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EU circular economy and trade:

Improving policy coherence for sustainable development

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In cooperation with



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Contents

EXECUTIVE SUMMARY	4
Abbreviations	10
1 Introduction	11
2 The interplay between circular transition in the EU and the world	12
2.1 Changes in the demand for primary resources	12
2.2 Interplay with trade restrictions on raw materials	14
2.3 Recyclable waste becoming a traded good	15
2.4 Implementation of new domestic circular policies with global implications	16
3 Global impacts of implementing EU's circular economy measures	18
3.1 EU policy framework for circular economy	18
3.2 Trade related implications of implementing the EU circular economy framework	20
3.3 Monitoring EU's circular economy impacts	22
4 EU trade policy as a vehicle for circular economy	23
4.1 Circular economy in the context of current EU trade agreements	24
4.2 Role of trade incentives and barriers in supporting or hindering circular economy	26
5 Conclusions: sustainable development, EU trade and the circular economy	30
5.1 Supporting the positives	30
5.2 ... while preventing the negatives	31
5.3 Policy recommendations to improve EU policy coherence	32
CASE STUDIES	35
6 Trade restrictions on waste imports: the case of Chinese waste ban	35
6.1 Introduction	35
6.2 China's ban on waste imports	36
6.3 Impacts on other countries	36
6.4 Impacts on the EU	37
6.5 Future developments and the road ahead	38
7 Trade as a vehicle for sustainable circularity: the case of EU e-waste	39
7.1 Introduction: EU as an exporter of e-waste	39
7.2 Impacts of e-waste in third countries	40
7.3 Reconciling e-waste trade, circular economy and sustainable development	41
SUPPORTING MATERIAL	43
Annex 1 Assessing the trade related impacts of EU Circular Economy Package	43
Annex 2 Assessing the trade dimension in the EU Circular Economy Monitoring Framework	45
Annex 3 Circular economy in the EU Free Trade Agreements (FTAs) and Sustainability Impacts Assessments (SIAs)	48

EXECUTIVE SUMMARY

This policy paper examines the interface between the EU circular economy, trade and sustainable development. It identifies the expected global impacts associated with the EU's shift to circularity and investigates the role of trade in either incentivising or hindering this process. Finally, the paper highlights the links between the circular economy, trade and sustainable development, emphasising the need for better policy coherence among these areas in the EU.

The adoption of the EU Circular Economy Action Plan in 2015 set the EU firmly on the path towards the circular economy with a view to reduce the EU's dependency on primary raw materials and to demonstrate global leadership in – and gain competitive advantages through – such transition. Furthermore, shifting from a linear to a circular economy has also been identified as one of the foundations for future sustainability in the EU, including a means to curtail the negative impacts of EU consumption (e.g. carbon footprint)¹.

While the circular economy has gained a lot of attention domestically, the impacts of the EU's shift to a circular economy on the rest of the world through international trade have remained largely unexplored. However, awareness of the need to look beyond the EU's borders is increasing rapidly, brought forward particularly by the aftermath of China's ban on waste imports for recycling in 2017. Following in China's footsteps, India banned the imports of solid plastic waste in March 2019. Similarly, Thailand has announced a halt to all imports of plastic waste by 2021, and Vietnam and Malaysia also have plans in place to reduce permits for imports of plastic waste.

The story behind these bans unfolds as follows: as a result of increasing waste imports, several developing countries have had to deal with large amounts of waste while lacking the proper infrastructure for processing and recycling. While processing waste into secondary raw material can be important to developing countries' economies, weaker environmental regulations in the waste importing and processing countries mean that workers – as well as the environment – are exposed to risks and suffer from negative impacts. This is particularly the case with electronic waste (e-waste) exports to the developing countries. In addition, waste importing countries are also suffering impacts from the low quality of recyclable waste, which often leads to higher costs of recycling and can also result in undesirable activities in importing countries such as landfilling or incineration. Such practices feed the vicious cycle of downcycling, giving secondary raw materials a bad reputation and lowering the potential for the development of a circular economy in general.

The Chinese ban – and those that followed – have rapidly brought into question the strategy that many EU Member States had implicitly chosen to deliver their waste recycling targets, namely exporting waste to be recycled outside the EU. They also highlighted the way the EU's internal policies aimed at promoting circularity and increasing more sustainable resource use can, depending on their implementation and in the absence of additional control mechanisms, lead to adverse impacts outside the EU, including negative environmental and social impacts on developing countries.

The above trends suggest that the transition to a more circular economy in the EU will inevitably have implications a global scale. In addition to the global movements of recyclable waste, a shift to circular systems results in changes to primary and secondary resource flows, including the demand for and

¹ EU Reflection Paper: [Towards A Sustainable Europe by 2030](#) (January 2019)

trade in these resources. Further down the line, all these changes can translate into opportunities – or obstacles – for sustainable development in third countries.

Dedicated case studies in Chapters 6 and 7 provide more detailed information on both the importing countries' bans on waste and negative impacts linked to the recycling of e-waste.

How do the EU's internal policies for circular economy impact the world?

Changes in the demand for primary resources

The EU and its Member States depend heavily on low-income countries for imports of raw materials. Shifting to a circular economy means both keeping the value of products in the economy for longer and increasing the use of secondary raw materials. Consequently, it influences trade flows on primary raw materials, including possibly also the extraction of such materials in third countries. This may have impacts on developing countries' ability and pathways to reach sustainable development goals (SDGs). From an environmental point of view, a reduction of the demand for resources could reduce the pressure on the environment in third countries with positive implications on environmental sustainability. On the other hand, the export of raw materials still plays a central role in the development pathways of several trade partner countries. Consequently, these countries are likely to be impacted by a decline in exports, with possible implications for their (economic) development. At the same time, lessening the export of raw materials may generate opportunities to grow domestic markets in the developing economies, as the development of higher-value downstream processing is encouraged.

Recyclable waste becoming a traded good

The EU's transition to a circular economy promotes the reuse and repair of products and, finally, the reintroduction of high-quality recycled materials into the economy. By incentivising reuse, repurposing and recycling of materials, the EU circular economy framework can in principle encourage the development of regional recycling and reprocessing hubs, promoting intra-EU markets for secondary raw material.

In practice, as highlighted above, up until recently several EU Member States have chosen to manage their recyclable waste streams by exporting them outside the EU, with documented negative environmental and social impacts on third countries. In principle, however, secondary raw materials recovered from waste have the potential to become a valuable resource for the third country economies, but only when supplied by waste streams of an appropriate quality and supported by capacity to process the recyclable material. Waste importing countries are often also manufacturing hubs, which means that it can be economically efficient to reuse recycled materials in proximity. However, as long as there are issues with the quality of EU's waste exports and uncertainty on whether the exported waste is really recycled, and if so, in what conditions, focusing on improving waste recycling within the EU should remain a priority for the EU.

Domestic policies with global implications

The EU circular economy policy also foresees a better harmonisation of end-of-life rules applied to products within the EU, including standards to promote their durability, reusability and recyclability in an efficient – and safe – manner. While such standards promote circularity benefits in the geographic context in which they are adopted, those benefits are likely to be significantly reduced once products or waste material are imported and/or exported, creating barriers to effective recycling

of waste or uptake of secondary raw materials. The EU policy framework also promotes the uptake of extended producer responsibility (EPR) schemes, i.e. schemes aimed at ensuring that producers and manufacturers take responsibility for the end-of-life of their products and the associated packaging, with possible global consequences. If EPR raises the costs for EU firms relative to non-EU firms, they may be at a disadvantage in world markets. In other words, this might result in EU's circular economy measures providing an unintended and counterproductive advantage to third-country producers with a lower level of circular responsibility.

In general, evidence shows that the cost of processing together with level of stringency of environmental standards in different countries determines the direction of recyclable waste as a traded good, with streams being directed towards countries with less stringent environmental standards and regulations (e.g. developing countries). On the other hand, EU progress on developing environmental standards can have a positive international impact, as other economies adopt similar standards in order to facilitate exports to the EU market.

However, all the above external effects of the EU's internal policy objectives and instruments are currently largely overlooked, both in the context of the implementation of EU's circular economy measures and monitoring of their impacts. While the EU monitoring framework for the circular economy provides a useful and evolving tool to keep track of the EU's developments on the circular economy, the existing indicators fail to capture the wider implications of the EU's circular shift.

What can EU trade policy do?

The EU currently has around 80 free trade agreements (FTAs) fully or partly in place, and around 40 pending or being negotiated. This makes the EU the world's most productive trade negotiating authority, with significant influence over global trade. Consequently, the EU's FTAs with third countries can play a role in supporting – or hindering – the circular economy worldwide.

Improving the scope and implementation of EU trade agreements

The trade arena still represents a largely underused venue for the EU to advance the circular economy agenda, both internally and externally. The review of EU FTAs reveals that to date only two agreements² explicitly mention circular economy. In both cases, however, no concrete incentives are presented to promote the circular economy and nothing is said on the possible means to promote circularity as a part of trade in practice. Furthermore, circularity is integrated in the agreements as pertaining to the environmental safeguards to trade only, indicating that the circular economy is not yet considered as an underlying feature of the economy and therefore of trade.

Sustainability Impact Assessments (SIAs) underpin all EU FTA negotiations. The Commission guidelines from 2016 highlight the need to assess possible contributions of the agreement to greening the economy, to resource efficiency objectives, and to promoting sustainable consumption and production. The review of all published SIAs since 2016 shows that possible impacts on resource use and efficiency as well as waste management are indeed common indicators in all these SIAs. However, the circular economy is only referred to explicitly in three reports; in the final SIA report for the Trans-

² The trade part of the modernised global agreement with Mexico, agreed in principle in April 2018 but still under negotiation, and the EU proposals for FTA between the EU and New Zealand

Atlantic Trade and Investment Partnership (TTIP) (2017) and, more significantly so, in the draft, interim SIA reports for the Philippines and Malaysia (2018).

Building on the above, several future opportunities can be identified for improving the integration of the circular economy into EU FTAs. For example, some agreements explicitly cover trade related to specific economic sectors. For such agreements it would be possible to integrate circularity aspects to sector-specific principles and regulatory actions, thus mainstreaming the circular economy also at a sectoral level and beyond the environmental considerations of FTAs. Furthermore, promoting trade in certain products and services within a sector (e.g. environmental goods and services - EGS) or strengthening the EU regulatory frameworks linked to sector-specific trade (i.e. so-called trade 'flanking measures') should also be considered. A comprehensive consideration of circular economy-related aspects in the SIAs underpins such a sector-specific integration.

While the progressive integration of circular economy considerations into EU FTAs and SIAs improves the likelihood of their uptake, the implementation that follows the agreements remains the key to any effective progress. To date information is scarce as to the impacts of EU FTAs on the circular economy in practice. Enforcing the role of FTAs' Trade and Sustainable Development Committees in implementing the sustainability provisions of the agreements, including ones on the circular economy, would be a step in the right direction.

Addressing the lack of international standards and definitions

The lack of international definitions and standards linked to waste recycling, and circularity more broadly, significantly hinder promoting the benefits of circular economy as part of trade.

Firstly, the lack of international standards for waste quality are creating a barrier for recycling efforts. Consequently, supporting the harmonisation of waste standards and treatment practices not only within the EU but also at the international level should become a core part of the EU's circular economy policy. For instance, at the moment information on the presence of hazardous substances is not readily available to those who handle the waste in importing countries. Additionally, waste may contain substances that are no longer allowed in new products, or that are not allowed in other countries. Adoption of global recyclability standards, as well as global eco-labelling schemes preventing the incorporation of hazardous materials, could remedy these issues and allow for relevant products to be recycled or re-used anywhere in the world, thereby facilitating circularity through trade.

Secondly, the lack of international consensus on the definition of waste hinders circularity in the global context. Rules on end-of-waste are not harmonised, either in the EU or at the international level, meaning that there is no clarity as to when and following what processes waste becomes a secondary raw material.

The adoption of standards and definitions seems even more timely in the light of the recent Basel Convention³ ban on plastic waste exports from OECD to non-OECD countries, with the exception for material that is 'non-hazardous, clean, unmixed and uncontaminated' and strictly purposed for recycling and not energy recovery. This piece of international legislation could be an important trigger for speeding up international negotiations on waste standards and definitions.

Finally, most EU FTAs include a call for parties to promote liberalisation of environmental goods and services. This can, in principle, be used to incentivise the trade in goods that are produced using sustainable circular economy practices and/or comply with circular economy criteria. However, no

³ UN Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, i.e. the Basel Convention, [ban on plastic waste trade](#) from spring 2019.

existing cases of promoting such practice could be yet identified. The scope for future opportunities depends partly on settling on a more concrete definition of what is considered as an ‘environmental good’. Unfortunately, the discussions on this matter have stalled, making future advances uncertain.

Calling for better policy coherence between circular economy, trade and development cooperation

The report clearly highlights that the shift to a circular economy in the EU will not be sustainable by default; it will only be so if it reflects the implications both within and outside the EU. From the availability of raw materials to the exports of waste for recycling and repair, the shift to a circular economy in the EU is both affecting and affected by various global factors. Domestic policy frameworks and targets for circularity in the EU can – through international trade – impact different aspects of sustainable development in third countries, including several developing countries.

Consequently, identifying and addressing the external implications of its circular economy policy needs to play an integral role in EU’s plans to deliver the 2030 sustainable development agenda, including a shift to a sustainable production and consumption of resources at global scale. This includes improving the integration of circular economy considerations into EU trade policy, both to prevent any negative external impacts but also with a view to support the uptake of circular economy-related opportunities in the trade partner countries.

Therefore, the study calls for improved policy coherence between the EU’s circular economy measures and its trade and development cooperation policies (See Chapter 5 for specific recommendations).

EU development cooperation – and its Aid for Trade strategy in particular – can help to support the shift to a *sustainable* circular economy at a global scale. The strategy explicitly refers to environmental sustainability as being at the heart of aid for trade, highlighting the green and circular economy as a ‘leapfrogging opportunity in trade, growth and employment’. The EU’s Aid for Trade schemes can support the uptake of sustainable and equitable circular economy-related trade opportunities within the context of EU FTAs. They can play a catalysing and supporting role in third countries’ shift to a more circular economic model, this way also supporting circularity at the global scale and vis-à-vis the EU. However, more consolidated efforts are needed to ensure that the schemes are coordinated with the needs arising from the further shift to circularity within the EU and the trade-related opportunities and risks associated with that.

Being mindful of the bigger picture

Finally, when assessing the global impacts of pursuing a circular economy within the EU one should keep in mind that the shift to a circular, resource-efficient economy – in the EU and also globally – is associated with a number of related trends, such as growing digitalisation and clean energy transitions. Coupled with population growth and increased wealth, these trends foresee an increasing need for raw materials, including in the developing economies, which are projected to account for more than half of all global consumption by 2030⁴. In addition, research shows that material footprint (i.e. the quantity of materials to be mobilised in order to meet the consumption of a country) has increased globally⁵. The EU has a considerable contribution to this trend, with the estimated per capital material

⁴ McKinsey & Co (2019) [Globalization in transition: the future of trade and value chains](#)

⁵ Wiedmann, T. (2015) [The material footprint of nations](#) and International Resource Panel (2019) Natural resources for the future we want [Factsheet](#) and [Summary for Policy-makers](#)

footprint from high-income countries – such as the EU Member States – being considerably higher than any of the other income groups.

Consequently, for the foreseen sustainability benefits of circular economy to materialise – at the EU or global level – the related policy efforts need to be nested in the broader implementation of the 2030 sustainability agenda, including measures aimed at addressing demand and consumption. Without addressing this broader picture, the EU will fail to deliver the foreseen benefits of circular economy, both internally and externally.

Abbreviations

AfT – Aid for Trade

CE – Circular Economy

CETA - Comprehensive and Economic Trade Agreement

CRM – Critical Raw Materials

EGS – Environmental goods and services

ENGO – Environmental non-governmental organization

EPR – Extended producer responsibility

FTA – Free Trade Agreement

SIA – Sustainability Impact Assessment

TSD – Trade and Sustainable Development

WEEE – waste electrical and electronic equipment

1 Introduction

This policy paper examines the expected impacts of implementing circular economy measures within the EU on international trade and, through trade, on sustainable development in third countries. It also explores the role that trade agreements, and EU Free Trade Agreements (FTAs) in particular, can have in supporting the circular economy both within and outside the EU. To support its analysis, the paper also presents two case studies on the interactions between the EU's circular economy policy implementation and its impacts on sustainability in third countries via trade. Building on these insights the paper outlines policy recommendations for the future implementation of EU circular economy, trade and development cooperation policies.

The transition to a more circular economy is integral to the EU's approach to delivering the 2030 sustainability agenda for Europe⁶. This builds on the understanding that existing consumption and production patterns within the Union have resulted in unsustainable levels of resource extraction and waste generation, putting high pressure on the environment and climate. This pressure is increasingly being experienced at global scale, with a considerable proportion of EU's material footprint taking place outside the Union⁷.

In 2015, the EU adopted a comprehensive Circular Economy (CE) package containing policy measures that require its Member States to significantly increase resource efficiency by increasing the re-use, repair and recycling of materials. These measures are expected to lead to gains in sustainable economic growth – including new innovations and jobs – as well as an increase in the use of secondary raw materials and simultaneous reductions in waste both within and outside the EU.

A shift in both production and consumption patterns is crucial to achieve this circular transformation. Transformations of this kind, in all sectors, are not limited to changes within the EU but will also require and promote changes at a wider regional and an international scale. In other words, the EU's efforts to shift to a more sustainable use of resources within its territory will have repercussions and spillover effects – both positive and negative – outside the Union's borders.

International trade plays a key role in this context. In general, trade flows are very likely to be affected by the shift to more circular systems within countries due to, for example, diminishing demand for primary raw materials or reduction in the supply of secondary raw materials. Furthermore, trade agreements such as the EU Free Trade Agreements (FTAs) can play a role in either incentivising or hindering the circularity of material flows at an international scale.

Understanding these external effects of EU's internal circular economy policies, including the interplay with trade, is important for two reasons. Firstly, it allows the identification of possible impacts of EU policy action on third countries, including opportunities or obstacles for future sustainable development. Secondly, it also enables prediction of possible third country policy responses to the changes in resource flows which, in turn, might have rebound effects on the EU.

⁶ European Commission (2019) [Reflection paper towards a more sustainable Europe by 2030](#)

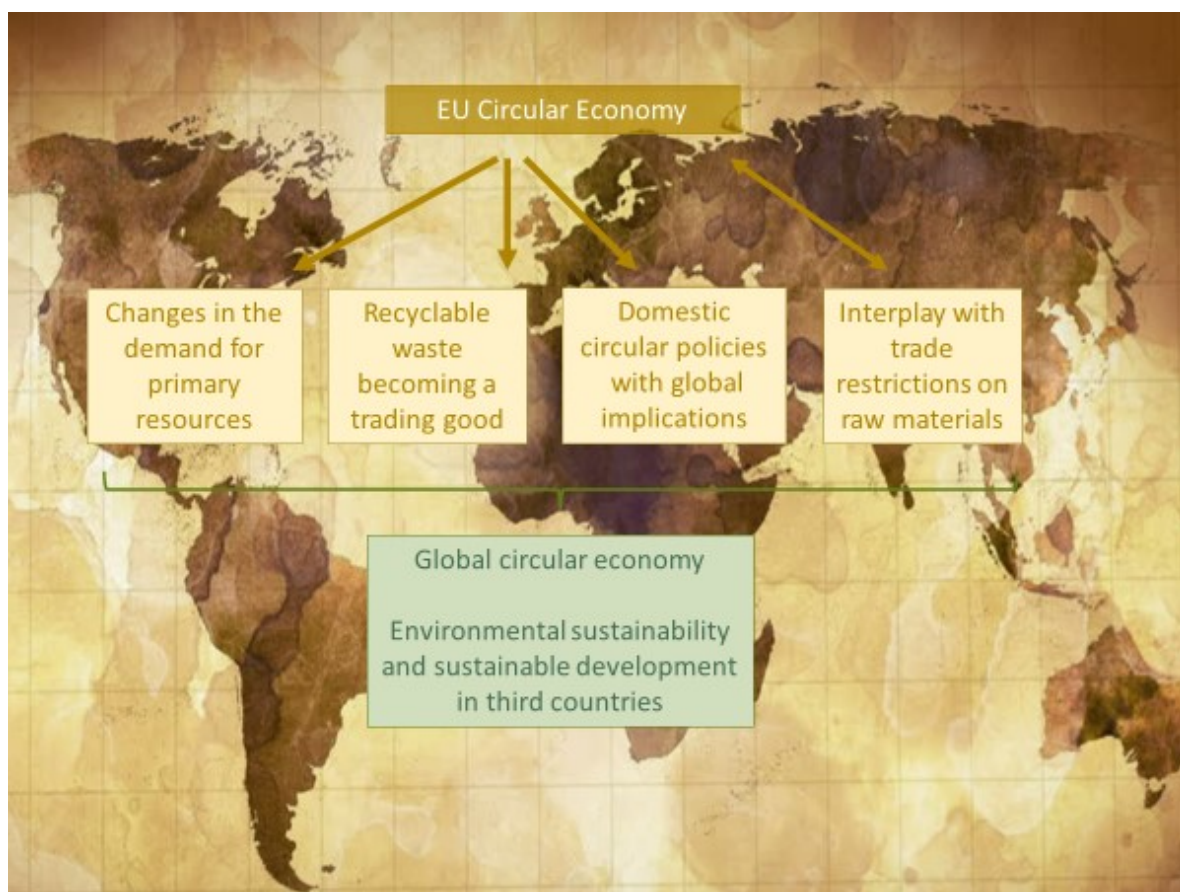
⁷ SDSN (2019) [Sustainable Development Report](#)

2 The interplay between circular transition in the EU and the world

This chapter introduces the different interactions between the circular transition in the EU and the world, providing a starting point for exploring them further in the context of the following chapters.

In general, four different types of interactions between the circular transformation in the EU and global resource flows can be identified. These interactions range from changes in the flows and types of raw-materials due to changes in demand or supply to the impacts of EU's domestic circular policies at wider international scale.

Figure 2.1. Key interactions between the circular transformation in the EU and global resource flows, including foreseen direct and indirect implications globally and in third countries.



Source: own illustration

2.1 Changes in the demand for primary resources

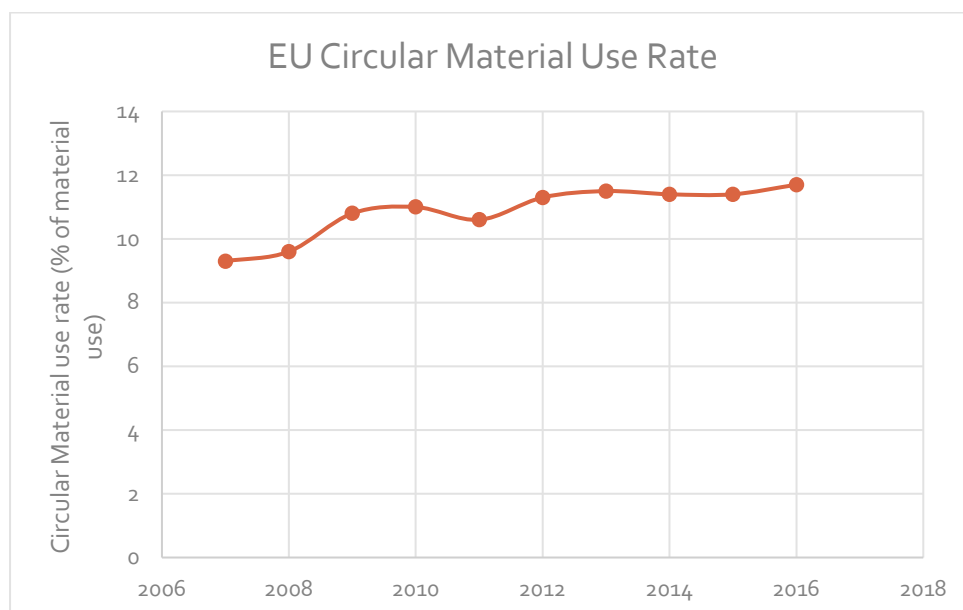
Many advanced, high-income countries, including the EU and its Member States, depend heavily on low-income countries for imports of raw materials for the production of goods and services. These links are likely to be affected by a shift to a more circular economy.

A list of critical raw materials (CRMs) was created by the European Commission with the intention of identifying the raw materials that are most relevant to the EU's economy and at the same time associated with high risk to supply. It includes, for example, raw materials for fertilisers that continue to underpin the EU agriculture sector (e.g. phosphorus and magnesium)⁸. These materials are mostly produced in and supplied by third countries, making Europe highly reliant on imports of critical raw materials. The largest supplier of raw materials is China, with 62% of its supply directed to the EU. Other countries include USA, Russia, Brazil, Mexico and Morocco, among other⁹.

The transition to a circular economy in the EU entails the need to increase the circular use of raw materials and the share of secondary sources in raw material supply. Despite increasing recycling and reuse rates being crucial to the shift to a circular economy, the recycling input rate of critical raw materials in the EU is still low, primarily due to a lack of cost-effective sorting and recycling technologies¹⁰. However, data from Eurostat shows an increase in overall circular material use within the Union (Figure 2.2). This indicator measures the share of material recovered and fed back into the economy in overall material use (see Annex 2 for further information).

An increasing trend in circular material use implies a reduced future need for extraction of primary raw materials. An increase in circularity, and therefore in the reuse, recycling and repurposing of materials, can encourage the development of regional recycling, recovery and reprocessing hubs, generating opportunities for the manufacturing sector. Nevertheless, the supply of raw materials from outside the EU is foreseen to remain a necessity for the Union.

Figure 2.2. Circular Material Use Rate in the EU



Source: Eurostat, 2018¹¹

⁸ Full list of EU CRMs: Antimony, Baryte, Beryllium, Bismuth, Borate, Cobalt, Coking Coal, Fluorspar, Gallium, Germanium, Hafnium, Helium, Heavy Rare Earth Elements (HREEs), Indium, Light Rare Earth Elements (LREEs), Magnesium, Natural graphite, Natural rubber, Niobium, Platinum Group Metals (PGMs), Phosphate rock, Phosphorus, Scandium, Silicon metal, Tantalum, Tungsten, Vanadium.

⁹ European Commission (2018) [Report on critical raw materials and the circular economy](#) and European Commission (2017) [Study on the review of the list of Critical Raw Materials](#)

¹⁰ European Commission (2018) [Report on critical raw materials and the circular economy](#)

¹¹ Eurostat (2018) [Table: Circular material use rate](#)

Changing trends in the trade of raw materials resulting from a transition to a circular economy in the EU will have implications for the countries which supply and export raw materials. These are mostly resource-rich developing countries dominated by extractive industries. As a consequence, a lesser need from developed countries to import raw materials may imply reduced extraction in developing countries.

From an environmental point of view, a reduction of this kind will reduce the pressure on the environment with positive implications on these countries' environmental sustainability. On the other hand, the exporting countries which have based their development on the export of raw materials are likely to be impacted by a decline in those exports, with possible implications for their development. At the same time, lessening the export of raw materials may generate opportunities for the growing domestic markets in the developing economies, as the development of higher-value downstream processing is encouraged.

Currently, employment generated from domestic extraction is low, and the distribution of revenues from extraction is uneven, often benefiting rich elites, making a strong case for developing countries to develop other sectors domestically¹². Increase in domestic extraction seems, however, to be likely in the immediate future, with China and other developing economies now consuming more than they produce, leading to a decline in exports¹³. Adding value to raw materials domestically is, however, only one path to economic diversification and not the most sustainable one by default. Therefore, the development benefits of adding value to raw materials domestically remain a topic of discussion¹⁴.

2.2 Interplay with trade restrictions on raw materials

The shift to a circular, resource-efficient economy is associated with a number of trends, such as the increase in digitalisation, and clean energy transitions. All these rising trends, coupled with population growth and increased wealth, foresee an increasing need for raw materials¹⁵, including in the developing economies which are projected to account for more than half of all global consumption by 2030¹⁶(see above). In addition, while countries increasingly depend on international trade for the acquisition of natural resources, research shows that material footprint - the quantity of materials to be mobilised in order to meet the consumption of a country – has increased¹⁷.

Linked to the above trends, many developing countries have been introducing trade restrictions on export of raw materials. Behind such decisions lies the pursuit of development policy objectives and national interest (e.g. rising revenues, securing domestic supply and increasing production processing). With the majority of primary raw materials being produced and supplied outside the EU, restrictions on their trade can have repercussions on international markets¹⁸. Trends of this kind can also work as a push factor to further reduce the EU's demand for primary raw materials by fostering sustainable supply within the EU, boosting resource efficiency, and promoting recycling.

¹² OECD (2019) [Policy Briefing – Trade in raw materials](#)

¹³ McKinsey & Co (2019) [Globalization in transition: the future of trade and value chains](#)

¹⁴ Hausmann (2014) [Why raw materials are a dangerous distraction](#) and OECD (2019) [Policy Briefing – Trade in raw materials](#)

¹⁵ Stifner (2018) [Raw materials: The foundation of a prosperous European future](#)

¹⁶ ¹⁶ McKinsey & Co (2019) [Globalization in transition: the future of trade and value chains](#)

¹⁷ Wiedmann, T. (2015) [The material footprint of nations](#) and International Resource Panel (2019) [Natural resources for the future we want](#)

¹⁸ European Parliament (2016) [Export taxes and other restrictions on raw materials and their limitations through free trade agreements: Impact on developing countries](#) and OECD (2019) [Policy Briefing – Trade in raw materials](#)

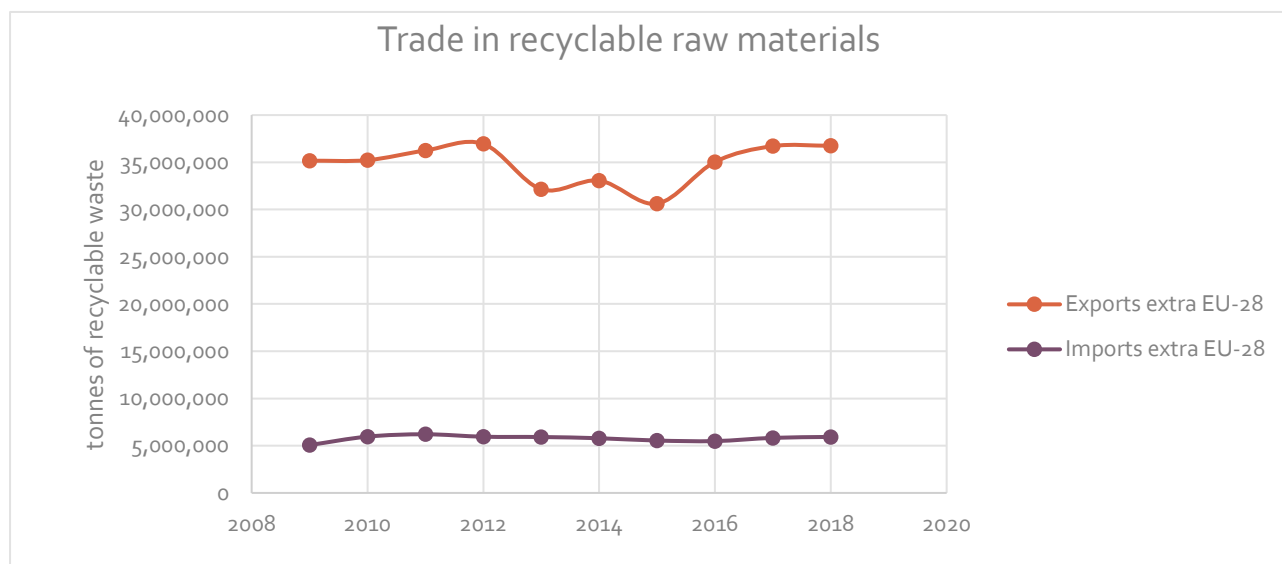
2.3 Recyclable waste becoming a traded good

The transition to a circular economy promotes the reintroduction of recycled materials into the economy as substances or products. When products reach their end of life, they can be distinguished as re-usable components, recyclable waste – referring to raw materials that can find a secondary use – or final waste that cannot be recycled. International trade in recyclable waste occurs when countries either choose not to or are unable to manage their recyclable waste streams but rather export them to other countries. The practice of waste exports is also incentivised by the fact that waste importing countries are often also manufacturing hubs, which means that it can be economically efficient to reuse recycled materials at the same location.

Exports of recyclable waste from the EU to extra-EU countries have increased significantly over recent years, reaching 36.8 million tonnes in 2018¹⁹(Figure 2.3). Taken collectively, the EU-28 is the biggest exporter of recyclable waste²⁰. Most of this waste from the EU is exported to Turkey and China. EU's exports of recyclable waste to Turkey have almost tripled between 2002 and 2018, presumably partly in response to the EU-Turkey Customs Union, while those directed to China have witnessed a significant decline²¹. This decline is, at least in part, a response to the recent restrictions introduced by China on the import of certain waste (See Chapters 4 and 6).

However, it is important to note that in the case of the EU the high volume of recyclable raw material exports may also be associated to the methodology used to calculate progress towards recycling targets, which accounts for waste exported for recycling. However, there is uncertainty on whether the exported waste is really recycled, and if so, in what conditions, as the information available on treatment is limited²².

Figure 2.3. Trade in recyclable raw materials



Source: Eurostat, 2019²³

¹⁹ Eurostat (2019) [Trade in recyclable raw materials](#).

²⁰ Brooks, Wang, and Jambeck (2018) [The Chinese import ban and its impact on global plastic waste trade](#)

²¹ Eurostat (2019) [Trade in recyclable raw materials](#).

²² Rosa, F. (2018) [Europe at crossroads: After the Chinese ban on plastic imports, what now?.](#) *Zero Waste Europe* and Geeraerts et al. (2015) [Illegal shipment of e-waste from the EU](#)

²³ Eurostat (2019) [Trade in recyclable raw materials](#)

These trends have led to a phenomenon called “waste dumping”, which refers to the increasing amount of, in theory, recyclable waste being exported to developing countries – mostly in South-East Asia (Thailand, India, Vietnam, Indonesia and Malaysia) – without proper regard for these countries’ capacity to recycle the waste they are receiving. Malaysia has quickly become the world’s largest importer of plastic waste²⁴. As a result of these trends in trading waste, many developing countries are finding themselves faced by a waste crisis, having to deal with large amounts of waste while lacking the proper infrastructure. This can lead to improper waste management and disposal, with clear negative environmental and human health implications. While it is argued that developing countries have a good track record in waste management – through many traditional activities involving principles of circularity, such as reuse, repair and recovery²⁵ – complexities remain as regards the institutional capacity to implement circular economy strategies and the role of informal sectors of the economy²⁶.

At the same time, when supported by appropriate circular economy policies and frameworks, recyclable waste has the potential to become a resource with a market (i.e. commodity) and the pressures posed by the transboundary movements of waste can create opportunities for importing countries. Importing waste for recycling or repair can create employment within the repair and recycling sector. It can also support the acquirement of secondary raw materials while creating a push to improve domestic waste management. Recovering secondary raw materials such as precious metals can represent a significant source of income for importer countries. In the context of the electronic waste (e-waste), imports to developing countries can also help to close the digital gap with developed countries (See Chapter 7). However, any such benefits only occur when waste is appropriately recycled, re-used or repaired.

More details on these trends are provided in Chapter 4 with risks and opportunities linked to e-waste exports to third countries discussed in Chapter 7.

2.4 Implementation of new domestic circular policies with global implications

It is argued that the local nature of certain environmental policies adopted in the EU may result in negative implications in other countries, therefore calling for globally implemented policies in the context of the circular economy²⁷.

Many policies implemented to drive the transition to a circular economy are adopted domestically, either at the EU or Member State level (See Chapter 3 below). Examples of such policies include extended producer responsibility (EPR) schemes and standards for products to promote their durability, reusability and recyclability in an efficient – and safe – manner. While these policies deliver circularity benefits in the geographic context they are adopted, challenges can be identified vis-à-vis international trade.

EPR schemes target producers and manufacturers with the objective of making them take responsibility for the end-of-life of their products and the associated packaging. If EPR raises the costs

²⁴ Hook, L., & Reed, J. (2018). [Why the world’s recycling system stopped working](#). Financial Times.

²⁵ UNCTAD (2018) [Circular economy: The new normal?](#)

²⁶ Preston et al. (2019) [An inclusive circular economy – Priorities for developing countries](#)

²⁷ Bosello, F. et al. (2016). [Report on Economic Quantitative Ex-Ante Assessment of DYNAMIX Policy Mixes, DYNAMIX Deliverable D6.2.](#)

for EU firms relative to non-EU firms, they may be at a disadvantage in world markets. In other words, this might result in EU's circular economy measures providing an unintended and counterproductive advantage to third country producers with a lower level of circular responsibility²⁸.

Similarly, different regulations linked to product design and their recycling are applied in different jurisdictions worldwide, implying that the same standards and requirements do not apply in all countries once products are imported/exported²⁹. The absence of common standards may generate barriers for effective recycling of waste or the uptake and trading of secondary raw materials. In addition, some imported products may contain hazardous chemicals due to absent or less stringent regulations. As a result, toxic materials may be improperly treated or disposed of³⁰. Toxic materials may be contained in secondary materials, making phasing out these substances from material cycles a long and challenging practice.

Evidence shows that the divergence in the stringency of environmental policies in different countries determines the direction of waste as a trading good, with waste being directed towards countries with less stringent environmental standards and regulations. These are generally developing countries with poorly developed waste management infrastructure, implying a geographically concentrated increase in pollution³¹. In addition, with international trade being an essential element for the uptake of the circular economy (e.g. for the market for secondary raw materials), domestically adopted policies may create unnecessary trade barriers and generate market distortions. This calls for a better integration of circular economy policies in a context of global economy and international value chains.

²⁸ Kaffine, D and O'Reilly, P. (2015) [What Have We Learned About Extended Producer Responsibility in the Past Decade? A Survey of the Recent EPR Economic Literature](#). OECD.

²⁹ OECD (2018) [Concept paper – International trade and the transition to a more resource efficient and circular economy](#)

³⁰ Qu, S. et al. (2019) "Implication of China's foreign waste ban on the global circular economy". *Resources, Conservation and Recycling*, vol.144. Available [here](#).

³¹ Yamagichu, S. (2018) [International trade and the transition to a more resource efficient and circular economy – Concept paper](#).

3 Global impacts of implementing EU's circular economy measures

This chapter introduces the EU's circular economy policy framework and identifies the key elements of the framework foreseen to have impacts on international material flows through trade. It also reviews the indicators in place to monitor the progress – and impacts – of implementing the EU's circularity measures.

The EU policy framework on the circular economy, adopted in 2015, aims at stimulating the transition of the EU to a circular economy as part of the ambition to boost competitiveness, generate jobs and foster sustainable growth³². In the aftermath of the adoption of the 2030 Sustainable Development Goals (SDGs) the framework is also considered as a key element of delivering sustainable development in the EU³³.

3.1 EU policy framework for circular economy

The main political initiative introduced at EU level on the circular economy is the **EU Circular Economy Package**, a set of measures intended to support the transition of the EU to a circular economy. Its earlier version was initially put forward in 2014 by the Barroso Commission but after the withdrawal of the proposal focusing largely on the zero waste perspective with ambitions toward a circular economy, a revised more ambitious circular economy package was presented in December 2015 by the Juncker Commission.

The new package included four legislative proposals on waste, revising the Waste Framework Directive, the Landfill Directive, the Packaging Directive, and the Directives on end-of-life vehicles, batteries and accumulators, and waste electrical and electronic equipment (WEEE). The revision of these six directives included the introduction of new or revised targets³⁴.

Box 3.1. Main targets introduced with the revised waste legislative framework

Main EU targets:

- An EU-wide recycling target for municipal waste of 65% by 2035
- An EU-wide recycling target for packaging waste of 70% by 2030
- A binding landfill target set at a maximum of 10% of municipal waste by 2035

Recycling targets were introduced also for specific packaging materials:

Packaging material	2030 recycling target (%)
Plastic	55
Glass	75
Paper & cardboard	85

³² European Parliament (2016) [Circular Economy Package](#)

³³ Sell, M, and Pajunen, N. (2018) [The circular economy – what's trade got to do with it?](#)

³⁴ European Commission (2019) Circular Economy – [Implementation of the Circular Economy Action Plan](#)

Ferrous metals	80
Aluminium	60
Wood	30

Separate collection obligations:

- Hazardous household waste by end of 2022
- Bio-waste by end of 2023
- Textiles by end of 2025

The Circular Economy Package also introduced a **Circular Economy Action Plan**³⁵, a set of 54 actions to “close the loop” and support the achievement of the UN Sustainable Development Goals, in particular SDG12 on sustainable production and consumption.

The list of actions is divided according to each stage of products’ life cycle – production, consumption, waste management, market for secondary raw materials – and to five priority areas – plastics, food waste, critical raw materials, construction and demolition, biomass and bio-based products. Other measures relate to innovation, investment and monitoring processes.

Among the actions delivered through the action plan, it is worth noting the introduction of a **EU Strategy on Plastics**³⁶ as well as a **Directive on Single-Use plastics**³⁷, a **Communication on the interface between waste, chemicals and product legislation**³⁸, a new **Regulation on fertilising products**³⁹ – introducing harmonised requirements for organic fertilisers manufactured from SRMs - and a **Monitoring Framework for the Circular Economy**⁴⁰.

In 2019, the European Commission published a report on the implementation of the action plan, stating that all 54 actions had been put in place at the EU level. Actions to support the transition to a circular economy have been gaining increasing political support also at the Member State level. Several member States have introduced National Circular Economy Action Plans or Roadmaps. Examples of policies include national legislation addressing single-use plastics (e.g. Italy banning non-biodegradable cotton swabs and buds) or extended producer responsibility schemes based on eco-modulation of fees (e.g. in France), among other.

³⁵ European Commission (2015) [COM\(2015\) 614 final. Closing the loop – an EU action plan for the Circular Economy](#)

³⁶ European Commission (2018) [COM\(2018\)28 final. A European Strategy for Plastics in a Circular Economy](#)

³⁷ European Commission (2019) [DIRECTIVE \(EU\) 2019/904 on the reduction of certain plastic products on the environment](#)

³⁸ European Commission (2018) [COM\(2018\)32 final. Communication on the interface between waste, chemicals and product legislation](#)

³⁹ European Commission (2019) [REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL laying down rules on the making available on the market of EU fertilising products](#)

⁴⁰ Eurostat (2018) [Monitoring Framework for the Circular Economy](#)

3.2 Trade related implications of implementing the EU circular economy framework

The EU circular economy-related impacts with most direct relevance to material flows in the international context – and consequently global trade flows – are related to EU policy measures on production, waste management and creating markets for secondary raw materials.

EU measures on production: Changes at the product design stage in the EU to integrate circularity principles - such as reusability, recyclability and durability – can contribute to keeping the value of products in the economy for longer. Resource use is minimised and material reuse, recycling and recovery incentivised, leading to potential reductions in the demand for primary resources⁴¹. For example, the measures in the eco-design working plan for 2015-2017 and 2017-2019 promote the reparability, durability, recyclability and energy efficiency of products. In addition, the development of standards based on these criteria is being explored following the submission of a joint working plan from the three European Standardisation organisations⁴². As with other areas, EU progress on developing standards can have a wider international impact, as other economies adopt similar standards in order to facilitate exports to the EU market.

EU measures on waste management: The measures implemented in the EU may have different implications on trade. On the one hand, by incentivising recycling, repurposing and reuse of materials, the EU framework encourages the development of regional recycling and reprocessing hubs, limiting the transboundary movements of waste (both legal and illegal) and this way curbing the amount of recyclable waste material to be traded outside the EU. For example, ambitious long-term recycling targets are included in the revised legislation on waste which was adopted in 2018, as well as provisions to reduce landfilling. In addition, stepping up the enforcement of the Waste Shipment Regulation contributes to strengthening inspection systems in Member States, limiting transboundary movements of waste as well as its illegal export out of the EU (See also Chapter 7).

On the other hand, under the EU framework waste is increasingly seen as a secondary raw material which can have a market. Consequently, the promotion of recycling brought forward by the EU waste policies and recycling targets can incentivise the export of waste for recycling, adding to the extra-EU export of recyclable raw materials. An increase in this figure has already been observed between 2015 and 2018, as shown by recent data from Eurostat (Figure 2.1 above). In principle, waste treatment processes in importing countries should consist of both the recovery of secondary raw materials and the safe disposal of waste. Consequently, exported waste can both increase the need for waste disposal facilities and expertise in a third country and feed secondary resources back into the economy.

EU measures on markets for secondary raw materials: Finally, the EU circular economy framework foresees improvements in the market for secondary raw materials through the elimination of trade barriers. This is a clear push for better harmonisation of rules applied to end-of-life waste within the EU. For example, the development of common quality standards for secondary raw materials recovered from recyclable waste can contribute to overcome the challenges which currently hamper

⁴¹ European Commission (2019) SWD(2019)90 final. http://ec.europa.eu/environment/circular-economy/pdf/report_implementation_circular_economy_action_plan.pdf

⁴² European Commission (2019) {COM(2019)190 final}. http://ec.europa.eu/environment/circular-economy/pdf/report_implementation_54_actions.pdf

the creation of a market for secondary raw materials, such as the potential presence of chemicals of concern in imported goods. The introduction of common specifications on chemical composition can also help to ensure that EU manufacturers are not at a competitive disadvantage, due to potentially unsafe goods being imported in the EU⁴³.

Annex 1 provides further detail on the above analysis.

In addition to the above, as a cross-cutting sectoral measure the EU Plastics Strategy, adopted in 2018, represents the first EU-wide strategy adopting a lifecycle approach to a single-material plastic. The strategy puts forward targets and objectives to achieve a systemic change through the improvement of the economics and quality of plastics, curbing plastic waste and littering, driving investments and innovation and harnessing global action⁴⁴.

Among the measures mentioned in the strategy for its implementation, a range of measures of relevance to international trade are listed, namely⁴⁵:

- support the development of international industry standards on sorted plastic waste and recycled plastics
- ensure that exported plastic waste is dealt with appropriately in line with the EU Waste Shipment Regulation
- support the development of a certification scheme for recycling plants in the EU and in third countries

As a matter of fact, the current trends of a restriction in opportunities for the export of plastic waste for recycling, suggest a need to develop a more active European market for recycled plastics, alongside measures to reduce the generation of plastic waste. The challenge lies in the lack of well-defined quality standards for plastic waste and recycled plastics, something on which the European Commission is committed to work with the European Committee for Standardisation⁴⁶. In this context, it will be important to consider issues linked to inclusiveness and (in)equality, i.e. who pays for the standards and how they can be made globally inclusive. Similarly, the quality standards would need to consider countries outside EU borders. Any significant difference in the quality standards may result in the creation of market barriers and/or distortions, therefore calling for internationally defined standards (see Chapter 4).

⁴³ European Commission (2019) {COM(2019)190 final}. http://ec.europa.eu/environment/circular-economy/pdf/report_implementation_54_actions.pdf

⁴⁴ European Commission (2018) {SWD(2018) 16 final}. [A European Strategy for Plastics in a Circular Economy](#)

⁴⁵ European Commission (2018) [A European Strategy for Plastics in a Circular Economy](#)

⁴⁶ European Commission (2018) {SWD(2018) 16 final}. [A European Strategy for Plastics in a Circular Economy](#)

3.3 Monitoring EU's circular economy impacts

While the EU monitoring framework for implementing the Circular Economy Package provides a useful and evolving tool to keep track of the EU's developments on the circular economy, it so far fails to integrate this progress into the context of a global economy. Circular economy in the EU can influence trade flows with, and related resource use within, third countries and these interrelations may benefit or harm developing countries' ability to reach sustainable development. Such spillover effects are not currently captured by the EU framework.

The transition to a more circular economy requires changes at all stages of the value chain. It is therefore crucial to keep track of the development of a range of circular economy elements over time. Monitoring evolving trends will enable a greater understanding of the impacts and efficiency of circular economy policies and actions.

In 2018, the **EU Monitoring Framework for the Circular Economy** was developed as part of the Circular Economy Action Plan. The framework is based on ten indicators⁴⁷ which capture the main four phases of the circular economy: production and consumption, waste management, secondary raw materials, competitiveness and innovation. While the framework does not exhaustively capture the circular economy in all its dimensions, it allows stakeholders to keep track of the main trends and patterns in the transition of the EU to a circular economy.

Some of the indicators included in the framework are of particular relevance to the interlinkages with the trade dimension. These include "EU self-sufficiency for raw materials", "contribution of recycled materials to raw materials demand" and "trade in recyclable raw materials"; which in turn refer to the circular economy elements of "production and consumption" and "secondary raw materials"⁴⁸. In particular, these three indicators aim at describing the trade flows between the EU and third countries for raw materials to be input in production or recycled.

Annex 2 provides further detail on the analysis below.

The indicator on "**EU' self-sufficiency for raw materials**" shows to what extent the EU is dependent on imports of raw materials, particularly critical raw materials. A trend of EU reliance on imports can be identified for critical raw materials; however, the lack of targets make the ability of the framework to monitor the EU's progress on this matter somewhat limited. The indicator is based on "apparent consumption", which does not account for the hidden indirect flows of materials embedded in traded raw materials and products, leading to an over or under-estimation of EU's security of raw materials supply. In addition, the indicator does not reflect the aforementioned implications of an increase or decrease in EU's reliance on imports, hence of changes in demand for raw materials on the countries which supply and export raw materials (see Chapter 2).

⁴⁷ EU self-sufficiency for raw materials; Green public procurement; Waste generation; Food waste; Overall recycling rates; Recycling rates for specific waste streams; Contribution of recycled materials to raw materials demand; Trade in recyclable raw materials; Private investments, jobs and gross value added; Patents.

⁴⁸ European Commission (2018) [{SWD\(2018\) 17 final} A Monitoring Framework for a Circular economy](#)

The indicator for “**contribution of recycled materials to raw materials demand**” provides a figure on the share of materials that is recovered and fed back into the economy. This is indeed promoted by circular economy principles which encourage the recycling of end-of-life products and their re-injection at the beginning of the life cycle. Nevertheless, as with the self-sufficiency indicator, indirect flows of materials embedded in traded products are not accounted in this indicator, which is based on Domestic Material Consumption. This may generate misleading assessments of the share of materials being recovered and fed back into the economy.

The indicator for “**trade in recyclable raw materials**” shows that the EU is a major exporter of recyclable waste for secondary raw materials. Nevertheless, the indicator used in the framework does not capture how the exported waste is treated at destination, leaving a level of uncertainty around the implication of such trade flows on a circular economy. Similarly, the effects of EU’s exports of recyclable waste on developing countries are not monitored.

The analysis of both the EU Circular Economy Monitoring Framework and of the Action Plan more broadly indicate that trade plays a crucial role in current progress towards the the circular economy targets and, as such, its implications should be better taken into consideration in both policy action and the monitoring framework. While the three aforementioned EU indicators capture some global perspectives, they fail to provide a basis for understanding the wider implications of the EU’s shift to a circular economy.

4 EU trade policy as a vehicle for circular economy

This chapter assesses the degree to which the circular economy is currently integrated in the EU Free Trade Agreements (FTAs) and then moves onto considering the existing – and potential – incentives and barriers for circular economy in the context of the EU trade.

Trade agreements can play a role in supporting or hindering the circular economy either directly, by calling on parties to promote trade of goods corresponding to circularity criteria or to promote circular economy schemes, or indirectly, by committing parties to preserve national resources or reduce waste. If such provisions apply to both parties, integration of circularity-pushing clauses in negotiated agreements can in principle have direct repercussions both in the EU and in trade partner countries. Opportunities for integration have arisen noticeably within the last decade following the introduction of sustainable development provisions in EU trade agreements.

In the context of the international trade framework, partner countries have opportunities to adopt either incentives or barriers that affect – directly or indirectly – the transition to a circular economy, both in the EU and also more globally. The potential incentives are generally related to promoting the liberalisation of environmental goods and services (EGS) in the context of trade agreements. Trade barriers to circular economy can be deliberate or accidental and they are usually linked to restrictions on the imports or exports of waste or second-hand goods.

4.1 Circular economy in the context of current EU trade agreements

The assessment of the EU Free Trade Agreements (FTAs) and their supporting Sustainability Impact Assessments (SIAs) shows that the trade sector still represents a largely underused potential for the EU to advance the circular economy agenda. To date circular economy is explicitly mentioned only in two EU FTAs, in both cases set out as pertaining to the environment only rather than being considered an underlying feature of the economy as whole.

The EU currently has 80 FTAs fully or partly in place, and 40 pending or being negotiated. This makes it the world's most productive trade negotiating authority, and means that the EU has a significant influence over global trade.

Since 2010, all EU FTAs – and all other agreements including trade provisions - include a Trade and Sustainable Development (TSD) chapter. Although specific provisions differ, some core elements are recurrent in all post-2010 FTAs. Such elements include commitment of the Parties to Multilateral Environmental Agreements (notably the UN Framework Convention on Climate Change - UNFCCC), promotion of sustainable forest management; sustainable management of fish stock, and cooperation on liberalisation of environmental goods and services. Despite its somewhat limited scope, the introduction of the TSD framework provides a considerable opportunity for the integration of the circular economy objectives in future EU FTAs.

For now, the concept of circular economy is far from being a regular feature of EU FTAs and other relevant trade agreements. It is however being progressively integrated.

References to circular economy relevant concepts, such as energy efficient products or goods that contribute to environmentally sound practices, can be found in most FTAs negotiated after 2010. Sound management of waste also repeatedly stands amongst the focus areas for cooperation between trading parties. More importantly perhaps, several agreements, among which the partially in place [CETA](#) (with Canada) and the [pending FTA](#) with Vietnam (Annex 3), explicitly mention sustainable production and/or consumption (SCP). The significance of these clauses is, however, limited as the texts only call for parties to promote or facilitate trade in relevant products, as well as to cooperate on promotion of best practices, but do not specifically commit parties to favour those practices against others.

To date, the circular economy is explicitly mentioned only in two agreements, both of which are still under negotiation⁴⁹: the [trade part](#) of the modernised global agreement with Mexico, agreed in principle in April 2018 but still under negotiation, and the EU proposals for FTA between the [EU and New Zealand](#). Both these draft agreements explicitly call on parties to promote circular economy as part of their cooperation on trade-related aspects of environmental policies and measures. Neither of these texts, however, are final and the vocabulary chosen leaves room for interpretation. No concrete incentive is presented explicitly for choosing to promote the circular economy and nothing is said on the possible means to promote circularity in practice.

⁴⁹ In addition, the Transatlantic Trade and Investment Partnership (TTIP) with the USA, for which negotiations were suspended in 2016 (Annex 3) calls for trade parties to cooperate on areas that *may* include SCP and promotion of trade contribution to circular economy.

It is also important to note that all the above references to circular economy feature in the TSD chapter of the agreements only, as well as in the *Environment* section of the FTA's Cooperation chapter if separated. This seems to indicate that circular economy is set out as pertaining to the environmental safeguards for trade only rather than being considered an underlying imperative for the economy as a whole. All negotiations on EU trade agreements are operated on the basis of Sustainability Impact Assessments (SIAs), systematically conducted by the EU since 1999. Assessment of likely environmental impacts of the agreement is a key feature of all SIAs. In its [second handbook on SIAs](#) (2016), updated since 2006, the EU Commission highlighted the need for SIAs to assess possible contributions of the agreement to “greening the economy, to resource efficiency objectives, and to promoting sustainable consumption and production”. Although not a specific reference to the circular economy it *de facto* captures the same idea.

Following from these recommendations, the review of all published SIAs since 2016 (Annex 3) shows that possible impacts on resource use and efficiency as well as waste management are indeed common indicators in all these SIAs. However, the circular economy is only referred to explicitly in three reports; the [final report for the TTIP](#) (March 2017), which refers to the EU Circular Economy Package, and more significantly so in the draft interim reports for the [Philippines](#) and [Malaysia](#) (December 2018) (see Box 4.1).

Box 4.1. SIAs in support of negotiations for Philippines and Malaysia EU FTAs

Together with the TTIP SIA, the draft SIA interim reports in support of FTA negotiations with [the Philippines](#) and [Malaysia](#) are the only ones explicitly mentioning the circular economy. Interestingly, both were completed in December 2018, almost a year after the entry in force of the Chinese ban on waste imports, which led surrounding South-East Asian countries to face significant amounts of waste being rerouted to their borders (See Chapter 5).

In both SIAs, the circular economy is mentioned explicitly within the Waste, Waste Management and Marine Litter section, where the Malaysia SIA for instance suggests that an FTA could help strengthen cooperation with the EU within the waste management sector. Both SIAs also call for the future FTAs to set out opportunities for both parties to mutually strengthen the circular economy, however, without giving any more detail as to how to achieve this.

Perhaps one of the most promising elements of these SIAs is that the circular economy is mentioned within several sectoral analysis, such as electronics (for both SIAs), clothing (Philippines) and financial services (Malaysia). Concepts relevant to the circular economy such as resource use or energy efficiency were only mentioned within the environmental analysis in other SIAs analysed. Although negotiations have only just started for both FTAs, this might be a sign that the final texts could include references to the circular economy within different sectors, making it a common thread to the agreements, and could call for practical actions in each sector.

Building on the above, some future opportunities can be identified for improving the integration of circular economy into EU FTAs. For example, some agreements explicitly cover trade related to specific economic sectors. For such agreements it would be possible to integrate circularity aspects to sector-specific principles and regulatory actions, this way mainstreaming the circular economy also at a sectoral level and beyond the environmental considerations of FTAs. This could include, for example, promoting trade in certain products and services within a sector (e.g. ‘environmental goods and services’ (EGS), see section 4.2 below) or strengthening the regulatory frameworks linked to sector-specific trade (i.e. so-called trade ‘flanking measures’). A comprehensive consideration of circular economy-related aspects in the SIAs underpins such a sector-specific integration.

Although the progressive integration of the circular economy or relevant concepts within EU trade agreements and sustainability assessments is clearly a step in the right direction, the implementation of trade agreements in practice remains key to any effective progress. Enforcement of FTAs’ TSD chapter commitments are overseen by TSD Committees – comprising senior officials from within both Parties’ administrations - that meet once a year. Unfortunately, most trade agreements reviewed are

too recent to have been yet subject to a specific implementation evaluation. All we have available is the ex-post evaluation report on the implementation of the EU-Korea FTA, completed in May 2018, which did not contain any explicit reference to the circular economy or SCP. The evaluation report only mentions the circular economy as having been a topic of discussion at a TSD Committee meeting, as well as SCP, and includes a case study on EGS. The 2017 [EU Commission report](#) on FTAs implementation does not expand on the circular economy either, only mentioning it as a topic of cooperation activities with Colombia.

In general, there has been an ongoing debate over the implementation of TSD provisions, and the Commission services published in February 2018 a [non-paper](#) presenting an action plan for improving enforcement of TSD chapters. Progress is thus still ongoing, and implementation of circular economy relevant provisions might in the future benefit from these advances. For now, information is scarce as to the impact of EU FTAs on the circular economy in practice.

4.2 Role of trade incentives and barriers in supporting or hindering circular economy

The call for EU FTA partners to promote liberalisation of environmental goods and services can, in principle, be used to incentivise the trade in goods relevant to the circular economy. However, no existing cases of promoting such practice could yet be identified. The scope for future opportunities depends partly on settling a more concrete definition for what is considered as an “environmental good”.

Currently, the trade barriers in place linked to circular economy mainly impact waste exports from the EU to third countries. While the final outcomes are yet to unfold, these barriers seem to have led both to the EU aiming to improve circularity domestically and to a redirection of waste flows towards unprepared countries with negative consequences.

Finally, the absence of an internationally agreed definition for waste and the lack of international waste quality standards create significant barriers to trade and the development of efficient – and sustainable – circularity in the global context.

Trade incentives for the circular economy: As discussed above, most EU FTAs negotiated since 2010 include a call for parties to promote liberalisation of environmental goods and services (EGS). There is currently no internationally recognised definition of environmental goods (EG), which are commonly understood to include goods that are essential to environmental protection and climate change mitigation. This can potentially allow for the interpretation of EGs to include goods promoting sustainable circular practices and/or complying with circular criteria.

More specifically, the EU and sixteen other members of the World Trade Organization (WTO) launched negotiations on an Environmental Goods Agreement (EGA) in July 2014, with the aim of removing

trade barriers on EGs. Building on a list of 54 tariff lines selected by the Asia-Pacific Cooperation (APEC) in 2012, negotiators have expanded the list to 340 subheadings falling into ten categories. Among these categories are ‘environmentally preferable products’, ‘resource efficiency’ and ‘solid and hazardous waste management’, all relevant to the circular economy. There are no formal criteria for the selection of EGs, however, with each party submitting products and provides evidence supporting their nominations⁵⁰.

As a general practice, according to the 2016 [Sustainability Impact Assessment](#) (SIA) on the EGA, negotiators are defining goods as EG because they have an environmental end use, while many stakeholders have suggested that lifecycle analysis should be critical in determining whether a good qualifies as EG. However, opinions are divided on what is sustainable and renewable; arguably, labelling schemes assessing the carbon footprint and pollution impact of products could help to ensure proper and reliable classification of products⁵¹, but are subject to a host of practical and conceptual challenges.

The EU intends for the EGA to be a living agreement where products could be added in the future, and which could be expanded to include services and tackling of non-tariff barriers rather than be limited to tariffs and goods⁵². For now, negotiators are limited to high-income countries, with the exception of China and Costa Rica, limiting the range of the agreement; and negotiations stopped in 2016. If they were to resume, the agreement could provide significant incentives for the circular economy; the 2016 SIA concluded that the EGA had the potential to positively impact circular economy objectives, among others.

Deliberate trade barriers linked to the circular economy: Trade barriers are government policies that hinder international trade, from partial restrictions to complete prevention of trade⁵³. Examples of trade barriers include tariff and non-tariff barriers, quotas, or embargoes. Currently, deliberate – or voluntary – trade barriers to the EU circular economy in the global context mainly impact recyclable waste exports from the EU to third countries. A clear example of such non-tariff, voluntary barrier imposed by a government is the 2018 Chinese waste import ban⁵⁴ (See Chapter 6). While it is too early to assess its long-term consequences on the circular economy, the ban’s effects have been immediate and contrasted. On the one hand, the closure of Chinese ports to imported waste has prompted the EU to enhance the waste reduction related elements of its Circular Economy Strategy to reduce pressures on local waste management (e.g. restrictions on single use plastics). On the other hand, the suddenness of the ban has led to a redirection of waste flows towards unprepared countries, causing increased pollution, and towards non-circular solutions such as landfills and waste incineration.

The 2001 [OECD Council Decision](#) and the 1992 [Basel Convention](#) (BC) both regulate international trade in waste, the BC focusing in particular on hazardous waste flows. In June 2018, Norway submitted a proposal to the BC Secretariat for scrap plastics to be added to Annex II of the BC, which lists waste that requires notification by exporting countries and consent by importing countries. The rationale behind this proposal was to address marine litter by better controlling transboundary shipments of plastic waste. This was considered at the [Conference of the Parties to the Basel Convention](#) in May 2019, which focused on sound management of chemicals and waste. Despite opposition by the United States and several recycling groups⁵⁵, the amendment was [adopted at the COP](#) on May 10, 2019. In effect, the amendment results in a ban on plastic waste exports from OECD to non-OECD countries,

⁵⁰ See [SIA](#) (2016)

⁵¹ See [SIA](#) (2016) p.99

⁵² See [DG Trade](#) (2016)

⁵³ Found [here](#) (for future reference)

⁵⁴ EU Commission, Trade, Trade barriers – [China waste import ban](#) (2019)

⁵⁵ [FEAD press release](#) (December 2018)

with the exception for material that is ‘non-hazardous, clean, unmixed and uncontaminated’ and strictly purposed for recycling and not energy recovery.

While it is too soon still to predict its effects of the Basel amendment on the circular economy, especially at the global level, it represents a significant opportunity for countries facing unwanted plastic waste to refuse to be at the receiving end of the plastic waste trade. The existing WTO decision linked to the EU retreated tyre exports to Brazil seems to indicate support to such future practice; the WTO panel recognised that Brazil could ban the imports of retreated tyres from the EU based on environmental and health concerns⁵⁶. As such, the Basel amendment functions as another incentive for exporter countries such as the EU Member States to improve domestic circular economy strategies. Finally, it could also be an important trigger for speeding up international negotiations on waste standards and definitions.

Case study in Chapter 6 outlines the impacts of China’s waste ban in more detail.

Trade barriers such as import restrictions can also apply to second-hand goods, whose export for re-use is likely to provide circular economy benefits – although this is up for debate, notably in the case of low energy-efficient goods such as vehicles. In 2015, in order to develop their own textile industry, Tanzania, Kenya, Rwanda and Uganda agreed to exponentially increase taxes on imported second-hand clothes, with a complete ban to take effect in 2019.⁵⁷ Rwanda is the only country still taking the ban forward following US pressures and complaints⁵⁸. Although the objective is economic, such a ban raises the issue of clothes end-of-use. The United States, the world’s biggest exporter of second-hand clothes, exported more than 1.5 billion pounds of used clothing in 2016⁵⁹; if similar bans were to develop, it is hard to predict what would become of these used clothes. Future import restrictions on second-hand vehicles have also been mentioned by several developing countries⁶⁰.

In both cases, the long-term effects of these trade barriers to circular economy – at all levels - are unclear. While exports of second-hand goods can help to meet circularity targets by exporter countries in the global context, they can also lead to delay in development of domestic waste management facilities and policies in those countries, and can ultimately result in more waste being disposed of rather than re-used. The answer might lie with exporter countries’ capability and willingness to implement circular policies and invest in relevant sectors.

Conversely, voluntary trade barriers also include export restrictions, which are frequently applied to secondary raw materials in order to protect domestic industry interests. This is an important issue, as secondary raw materials play a significant role in the circular economy, by decreasing demand for primary raw materials while sustaining levels of economic growth⁶¹. Ensuring efficient cross-border allocation of those secondary raw materials should maximise their benefits.

Accidental trade barriers hindering the circular economy (non-tariff barriers): Besides import and export tariffs and restrictions, some of the most significant barriers to trade hindering the global circular economy are ‘involuntary’ trade barriers, such as complex or inconsistent rules or regulations that make international trade difficult. As products move along the global value chains through international trade, they are exposed to different regulations and standards on recyclability and re-use, hampering efficient circularity. The fact that the definition of end-of-life products, non-hazardous

⁵⁶ [WTO decision](#) on EU tyre export to Brazil

⁵⁷ [DW article](#) (February 2018)

⁵⁸ [BBC](#) (May 2018)

⁵⁹ See SMART [industry trade data](#) (2016)

⁶⁰ OECD [Concept paper](#) (2017)

⁶¹ OECD [Concept paper](#) (2017)

waste, or secondary raw materials may differ between countries further complicates circular economy materials flows⁶².

From a global circular economy perspective, lack of international standards on waste quality in particular is a considerable issue. The presence of certain chemicals, which either constitute technical barriers to recycling or are hazardous to humans or the environment, can significantly impede conversion of waste into secondary raw materials. This represents a significant barrier to trade, as it results in uncertainty as to waste reconversion potential.

In 2018, in the context of the implementation of the circular economy package in the EU, the Commission published a [communication on options to address the interface between chemical, product and waste legislation](#). The issues identified are easily transposable within the global trade context. For instance, information on the presence of hazardous substances is not readily available to those who handle the waste in importing countries. Additionally, waste may contain substances that are no longer allowed in new products, or that are not allowed in other countries. Adoption of global recyclability standards, as well as global eco-labelling schemes preventing the incorporation of hazardous materials, could remedy to these issues and allow for relevant products to be recycled or re-used anywhere in the world, thereby facilitating circularity as part of trade. The EU Commission drew similar conclusions in its [Communication on a European strategy for Plastics in a Circular Economy](#) (2018), where support to the development of international industry standards on sorted plastic waste and recycled plastic from 2018 onwards featured among proposed actions relating to international trade.

Another substantial involuntary trade barrier is the lack of international consensus on a clear definition of waste. Rules on end-of-waste are not harmonised, either in the EU or at the international level; this means that there is no clarity as to when and following what processes waste can become recovered material.⁶³ Similarly, there is a lack of convergence between customs and environmental categorisation frameworks on assessing transboundary waste movements. While regular customs operations work with the World Customs Organization (WCO) [Harmonized System \(HS\)](#) to identify goods and products, environmental inspections use the [Basel Convention](#) codes. The HS codes focus on the nature and composition of goods, while the Basel waste definition is based on the intention to discard, making identification of waste by customs services very difficult, and potentially arbitrary⁶⁴. To counter this issue, the Secretariat to the Basel Convention published in 2013 a [proposal](#) to link Basel Lists and HS codes, which allows for developing more accurate data on international trade flows of waste⁶⁵. This should help improving the efficiency of global circular flows. Nevertheless, a consensus on international classification of waste appears essential to ensure efficient flows of both waste and recovered materials.

⁶² OECD [Concept paper](#) (2017)

⁶³ See [Commission communication](#) (2018/32)

⁶⁴ See [Secretariat of the Basel Convention proposals](#) (2013)

⁶⁵ OECD [Concept paper](#) (2017)

5 Conclusions: sustainable development, EU trade and the circular economy

This final chapter places the EU circular economy and trade in the context of supporting sustainable development in the EU trade partner countries. It highlights the role EU development cooperation – in particular the EU’s Aid for Trade schemes – can play in facilitating a shift to a sustainable and equitable circular economy in the global context, calling for a better policy coherence for circular economy, trade and development cooperation in the EU.

This report has highlighted that the shift to a circular economy in the EU will not be sustainable by default; it will only be so if it reflects the implications both within and outside the EU. The earlier chapters have clearly demonstrated that, from the availability of raw materials to the exports of waste for recycling and repair, the shift to a circular economy in the EU is both affecting and affected by various global factors. These factors range from the capacity – and willingness – of third countries to deal with waste exports to the (lack of) available common definitions and standards hindering the establishment of circularity at a global scale. It has also revealed how domestic policy frameworks and targets for circularity in the EU can – through international trade – impact different aspects of sustainable development in third countries, including several developing countries.

Consequently, identifying and addressing the external implications of its circular economy policy needs to play an integral role in the EU’s plans to deliver the 2030 sustainable development agenda, including a shift to a sustainable production and consumption of resources at global scale. This includes improving the integration of circular economy into EU trade policy, both to prevent any negative external impacts but also with a view to supporting the uptake of circular economy-related opportunities in the trade partner countries.

5.1 Supporting the positives ...

Trade, including trade with the EU, plays a significant role in supporting the economic development of countries across the world. However, many developing countries face a range of internal constraints hampering their ability to engage in international trade. To address this issue, the WTO launched in 2005 the Aid for Trade (AfT) initiative⁶⁶, which aims at mobilising resources to help developing countries enter the international trade stage. The EU AfT strategy consists in providing targeted assistance to EU trade partners with the aim of maximising development related benefits of trade, and is part of the EU external assistance and development cooperation policy⁶⁷. Launched in 2007 in response to the WTO initiative, it was updated in 2017⁶⁸ to increase complementarity between trade

⁶⁶ [EU Aid for Trade initiative](#)

⁶⁷ Kettunen, M., Bowyer, C., Vaculova, L. and Charveriat, C. (2018) Sustainable Development Goals and the EU: uncovering the nexus between external and internal policies, Think2030 discussion paper, IEEP Brussels

⁶⁸ [EU Aid for Trade strategy](#) (2017)

and EU development policies, consistent with Policy Coherence for Development⁶⁹. With 32% of global AfT in 2016, the EU and EU Member States are the world's leading donor⁷⁰.

Features of the EU AfT strategy include technical assistance for trade regulations and standards, building trade related infrastructure, building a country's productive capacity vis-à-vis trade sectors, and support with trade-related adjustments in the economy, notably within the manufacturing and industry sectors. The EU 2017 AfT strategy promotes not only inclusive economic growth but also the contribution of trade to sustainability, in alignment with the Paris Agreement and the 2030 Agenda for Sustainable Development. As highlighted in the EU AfT Progress Report 2018⁷¹, a key role of the new EU AfT strategy is to accompany environmental progress leveraged by the EU FTAs

The EU's efforts to make AfT an effective enabler of SDGs include some explicit actions towards developing the circular economy in partner countries and using trade as a means to facilitate that. For example, the trade related assistance programme for Malaysia – with whom an FTA is expected to be signed in the near future – concentrates on sustainable management of natural resources⁷¹. The EU AfT Progress Report 2018 includes several other concrete examples of how the EU strategy delivers on objectives relevant to circularity. Such examples include support to Ethiopian small-scale manufacturing industries in adopting sustainable consumption and production (SCP) practices, under the framework of the [SWITCH-Africa Green](#) project, which aims at engaging partner African countries towards an inclusive green economy. A similar program, [SWITCH-Asia](#), is implemented in Asia, where the EU provided support to China in applying SCP models in Chinese food supply chains.

5.2 ... while preventing the negatives

As highlighted throughout this report, the export of waste for recycling from the EU has clearly had several negative impacts on the trade partner countries. In addition to the issues caused by unsustainable quantities of (low quality) plastic waste, a particularly illustrative example of a waste stream with considerable circular economy potential but with substantial current negative impacts is the case of e-waste (See Chapter 8). While the EU has some of the most restrictive laws on e-waste exports in the world, there are still inconsistencies between their implementation – or lack thereof – and the EU's development policy, with the circular economy playing a role in the issue.

As Chapter 8 below outlines, illegal e-waste exports occur currently on a large scale, helped by increasing trade flows and loopholes in waste flows regulations. They hinder both the sustainable development of importer countries and, for the EU, delivery of its pledge to achieve a circular economy within its own borders. The EU's e-waste exports however also contribute to the informal economy of many importer countries. One solution could be for the EU AfT to include strategies for the management of e-waste flows, with help in creating appropriate capacity and skills in importing countries to recycle imported waste safely and efficiently, or support in establishing and implementing safeguard systems to enable them to refuse unwanted or non-recyclable waste imports in the first place.

The trade and sustainable development provisions of EU FTAs – in particular in future FTAs – can offer a basis for improving the dialogue between the EU and its trade partner countries to develop improved strategies for dealing with the risks and negative impacts of global circular economy as part of AfT

⁶⁹ [EU Policy Coherence for Development \(2017\)](#)

⁷⁰ European Commission (2018). EU Aid for Trade [Progress Report 2018](#)

⁷¹ [EU AfT Progress Report 2018](#)

strategies. For instance, the FTA with Vietnam⁷² – awaiting signature and conclusion – states that the parties may work together on trade-related aspects of green growth strategies and policies, including sustainable production and consumption. On this basis, AfT mechanisms could be put in place to help Vietnam develop its e-waste treatment infrastructure, to ensure safer management and fair labour conditions, and participate in making Vietnam an official and safe e-waste global trading platform.

The case of e-waste illustrates the broader need for circular economy considerations to be mainstreamed into EU trade-related development policies. Without this integration, EU trade-related strategies for circularity can be detrimental to the sustainable development of developing countries, ultimately hampering the EU's stand as a frontrunner in facilitating the global transition to circularity.

The EU AfT strategy (2017) refers to environmental sustainability as being at the heart of aid for trade, highlighting the green and circular economy as a “leapfrogging opportunity in trade, growth and employment”. However, as highlighted throughout this report, the nexus of circular economy and trade does not automatically result in positive consequences for the environment, nor for sustainable development, notably when it involves waste.

The EU's AfT schemes can support the uptake of sustainable and equitable circular economy-related trade opportunities within the context of EU FTAs. They can play a catalysing and supporting role in third countries' shift to a more circular economic model, thereby also supporting circularity at the global scale and vis-à-vis the EU. However, more consolidated efforts are needed to ensure that the AfT schemes are coordinated with the needs arising from the further shift to circularity within the EU and the trade-related opportunities and risks associated with that.

5.3 Policy recommendations to improve EU policy coherence

Building on the assessment and insights presented in the earlier chapters, the report concludes with the following policy recommendations:

Advocate for more globally aware implementation and monitoring of the EU's domestic circular economy measures:

- Promote more harmonised circular economy policies integrated in a context of global economy and international value chains;
- Promote domestic recycling within the EU (or in close proximity) to prevent unsustainable levels of recyclable waste being exported to third countries, including especially countries that lack the appropriate capacity and facilities to treat it;
- Improve transparency on treatment of waste exported abroad;
- Improve measures to prevent illegal or otherwise unsustainable shipment of waste from the EU, including ensuring that any exports comply with the Basel Convention provisions for the quality

⁷² [EU Vietnam FTA](#)

and purpose of waste⁷³, strengthening Member States' inspection systems for illegal waste, and promoting knowledge exchange through improved cooperation with Member States for the implementation of waste legislation;

- Improve and harmonise EU standards for recycled waste to ensure the quality of secondary raw materials to enhance their safe utilisation and trade within and outside the EU;
- Ensure that the adoption of extended producer responsibility (EPR) schemes does not result in unnecessary trade distortions or barriers, taking into account the differences in regulations across countries;
- Prepare exporting EU countries to reinforce their circular economy strategies domestically due to the possible increase in trade barriers in second-hand goods (clothing, vehicles) as developing countries take action for the environment/for their local industry; and
- Integrate the global dimension in the EU indicators intended to monitor progress on the EU circular economy in order to a) better account for indirect flows related to trade (imports and exports); b) include specified targets; and c) capture impacts on environmental sustainability and sustainable development of third countries;

Improve the integration of circular economy into EU trade policy and FTAs:

- Include explicit references to the circular economy in EU FTA Trade and Sustainable Development (TSD) Chapters, with ambitious vocabulary and explicit actions accompanied by targeted incentives;
- In addition to TSD provisions, mainstream circularity aspects to sector-specific principles and regulatory actions by, for example, promoting trade in certain products and services within a sector (environmental goods and services) or strengthening the regulatory frameworks (flanking measures) linked to sector-specific trade.
- Mainstream circular economy considerations within all future sustainability impacts assessments (SIAs) that underpin FTAs, including both possible negative impacts but also possible positive actions that could be facilitated by FTAs (as was done in the Philippines / Malaysia SIAs);
- Champion trade incentives for circular economy goods within EU FTAs, e.g. make circular economy-related technologies and services an explicit part of the EU's definition for environmental goods and services in order to facilitate trade in them (e.g. so that they can benefit even from agreements which do not mention the circular economy but do mention environmental goods);
- Improve general enforcement of FTA sustainability provisions (i.e. TSD Chapters), following the EU commission non-paper in 2018.

Champion the development of sustainable international trade in environmental goods (EG), including standardising definitions and standards:

- Champion trade incentives for circular economy goods, by supporting an international agreement on removing trade barriers to environmental goods (EG);
- Make sure that circular economy relevant goods (and services) are considered and included in the definition of environmental goods and services (EGS), with a focus on process and production methods as a key defining factor (i.e. design criteria and life cycle approach);
- Champion the development of common global standards for reusability, reparability and recyclability of products (e.g. in the context of WTO and/or G7/G20);
- Encourage harmonisation of international rules applied to end-of-life waste (e.g. plastics) to avoid uncertainty on what waste is hazardous and what becomes a new materials or product;

⁷³ i.e. comprise only of non-hazardous, clean, unmixed, uncontaminated plastic waste that is not destined for energy recovery or final disposal

- Champion the development of common global quality standards for secondary raw materials to eliminate existing barriers associated with their trade;
- Develop common specifications on chemicals composition and enforce obligations to report on these for imported finished goods.

Build partnership with developing countries, to support *sustainable* circular economy in third countries and globally:

- Improve EU policy coherence between the future development and implementation of the EU's circular economy package and its international trade related implications, and the EU's Aid for Trade (AfT) scheme;
- Ensure EU AfT schemes with trade partner countries feature initiatives explicitly aimed at facilitating trade in products and services based on sustainable circular practices;
- Support AfT partner countries in developing their own national circular economy roadmaps and strategies and identifying their own solutions, including and integrating such solutions into sustainable global value chains.

Facilitate cooperation with allies and between policy communities (circular economy, trade and development cooperation):

- Pursue cooperation with third countries that are demonstrating leadership taking forward the circular economy and resource efficiency agendas (e.g. Canada, Japan, China and the African Circular Economy Alliance), for example in the context of the annual World Circular Economy Forum initiated in 2017;
- Work together with key partners to explicitly advance clarity and common understanding of standards and definitions (as above), including working within the context of the EU – China Memorandum of Understanding on Circular Economy Cooperation⁷⁴;
- Set up a knowledge and information exchange platform, both within the EU and between EU and trade partner countries.

⁷⁴ [EU China Memorandum of Understanding on Circular Economy Cooperation](#) (2018)

CASE STUDIES

6 Trade restrictions on waste imports: the case of Chinese waste ban

6.1 Introduction

High-income countries are the primary exporters of waste for recycling globally, while developing countries are the top importers, with China receiving the bulk of exported waste.

Data on plastic waste exports provide a good illustration of these trends. The US, Japan and Germany are the three largest global exporters and China, until recently, was the biggest importer, with a share of over 45% of global imports between 1988 and 2016⁷⁵. Europe is also a key player on the global plastic waste market, the EU-28 being the top exporter when taken collectively. Similarly to other exporters before 2018, Europe used to depend almost entirely on China to absorb its exports, with 87% of EU-27 plastic waste exports (by weight) ending up in China (directly or via Hong-Kong) in 2012⁷⁶.

The rationale behind waste flows for recycling is economic efficiency. The labour-intensive recycling process is significantly cheaper to carry out in developing countries, due to lower labour costs and, as often the case, reduced environmental and safety standards or lack of enforcement of existing regulations. The fact that such countries are often also manufacturing hubs means that it is convenient and economically efficient to reuse recycled materials in proximity. Finally, shipping companies want to avoid returning with an empty cargo after having delivered goods to developed countries and lower their rates for shipping solid waste back to developing countries⁷⁷.

In the case of the EU, the export of solid waste for recycling is also facilitated by the EU policy framework for the circular economy, namely allowing recycling targets to be met also by the inclusion of waste to be recycled abroad (see Chapter 3). Part of this incentive is also that limited information is required from EU operators on whether the exported waste is recycled and under which conditions⁷⁸.

Although this global circularity contributes to recovering waste materials and reducing the need for raw materials, it also has significant negative environmental impacts, notably on importing countries.

Because of the lower environmental regulations, workers as well as the environment are exposed to toxic materials in the exported waste, which can be handled without sufficient care and dumped without proper treatment⁷⁷. Importer countries also bear increasing operating costs, as multiple

⁷⁵ Brooks, A.L., Wang, S., and Jambeck, J.R. (2018) The Chinese import ban and its impact on global plastic waste trade Sciences Advances, vol.4, no.6. Available [here](#).

⁷⁶ Velis, C.A. (2014) Global recycling markets - plastic waste: A story for one player – Chin. Report prepared by FUELogy and formatted by D-waste on behalf of International Solid Waste Association - Globalisation and Waste Management Task Force. ISWA, Vienna, September 2014. Available [here](#).

⁷⁷ Qu, S. et al. (2019) Implication of China's foreign waste ban on the global circular economy. Resources, Conservation and Recycling, vol.144. Available [here](#).

⁷⁸ Rosa, F. (2018) Europe at crossroads: After the Chinese ban on plastic imports, what now? Zero Waste Europe. Available [here](#).

recycling programs worldwide are transitioning to a ‘single stream’ collecting scheme for recyclable materials. This lowers collection costs but increases processing costs and difficulties, as scrap material quality decreases through contamination⁷⁹.

These issues have come under the spotlight in several importing countries, leading to a recent trend towards introducing trade barriers on waste, commonly in the form of tariffs on imports or even restrictions. Such is the case in China, where public concern linked to rising levels of air pollution has led to the government taking increasing action towards implementing environmental sustainability measures. Domestic demand for raw materials in China has also recently slowed down, reducing the need for importing external waste for secondary raw material⁷⁷.

6.2 China’s ban on waste imports

China began to progressively step up its waste import policies prior to 2010, before introducing the Green Fence Operation in 2013, a temporary restriction on plastic waste imports through an increase in quality standards. The goal of the Green Fence campaign was to increase the quality of imported plastic waste and to reduce illegal foreign smuggling and trading of waste.

In 2017, China announced a new ‘National Sword’ policy, aiming at permanently banning the import of non-industrial plastic waste in the long run⁷⁵. A ban on 24 types of solid waste including waste plastics and unsorted scrap paper, took effect on January 1st 2018. Further restrictions followed in March of the same year, with quality standards for various other products being raised to allow for a maximum of 0.5% contamination. The ban was extended to further products by the end of 2018, and a complete ban on foreign waste imports is planned to occur by 2021⁸⁰.

In its notification to the World Trade Organization (WTO), the Chinese Ministry of Environmental Protection put forward protection of human health and protection of the environment as reasons for the urgent measure.⁸¹ Although several WTO members questioned the rationale behind the ban – the US and the EU in particular raising concerns that its too sudden implementation would on the contrary be highly detrimental to the environment – China maintained its position, answering to the US in a [June 2018 letter](#)⁸².

The ban has been immediately impactful on waste imports to China and has had repercussions all over the world.

The impacts of the ban were immediately significant in China, which saw in particular a drop in imports of plastic and paper scraps. Recovered plastic shipments dropped by 99% in 2018 compared with 2017; and Chinese companies imported close to 34% less recovered fibre in 2018 than in 2017. Recycled aluminum and glass were less affected.⁷⁹

6.3 Impacts on other countries

⁷⁹Katz, C. (2019) Piling Up: How China’s ban on importing waste has stalled global recycling. YaleEnvironment360. Available [here](#).

⁸⁰ Einton, S. (2018). China may delay import ban until 2021. Let’s recycle. Available [here](#).

⁸¹ See China’s [notification to the WTO \(2017\)](#)

⁸² Reuters (2018) U.S. asks China not to implement ban on foreign garbage. Available [here](#).

Other importing countries in the region were also rapidly affected by the Chinese ban. As China closed its doors to waste, many countries in the EU and elsewhere settled on a new strategy, namely directing their waste to other developing countries, particularly in South-East Asia. Provisional data show that in Thailand, imports of scrap plastic tripled in 2018 as compared to 2017⁸³, with India, Vietnam and Indonesia showing similar trends⁸⁴. Malaysia became within a few months the world's biggest importer of plastic waste⁸⁵.

The new balance has significantly affected those new importer countries, which lack the infrastructure needed to handle the new amounts of waste they are facing. Hundreds of illegal recycling factories have sprung up, resulting in high levels of pollution due to improper waste disposal. This is especially true for plastic waste. The Chinese barrier has also diverted large amounts of e-waste, most of it is now being illegally imported to Malaysia. E-waste components such as lead or mercury are highly harmful to human health and can significantly contaminate the environment when disposed of improperly.⁸⁶ (See also Chapter 8)

6.4 Impacts on the EU

In comparison with 2016 levels, global plastic waste exports dropped by almost 50% by the end of 2018⁸⁷. China's restrictions on waste imports significantly affected exporter countries, notably the US and the EU, where the recycling industry was highly dependent on Chinese importation. Between 2017 and 2018, paper exports for recycling from the EU to China decreased by 98% and plastic waste volumes decreased by 95%⁸⁸.

On the European recycling market, where existing infrastructure was not equipped to deal with the amount of recycling needed to cover the lack of export, plants were reported to have become rapidly saturated⁸⁴. Similarly, prices were reported to be plummeting due to the surplus of plastic waste available, resulting in fewer incentives to recycle. Instead, plastic waste streams were headed to incinerators or to landfills, especially in Eastern European countries where landfilling regulations are lower than in the rest of the EU⁸⁴.

The increase in import bans in South-East Asia that followed exporter countries' attempts to redirect waste (see further below) resulted in increased pressure to find local solutions.

The Chinese ban became a crucial tipping point for the EU circular economy policy framework, increasing incentives to improve EU 3R policies (reduce, reuse, recycle). For example, the Single use Plastic Directive, aimed at significantly reducing waste at its source, was adopted by the European parliament in March 2019 and the Council in May 2019, with its bans on a number of uses of plastics will be in effect by 2021⁸⁴.

The import ban also put exporter countries' dependence on developing countries for waste recycling under public scrutiny, pushing them to improve domestic circular economy strategies. In the UK for instance, where the Chinese ban was reported to have resulted in a significant waste crisis, a proposal

⁸³ Staub, C. (2019) China: plastic imports down 99 percent, paper down a third. Resource Recycling. Available [here](#).

⁸⁴ Tamma, P. & Hervey, G. (2018) Brussels goes to war against plastic garbage. Politico. Available [here](#).

⁸⁵ Hook, L., & Reed, J. (2018) Why the world's recycling system stopped working. Financial Times. Available [here](#).

⁸⁶ Free Malaysia Today (2019) After China ban, e-waste rains on Malaysian soil. Available [here](#) and Qu, S. et al. (2019)

⁸⁷ Greenpeace.org. (2019) Data from the global plastics waste trade 2016-2018 and the offshore impact of China's foreign waste import ban. Available [here](#).

⁸⁸ Eurostat (2018) [Secondary material price indicator](#).

for a plastic packaging tax may soon be introduced, under an Extended Producer Responsibility system⁸⁹. A group of parliamentarians has also called for a complete ban on the export of the UK's plastic waste to developing countries, following revelations on the low recycling rates of exported waste⁹⁰.

6.5 Future developments and the road ahead

The recent development of trade barriers such as waste import restrictions is shaking the global waste management system, providing opportunities for better embedding circular economy solutions within the existing model but also leading to waste crises. Exporter countries' next steps will be essential in defining the long-term impacts of this trend.

Following the change in waste flows caused by the Chinese ban, India, already facing a significant gap between its recycling capacity and the waste generated domestically, has followed in China's footsteps and banned imports of solid plastic waste from March 1st, 2019, by deleting existing exceptions to an already partial ban⁹¹. Similarly, Thailand has announced a halt to all imports of plastic waste by 2021, and Vietnam and Malaysia have also made moves to reduce permits for imports of plastic waste, triggered by port congestions and public complaints over increases in pollution⁹². It remains an open question, however, as to how effectively these bans will be enforced.

In Indonesia, no action has been taken as of yet and the incoming flows of plastic waste have resulted in increasing opportunities for the informal plastic waste industry, dominated by the local mafia. As many government officials support the plastic trade, economic incentives may trigger the rise of Indonesia as the new receiving end of Western plastic.⁹³

Recycling industries in importing countries have been put under the spotlight by the crisis. Following critics, the Thai government for instance has pledged to improve the country's waste management infrastructure⁹². Likewise, in China, companies that had grown to rely on foreign waste will have to adapt and switch to using domestic waste; this is foreseen to lead to improvements in domestic waste recycling rates.

Although the immediate consequences of China's import ban have been a shock to recycling industries in Europe and the US, the long-term implications of the ban might prove positive for national circular economy strategies. The global circular economy might benefit as well as the ban has highlighted environmental risks posed by unregulated and/or poor-quality waste flows.

Partial import bans based on high quality standards also represent incentives to increase waste quality in exporter countries. Countries with high quality waste, such as the Netherlands, were less impacted by the change in Chinese policies than countries using the 'single stream' scheme such as the UK⁸⁴. China is expected to issue a catalog of 'solid waste materials' which can be imported as 'raw materials'

⁸⁹ Reuters (2019) *UK plans to make plastic packaging producers pay for waste disposal*. Available [here](#).

⁹⁰ Dickinson, K. (2019) *Ban plastic waste exports to developing countries, say MPs*. Resource. Available [here](#).

⁹¹ Cockburn, H. (2019) *India bans import of waste plastic to tackle environmental crisis*. The Independent. Available [here](#).

⁹² Zein, Z. (2018) *Thailand to ban plastic waste by 2021*. Eco-Business. Available [here](#); Das, K. (2018). *Vietnam to restrict surging scrap imports*. Vietnam Briefing. Available [here](#); and Global Alliance for Incinerator Alternatives (2019) *Discarded – Communities on the Frontlines of the Global Plastic Crisis*. Available [here](#).

⁹³ Global Alliance for Incinerator Alternatives (2019) *Discarded – Communities on the Frontlines of the Global Plastic Crisis*. Available [here](#).

to the WTO in the coming year; there are some hopes in the EU that this will allow import of some waste materials, provided they are high quality and can be deemed raw materials rather than waste.⁸⁰ Recent developments such as the approval of the [Norway amendments to the Basel Convention](#), aimed at better controlling plastic waste trade, proves that the issue now has international attention. Such international regulations might provide support to the enforcement of national bans. International standards on waste quality and definitions might be another type of solution; but despite a [2018 EU Commission Communication on the matter](#), the EU is yet to act upon the issue.

7 Trade as a vehicle for sustainable circularity: the case of EU e-waste

7.1 Introduction: EU as an exporter of e-waste

E-waste was discussed recently at the [14th Conference of the Parties to the Basel Convention](#) (May 2019). The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which came into force in 1992, includes trade-based measures on import and export of waste. E-waste is considered hazardous waste due to the presence of toxic materials such as mercury, lead and flame retardants⁹⁴.

The EU has been a Party to the convention since 1994, and it is implemented through the [2006 Waste Shipment Regulation](#) (WSR). Under the WSR, e-waste is forbidden to be exported to non-EU countries⁹⁵ if it is to be disposed of after shipment. This follows from the [Basel Ban Amendment](#) (1995), which has not been ratified by enough parties to enter into force, but is nevertheless implemented by the EU. The [2002 EU WEEE directive](#), which deals specifically with e-waste, was recast in 2012 to include, among other things, shipments and introduced tighter requirements on evidence for reusability⁹⁶. Exceptions are however included in the recast [2012 WEEE directive](#) (Annex VI, paragraph 2), with the concurrent effects of both promoting re-use and allowing for exceptions in e-waste flows control.

Give the above, exporting e-waste outside the EU is currently banned unless the goods are considered to be in working order. Implementation of stringent regulations is however lacking.

A [2015 UN University report](#) found that 30% of EU Member States did not implement the new regulations, and that over 4% of e-waste had departed the EU in undocumented mixed export in 2012. Although this may not sound like much, it represents 400 000 tonnes of e-waste, a number similar to the one calculated in a [2019 report](#) by the ENGO Basel Action Network (BAN)⁹⁷. These exports are considered by BAN as highly likely to be illegal⁹⁸, under the current legal framework described above.

⁹⁴ Basel Convention website (2011) [E-waste - overview](#)

⁹⁵ EFTA countries parties to the Basel Convention excepted. See EU Commission [guidelines](#) (2017)

⁹⁶ Geeraerts, K., Illes A. and J-P Schweizer (2015) [Illegal shipment of e-waste from the EU: A case study on illegal e-waste export from the EU to China. A study compiled as part of the EFFACE project](#)

⁹⁷ BAN (2019) [Holes in the Circular Economy: WEEE Leakage from Europe](#).

⁹⁸ [Holes in the Circular Economy: WEEE Leakage from Europe](#).

The Basel parties have been negotiating Technical Guidelines on the Transboundary Movement of e-waste for several years. These were still not accepted in full at the recent COP14. The lack of consensus resulted from the integration of an exemption from controls for e-waste claimed for repair. This so-called ‘repairable loophole’ is supported by some electronic manufacturers and several parties, among which the US and the EU, but rejected by – among others – the African Group and India, which fear that it would allow for legal dumping of hazardous e-waste in developing countries on the basis of their being ‘repairable’.⁹⁹ The EU’s support to this element of the Guidelines was denounced by ENGOs such as BAN, which consider it as a leakage contrary to the circular economy model advocated by the EU⁹⁸.

NGOs’ opposition to this loophole stems from assessing the current consequences of - illegal – EU e-waste exports, which are mostly directed to developing countries, notably in Africa and Asia⁹⁸.

7.2 Impacts of e-waste in third countries

On the one hand, e-waste import can have positive impacts on developing countries by creating employment within the repair sector and helping to close the digital gap with developed countries¹⁰⁰. This is true when goods are re-used or repaired.

However, the “re-use” category criteria are open to interpretation, and a vast part of the e-waste exported under that label is scrap. It remains however highly valuable, as it contains precious metals, such as gold and silver, in high concentrations¹⁰¹. Recovering these raw materials can represent a significant source of income for importer countries. Additionally, this contributes to the circular economy by allowing for the re-use of raw materials. The scale of this e-waste informal circular economy in developing countries is significant; in India for instance, up to 95% of e-waste is processed in the urban slums informal sector.¹⁰²

However, managing the raw material recovery from e-waste process comes at a high cost for the environment and for public health.

The toxic substances contained in e-waste can significantly contaminate the air, water and soil when burned for disposal or dipped in acid to recover rare metals¹⁰³. Concern over the environmental effects of e-waste recycling was partly responsible for China closing its doors to waste in 2018 (see Chapter 7). Thailand, which had opened its doors to foreign e-waste following the Chinese ban, [announced in August 2018](#) that it would also ban e-waste imports, after police raids on recycling facilities revealed highly environmentally damaging methods. Inadequate e-waste recycling techniques also carry significant health risks for workers, their families, and residents living close to e-waste workshops. The issue is particularly significant for children’s development.¹⁰⁴

⁹⁹ Recycling magazine (2019) [International e-waste export guidelines deemed unready](#).

¹⁰⁰ Tearfund (2018) [Bending the curve](#).

¹⁰¹ Larmer, B. (2018) [E-waste offers an economic opportunity as well as toxicity](#). New York Times Magazine.

¹⁰² Tearfund (2017) [How will Europe’s eco-design measures affect the circular economy in low-income countries?](#)

¹⁰³ [Bending the curve](#).

¹⁰⁴ WHO, [Electronic waste](#).

7.3 Reconciling e-waste trade, circular economy and sustainable development

Illegal e-waste exports occur currently on a large scale, helped by increasing trade flows and loopholes in waste flows regulations. They hinder both the sustainable development of importer countries and, for the EU, its pledge to a circular economy. They however also contribute to the informal economy of many importer countries.

The recovery of raw materials from e-waste is critical for a global circular economy, as it reduces the need for primary resource extraction, an extremely unsustainable process.¹⁰⁵ However, current recovery processes in countries where the most recovery occurs (i.e. developing countries) are not sustainable either. The ambiguity caused by a lack of international definitions for what is re-usable, repairable and waste means that the adoption of the ‘repairable loophole’ would be risky as it could increase the amount of e-waste legally entering developing countries, rather than strengthen the global circular economy model.

Steps need to be taken therefore to ensure the positive role of trade in both sustainable development and circular economy with regards to e-waste flows. There have been recent innovations in the field, which would allow for safer techniques to recover value from e-waste. Improving the capacity and technology of developing countries to carry out safe e-waste management, including dedicated financial support to such upgrades, could be an obvious solution. Some also advocate the development of a global circular economy loop where developing countries import used – but reusable/repared – electronic goods and then export e-waste to developed countries, where it could be safely recycled and recovered¹⁰⁶.

One solution could be for development cooperation – and especially its EU Aid for Trade scheme – to include strategies for the management of e-waste flows, with either the creation of legal streams for the waste to be sent back to the EU for proper recovery, or help in creating capacity in importing countries to recycle the waste safely and efficiently.

This would go together with the harmonisation of waste quality standards, as discussed earlier in this study (see Chapter 4). Such ideas are mentioned broadly in the SIAs in support of negotiations for the Philippines and Malaysia EU FTAs, which call for cooperation between the Parties within the waste management sector (see Box 2 in Chapter 4).

The Trade and Sustainable Development provisions of EU FTAs offer a useful basis for developing e-waste related Aid for Trade strategies. For instance, the [FTA with Vietnam](#) (awaiting signature and conclusion) states that Parties may work together on trade-related aspects of green growth strategies and policies, including sustainable production and consumption. Despite banning imports of used electrical and electronic equipment (EEE) in 2013, Vietnam faces a significant e-waste issue, with increasing amounts of e-waste being generated domestically, in addition to illegal exports due mainly

¹⁰⁵ Cole, C. et al. (2019). [An assessment of achievements of the WEEE Directive in promoting movements up the waste hierarchy: experiences in the UK](#). Waste Management.

¹⁰⁶ See [Reassembling Rubbish](#), J.Lepawsky

to its proximity with China. The informal e-waste handling system is very active and plays an important role in rural economic development but has significant negative consequences on the environment and public health¹⁰⁷. Aid for Trade mechanisms could be put in place to help Vietnam develop its e-waste treatment infrastructure, to ensure safer management and participate in making Vietnam an official and safe e-waste global trading platform.

To conclude, it is worth noting that solutions to the e-waste trade issue can also be implemented at source, by promoting re-use of electronic goods within the EU and putting in place strategies such as extended producer responsibility (EPR) to ensure products are taken back by the manufacturers once they reach their end of use, rather than being traded illegally. However, this strategy would only benefit the EU's circular economy, leaving out the potential benefits to third countries. Additional solutions include design interventions on EEE at the EU level to improve their circularity, such as the Eco-design Directive. This could limit negative impacts at the management stage even in informal circumstances in developing countries; but it could also reduce flows to these countries, and limit improvements in e-waste management to the EU only. Conversely, using Aid for Trade for improving management of e-waste in developing countries could bring benefits for the global circular economy as well as the sustainable development of those countries.

The case of e-waste illustrates the broader need for circular economy considerations to be mainstreamed into EU trade-related development policies. Without this integration, EU trade-related strategies for circularity – such as allowing for exports of e-waste deemed repairable – can be detrimental to the sustainable development of developing countries, ultimately hampering the EU's stand as a frontrunner in facilitating the global transition to circularity.

¹⁰⁷ Tran, C.D. & Salhofer, S.P. *J Mater Cycles Waste Manag* (2018) 20: 110. Available [here](#).

SUPPORTING MATERIAL

Annex 1 Assessing the trade related impacts of EU Circular Economy Package

Table A1 Analysis of trade implications of key actions of the CE Action Plan

**Measure selected based on their relevance to trade. The sectorial actions were not included.*

	Actions	Trade implications
Production	Measures in the Eco-design working plan for 2015-2017 to promote reparability, durability and recyclability of products, in addition to energy efficiency	Products designed to be more durable, repairable, recyclable and refurbishable imply that their value remains in the economy for longer. → This could reduce demand for primary resources. → This could lead to inconsistencies of eco-design features on imported goods.
Waste management	Improved cooperation with Member States for better implementation of EU waste legislation, and combat illicit shipment of end of life vehicles (ELV)	Environmentally sound management of waste, inside and outside the EU, is key to achieve a more circular economy. Cooperation with Member States for the implementation of the waste legislation promotes exchange of knowledge and support an uniform enforcement of waste regulations, increasing the understanding of circular economy opportunities. → Reduce illegal shipment of end of life vehicles.
	Stepping up enforcement of revised Waste Shipment regulation	According to the European Commission (2015a), the EU is the largest exporter of non-hazardous waste to non-OECD countries for recovery operations that amounted to EUR 8.1 billion with significant fractions destined to China (30.7%) and India (11.5%) in 2014. Enforcing a revised Waste Shipment regulation will strengthen Member States' inspection systems (European Commission, 2018) and curb illegal exports of waste out of the EU (European Commission, 2016). → Limit transboundary movements of waste and curb illegal exports of waste out of the EU (European Commission, 2016).
	Revised legislative proposal on waste	The revised waste legislation includes more ambitious recycling targets. These may incentivise recycling and recovery and reduce the need for primary resources. Increasing recycling, repurposing and reuse of materials can promote the development of regional reprocessing and recycling hubs and generate new opportunities for the commodities and manufacturing sectors.

		<p>→ Transboundary movements of waste may be limited as regional recycling and reprocessing is encouraged.</p> <p>→ The promotion of recycling brought forward by the EU waste policies can incentivise the export of waste for recycling, adding up to extra-EU export of recyclable raw materials.</p>
Market for secondary raw materials	Development of quality standards for secondary raw materials	<p>The development of common standards can eliminate existing barriers, including to the challenges associated with the trading of secondary raw materials across the EU, and potential presence of chemicals of concern in recycled materials (EP).</p> <p>→ Build and support trade in secondary raw materials.</p> <p>→ May create issues around market access for secondary materials produced outside the EU.</p>
	Proposal for a revised fertilisers regulation	<p>The Fertilising Products Regulation boosts the European market for innovative organic fertilisers manufactured from by-products and recovered bio-waste. It therefore makes European farming much less dependent on imported mined and fossil raw materials, like natural gas and phosphate rock.</p> <p>→ Reduce EU's dependence on imports of mined and fossil raw materials.</p>
	Analysis and policy options to address the interface between chemicals, products and waste legislation, including how to reduce the presence and improve the tracking of chemicals of concern in products	<p>EU's rules on end-of-waste are not fully harmonised, making it uncertain how waste becomes a new material and product. Lack of specifications for the chemical composition of traded goods leads to potentially unsafe consumer and industrial goods being imported into the EU, and to competitive disadvantages for European manufacturers. Rules to decide which wastes and chemicals are hazardous are not well aligned and this affects the uptake of secondary raw materials. Obligations to report information on the full chemical composition do not apply to imported finished articles, with the exception of plastic food contact materials and toys</p> <p>→ Support trade in secondary raw materials.</p>
	Measures to facilitate waste shipment across the EU, including electronic data exchange	<p>Regulation (EC) No 1013/2006 of the European Parliament specifies the procedures for controlling waste shipments. Issues related to electronic data interchange are in the process of being addressed for the preparation of guidelines.</p> <p>→ May reduce illegal shipments and facilitate the cross-border circulation of secondary raw materials</p>
	Further development of the EU raw materials information system	<p>Actions to improve information on raw materials</p> <p>→ Facilitate a secure and sustainable supply of raw materials</p>

Annex 2 Assessing the trade dimension in the EU Circular Economy Monitoring Framework

Table A2 Analysis of trade-related indicators in the Circular Economy Monitoring Framework

Phase of the circular economy	Number	Name	Relevance to trade
Production & consumption	1	EU self-sufficiency for raw materials	The circular economy is expected to contribute to securing the EU's access to raw materials. This indicator shows to what extent the EU is independent from imports for raw materials (e.g. critical raw materials).
Secondary raw materials	7a-b	Contribution of recycled materials to raw materials demand	The circular economy promotes the recycling of end-of-life products and their re-injection at the beginning of the life cycle. This indicator measures how much of a raw material's input into production comes from recycled materials.
	8	Trade in recyclable raw materials	In a circular economy, waste is a valuable resource. Some countries export waste to be recycled abroad. This indicator measures the trade flows (import and export intra- and extra-EU) of raw materials to be recycled.

EU self-sufficiency for raw materials

The indicator is measured as 1- (net) Import reliance and it is expressed in percentage.

One of the expected benefits to be reaped from a transition to a circular economy is a reduction in imports of raw materials¹⁰⁸.

In the EU, the manufacturing industry dominates the industrial sector, compared to the much lower developed extractive industry¹⁰⁹. Recent Eurostat data shows that, while for most non-metallic mineral raw materials the EU results widely self-sufficient, it is heavily dependent on imports for critical raw materials (CRM)¹¹⁰. These materials are mostly extracted in and supplied by third countries, with China representing the main exporter of CRMs to the EU¹¹¹. The implications on third countries, mostly developing countries, of a reduction or increase in the demand for raw materials from

¹⁰⁸ Fellner, J, Lederer, J, Scharff, C, and Laner, D. (2017) [Present potentials and limitations of a circular economy with respect to primary raw material demand](#)

¹⁰⁹ European Commission (2018) [Report on critical raw materials and the circular economy](#)

¹¹⁰ European Commission (2018) [{SWD\(2018\) 17 final} Monitoring framework for the circular economy](#)

¹¹¹ European Commission (2018) [Report on critical raw materials and the circular economy](#)

developed countries is challenging to assess and it results widely neglected in the existing EU monitoring framework for circular economy.

The indicator is expressed through “Import Reliance”, which is measured as the ratio of net imports and apparent consumption. The latter represents domestic production plus imports minus exports¹¹². However, the hidden upstream flows related to both imports and exports are not accounted. Such omission may generate misleading assessments of the EU’s security of supply of raw materials.

Contribution of recycled materials to raw materials demand

The contribution of recycled materials to raw material demand is expressed through: (i) the end-of-life recycling input rate (EOL-RIR), and (ii) the circular material use rate. The former measures how much of a raw material’s input into production comes from recycled materials; the latter measures the share of material recovered and fed back into the economy. An increase in these indicators implies a reduction in the extraction of primary resources¹¹³. As a matter of fact, the transition to a circular economy is expected to increase the share of secondary raw materials which are used to make new products, becoming a trading good. Nevertheless, currently 90% of raw materials used globally are not fed back into the economy¹¹⁴. In the EU, the supply of primary raw materials remains a necessity as, even with all waste turned into secondary raw materials, the demand for raw materials would still exceed this amount¹¹⁵.

The circular material use rate is measured as the ratio of circular material use to overall material use. The latter is expressed as the sum of “Domestic Material Consumption” (DMC) and circular material use. DMC measures the total amount of materials directly used by an economy, without accounting for the hidden flows related to imports and exports of raw materials and products¹¹⁶. Several studies demonstrate that through these hidden indirect flows, international trade shifts virtual material consumption¹¹⁷. Alternative indicators, such as TMC (Total Material Consumption) accounts for these hidden flows and the difference between the two imply misleading assessments when DMC is used¹¹⁸. In this case, the overall material use would result greater than if measured through DMC, leading to a smaller share of material being recovered and fed back to the economy than reported. In addition, it is expected that a greater share of materials being fed back into the economy will increase the supply security of resources, as more secondary materials substitute for primary raw materials¹¹⁹.

Trade in recyclable raw materials

This indicator provides a picture of the movements of recyclable raw materials which characterize the markets for secondary raw materials in the EU. In addition to the internal market, these trends reflect the global participation in the circular economy¹²⁰. Nevertheless, current information on trade of recyclable raw material does not allow to determine with certainty how the exported materials are

¹¹² Eurostat (2019) [EU’ self-sufficiency for raw materials](#)

¹¹³ Eurostat (2018) [Circular Economy Monitoring Framework](#)

¹¹⁴ Circle Economy & Shifting Paradigms (2018) [The circularity gap report](#)

¹¹⁵ European Commission (2018) [{SWD\(2018\) 17 final} Monitoring framework for the circular economy](#)

¹¹⁶ Eurostat (2019) [Circular Material Use Rate](#)

¹¹⁷ OECD (2018) [Concept paper – International trade and the transition to a more resource efficient and circular economy](#)

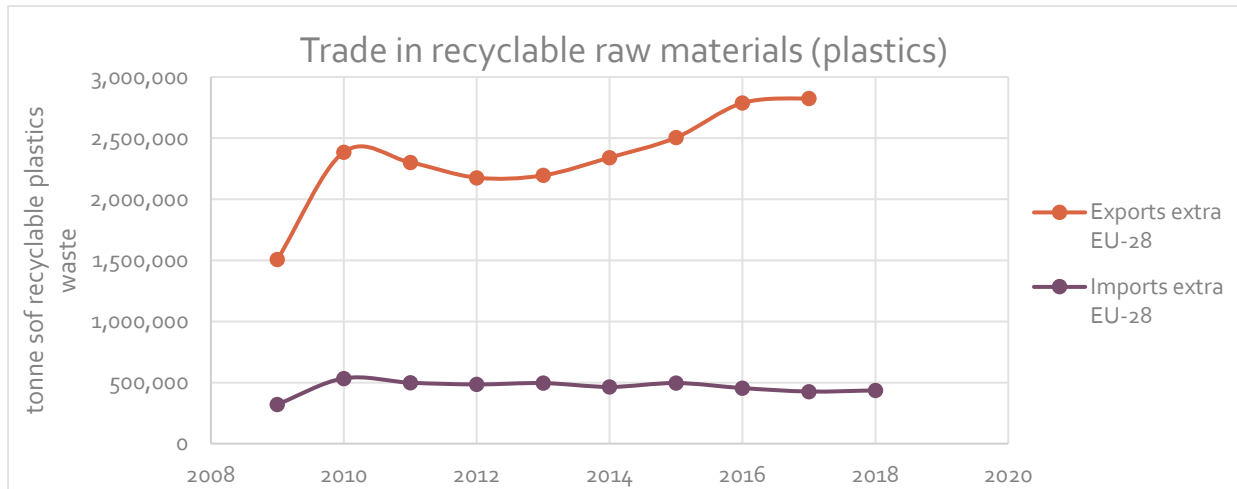
¹¹⁸ Weidman, T.O., Schandl, H, Lenzen, M, Moran, D, Suh, S, West, J and Kanemoto, K. (2014) [The material footprint of nations.](#)

¹¹⁹ Eurostat (2018) [Circular Material Use Rate](#)

¹²⁰ Eurostat (2018) [Circular Economy Monitoring Framework](#)

treated at their destination.

The amount of recyclable waste exported by the EU to extra-EU countries has increased significantly over the years, in particular for waste streams such as plastics, paper and cardboard, iron and steel, aluminum and nickel¹²¹.



Source: Eurostat, 2019¹²²

¹²¹ European Commission (2018) [{SWD\(2018\) 17 final} Monitoring framework for the circular economy](#)

¹²² Eurostat (2019) [Trade in recyclable raw materials by waste](#)

Annex 3 Circular economy in the EU Free Trade Agreements (FTAs) and Sustainability Impacts Assessments (SIAs)

Table A1 Assessing the uptake and integration of circular economy in the EU free trade agreements (FTAs)

Agreement	Status	Relevance in the context of circular economy (CE)
Southern African Development Community – Economic Partnership Agreement (SADC EPA)	In force since Feb 2018	No mention of CE or any relevant measures.
Bosnia and Herzegovina – Stabilisation and Association Agreement (SAA)	In force since June 2015	Cooperation policies – Environment: <ul style="list-style-type: none"> - Parties <i>shall</i> establish cooperation - which <i>could</i> centre on the development of strategies to significantly reduce local, regional and trans-boundary air and water pollution, including waste and chemicals, to establish a system for efficient, clean, sustainable and renewable production and consumption of energy, and to execute environmental impact assessment and strategic environmental assessment.
Georgia – Association Agreement (AA)	In force since July 2016	Trade and Sustainable Development (TSD) chapter: <ul style="list-style-type: none"> - Call to <i>facilitate</i> the removal of obstacles to trade or investment concerning goods and services of particular relevance to climate change mitigation, such as energy efficient products and services. <i>May</i> include the adoption of appropriate technologies and the promotion of standards that respond to environmental and economic needs and minimise technical obstacles to trade. - Agreement to <i>promote</i> trade in goods that contribute to enhanced social conditions and environmentally sound practices, including goods that are the subject of voluntary sustainability assurance schemes such as fair and ethical trade schemes and eco-labels. - <i>Promotion</i> of private and public certification, traceability and labelling schemes, including eco-labelling.
Moldova – Association Agreement (AA)	In force since July 2016	Trade and Sustainable Development (TSD) chapter: <ul style="list-style-type: none"> - Agreement to <i>promote</i> trade in goods that contribute to enhanced social conditions and environmentally sound practices, including goods that are the subject of voluntary sustainability assurance schemes such as fair and ethical trade schemes, eco-labels, and certification schemes for natural resource-based products. - <i>Promotion</i> of private and public certification, traceability and labelling schemes, including eco-labelling.
South Korea – Free Trade Agreement (FTA)	In force since July 2016	Trade and Sustainable Development (TSD) chapter: <ul style="list-style-type: none"> - Parties <i>shall strive to facilitate and promote</i> trade and foreign direct investment in environmental goods and services, including environmental technologies, sustainable renewable energy, energy efficient products and services and eco-labelled goods, including through addressing related non-tariff barriers. - Parties <i>shall strive to facilitate and promote</i> trade in goods that contribute to sustainable development, including goods that are the subject of schemes such as fair and ethical trade and those involving corporate social responsibility and accountability.
Comprehensive Trade Agreement with	Partly in place – provisionally	Trade and Sustainable Development (TSD) title: <ul style="list-style-type: none"> - Considering the global objective of a rapid transition to low-carbon economies, Parties will <i>promote</i> the sustainable use of natural resources and will promote

Colombia, Peru and Ecuador (CTA)	applied since July 2013	trade and investment measures that promote and facilitate access, dissemination and use of best available technologies for clean energy production and use, and for mitigation of and adaptation to climate change.
Central America – Association Agreement (AA)	Partly in place – provisionally applied since 2013	Cooperation part: <ul style="list-style-type: none"> - Cooperation <i>shall in particular address</i>: [...] the fight against pollution of fresh and marine waters, air and soil, including through the sound management of waste [...] - Cooperation <i>may involve measures</i> such as: [...] promoting sustainable production and consumption patterns, including through the sustainable use of ecosystems, services and goods. Trade part, TSD title: <ul style="list-style-type: none"> - Parties <i>shall endeavour to facilitate and promote</i> trade in products that respond to sustainability considerations, including products that are the subject of schemes such as fair and ethical trade schemes, eco-labelling, organic production, and including those schemes involving corporate social responsibility and accountability.
Cuba – political Dialogue and Cooperation Agreement	Partly in place – provisionally applied since 2017	Cooperation part: <ul style="list-style-type: none"> - Cooperation <i>shall in particular address</i> [...] the fight against the pollution of fresh and marine waters, air and soil, including through the sound management of waste [...] - Cooperation <i>may involve measures</i> such as: [...] promoting sustainable production and consumption patterns, including through the sustainable use of ecosystems, services and goods. Trade and Trade cooperation part, Trade & SD article: <ul style="list-style-type: none"> - Parties <i>agree to cooperate in supporting</i> the development of an enabling framework for trade in goods and services contributing to sustainable development, including through the dissemination of corporate-social-responsibility practices.
Kazakhstan – Enhanced Partnership and Cooperation Agreement	Partly in place – provisionally applied since May 2016	Trade and Business title, Trade & SD chapter: <ul style="list-style-type: none"> - Parties agree to <i>promote</i> the use of sustainability assurance schemes, such as fair and ethical trade or eco-labelling. Cooperation title: <ul style="list-style-type: none"> - Cooperation <i>shall be pursued</i> in [...] waste management (<i>cooperation in the area of environment</i>). - Parties <i>shall cooperate</i> in [...] productivity and efficiency of resource use (<i>Cooperation in the area of industry</i>).
Eastern and Southern Africa (ESA) - interim Economic Partnership Agreement	Partly in place – provisionally applied since May 2012	Economic and development cooperation chapter: <ul style="list-style-type: none"> - Parties <i>agree to cooperate</i> in [...] <i>supporting</i> the production and facilitate trade of goods and services for which eco-labelling is important; waste management.
Ukraine – Association Agreement	Partly in place – provisionally applied since Jan 2016	Trade & SD chapter: <ul style="list-style-type: none"> - Parties <i>shall strive to facilitate and promote</i> trade and foreign direct investment in environmental goods, services and technologies, sustainable renewable-energy and energy-efficient products and services, and eco-labelled goods, including through addressing related non-tariff barriers. Cooperation title: <ul style="list-style-type: none"> - Cooperation <i>shall aim at</i> preserving, protecting, improving, and rehabilitating the quality of the environment, [...], prudent and rational utilisation of natural resources, in the areas of: [...] waste and resource management.
Singapore – Free Trade Agreement (FTA)	Pending – signed in Oct. 2018, awaiting ratification	Trade & SD chapter: <ul style="list-style-type: none"> - Parties <i>shall pay special attention to facilitating</i> the removal of obstacles to trade or investment concerning climate-friendly goods and services, such as sustainable renewable energy goods and related services and energy efficient products and services.
Vietnam – Free Trade Agreement (FTA)	Pending – texts agreed on in July 2018, awaiting agreement by the Council	Trade & SD chapter: <ul style="list-style-type: none"> - Parties <i>may work together in</i> [...] <i>sharing information and experience</i> about trade-related aspects concerning the definition and implementation of green growth strategies and policies, including but not limited to sustainable production and consumption, climate change mitigation and adaptation, and environmentally sound technology.

Mercosur Association Agreement	Under negotiation since 2016	Trade & SD chapter (EU proposal): <ul style="list-style-type: none"> - Parties <i>shall (...)</i> <i>facilitate</i> trade and investment in environmental goods and services, including those of particular relevance for climate change mitigation such as sustainable renewable energy and energy efficient products and services, through inter alia addressing related non-tariff barriers, (...) <i>promote</i> trade in goods that contribute to enhanced social conditions and environmentally sound practices, including goods that are the subject of voluntary sustainability assurance schemes such as fair and ethical trade schemes and eco-labels.
USA – Transatlantic Trade and Investment Partnership (TTIP)	Negotiations launched in 2013, stopped in 2016	Trade & SD chapter (EU proposal, 2015): <ul style="list-style-type: none"> - Parties shall (...) cooperate to promote globally the environmentally sound management of all types of waste, reduction of waste generation and using waste as a resource; take effective measures and cooperate to combat globally illegal shipments of all types of waste. - Parties shall consult and cooperate on areas that may include (...) sustainable consumption and production; strategies and policies to promote trade contribution to resource efficiency, the green economy and the circular economy, including eco-innovation, and promoting participation in relevant international instruments.
New Zealand – Free Trade Agreement (FTA)	Negotiations launched in June 2018	Energy and Raw materials chapter (EU proposal, 2018): <ul style="list-style-type: none"> - Parties <i>shall cooperate</i> with a view to (...) <i>promote</i> the efficient use of resources (i.e. improving production processes as well as durability, reparability, design for disassembly, ease of reuse and recycling of goods). Trade and SD chapter (EU proposal, 2019): <ul style="list-style-type: none"> - Parties shall work together to strengthen their cooperation on trade-related aspects of environmental policies and measures, bilaterally, regionally and in international fora, as appropriate, including in the UN High-level Political Forum for Sustainable Development, UN Environment, UNEA, MEAs, or the WTO. Such cooperation may cover inter alia: (a) initiatives on sustainable production and consumption, including those aimed at promoting a circular economy and green growth and pollution abatement.
Australia – Free Trade Agreement (FTA)	Negotiations launched in June 2018	Energy and Raw materials chapter (EU proposal, 2018): <ul style="list-style-type: none"> - Parties <i>shall cooperate</i> with a view to (...) <i>promote</i> the efficient use of resources (i.e. improving production processes as well as durability, reparability, design for disassembly, ease of reuse and recycling of goods). Trade and SD chapter (EU proposal, 2019): <ul style="list-style-type: none"> - The Parties shall promote trade and investment in goods and services beneficial to environment or contributing to enhanced social conditions such as goods and services that are the subject of voluntary sustainability assurance schemes, for example fair and ethical trade schemes and eco-labels.
Mexico – Trade part of the modernized Global Agreement	Under negotiation – agreement in principle announced April 2018, but technical details remain within the texts	Energy and Raw materials chapter: <ul style="list-style-type: none"> - Parties <i>shall cooperate to promote</i> the efficient use of resources (i.e. improving production processes as well as durability, reparability, design for disassembly, ease of reuse and recycling of goods). Trade & SD chapter: <ul style="list-style-type: none"> - Parties <i>shall promote</i> (...) inclusive green growth and circular economy so as to foster economic growth while ensuring the protection of the environment and promoting social development (in <i>Objectives</i>). - Parties <i>shall promote</i> (...) trade in goods that contribute to enhanced social conditions and environmentally sound practices, including goods that are the subject of voluntary sustainability assurance schemes such as fair and ethical trade schemes and eco-labels. - Parties may work jointly in (...) the promotion of inclusive green growth and circular economy; the sound management of chemicals and waste.
Canada - Comprehensive Economic and Trade Agreement (CETA)	Partly in place – entered into force provisionally in Sept. 2017	Trade & SD chapter: <ul style="list-style-type: none"> - Each Party <i>shall strive to promote</i> trade and economic flows and practices that contribute to enhancing decent work and environmental protection, including by: (...) encouraging the development and use of voluntary schemes relating to the sustainable production of goods and services, such as eco-labelling and fair trade schemes. Trade & Environment chapter: <ul style="list-style-type: none"> - Parties <i>commit to cooperate</i> in areas such as promotion of life-cycle management of goods, including carbon accounting and end-of-life

		management, extended producer-responsibility, recycling and reduction of waste , and other best practices.
Japan – Economic Partnership Agreement (EPA)	Entered into force Feb 2019	Trade & SD chapter: <ul style="list-style-type: none"> - Parties <i>shall strive to facilitate</i> trade and investment in goods and services of particular relevance to climate change mitigation, such as those related to sustainable renewable energy and energy efficient goods and services, in a manner consistent with this Agreement. - Parties <i>shall strive to promote</i> trade and investment in goods that contribute to enhanced social conditions and environmentally sound practices, including goods that are the subject of labelling schemes.

Table A2 Assessing the uptake and integration of circular economy in the context of EU Sustainability Impacts Assessments (SIAs)

Evaluation	Status	Relevance in the context of circular economy (CE)
Trade SIA of the FTA EU-Japan	Completed, May 2016	Environmental analysis: <ul style="list-style-type: none"> - Indicators inc. CO2 emissions; energy intensity by sector; resource use & efficiency; waste intensity; market size of EG. - Evaluation of the Environmental Goods and Services (EGS) sector, inc. waste disposal and effective utilization of resources and conservation of natural envt. Possible increase in EGS following FTA. FTA not expected to induce pressure on domestic and imported natural resources (sectors benefiting from FTA being low energy intensive). FTA not expected to largely impact waste production (sectors benefiting are low waste intensive). Overall, possible increase in waste production and need in resources due to FTA could be mitigated by an increase in trade of EGS. Recommendations: Supply-chain incentives to encourage trade and industrial cooperation across manufacturing, in particular motor vehicles. Coverage of EGA can be expanded beyond what is assumed to be agreed plurilaterally.
SIA in support of the AA negotiations EU-Mercosur	Ongoing - Inception report Jan 2018	Environmental analysis: <ul style="list-style-type: none"> - Indicators inc. energy intensity by sector; resource use & efficiency; waste intensity; CO2 emissions. - Increase in manufacturing production in Mercosur countries is expected.
SIA in support of the negotiations for the modernization of the trade pillar of the Global agreement with Mexico	Ongoing – Interim report April 2018	Environmental analysis: <ul style="list-style-type: none"> - Indicators inc. energy intensity by sector; resource use & efficiency; CO2 emissions; waste intensity/production. - Evaluation of production-based and consumption-based emissions for Mexico and the EU. - Agreement is expected to lead to a small decrease in natural resource use; and to positively increase complementary trade in EGS. Sectoral analysis: manufacturing sector: <ul style="list-style-type: none"> - Parties can leverage the FTA as a means to consolidate a partnership in (...) joint initiatives on energy efficiency – may include commitments in (...) promoting the efficient use of resources. <p>Note: SIA notes that “there is no mention of legal mechanisms that could operationalise and create binding ecological commitments”. Cooperation activities on environmental issues between the EU and Mexico are largely unknown by local civil society organisations and academia.</p>
SIA in support of negotiations on the TTIP	Completed – Final report March 2017	Overall environmental impacts: <ul style="list-style-type: none"> - Core themes include material & energy use as well as water & waste. Indicators inc. CO2 emissions from energy use by sector; material use (w/ references to the EU resource Efficiency Roadmap, the idea of circular economy as a EU’s underlying principle, and the EU CE package). - Non-ratification of the Basel, Stockholm and Rotterdam Conventions by the US is mentioned. - Expected impacts: negligible for environmental goods and services; overall material use expected to increase in the EU; increase in energy demand.

		<ul style="list-style-type: none"> - Case study on the impact of regulatory co-operation on energy efficiency of products. - CE also mentioned explicitly with regards to the TTIP impact on the mechanical engineering sector. - Environmental impact of products during their lifespan (GHG emissions, energy consumption, material use) also mentioned for the electrical and electronic goods sector. - CE explicitly mentioned in the motor vehicle sector.
SIA in support of FTA negotiations EU-Philippines	Ongoing – Draft Interim report Dec. 2018	<ul style="list-style-type: none"> - CE mentioned explicitly in the Overall Environmental Impacts section as a way to mitigate potential negative envt. Impacts arising from the FTA. - CE mentioned explicitly in the Waste, Waste management and marine litter section, calling for the FTA to set opportunities for both Parties to mutually strengthen the circular economy. - CE mentioned explicitly in the Cross-cutting issues section, under ‘public procurement’, which mentions the potential for an increase in EGS trade.. - CE mentioned explicitly in the Clothing and apparel section and in the Electronics section.
SIA in support of FTA negotiations EU-Malaysia	Ongoing – Draft Interim report Dec. 2018	<ul style="list-style-type: none"> - CE mentioned explicitly in the Overall Environmental Impacts section, where opportunities for the future FTA to strengthen CE of both parties are mentioned - CE mentioned explicitly in the Waste, waste management and marine litter section, where the EU’s “technological know-how” to convert waste into added value is seen as way to mitigate FTA-resulting increases in waste. Also highlights possibilities to strengthen cooperation within the waste management sector. - CE mentioned explicitly in the Electronics and the Financial services sections.
SIA in support of FTA negotiations EU-Indonesia	Ongoing – Draft inception report May 2018	<ul style="list-style-type: none"> - Energy consumption by sector, intensity of energy use, microplastic particles per square meter, municipal waste per capita, municipal waste recovery rates, among indicators. - Mentions assessing the extent to which a potential FTA can contribute to the promotion of sustainable consumption.
SIA in support of the negotiations for the modernisation of the Trade part of the AA EU-Chile	Interim report – November 2018	<ul style="list-style-type: none"> - Environmental sustainability section: Mentions Chile’s national program on SCP. - Under sub-section Waste and waste management - future assessment of how the FTA could include provisions to decouple trade from waste generation. - SCP mentioned in transport and use of energy section & in construction sector - Case study: lithium batteries value chain.
SIA in support of an Investment Agreement EU-PRC	Final report – November 2017	<ul style="list-style-type: none"> - Environmental impacts section: mention of China’s extended producer responsibility system, inc. circular economy promotion law. Mentions problems with waste recycling in China & new import requirements of waste. Agreement is expected to have a positive impact re waste management, as EU companies will have to apply more envt friendly technologies
Ex-post evaluation on the implementation of the EU-Mexico FTA (from 2000)	Final report – February 2017	<ul style="list-style-type: none"> - Assessment of the FTA’s impact on green growth (defined here as the attempt to decouple economic growth from the depletion and degradation of resources) and on the environmental goods and services sector, within the environmental impact analysis. - Sustainable production referred to in the agricultural sector only.
Evaluation of the implementation of the FTA EU-South Korea	Final report – May 2018	<ul style="list-style-type: none"> - TSD Committee meetings: Parties’ respective SCP initiatives discussed at the 2013 meeting – no clear outcome; Parties’ respective CE strategy discussed at the 2015 meeting – no clear outcome. - Case study on EGS (inc. products used for resource and energy efficiency, management of solid and hazardous waste). - Assessment of the FTA’s impact on CO2 emissions by sector core focus of environmental analysis. Assessment of impact on waste management also included. - No mention of CE or SCP in any other document available (staff working document, evaluation roadmap, ToR).

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