and provide a platform for international regulatory cooperation. For example, the CETA creates a Regulatory Co-operation Forum to discuss regulatory policy issues, review regulatory initiatives, and facilitate cooperation between the EU and Canada. In line with similar provisions in trade in goods, these horizontal principles can foster regulatory coherence, encourage inter-operability of systems, and remove unnecessary barriers to trade among jurisdictions (OECD, 2017^[32]). As highlighted by the case of EGS in the Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu some RTAs explicitly encourage the application of such horizontal principles to environmental services.⁴² With market access and national treatment commitments usually not creating new market access opportunities but rather consolidating applied regimes, regulatory co-operation under RTAs could provide additional avenues for likeminded countries to work together towards regulatory reforms to facilitate trade in environmental services.

Besides horizontal provisions, several agreements specifically highlight sustainability concerns as one of the main objectives of good regulatory practices and enhanced co-operation. For example, the USMCA's chapter on GRP defines "regulatory co-operation" as any effort "to prevent, reduce or eliminate unnecessary regulatory differences to facilitate trade and promote economic growth, while maintaining or enhancing standards of public health and safety and environmental protection."⁴³ Similarly, the CETA's chapter on Regulatory Co-operation chapter lists environmental protection as one of its key objectives and principles.⁴⁴

Echoing what is found in articles dealing with objective and scope of services disciplines, several provisions in GRP/IRC chapters reaffirm the right of parties to regulate including for environmental purposes. For example, provisions in EU-Japan or EU-UK state that: "*Nothing in this Title shall affect the right of a Party to define or regulate its own levels of protection in pursuit or furtherance of its public policy objectives in areas such as: [...] (e) environment including climate change.*"⁴⁵ Similarly, the USMCA chapter on GRP states: "*nothing in the chapter should prevent Parties from pursuing public policy objectives, including*

⁴¹ This section builds on the findings of Bellmann and van der Ven (2020) prepared under the Joint Working Party on Trade and Environment (JWPTE) project called "Greening RTAs", which focuses more specifically on good regulatory practices and regulatory co-operation.

⁴² See Chapter 17, Article 3 of the Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu stating that parties shall "encourage the application of good regulatory principles to the design of any future standards and regulations relating to environmental goods and services, including transparency, proportionality, a preference for least trade-distorting measures, and the use of internationally agreed standards."

⁴³ See USMCA Article 28.1.

⁴⁴ See CETA Articles 21.2 and 21.3.

⁴⁵ See Title X, Article GRP 1. of the EU–United Kingdom Trade and Cooperation Agreement or Article 18.1 of the EU–Japan Economic Partnership Agreement.

environmental goals, at the levels it considers to be appropriate".⁴⁶ Finally, several RTAs also incorporate environmental considerations in regulatory impact assessment. For example, the EU-Japan economic partnership agreement provides that when carrying out a regulatory impact assessment, Parties will take into consideration "to the extent possible and relevant the potential social, economic and environmental impact" of different alternatives.⁴⁷ The USMCA also provides that "*Each Party shall maintain procedures that promote the consideration of the following when conducting a regulatory impact assessment: [...] (c) benefits and costs of the selected and other feasible alternatives, including the relevant impacts (such as economic, social, environmental, public health, and safety effects)*".⁴⁸

⁴⁶ See USMCA Article 28.2.

⁴⁷ See Article 18.8 of the EU-Japan Economic Partnership Agreement.

⁴⁸ See USMCA, Article 28.11.

5. Possible approaches to advance environmental objectives through services-related provisions in RTAs

Overall, provisions dealing with the environment are less frequent in RTA chapters and articles covering trade in services than those dealing with trade in goods. This probably reflects the fact that the trade and environment debate in recent decades has mostly focused on goods and only recently started to uncover the relevance of services. Despite this, Monteiro (2016^[1]) identifies more than 100 RTAs with specific commitments on environmental services. An analysis of services chapters and commitments in more recent RTAs also reveals a wide range of provisions explicitly referring to the environment, ranging from specific market access commitments to rules applying to services regulations. At the broadest level, these provisions essentially respond to two main considerations. The first consists in ensuring that enhanced trade liberalisation or disciplines do not have negative environmental consequences as a side effect. The second aims at creating win-win situations where facilitating services trade goes hand in hand with environmental benefits. Based on existing precedents, this section suggests possible approaches to advance these two objectives through dedicated RTA provisions.

5.1. Preserving regulatory space to protect the environment

Services trade can have direct environmental effects as illustrated by the case of business services linked to travel, or the greenhouse gas emissions related to digital trade through servers and data processing. In the absence of proper regulations or safeguards, trade liberalisation may also exacerbate environmental challenges associated with performing or consuming certain services. For example, pollution or ecosystem degradation resulting from unregulated tourism activities may be exacerbated if trade barriers are eliminated. In the absence of proper environmental regulations, trade liberalisation may also affect the quality of environmental services provided. For example, opening markets for infrastructural environmental services traditionally provided by government agencies such as water distribution or wastewater and solid waste management, without proper regulations on pricing, universal access or quality, may result in suboptimal delivery of essential services (Geloso Grosso, 2007^[8]). Similarly, in the absence of standards or regulation for monitoring and controlling emissions of pollutants, market opening may lower the quality of service provided, with potentially serious public health consequences (Geloso Grosso, 2007^[8]).

Provisions aiming at mitigating the potential negative environmental impacts associated with trade in services therefore tend to focus on reaffirming the right and flexibility to regulate for environmental purposes. Such provisions can be either integrated in horizontal disciplines or in individual schedules of commitments. As far as individual schedules are concerned, the negotiating approach used both multilaterally and in the context of RTAs already provides a lot of flexibilities for Parties to reflect sensitivities or environmental priorities by listing limitations or non-conforming measures. As illustrated in the above analysis of schedules of commitments, Parties are free to include both horizontal limitations on

the scope of all commitments,⁴⁹ and sectoral limitations applying to particular services.⁵⁰ They can also keep entire sectors completely unbound,⁵¹ or impose specific conditions or requirements under certain sectors and for certain modes of delivery as illustrated in Table 10 above.⁵² In short, the constraints faced by Parties relate more to the negotiating dynamic of an RTA and the need to find a level of commitment mutually acceptable to all Parties, rather than the way in which commitments are reflected in individual schedules.

With respect to horizontal disciplines, Parties can integrate provisions aimed at preserving regulatory space for environmental purposes in articles dealing with the objectives and scope; general exceptions; or licensing and qualification requirements and procedures. Such provisions can reaffirm the right to adopt regulatory measures necessary to pursue legitimate policy objectives including the environment as envisaged in article 8.1.2 of the EU-Japan Economic Partnership Agreement, or provide a general exception following the model of GATS Article XIV covering restrictions for environmental purposes as most RTAs do. Another option consists simply in excluding certain environmental services from the scope of certain disciplines.⁵³

As highlighted in Section 4.6, some RTAs aimed at promoting deep economic integration also include a range of provisions on good regulatory practices and international regulatory cooperation. These provisions usually promote enhanced coordination among parties in the design, development, enforcement, or assessment of their regulations with the view to enhancing interoperability of different regimes and reducing trade costs associated with regulatory heterogeneity. More broadly, RTAs provide the necessary structure, resources, and political impetus for regulators including environmental ones to interact with their foreign counterparts – an element which is often lacking in other regulatory cooperation initiatives. Increasingly such provisions do not only apply to goods but also services and can generate significant benefits by reducing the costs associated with regulatory heterogeneity faced by exporters and importers.

A particular fear raised by environmentalists however, is the risk of regulatory convergence towards less stringent environmental protection or the lowest common denominator. They point in particular to the natural trade facilitating bias underpinning regulatory cooperation efforts in the context of RTAs. Similarly, procedures allowing foreign actors to participate in the preparation or review of regulations can be captured by vested interests, and lead to suboptimal outcomes from an environmental perspective (Trew, 2019^[33]).

To minimise this risk, George and Yamaguchi (2018^[34]) insist on the need to ensure proper stakeholder representation in international regulatory co-operation efforts – an approach consistent with the OECD best practice principles for regulatory policies (OECD, 2021^[35]). Beyond ensuring effective stakeholder participation, Parties can also integrate specific environmental clauses in chapters dealing with regulatory

⁴⁹ See for example, EU's horizontal limitation under Mode 3 in the WTO highlighting that in all EU Member States, there may be services deemed to be public, including for the delivery of environmental services, and as such subject to public monopolies or exclusive rights granted to private companies limiting the ability of foreign service providers to establish a commercial presence in the EU.

⁵⁰ See for example, the US limitations applying to all modes of delivery in its WTO sectoral commitments on environmental services, specifying that liberalisation commitments were limited to services “contracted by the private sector”.

⁵¹ China, for example excluded any environmental quality monitoring and pollution source inspection from its environmental services commitment in the WTO.

⁵² To be clear, these specific conditions or requirements are caveats applied to GATS plus commitments undertaken in RTAs.

⁵³ Article 12.2 of the CETA for example, excludes the collection, purification, and distribution of water from the scope of the disciplines on domestic regulations, licensing and qualification requirements, or procedures.

cooperation or good regulatory practices.⁵⁴ Based on existing precedents, this could include incorporating environmental protection as an objective or basic principle of enhanced regulatory co-operation,⁵⁵ as a way to alleviate concerns regarding the motivations behind regulatory co-operation. Another option could consist in incorporating environmental considerations in regulatory impact assessment or ex post evaluations.⁵⁶ This would allow stakeholders to raise possible environmental concerns at an early stage in the development of regulations or correct unintended consequences in the implementation phase. Finally, a third option would consist in introducing non-regression clauses providing that regulatory co-operation should not result in lower environmental protection.⁵⁷ This type of provisions could alleviate concerns that regulatory co-operation may result in less stringent levels of environmental protections.

5.2. Promoting win-win situations by facilitating trade in environmental services

A second objective of environment-related services provisions in RTAs consists in removing trade barriers affecting services that are either environmental services themselves or directly related to the sale, delivery, installation or maintenance of environmental goods. Existing provisions in this area include, general commitments to cooperate on environmental goods and services; enhanced market access and national treatment commitments in individual schedules of commitments; and provisions to remove unnecessary divergences in environmental regulations or standards under disciplines dealing with good regulatory practices or international regulatory cooperation. The following sections explore possible options to facilitate trade in environmental services through market access disciplines and regulatory cooperation.

5.2.1. Enhancing market access: dealing with the dual use challenge

Parties willing to foster trade in environmental services beyond best endeavor commitments to cooperate, keep facing challenges regarding the definition or the universe of services that should be covered beyond the narrow set of services covered under CPC Division 94. In the absence of an extended definition, a particular concern in this area has been to establish a credible list of services with solid environmental credentials - a challenge which implies responding to the concern associated with the dual use nature of certain services.

Based on existing precedents, four possible approaches to define environmental services outside of Division 94 are explored here. With the exception of the first one, these options are not necessarily mutually exclusive and could easily be combined for the identification of environmental services.

The first option consists in undertaking market access and national treatment commitments across the board on a wide range of services sectors with limited exceptions and regardless of dual use concerns. Under this approach, Parties do not need to single out services that directly or indirectly related to the

⁵⁴ For further details on precedents in this area, see Bellmann and van der Ven (2020_[25]).

⁵⁵ See for example, USMCA's Sectoral Annex. Art. 12. A.4 on chemical substances which recognises that the "principal objective of regulating chemical substances and chemical mixtures is the protection of human health and the environment." Similarly, the CETA's regulatory co-operation chapter lists protection of the environment as one of the objectives of regulatory co-operation.

⁵⁶ For example, Art. 18.8.2(c) of the EU-Japan EPA provides that when carrying out a regulatory impact assessment, Parties must take into account "to the extent possible and relevant, the potential social, economic and environmental impact of those alternatives...".

⁵⁷ See for example, USMCA Sectoral Annex 12 on Energy-Efficiency Performance Standards, where footnote 9 notes that "successful efforts at harmonisation should not diminish consumer welfare, consumer protection, or energy efficiency objectives".

environment, they simply focus on liberalising all or most sectors. This is generally the approach adopted for goods in most RTAs and in services for in agreements that take a negative-list approach.

Proponents of this option consider that trade opening will benefit all types of services related to the environment beyond CPC Division 94. While it may also encourage trade in services that have dual use or that are not environmentally related, trade in itself is unlikely to result in negative environmental impacts as long as effective environmental regulations are in place. In several instances it may even result in positive environmental impacts. Consider for example the case of maintenance services. These may qualify as environmental services when applied to wind or solar plants but not necessarily when applied to oil pipelines. That said, ensuring that oil pipelines benefit from efficient and high-quality maintenance services remains, however, critical from an environmental perspective. Furthermore, as highlighted previously, services commitments in RTAs tend to reflect existing applied regimes rather than creating new market access opportunities. From that perspective, the risk of negative environmental impacts is also limited.

While this approach has the benefit of simplicity, it may be more difficult to label as an initiative primarily driven by environmental considerations.

A second approach to promote trade in environmentally-related services consists in identifying a list of services at the five-digit level in the most recent CPC classification, which are exclusively or predominantly linked to the environment. As highlighted in previous sections, several items outside of Division 94 are clearly associated with the environment even if not considered as core environmental services. These include for example services such as sewage and water treatment plants construction services (CPC 2.1 Code 53253), engineering services for waste management projects (CPC 2.1 Code 83326), environmental consulting services (CPC 2.1 83931) metal and non-metal waste and scrap recovery (recycling) services (CPC 2.1. Codes 89410 and 8942). Annex B1 provides a more comprehensive list of possible services under this category. While they may not systematically be single end use services, their environmental credentials are solid and their inclusion on a list of environmental services could easily be justified. This is arguably the easiest option but it may result in a relatively small list leaving aside a number of critical services.

A third approach consists in liberalising services associated with specific environmental goods, or environmentally sound technologies. As highlighted in Section 4.4. precedents for such an approach exists in chapter 17, Article 3 of the Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu on Economic Cooperation which defines environmental services as those “*directly related to the investment, sale, delivery or installation of*” a set of 132 environmental goods defined in the agreement. In practice, this approach would allow to include a broader range of services such as assembly and installation, testing and analysis services, educational and advisory services, maintenance and repair or R&D services, to list just a few. Liberalisation commitments would however only apply when these services are traded in relation to a defined list of goods.

The advantage of this approach is that it avoids defining a closed list of services. By establishing the link with particular goods, it also addresses the concern associated with dual use services. Finally, it provides a means to target a particular environmental challenge such as climate change mitigation and adaptation or plastic pollution.

The challenge however remains to reach consensus on a list of environmental goods – a task which may be as arduous as defining environmental services in the first place. A possible avenue could be to use the APEC list of 54 environmental goods, or products among the 300 plus goods identified in the course of the EGA negotiations as starting point. If defining a list of goods is too challenging, an alternative approach could consist in linking services to specific environmentally sound technologies (e.g., wind or solar power) which could be easier to identify compared to specific product codes under the Harmonized System (HS).

This option could be reflected in dedicated chapters dealing with particular environmental technologies or objectives. The EU–Singapore and EU–Vietnam agreements, for example, contain chapters on facilitating trade in renewable energy that lay the groundwork for close cooperation, with a focus on local content requirements, standards, regulations, and mutual recognition of conformity assessment procedures. Such chapters could arguably also envisage commitments in services associated with the sale, delivery, installation or maintenance of renewable energy facilities.

The downside of this approach is that it can be criticised for its relative lack of predictability and may pose implementation challenges. In particular, it is not clear how certain market access commitments involving for example limitations on the number of persons in a particular service sector, restrictions on specific types of legal entity or limitations on the participation of foreign capital could apply to a service provider delivering services that include but are not limited to the list of goods or technologies identified as environmental. These challenges be attenuated either by limiting the scope of the commitments to certain modes of delivery or sub-sectors or the legal nature of the commitments (e.g., by making it a best endeavour commitment).

Finally, a fourth approach consists in identifying specific services which are relevant to the environment within subclasses of the CPC 2.1 classification at the five-digit level through the use of “ex out.” Building on the work by Nordås and Steenblik (2021^[13]), for example, APEC economies endorsed at their November 2021 Ministerial Meeting a Reference List of Environmental and Environmentally Related Services using this approach.⁵⁸ Similar to the use of “ex outs” to identify environmental goods beyond the six-digit level in the Harmonized System, this method allows to further differentiate services within categories which are not specific enough at the subclass level. For example, construction services of power plants (CPC 2.1 Code 54262) may or may not be associated with renewable or clean energy. The use of ex outs allows Parties to further circumscribe the scope of their liberalisation commitments by specifying that such commitments only apply to plants powered by renewable energy. It uses existing classifications but allows to isolate single use services with clear environmental credentials which can be reflected in individual schedules of commitments. Similarly to the second option, this approach allows to precisely target commitments towards specific environmental challenges depending on how the ex-outs are defined. However, as opposed to a situation where services are linked to particular goods or technologies, this approach would clearly identify *ex ante* the types of services covered with the ex-outs essentially functioning as a limitation to the proposed commitments. As such it may provide more predictability and be easier to implement.

Annex B2 provides an illustrative list of environmentally relevant services at the CPC 2.1 five-digit level followed by “ex” based on the analysis in Nordås and Steenblik (2021^[13]) and the APEC reference list. The specification in brackets indicates the sub-set of services that are environmentally relevant within the broader category.

5.2.2. Promoting good regulatory practices and regulatory cooperation on environmental services

As highlighted in previous chapters, obstacles to trade in environmental services mostly arise from the divergent nature of domestic regulations including qualification requirements and procedures, technical standards, and licensing requirements. This regulatory heterogeneity, tends to segment international markets and prevent the exploitation of economies of scale. Given that market access and national treatment commitments enshrined in RTAs rarely create new market access opportunities beyond

⁵⁸ See <https://www.apec.org/meeting-papers/annual-ministerial-meetings/2021/2021-apec-ministerial-meeting/annex-2---reference-list-of-environmental-and-environmentally-related-services>.

consolidating applied regimes, regulatory convergence could provide a complementary avenue to facilitate trade in environmental services.

As discussed above, several recent RTAs include horizontal disciplines on good regulatory practices and international regulatory co-operation applying to both goods and services regulations. While environmental services will automatically benefit from these horizontal provisions, there may be a case for targeting those provisions more specifically to environmental services. This is notably the approach envisaged under the Chapter 17, Article 3 of the Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu which “*encourage[s] the application of good regulatory principles to the design of any future standards and regulations relating to environmental goods and services, including transparency, proportionality, a preference for least trade-distorting measures, and the use of internationally agreed standards.*”

Beyond best endeavour commitments, a possible approach may consist in including services specific provision in dedicated chapters or annexes fostering regulatory co-operation with respect to particular sectors of environmental relevance. The EU–Singapore and EU–Vietnam agreements, for example, contain chapters on trade in renewable energy including specific provisions on local content requirements, standards, regulations, and mutual recognition of conformity assessment procedures. Similarly, the revised EU–Mexico agreement, completed in 2018, contains a chapter on energy and natural resources. Other agreements include these provisions in specific annexes on non-tariff barriers as illustrated by the Sectoral Annex on Energy Performance Standards in the USMCA.

In substantive terms, such annexes can include commitments to exchange information,⁵⁹ to improve respective understanding,⁶⁰ or to cooperate towards a particular objective.⁶¹ Others contain specific sectoral commitments as a result of the negotiations, as exemplified by the mutual acceptance of declarations of conformity established for a set of clean technology products in Chapter 7 of the EU–Singapore FTA. In practice however, these precedents essentially focus on goods with no references to services. A possible avenue to explore could therefore consist in integrating references to services including specific commitments in such sectoral disciplines.

⁵⁹ See for example USMCA Sectoral Annex, Art. 12. A.5 on Chemical Substances calling for the exchange of “scientific data and technical information, on new and emerging issues related to the management of chemical substances...”.

⁶⁰ See for example the special provision on animal welfare in Art. 18.17 of the EU–Japan regulatory coherence chapter designed to improve the mutual understanding of their respective laws and regulations.

⁶¹ See for example Art. 12.D.4 of the USMCA Sectoral Annex on Energy Efficiency Performance Standards which calls on the Parties to cooperate on energy performance standards and to “endeavour to harmonise” their respective standards and test procedures over a certain period of time.

6. Conclusion

Services constitute today the most dynamic component of international trade accounting for nearly half of the total value of international trade in goods and services. This is largely due to technological innovations and the digitisation of the economy, which have enabled trade in a wide range of services who used to be difficult to trade. Environment-related services have also benefited from the rise in regulations dealing with sustainability concerns, and a growing public awareness of environmental challenges. In practice, many of these services are closely linked to the production and delivery of environmental goods and delivered as a package or a bundle. Others are more broadly associated with specific technologies such as clean energy technologies, or inherent to particular business models as illustrated by product services system, which substitute services for the sale of goods themselves.

Today, trade in these different forms of environmentally-related services plays an essential role in addressing global environmental challenges such as climate change, eco-system degradation or pollution by supporting the diffusion and rapid scaling up of environmental technologies and allowing firms to exploit comparative advantages and economies of scale. Building on existing multilateral obligations, RTAs are increasingly used as a vehicle to regulate and foster trade in services related to the environment. Overall, disciplines in those agreements have two main objectives.

The first consists in reaffirming the right and the flexibility to regulate for environmental purposes. Such provisions can be either integrated in horizontal disciplines or in individual schedules of commitments. The negotiating approach used both multilaterally and in the context of RTAs already provides a lot of flexibilities for Parties to reflect sensitivities or environmental priorities in individual schedules of commitments by including limitations on the scope of all commitments and sectoral limitations applying to particular services.

These flexibilities can be complemented in horizontal disciplines with general exception clauses following the model of GATS Article XIV or with specific references to the right to regulate for environmental purposes. In articles dealing with regulatory cooperation and good regulatory practices particular provisions can be added to avoid the risk of regulatory convergence towards less stringent environmental protection or the lowest common denominator. Based on existing precedents, this may include (a) incorporating the protection of the environment as one of the objectives or basic principle of enhanced regulatory co-operation, (b) incorporating, environmental considerations in regulatory impact assessment or ex post evaluations, or (c) introducing non-regression clauses providing that regulatory co-operation should not result in lower environmental protection.

The second objective pursued by environmental provisions in services chapters consists in facilitating trade in environmental services by removing trade barriers and reducing costs associated with regulatory heterogeneity across jurisdictions. Provisions in this area include, commitments to cooperate on environmental goods and services; market access and national treatment commitments in individual schedules of commitments, and provisions to remove unnecessary divergences in environmental regulations or standards under disciplines dealing with good regulatory practices (GRP) or international regulatory cooperation (IRC).

A major challenge in this area relates to the definition of what constitutes environmental services beyond the narrow set of services covered under CPC Division 94. In the absence of an extended definition, establishing a credible list of services with solid environmental credentials requires to deal with the dual use nature of certain services.

Based on existing precedents, four possible approaches to address this challenge are explored here. The first consists in undertaking commitments across the board without trying to single out those directly or

indirectly related to the environment as envisaged under RTAs adopting a negative list approach. The second entails identifying a list of services at the five-digit level, which are exclusively or predominantly linked to the environment. The third involves liberalising services associated with specific environmental goods, or environmentally sound technologies. The fourth comprises of identifying services relevant to the environment within subclasses of the CPC classification at the five-digit level through the use of “ex out”.

Finally, given that market access and national treatment commitments enshrined in RTAs rarely create new market access opportunities beyond consolidating applied regimes, regulatory convergence could provide a complementary avenue to facilitate trade in environmental services. While environmental services will automatically benefit from horizontal provisions on regulatory cooperation often contained in RTAs, there may be a case for including regulatory cooperation provisions covering services (and not only goods) in dedicated chapters or annexes dealing with key environmental sectors such as renewable energy or energy efficiency.

In summary, there are several ways to reflect environmental considerations in RTA provisions related to trade in services. These range from general commitments to cooperate on environmental goods and services, through horizontal provisions guaranteeing the right to regulate or to protect the environment, to specific commitments under individual schedules, or disciplines designed to promote regulatory cooperation and good regulatory practices. These options stem across a range of chapters dealing with trade and environment or sustainable development, trade in services or regulatory cooperation. They can also be reflected in dedicated annexes dealing with particular sectors or environmental concern.

These different avenues point to the need for a holistic approach in incorporating environmental considerations in services related provisions. In other words, Parties interested in liberalising environmental services would not only need to look at environment and sustainability chapters, but may also wish to engage with other chapters on trade in services and their related schedules of commitment as well as regulatory co-operation. It also calls for a coherent approach under which commitments to promote trade in environmental goods and services, for example, are echoed with specific market access and national treatment or horizontal disciplines in corresponding chapters.

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Annex A. Classification on environmental services under different approaches

W/120	UN Central Product Classification (CPC prov.)	EU proposal (WTO Document S/CSS/W/38, of 22 December 2000) and corresponding CPC prov. codes	OECD/Eurostat (2001)
		“Purely” environmental services:	Services provided for specific environmental media:
6.A. Sewage services	Sewage services (CPC 9401)	Water for human use and wastewater management (CPC 9401)	Water and wastewater management (sewage services, water for human use)
6. B. Refuse disposal services	Refuse disposal services (CPC 9402)	Solid/hazardous waste management (CPC 9402)	Solid and hazardous waste management (refuse disposal, recycling, sanitation)
6.C. Sanitation and similar services	Sanitation services (CPC 9403)	n.a	n.a
6.D. Other services - Cleaning of exhaust gases - Noise abatement - Nature and landscape protection - Other environmental protection services	Cleaning of exhaust gases (CPC 9404)	Protection of ambient air and climate (CPC 9404)	Air pollution control
	Noise abatement services (CPC 9405)	Noise and vibration abatement (CPC 9405)	Noise and vibration abatement
	Nature and landscape protection services (CPC 9406)	Remediation and cleanup of soil and water (CPC 9406)	Services provided for one or more environmental protection, pollution control, remediation, or prevention activity: - Remediation and clean-up of soil, surface water and groundwater - Eco-system and landscape protection services - Project management - Analytical services, data collection, testing, analysis, and assessment - Environmental R&D - Design, consulting, and engineering - Preparation of sites and construction, installation, repair, and maintenance - Environmental education, training and information
		Protection of biodiversity and landscape (CPC 9406)	
	Other environmental protection services (CPC 9409)	Other environmental and ancillary services (CPC 9409)	
		“Environmental-related” services:	
		Business services with environmental component (861, 88493)	
		R&D with environmental component (CPC 85101, 85103, 85109, 85202, 85300, 8530)	
		Consulting, contracting, and engineering with environmental component (CPC 867, 924, 929, 867, 86729, 8650, 86732, 86729, 86761, 8424, 8672, 8676, 9490, 86752, 86753)	
		Construction with environmental component (CPC 51620, 51340, 51350, 511, 512, 513, 514, 515, 516, 517, 518, 88590, 51650, 5165)	
		Distribution with environmental component (CPC 62278, 62113, 63299, 7422)	
		Transport with environmental component (CPC 7112, 7123, 7139, 721, 722)	
		Others with environmental component (CPC 88620, 86741)	

Annex B. Examples of environmentally relevant services (CPC ver. 2.1)

B1. Environmental Services under CPC Division 94

<i>Division</i>	<i>Subclass</i>	<i>CPC 2.1 Code</i>	<i>Environmental Relevance</i>
Sewage and waste collection, treatment and disposal and other environmental protection services (94)	Sewerage and sewage treatment services	94110	WMWT
	Septic tank emptying and cleaning services	94120	SHWM
	Collection services of hazardous medical and other biohazardous waste	94211	SHWM
	Collection services of industrial hazardous waste (except medical and other biohazardous waste)	94212	SHWM
	Collection services of other hazardous waste	94219	SHWM
	Collection services of non-hazardous recyclable materials, residential	94221	SHWM
	Collection services of non-hazardous recyclable materials, other	94229	SHWM
	General waste collection services, residential	94231	SHWM
	General waste collection services, other	94239	SHWM
	Hazardous waste preparation, consolidation and storage services	94311	SHWM
	Ship-breaking and other dismantling of wrecks services	94312	SHWM
	Non-hazardous recyclable materials preparation, consolidation and storage services	94313	SHWM
	Other non-hazardous waste preparation, consolidation and storage services	94319	SHWM
	Hazardous waste treatment services	94321	SHWM
	Hazardous waste disposal services	94322	SHWM
	Sanitary landfill services, non-hazardous waste	94331	SHWM
	Other landfill services, non-hazardous waste	94332	SHWM
	Incineration of non-hazardous waste	94333	SHWM
	Other non-hazardous waste treatment and disposal services	94339	SHWM
	Site remediation and clean-up services, air	94411	ERC
	Site remediation and clean-up services, surface water	94412	ERC
	Site remediation and clean-up services, soil and groundwater	94413	ERC
	Containment, control and monitoring services and other site remediation services n.e.c.	94420	ERC
	Building remediation services	94430	ERC
	Other remediation services n.e.c.	94490	ERC
	Sweeping and snow removal services	94510	ERC
	Other sanitation services	94590	ERC
	Other environmental protection services n.e.c.	94900	NVA

Notes: ERC: Environmental remediation and clean-up
NVA: Noise and vibration abatement
SHWM: Solid and hazardous waste management
WMWT: Wastewater management and water treatment

B2. Services with clear environmental end-use outside of Division 94 of CPC 2.1

<i>Division</i>	<i>Subclass</i>	<i>CPC 2.1 Code</i>	<i>Environmental Relevance</i>
Construction (53)	Sewage and water treatment plants	53253	WMWT
Construction services (54)	General construction services of irrigation and flood control waterworks	54234	NRP
	General construction services of sewage and water treatment plants	54253	WMWT
	Water well drilling services	54341	WMWT
	Septic system installation services	54342	WMWT
	Insulation services	54650	EE
Passenger transport services (64)	Sightseeing services by rail	64131	CRE, APC
	Interurban railway transport services of passenger	64210	CRE, APC
Electricity, gas and water distribution (on own account) (69)	Water distribution through mains, except steam and hot water (on own account)	69210	WMWT
	Water distribution, except through mains (on own account)	69230	WMWT
Professional, technical and business services (83)	Engineering services for waste management projects (hazardous and non-hazardous)	83326	EMAA, SHWM,
	Engineering services for water, sewerage and drainage projects	83327	EMAA, WMWT
	Geophysical services	83412	APC, EMAA, NRP, RE
	Composition and purity testing and analysis services	83441	APC, EMAA, ERC, SHWM, WMWT
	Testing and analysis services of physical properties	83442	EMAA
	Environmental consulting services	83931	EMAA
Other manufacturing services; publishing, printing and reproduction services; materials recovery services (89)	Metal waste and scrap recovery (recycling) services, on a fee or contract basis	89410	RE, EPP
	Non-metal waste and scrap recovery (recycling) services, on a fee or contract basis	89420	RE, EPP
Services of membership organizations (95)	Services furnished by environmental advocacy groups	95992	EMAA
Recreational, cultural and sporting services (96)	Nature reserve services including wildlife preservation services	96422	NRP

Notes: APC: Air pollution control
 CRE: Cleaner and renewable energy
 EE: Energy efficiency
 EMAA: Environmental monitoring, analysis and assessment
 EPP: Environmentally-preferable products
 ERC: Environmental remediation and clean-up
 NRP: Natural resources protection
 NVA: Noise and vibration abatement
 RE: Resource efficiency
 SHWM: Solid and hazardous waste management
 WMWT: Wastewater management and water treatment

Source: Author's elaboration based on APEC (2020^[7]), WTO document JOB/SERV/299/Rev.1., and Nordås and Steenblik (2021^[13])

B3. Examples of environmentally relevant services within existing subclasses identified through “ex outs”

<i>Division</i>	<i>Subclass</i>	<i>CPC 2.1 Code</i>	<i>Environmental Relevance</i>
Construction services (54)	General construction services of dams [Hydro-electric dams]	54233 ex	CRE
	General construction services of long-distance pipelines [Pipelines for carrying water or hydrogen gas]	54241 ex	CRE
	General construction services of local pipelines [Pipelines for carrying water, sewage, or hydrogen gas]	54251 ex	CRE, WWMT
	General construction services of power plants [Plants powered by renewable energy]	54262 ex	CRE
	General construction services of other civil engineering works [of waste dumps or waste incinerators]	54290 ex	SHWM, WWMT
	Site formation and clearance services [related to soil stabilization; related to test drilling and boring and core extraction services for construction, geophysical, geological or similar purposes]	54320 ex	EMAA
	Excavating and earthmoving services [for the purposes of land-based recreation or the stripping of contaminated topsoil]	54330 ex	ERC
	Assembly and erection of prefabricated constructions [Public toilets]	54400 ex	WWMT
	Structural steel erection services [of prefabricated structural steel components for overhead cranes or electricity transmission towers]	54550 ex	CRE
	Joinery and carpentry services [for prefabricated, insulated doors and double- or triple-paned windows]	54760 ex	EE
Accommodation, food and beverage services (63)	Accommodation services for visitors (Eco-tourism)	631 ex	NRP, EPP
	Camp site services (Eco-tourism)	63120 ex	NRP, EPP
	Recreational and vacation camp services (Eco-tourism)	63130 ex	NRP, EPP
Passenger transport services (64)	Local transport and sightseeing transportation services of passengers [in electric vehicles]	641 ex	CRE, APC
	Urban and suburban land transport services of passengers [in electric vehicles]	6411 ex	CRE, APC
Freight transport services (65)	Other coastal and transoceanic water transport services of other freight [coastal and transoceanic water transportation of components of off-shore renewable energy plants and equipment for installing, repairing, or maintaining them]	65219 ex	CRE
Rental services of transport vehicles with operators (66)	Rental services of road vehicles with operators [for electric vehicles]	6601 ex	CRE, APC
Leasing or rental services without operator (73)	Leasing or rental services concerning cars and light vans without operator [for electric vehicles]	73111 ex	CRE, APC
	Leasing or rental services concerning pleasure and leisure equipment [for bicycles]	73240 ex	CRE, APC
Research and development services (81)	Experimental development services in other natural sciences [environmental sciences not elsewhere classified]	81139 ex	EMAA
Professional, technical and business services (83)	Information technology (IT) consulting and support services [for environmental monitoring or analysis]	8313 ex	EMAA
	Information technology (IT) design and development services [for environmental monitoring or analysis]	8314 ex	EMAA
	Architectural services and advisory services [climatic and environmental analysis]	8321 ex	EMAA
	Urban planning services [studies of environmental impact and economic assessments of urban development plans]	83221 ex	EMAA

	Landscape architectural advisory services [related to natural landscapes]	83231 ex	NRP
	Landscape architectural services [related to natural landscapes]	83232 ex	NRP
	Engineering advisory services [environmental impact assessments]	83310 ex	EMAA
	Engineering services for power projects [Power projects based on renewable energy]	83324 ex	CRE
	Engineering services for other projects [contamination studies and quality management]	83329 ex	EMAA, ERC
	Geological and geophysical consulting services [related to groundwater] [related to the evaluation of geological, geophysical and geochemical anomalies]	83411 ex	EMAA, NRP
Support services (85)	Specialized cleaning services [Cleaning services for reservoirs and tanks, these being parts of either industrial sites; furnace and chimney cleaning services; cleaning of furnaces, incinerators, boilers, ventilation ducts and exhaust units]	85340 ex	APC, ERC
	Packaging services [Eco-packaging]	85400 ex	EPP
	Tour operator services [Eco-tourism]	85540 ex	NRP
	Tourism promotion services [Eco-tourism]	85561 ex	NRP
	Visitor information services [Eco-tourism]	85562 ex	NRP
	Landscape care and maintenance services [Planting, care and maintenance services of stationary and flowing water (basins, alternating wet areas, ponds, ditches, watercourses, sewage-treatment systems) and of plants for protection against noise, wind, erosion, visibility and dazzling]	85970 ex	NVA, ERC, WMWT, SHWM
Support and operation services to agriculture, hunting, forestry, fishing, mining and utilities (86)	Support and operation services to forestry and logging [sustainable management]	8614 ex	NRP, RE
	Support and operation services to fishing [sustainable resource management]	8615 ex	NRP, RE
Maintenance, repair and installation (except construction) services (87)	Maintenance and repair services of electrical machinery and apparatus n.e.c. [Maintenance and repair of generators powered by renewable energy and smart grids]	87152 ex	CRE
	Maintenance and repair services of medical, precision and optical instruments [Precision and optical instruments used for environmental monitoring or analysis]	87154 ex	EMAA
	Repair services of other goods [upcycling initiatives]	872 ex	RE, EPP
	Installation services of professional medical machinery and equipment, and precisions and optical instruments [Precision and optical instruments used for environmental monitoring or analysis]	87350 ex	EMAA
	Installation services of electrical machinery and apparatus n.e.c. [installation of generators powered by renewable energy and smart grids]	87360 ex	CRE
Manufacturing services on physical inputs owned by others (88)	Textile, wearing apparel and leather manufacturing services [manufacturing of sustainable and environmentally friendly materials]	882 ex	EPP
	Bicycles and invalid carriage manufacturing services	88827 ex	EPP
Education services (92)	Other education and training services and educational support services [specialized courses on environmental sustainability]	929 ex	EMAA

Notes: APC: Air pollution control
 CRE: Cleaner and renewable energy
 EE: Energy efficiency
 EMMA: Environmental monitoring, analysis and assessment
 EPP: Environmentally-preferable products
 ERC: Environmental remediation and clean-up
 NRP: Natural resources protection
 NVA: Noise and vibration abatement
 RE: Resource efficiency
 SHWM: Solid and hazardous waste management
 WMWT: Wastewater management and water treatment

Source: Based on Nordås and Steenblik (2021^[13])