

Impacts of EU Circular Economy Policies in Third Countries

An exploratory study of the Electronics and Vehicles Sectors in Vietnam and Nigeria

Final Report

June 2023

Report For

European Environmental Bureau (EEB). The EEB is Europe's largest network of environmental citizens' organisations. We bring together over 180 civil society organisations from 38 European countries. Together, we work for a better future where people and nature thrive together. The EEB is an International non-profit association / Association internationale sans but lucratif (AISBL).

EC register for interest representatives:
Identification number 06798511314-27
BCE identification number 0415.814.848
RPM Tribunal de l'entreprise francophone de Bruxelles

Research Team

Theresa Reichstadt, Charlotte Taylor, Lauren Duffield, Natalie Cretsi-Bacolas

Technical Leads

Tanzir Chowdhury

Prepared By

Tanzir Chowdhury, Theresa Reichstadt, Charlotte Taylor, Lauren Duffield, Anne Farnbacher (Project Manager)

Quality Review

Dr Chris Sherrington

Responsible Editor

Jean-Pierre Schweitzer (EEB)

Approved By



Dr Chris Sherrington (Project Director)

Acknowledgements

Our thanks to all stakeholders, such as E-waste Producer Responsibility Organisation Nigeria (EPRON), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Vietnam and the African Circular Economy Network (ACEN) Foundation, that have kindly agreed to provide data and insights for this study, and to the EEB team.

Eunomia Research & Consulting Ltd

37 Queen Square

Bristol

BS1 4QS

United Kingdom

Tel +44 (0)117 9172250

Fax +44 (0)8717 142942

Web www.eunomia.co.uk

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With the support of the Open Society Foundations and the LIFE Programme of the European Union.

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European Environmental Bureau (EEB)

Rue des Deux Eglises 14-16

1000 Brussels, Belgium

Tel +32 (0)2 289 1090

Mail eeb@eeb.org

Web eeb.org

News meta.eeb.org

Executive Summary



Approach

The European Commission's Circular Economy Action Plan, adopted in 2020, sets out its ambition for scaling up the circular economy to achieve net zero carbon emissions by 2050, to progressively decouple economic growth from resource use in an equitable manner, and to secure the EU's long-term competitiveness. Realising this ambition requires the European Union (EU) to lead global transition efforts in moving more rapidly towards a model based on sustainable resource consumption, by reducing the use of virgin material and doubling the rate of circular material use during the next decade.^{1,2} A number of pivotal policies along the entire life cycle of products, introduced in the Action Plan, are designed to empower consumers and public buyers, reduce waste, create a high-quality internal market for secondary raw materials and ensure that business models, products, services are sustainable by default in the EU.³ The Action Plan recognises not only the importance of this transition for the EU's worldwide economic ties, but also the potential for resulting opportunities for countries across the globe. However, little is known about the effects that these policies to accelerate the transition to the circular economy may have on 'third countries', outside the EU. Given the strength of the EU internal market and its high demand for imported products and materials, and flows of used goods to third countries, it is important to seek to understand the ways in which circular economy policies may impact external markets.⁴

Accordingly, the aim of this exploratory study is to inform the European Environmental Bureau on the potential opportunities and risks created in third countries from the implementation of circular economy policies in the EU. The study focuses on two sectors - vehicles and electronics - and uses two countries - Vietnam and Nigeria - as examples to assess the upstream/downstream stages of the respective value chains to identify and consider possible impacts. For this purpose, Vietnam is analysed with an emphasis on potential upstream impacts and Nigeria with a focus on potential downstream impacts.

The analysis of the two sectors and countries, along with stakeholder engagement with country and industry representatives, was used to create a typology of the opportunities and risks created by various EU circular economy policies. Recommendations were then formulated for approaches and methodologies that more robustly capture and assess the impacts the EU's circular economy policies can have on third countries, highlighting key points of intervention and related indicators that complement those most often documented in EU impact assessments. Case studies were developed using the suggested indicators to assess their technical and practical feasibility. Undertaking this exploratory study has revealed the following key findings and recommendations.

Key Findings

EU circular economy policies are designed to accelerate progress towards sustainable resource use and circular economic practices globally. It is crucial that any risks that the policies will deliver adverse impacts abroad are identified so they can be mitigated, and potential fears can be addressed appropriately. Additionally, assessing potential opportunities will allow for positive impacts to be maximised and for the EU's role as policymaker to be

^{1,3} European Commission (2020) Circular Economy Action Plan: for a Cleaner and More Competitive Europe. Available at: <https://op.europa.eu/en/publication-detail/-/publication/45cc30f6-cd57-11ea-adf7-01aa75ed71a1/language-en> (Accessed April 2023)

² The EU's circular material use rate reflects the savings of primary raw material extractions by monitoring the rate of recycled waste materials used as resources in the EU, which increased from 12% in 2019 to 12.8% in 2020 (European Commission, 2020, Eurostat: EU's circular material use rate increased in 2020. <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20211125-1> - Accessed April 2023)

⁴ Circle Economy 2022 Thinking Beyond Borders to Achieve Social Justice in a Global Circular Economy. Available at: <https://www.circle-economy.com/resources/thinking-beyond-borders-to-achieve-social-justice-in-a-global-circular-economy> (Accessed April 2023)

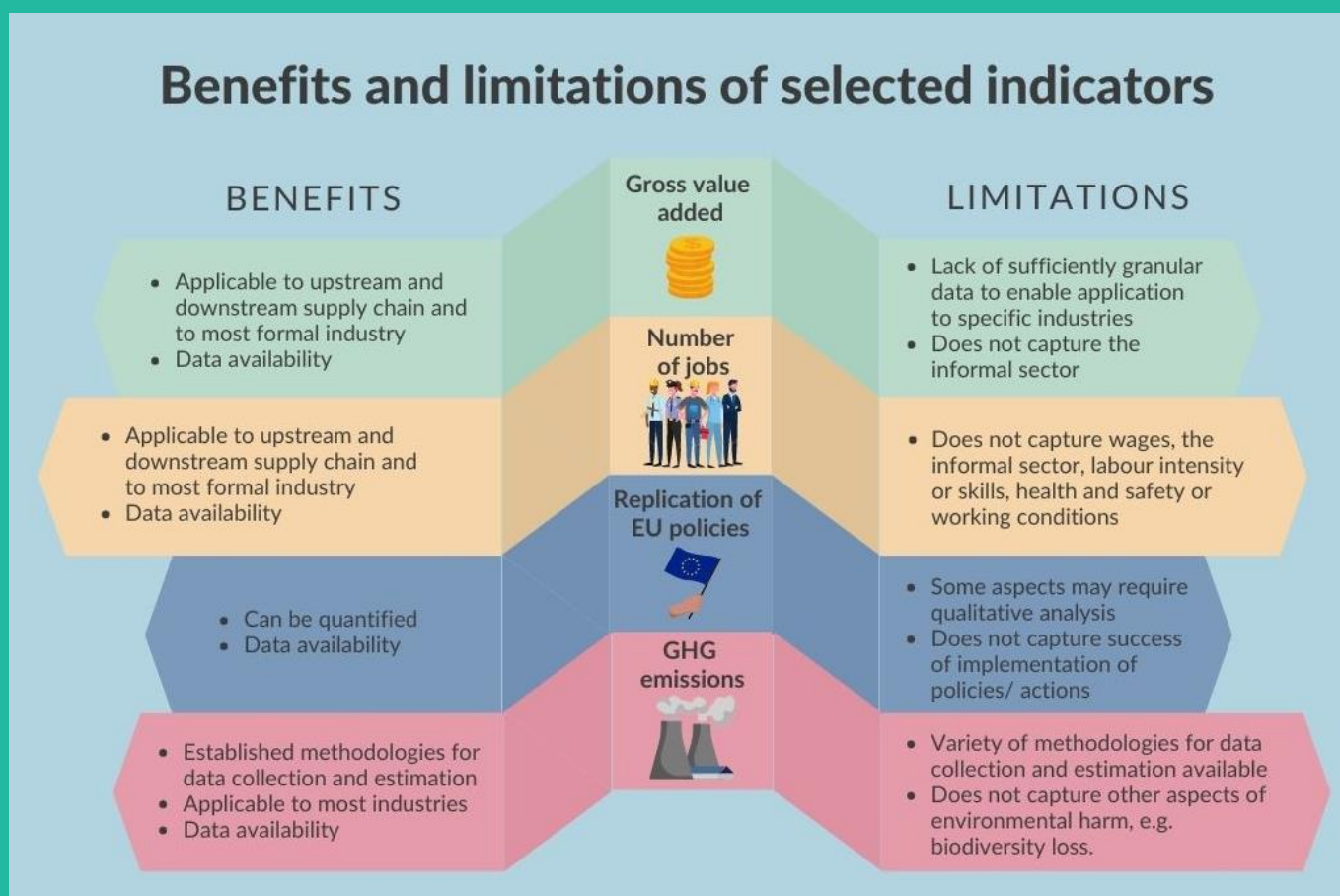
strengthened on the global stage. Building trust rather than creating opposition is essential in order to secure the support of third countries that may be affected by such policies.

The study shortlisted four indicators, already used in EU impact assessment to consider impacts on Member States, that could be used to seek to assess the impacts of EU CE policies on third countries. These indicators are a starting point, and it is envisaged that as time goes on further indicators could be used to more fully build an understanding of impacts. The four initial indicators are:

- Gross Value Added (GVA) – representing economic impacts;
- Number of jobs – representing social impacts;
- GHG emissions – representing one type of environmental impact; and
- Replication of EU policies – representing geo-political impacts.

The usefulness and limitations of the shortlisted indicators are presented in Figure E-1. Given that the shortlisted indicators are already used in assessing the impacts of proposed EU policies on the EU and the Member States, the impact of these policies on third countries could be estimated using a similar methodology applied for estimating the impact on EU countries.

Figure E-1: Indicator Benefits and Limitations



The key methodological steps that could be employed for assessing the impacts of EU CE policies on third countries are the following:

Identifying all impacted countries and selecting some example countries	Identify all countries that have upstream and downstream trade relationships with the EU using various trade databases (e.g., EU COMEXT, UN COMTRADE).
	Select example countries which have good data for estimating impacts, which can then be extrapolated for all third countries.
Identifying relevant sectors and impacts to assess	Both upstream and downstream sectors should be identified.
	Identify the impacts to be assessed on these sectors using each of the shortlisted indicators.
Identifying the data needs	Should look for data on third countries similar to the data used in assessment of impacts on EU countries.
	Data can be from published/grey literature from both national and international sources.
Involving relevant stakeholders	This could facilitate collation of relevant data and evidence and identify data gaps.
	Stakeholders should include national stakeholders, such as national statistical authorities, trade bodies, etc., as well as relevant regional stakeholder groups, such as Association of Southeast Asian Nations (ASEAN), Circular Economy Stakeholder Platform, African Circular Economy Network (ACEN), etc.
Estimation of impacts	Estimation of impacts should involve modelling approaches, where possible, similar to the modelling undertaken for assessing the impact of EU CE policies on EU countries.
	To estimate the impacts on third countries, data on unit impact factors (i.e., the change in impact for a unit change in product flow or waste flow) are available from other countries from the existing literature.
	Where relevant and possible impact factors from other countries should be adjusted to reflect the context of the third country that is being assessed.
	The modelled upstream and downstream impacts for example countries should be extrapolated to all third countries using data on relative trade share with EU for different countries.
	Some of the impacts on third countries can be estimated using proxy indicators, where data is not available for the shortlisted indicators.
	In the absence of the required quantitative data, impacts should be discussed qualitatively, accompanied by rationale and evidence, where available, in support of the discussion.

Data relating to potential impacts of the EU's circular economy policies in third countries are currently limited. This study has highlighted the need for improved tracking and accountability of impacts of the EU's circular economy policies in third countries in the policymaking process. Improved data is an essential underpinning requirement, that will facilitate greater co-operation, and lead to a more rapid adoption of a circular economy globally.

Recommendations

Beyond improving the availability of information about potential impacts of EU circular economy policies in third countries, further progress is required to find solutions that will minimise the risks and maximise the opportunities for third countries, identified in this study. These may include investments into circular economy infrastructure such as reuse centers and recycling facilities, technical assistance to help companies comply with EU product requirements, or the provision of incentives to companies or countries that promote a circular economy business model. It is important to note that the solutions will need to be tailored to suit the specific country context, and it is suggested to work in close collaboration with partners on the ground in third countries. The uptake of these recommendations will further encourage a fair shift to a global circular economy.

Table of Contents

Executive Summary	1
1.0 Introduction.....	7
1.1 Background	8
1.2 The Global Role of the European Union as Policymaker	10
1.3 Report Structure	11
2.0 Methodology.....	12
3.0 Policy Context	15
3.1 Better Regulation Agenda	16
3.2 Timeline	18
3.3 Relevant Policies and Regulations	20
4.0 Upstream Impacts of EU Circular Economy Policies in Vietnam	25
4.1 Background	26
4.1.1 Electronics	27
4.1.2 Vehicles.....	29
4.2 Upstream Opportunities and Risks	29
4.2.1 Economic Opportunities and Risks in Vietnam.....	30
4.2.2 Social Opportunities and Risks in Vietnam.....	32
4.2.3 Environmental Opportunities and Risks in Vietnam.....	32
4.2.4 Geo-political Opportunities and Risks in Vietnam.....	33
5.0 Downstream Impacts of EU Circular Economy Policies in Nigeria.....	34
5.1 Background	35
5.1.1 Electronics	36
5.1.2 Vehicles.....	36
5.2 Downstream Opportunities and Risks	37
5.2.1 Economic Opportunities and Risks in Nigeria	38
5.2.2 Social Opportunities and Risks in Nigeria	39
5.2.3 Environmental Opportunities and Risks in Nigeria	40
5.2.4 Geo-political Opportunities and Risks in Nigeria	40
5.3 Summary of Upstream and Downstream Opportunities and Risks	41
6.0 Indicators for Assessing Impacts	42
6.1 Potential Indicators for Opportunities and Risks	43
6.2 Overview of Assessment Methodology	46
6.2.1 Identifying All Impacted Countries and Selecting Some Example Countries	46
6.2.2 Identifying Relevant Sectors and Impacts to Assess.....	46
6.2.3 Identifying the Data Needs.....	49

6.2.4 Involving Relevant Stakeholders	50
6.2.5 Estimation of Impacts	50
<hr/>	
7.0 Conclusions.....	52
7.1 Future Considerations	53
7.2 Recommendations for Further Work	54
<hr/>	
Appendix	55
A 1.0 Glossary	56

1.0

Introduction



Eunomia Research & Consulting Ltd. (Eunomia) was commissioned by the European Environmental Bureau (EEB) to explore the potential impacts of EU circular economy (CE) policies on 'third countries', i.e., those outside of the European Union (EU). The study involved:

- a literature review of the potential impacts of CE policies on third countries, identifying positive opportunities and potential risks associated with these policies;
- the development of a typology of possible risks and opportunities;
- seeking to ascertain the extent to which the development of new EU policies takes into account impacts on third countries;
- recommending approaches and methodologies which could be applied to better assess impacts in third countries; and
- providing two case studies to exemplify how impacts in third countries could be better integrated in EU policies currently under development.

In order to target the research, the focus of the study was restricted to the electronics and vehicles sectors, and to just two countries, with a view to drawing lessons that could be more widely applicable to other sectors and countries.

1.1 Background

The European Commission's Circular Economy Action Plan, adopted in 2020, sets out its ambition for scaling up the circular economy to achieve net zero carbon emissions by 2050, to progressively decouple economic growth from resource use in an equitable manner, and to secure the EU's long-term competitiveness. Realising this ambition requires the European Union (EU) to lead global transition efforts in moving more rapidly towards a model based on sustainable resource consumption, by reducing the use of virgin material and doubling the rate of circular material use during the next decade.^{5,6} A number of pivotal policies (including 35 key actions) along the entire life cycle of products, introduced in the Action Plan, are designed to empower consumers and public buyers, reduce waste, create a high-quality internal market for secondary raw materials and ensure that business models, products, services are sustainable by default in the EU. The EU aims to take a leading role in driving the global transition to a circular economy when working on tasks such as: a global agreement on plastics, Global Circular Economy Alliance, Safe Operating Space, international agreements on the management of natural resources, partnership strengthening with Africa and accession process with the Western Balkans, agreements (e.g., environmental agreements, Free Trade Agreements, multilateral, bilateral and regional policy dialogues), outreach activities.⁷

The Action Plan recognises not only the importance of this transition for the EU's worldwide economic ties, but also the potential for resulting opportunities for countries across the globe. However, little is known about the effects that these policies to accelerate the transition to the circular economy may have on 'third countries', outside the EU. Part of a circular approach is to act holistically at every stage of a supply chain, regardless of whether that supply chain involves EU or non-EU (third) countries. Additionally, such a paradigm shift towards a circular approach to policy design will influence many changes in the supply chain, potentially positively or negatively affecting third countries environmentally, socially, economically or politically. Given the strength of the EU internal market and its high

^{5,7} European Commission (2020) Circular Economy Action Plan: for a Cleaner and More Competitive Europe. Available at: <https://op.europa.eu/en/publication-detail/-/publication/45cc30f6-cd57-11ea-adf7-01aa75ed71a1/language-en> (Accessed April 2023)

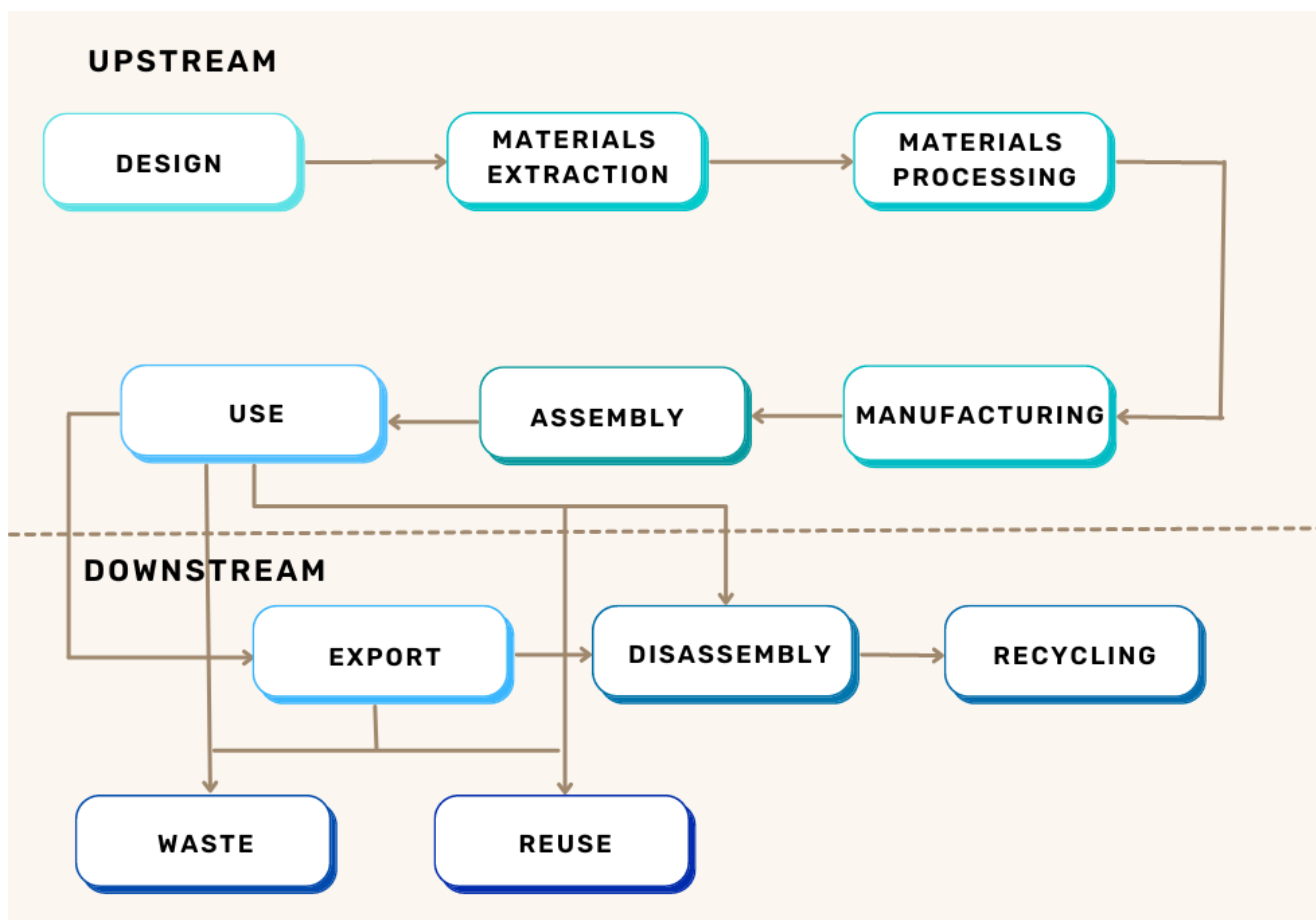
⁶ The EU's circular material use rate reflects the savings of primary raw material extractions by monitoring the rate of recycled waste materials used as resources in the EU, which increased from 12% in 2019 to 12.8% in 2020. (European Commission, 2020, Eurostat: EU's circular material use rate increased in 2020. Available at: <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20211125-1> - Accessed April 2023)

demand for imported products and materials, and flows of used goods to third countries, it is important to seek to understand the ways in which circular economy policies may impact external markets.⁸

To assess the potential impacts of EU circular economy policies in third countries, this report analyses two sectors: the electronics sector and the vehicles sector. The analysis focuses on the potential impacts of the following EU circular economy policies on these two sectors: the Batteries Regulation; Ecodesign Framework Directive, Energy Labelling Directive and the new Ecodesign for Sustainable Products Regulation (ESPR); End-of-Life Vehicles (ELV) Directive; Waste Electrical and Electronic Equipment (WEEE) Directive; and Corporate Sustainability Reporting Directive (CSRD) and Sustainable Finance Package. Further details on the policy context for the report are outlined in Section 3.0. While the focus of the study has been restricted to the above EU circular economy policies, there are other policies in the EU that were identified, for example, the Waste Shipment Regulation and the Sustainable and Smart Mobility Strategy, that will impact third countries. However, to keep the project scope manageable, the impact of these other policies on third countries have not been analysed in great detail.

The report examines the potential upstream and downstream impacts of policies in the electronics and vehicles sectors. Upstream refers to the parts of the supply chain involved in the raw material extraction, production and manufacturing activities that take place before a product is used or purchased by a consumer. Downstream refers to the activities and actors involved after a product is purchased, used or reused by a consumer, including end-of-life management.

Figure 2: Supply Chain



⁸ Circle Economy 2022 Thinking Beyond Borders to Achieve Social Justice in a Global Circular Economy. Available at: <https://www.circle-economy.com/resources/thinking-beyond-borders-to-achieve-social-justice-in-a-global-circular-economy> (Accessed April 2023)

To examine these impacts in more detail, two countries were chosen as case studies - Vietnam and Nigeria - due to their activities within the supply chain in the electronics and vehicles sectors as well as their trade relationship with the EU. Vietnam is a significant exporter to the EU, while Nigeria is a significant importer of end-of-life EU products. Due to the topics covered in this report being an area of research that is still underexplored, a mapping exercise was undertaken to aid the identification of potential impacts of EU circular economy policies in the two countries and the risks and opportunities associated with them. Based on the analysis and stakeholder consultations, the report also aims to provide recommendations for approaches and methodologies to more robustly identify and assess these effects in third countries in impact assessments of proposed EU policies.

Improving the identification, understanding and mitigation of potential negative impacts and the maximisation of positive effects of the EU's circular economy policies may help to build third countries' participation in circular economy measures. This should benefit third countries with which the EU trades, whilst enabling and encouraging the global change needed for the transition to a low carbon, resource-efficient and circular economy.

1.2 The Global Role of the European Union as Policymaker

The European Union (EU) has acknowledged that the transition to a climate neutral, just, resource-efficient and circular economy must be global and that its role as a world leader in this arena is both a responsibility and an opportunity.⁹ The EU's Circular Economy Action Plan, for example, builds in actions that recognise the need for the EU to use its influence, expertise and financial resources to lead the transition to a circular economy at the global level. The Staff Working Document which accompanies the Circular Economy Action Plan, explicitly identifies the EU's global 'soft' power as a major prospect for promoting circular economy policies internationally.¹⁰ In particular, '*alignment, where appropriate, with EU circular economy norms and standards, product policy (including ecodesign)*' is regarded as an important tool for the EU to leverage in this endeavour.¹¹

The EU works on environmental issues with internal and external partners¹² and is known for its high environmental standards thanks to a comprehensive and ambitious policy landscape, elements of which are often emulated in third-country policies. An example of this can be seen in the EU's Single-Use Plastics (SUP) Directive, which was adopted in June 2019 and came into force on 3rd July 2021.

The purpose of the SUP Directive is to reduce the impacts of single-use plastics on the environment, especially in the marine environment, and foster a transition to a circular economy in the EU. The SUP Directive imposes various regulatory measures, including a ban on single-use plastic products where sustainable alternatives are easily available and affordable; design requirements, including tethered caps for plastic beverage bottles; separate collection targets for plastic beverage bottles; Extended Producer Responsibility (EPR) obligations; and awareness-raising measures.¹³ Since the adoption of the SUP Directive, other countries and regions have announced similar legislation to tackle

⁹ European Commission (2020) Circular Economy Action Plan: for a Cleaner and More Competitive Europe. Available at: <https://op.europa.eu/en/publication-detail/-/publication/45cc30f6-cd57-11ea-adf7-01aa75ed71a1/language-en> (Accessed April 2023)

¹⁰ European Commission (2020) Leading the way to a global circular economy: state of play and outlook. Commission Staff Working Document, SWD (2020) 100.

¹¹ European Commission (2020) Leading the way to a global circular economy: state of play and outlook. Commission Staff Working Document, SWD (2020) 100.

¹² European Commission (2022) Circular Economy Global. https://ec.europa.eu/environment/international_issues/circular_economy_global_en.htm (Accessed April 2023)

¹³ European Commission (2019) Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment. Official Journal of the European Union, L 155/1.

single-use plastics.¹⁴ Recently, for example, India amended legislation at national level to ban the manufacture, import, stocking, distribution, sale, and use of certain single-use plastic products, including ear buds, ice-cream sticks, plates, cups and cutlery.¹⁵

Given the strength of the EU internal market and its high demand for imported products and materials, circular economy policies could have cascading impacts on external markets.¹⁶ For example, with the European populace being such a large buyer of electronics, companies in this industry inevitably adapt to the EU's regulations in order to compete in the European market; this, in turn, 'trickles up' into companies' operations in third countries where electronics manufacturing and assembly takes place. This is commonly referred to as the "Brussels Effect", whereby regulatory globalisation occurs based on the EU setting global standards on products or service.¹⁷ There is also the effect of the EU's legislative culture altering the European, and wider, 'zeitgeist' to one where consumers want to make more responsible choices. This pushes large companies especially, who have brand reputation to maintain, into working on their image through direct action to improve environmental and social credentials.

While it is in the global community's interests to reduce resource use to sustainable levels, EU measures that have the effect of undermining certain economic sectors or increasing inequities in third countries could diminish support for circular economy measures abroad. They could also generate misperceptions that they are driven by notions of European protectionism or exceptionalism. There have been criticisms in the past of EU policy causing economic, social and environmental problems in third countries, especially developing countries. Often a lack of indicators for the external effects of policy, means that these problems are hidden from reporting.¹⁸

1.3 Report Structure

The rest of the report is structured as follows:

- **Section 2.0** addresses the methodology used to derive the conclusions made in this report.
- **Section 3.0** describes the policy context as a foundation to build our research from.
- **Section 4.0** outlines the upstream impacts of EU circular economy policies, using Vietnam as an example.
- **Section 5.0** outlines the downstream impacts of EU circular economy policies, using Nigeria as an example.
- **Section 6.0** identifies indicators that can be used to measure opportunities and risks and provides examples of how the selected indicators could be applied in the electronics and vehicles sectors.
- **Section 7.0** summarises the conclusions of the study.
- The **Appendix** provides **A 1.0 Glossary** of key terms.

Footnotes provide references to the sources of data used in the report.

¹⁴ World Economic Forum (2020) As Canada bans bags and more, this is what's happening with single-use plastics around the world.

¹⁵ Bhardwaj, N. (2022) India's New Plastic Waste Management Rules Effective from July 1, 2022. India Briefing.

¹⁶ Circle Economy (2022) Thinking Beyond Borders to Achieve Social Justice in a Global Circular Economy.

¹⁷ Bradford, A. (2021). *The Brussels Effect How the European Union Rules the World*. Oxford University Press: <https://scholarship.law.columbia.edu/books/232/> (Accessed November 2022)

¹⁸ SDG Watch Europe (2019) Who is paying the bill?

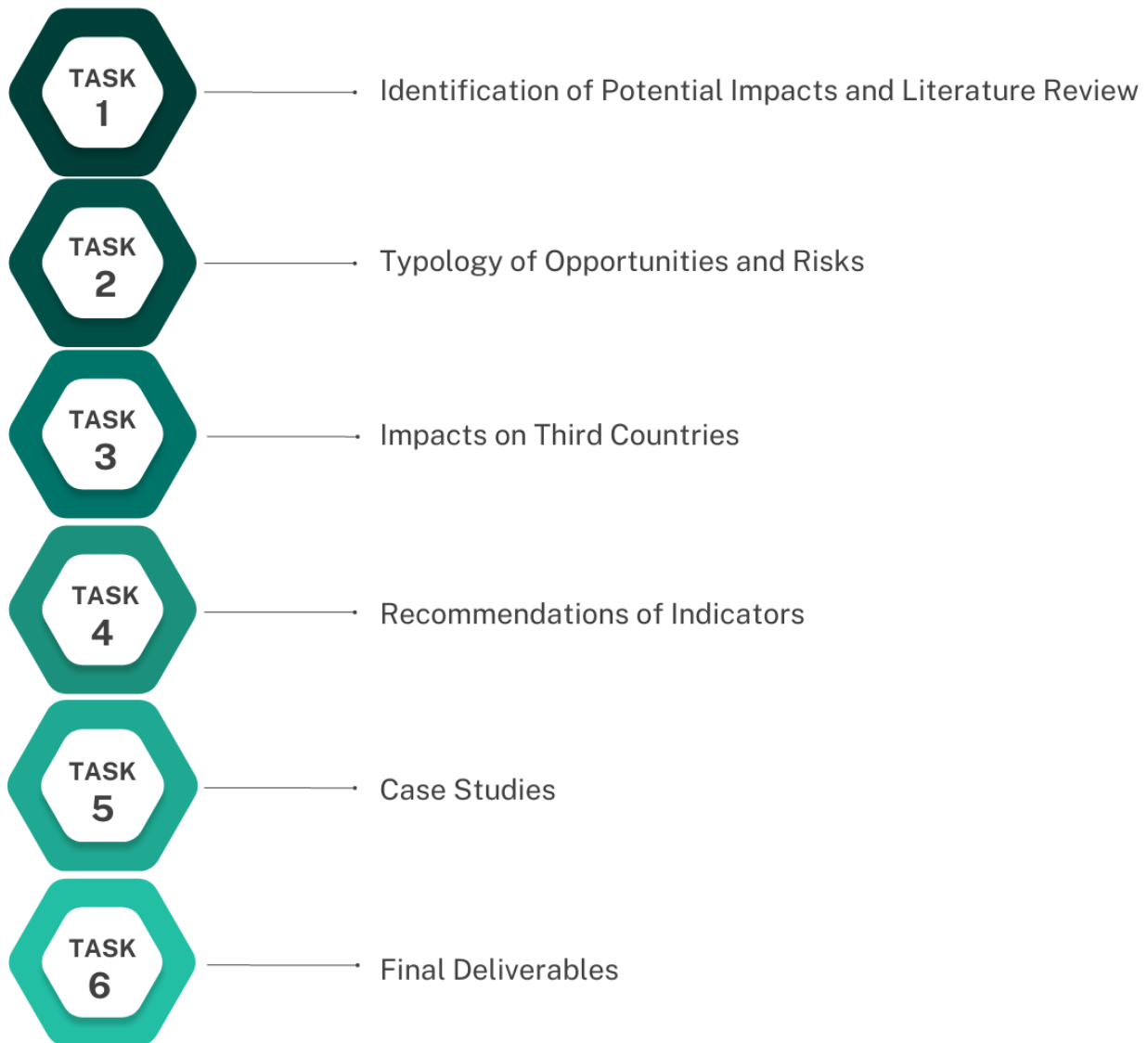
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Methodology



The methodology for this exploratory study consisted of six tasks. The figure below displays the tasks.

Figure 3 Methodology Tasks



Task 1 comprised of an evidence and literature review which was informed by a brainstorming exercise in which upstream and downstream activities involved in the electronics industry and the vehicles industry were mapped to various impacts. The activities within the supply chain of these sectors were mapped to the potential impacts on the environmental, financial and socio-economic activities in third countries. The aim was simply to trace through potential impacts as a way to guide the literature search, keeping in mind that the study is exploratory and so the number of existing studies and data on the impacts scarce. In addition, this task helped inform the selection of Vietnam and Nigeria as the focus countries for the study to better understand the impacts.

Task 2 involved the development of a typology for the characterisation of opportunities and risks based on the findings in Task 1. The characterisation considered how the two sectors could evolve over time, taking into account the technological and consumption trends identified. The typology of opportunities and risks considered both the associated upstream and downstream impacts.

In **Task 3** analysis was undertaken of impact assessments of existing EU circular economy policies for the relevant legislation using the typology created in Task 2 to inform our analysis on whether existing EU policies address the identified risks. Eunomia also conducted stakeholder interviews with industry and country representatives from Vietnam and Nigeria in order to understand the potential impacts on each sector and country in more depth. These stakeholders included E-waste Producer Responsibility Organisation Nigeria (EPRON), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Vietnam and the African Circular Economy Network (ACEN) Foundation.

Task 4 involved the identification of indicators which would enable the data gaps to be filled based on the impacts identified in Task 3. The recommendations include approaches to seek to robustly capture the impacts that circular economy policies can have on third countries by including specific data points in regulatory impact assessments.

This task further informed **Task 5** in which the selected indicators were applied in practice to identify benefits and drawbacks.

Lastly, **Task 6** consisted of the final deliverables which compiles the findings from the previous tasks into a final report and visuals. A presentation of the findings will also be given.

As previously mentioned, it is important to emphasise that this is an exploratory study, and the findings are intended to inform how to capture EU policy impacts on third countries given the current level of data availability.



3.0

Policy Context

The main policies covered by this report, due to their effects on the electronics and vehicles sectors, are the following:

- Batteries Regulation
- Ecodesign Framework Directive
- Energy Labelling Directive
- Ecodesign for Sustainable Products Regulation (ESPR)
- End-of-Life Vehicles (ELV) Directive
- Waste Electrical and Electronic Equipment (WEEE) Directive
- Corporate Sustainability Reporting Directive (CSRD)
- Sustainable Finance Package.

Other policies are mentioned and/or taken into account only where relevant, such as the Sustainable and Smart Mobility Strategy, the Waste Shipment Regulation and other related policies.

This section provides context on the focus policies to support the discussion of their potential impacts in third countries. We begin by describing the Better Regulation Agenda (Section 3.1). Though not strictly a policy, the Better Regulation Agenda is a guiding principle for policy design used by the European Commission.

3.1 Better Regulation Agenda

When designing new policies, the European Commission follows the 'Better Regulation' agenda, the objectives of which ensure policymaking is based on evidence, laws are simpler and 'better' (avoiding unnecessary burdens) and involve citizens, businesses, and stakeholders throughout the decision-making process. The highlights of this agenda are shown in **Figure 4**.

Figure 4-1 Highlights of the Better Regulation Agenda



Source: European Commission (No date) Better Regulation: why and how¹⁹

As part of this agenda, a toolbox has been developed to help policymakers and analysts assess the impacts of a policy or law before it is implemented, to monitor its effectiveness once it is in place, and to evaluate or conduct fitness checks.

The EU's Better Regulation Guidelines and Toolbox stipulate that the depth of analysis should:

*"reflect the significance of the impacts or effects that a given initiative or intervention may have within and outside the EU."*²⁰

The guidelines promote a comprehensive approach when considering the effects of any law or regulation, to include implications on third countries. This includes:

- Allowing third countries to submit evaluations, impact assessments and studies relating to EU law and regulation to the EU for consideration.
- Ensuring the compatibility of laws/regulations with international commitments including those agreed with the World Trade Organisation or in Free Trade Agreements with third countries.
- Using the EU's Better Regulation Toolbox (which prescribes particular actions to take) to actively encourage policymakers to consider the impacts of new policy on third countries.

¹⁹ European Commission (No date) Better Regulation: why and how: https://commission.europa.eu/law/law-making-process/planning-and-proposing-law/better-regulation_en (Accessed January 2023)

²⁰ European Commission (2021) Better Regulation Guidelines

3.2 Timeline

The timeline shown in **Figure 3-2** outlines key points in the development of the policies and strategies described in Section 3.3. These include the main policies that this report focuses on as outlined in **Sections 1.1** and **3.0** (presented in bold in the following list), as well as a wider range of related policies. Where a re-evaluation period is noted, this shows an indication for the length of time it is expected to take. For each policy, the sources we used are available in the associated footnotes:

• Waste Electrical and Electronic Equipment (WEEE) Directive²¹	• Batteries Regulation²²	• Waste Shipment Regulation ²³
• End-of-Life Vehicles (ELV) Directive²⁴	• Energy Labelling Directive²⁵	• Sustainable and Smart Mobility Strategy ²⁶
• Ecodesign Framework Directive^{27, 28}	• Circular Electronics Initiative ²⁹	• Tyre Labelling Regulation ^{30,31}
• Ecodesign for Sustainable Products Regulation (ESPR)³²	• Circular Economy Action Plan (CEAP) ³³	• Restriction of Hazardous Substances (RoHS) Directive ³⁴
• Corporate Sustainability Reporting Directive (CSRD)	• European Green Deal ³⁵	• Chemicals Strategy for Sustainability ³⁶
• Sustainable Finance Package	• European Community Whole Vehicle Type Approval (ECWVTA) ^{37,38, 39}	• Regulation on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) ⁴⁰

²¹ European Commission Waste from Electrical & Electronic Equipment (WEEE): https://environment.ec.europa.eu/topics/waste-and-recycling/waste-electrical-and-electronic-equipment-weee_en (Accessed January 2023)

²² IEA (2022) EU Directive 2006/66/EC Battery Directive: <https://www.iea.org/policies/15684-eu-directive-200666ec-battery-directive> (Accessed January 2023)

²³ European Commission Waste shipments: https://environment.ec.europa.eu/topics/waste-and-recycling/waste-shipments_en#:~:text=Review%20of%20the%20Waste%20Shipment,a%20clean%20and%20circular%20economy (Accessed January 2023)

²⁴ European Commission End-of-Life Vehicles Directive: https://environment.ec.europa.eu/topics/waste-and-recycling/end-life-vehicles_en (Accessed January 2023)

²⁵ European Commission Ecodesign and Energy Labelling: https://single-market-economy.ec.europa.eu/single-market/european-standards/harmonised-standards/ecodesign_en (Accessed January 2023)

²⁶ European Commission (2020) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Sustainable and Smart Mobility Strategy – putting European transport on track for the future: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789> (Accessed January 2023)

²⁷ Airedale (2023) Energy Efficiency: The European Ecodesign Directive 2009/125/EC: <https://www.airedale.com/ecodesign/> (Accessed January 2023)

²⁸ ECEEE Ecodesign Directive: <https://www.eceee.org/ecodesign/process/> (Accessed January 2023)

²⁹ European Parliament (2021) Legislative Train Schedule – Circular Electronics Initiative: <https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-circular-electronics> (Accessed January 2023)

³⁰ European Commission Tyres: https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/energy-label-and-ecodesign/energy-efficient-products/tyres_en (Accessed January 2023)

³¹ European Tyre and Rubber (2019) Tyre Regulations: <https://www.etrma.org/key-topics/tyre-regulations/#:~:text=The%20Tyre%20Labelling%20Regulation%20has.grip%2C%20and%20external%20rolling%20noise> (Accessed January 2023)

³² European Commission (2022) Ecodesign for sustainable products: https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/ecodesign-sustainable-products_en#:~:text=The%20proposal%20for%20a%20new.environmentally%20sustainable%20and%20circular%20products (Accessed January 2023)

³³ European Commission (2020) Circular Economy Action Plan. Available at: <https://op.europa.eu/en/publication-detail/-/publication/45cc30f6-cd57-11ea-adf7-01aa75ed71a1/language-en> (Accessed April 2023)

³⁴ European Commission Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS): https://environment.ec.europa.eu/topics/waste-and-recycling/rohs-directive_en (Accessed January 2023)

³⁵ European Commission A European Green Deal: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en (Accessed January 2023)

³⁶ ECHA Chemicals Strategy for Sustainability: <https://echa.europa.eu/hot-topics/chemicals-strategy-for-sustainability> (Accessed January 2023)

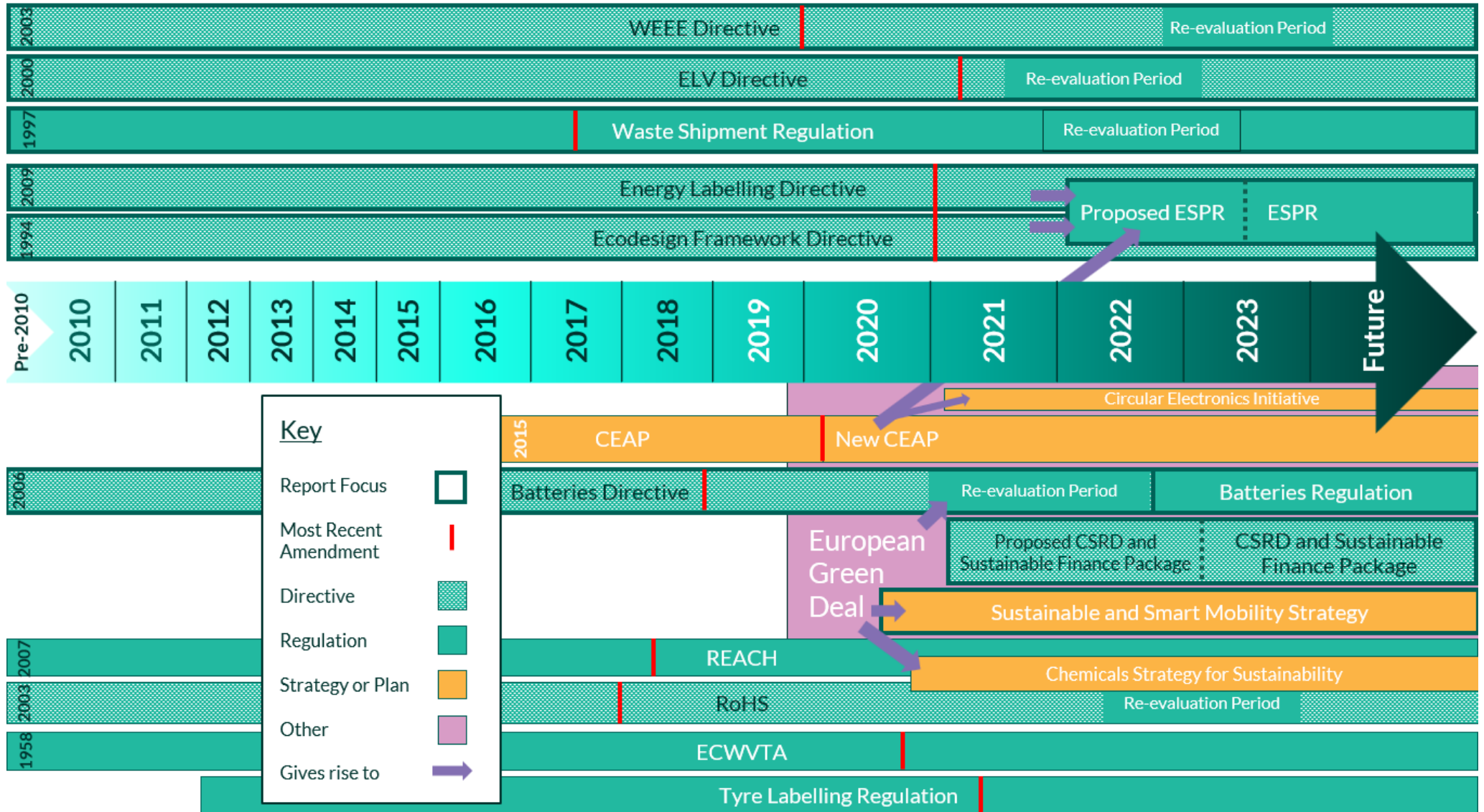
³⁷ Official Journal of the European Union (2018) REGULATION (EU) 2018/858 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0858> (Accessed January 2023)

³⁸ ACEA (2018) Type Approval: <https://www.acea.auto/fact/type-approval/#:~:text=Put%20simply%2C%20European%20Community%20Whole.environmental%2C%20safety%20and%20security%20standards.> (Accessed January 2023)

³⁹ European Commission International technical harmonisation: https://single-market-economy.ec.europa.eu/sectors/automotive-industry/technical-harmonisation/international-technical-harmonisation_en (Accessed January 2023)

⁴⁰ European Commission REACH: https://ec.europa.eu/environment/chemicals/reach/reach_en.htm (Accessed January 2023)

Figure 3-2 Timeline of Regulations Presented in Section 3.3 (Data Accessed January 2023)





3.3 Relevant Policies and Regulations

Table 3-1 and Table 3-2 provide an overview of policies and regulations relevant to the electronics and vehicles sectors and the wider report context. The tables further indicate whether a policy is relevant to the electronics (📱) and/or vehicles (🚗) sector, and/or has upstream and/or downstream effects.

Table 3-1 Main policies and regulations affecting the electronics and vehicles sectors



Name	Overview	📱	🚗	Upstream Effects	Downstream Effects
Batteries Regulation	<p>Outlines new sustainability requirements for the entire life cycle of batteries.⁴¹ Covers material extraction and processing, the carbon footprint of batteries and their end-of-life handling. Changes include:</p> <p>Strong due diligence (DD) regime covering entire battery life cycle, adopting internationally recognised DD standards e.g., United Nations Guiding Principles.</p> <p>Extension of carbon footprint information, labelling and maximum threshold values to cover electrical vehicle batteries, light means of transport batteries (e.g., for e-scooters) and industrial batteries.</p> <p>Allowing the easy and safe replacement of batteries in appliances and light means of transport.</p> <p>More ambitious targets for collection of batteries used in appliances and light means of transport.</p> <p>A higher material recovery target for lithium.</p> <p>Better recycling efficiencies of nickel-cadmium batteries.</p> <p>Requirement on performance and durability for portable batteries of general use as well as for rechargeable industrial batteries and electric vehicle batteries</p> <p>Mandatory recycled content targets for cobalt, lead, lithium and nickel to be met by 2030, and increased targets for cobalt, lithium and nickel are to be established by 2035.</p> <p>Harmonised chargers for electric vehicles (EVs), light means of transport and specific categories of electrical and electronic equipment.</p>	✓	✓	✓	✓

⁴¹ [European Parliament \(2022\) Briefing Note - New EU regulatory framework for batteries](#) (Accessed February 2023)

Name	Overview			Upstream Effects	Downstream Effects
Ecodesign Framework Directive	Sets common EU-wide minimum standards to eliminate worst performing products from the market; works in conjunction with the Energy Labelling Directive. Revisions include elements to further enhance reparability and recyclability of appliances. Plans drafted in 2022 for increased ambition on energy efficiency and product design requirements for energy related products to tie in with ESPR.	✓		✓	✓
Energy Labelling Directive	Requirements for efficiency labelling for a number of electrical appliances are stipulated, to put pressure on manufacturers to make their products more energy efficient through consumer pressure.	✓		✓	
ESPR	Builds on ecodesign and energy labelling directives, expanding scope in terms of products as well as new requirements. Likely to apply to nearly all goods placed on the market, with specified exceptions (e.g., food). ⁴² Will establish performance requirements to: improve durability, reliability, reusability, upgradability and reparability of products; reduce presence of substances that inhibit circularity; increase; energy and resource efficiency, including recycled content in products; improve remanufacturing and recycling of products; require carbon and environmental footprints of products to be published as well as the expected generation of waste materials from a product. A third set of requirements established by the ESPR aim to prevent the destruction of unsold consumer goods. Will also impose information requirements for products, including a Digital Product Passport (DPP). The DPP will increase transparency about the origins of the materials used and their embodied environmental impact.	✓		✓	✓
ELV Directive	The ELV Directive “sets out measures to prevent and limit waste from End-of-Life Vehicles (ELVs) and their components by ensuring their reuse, recycling and recovery. It also aims to improve the environmental performance of all economic operators involved in the life cycle of the vehicles”. ⁴³		✓	✓	✓



⁴² European Commission (2022) Proposal for a Regulation establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC. COM(2022) 142 final

⁴³ European Commission (2020) Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of life vehicles: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=legisum%3A121225> (Accessed November 2022)

Name	Overview			Upstream Effects	Downstream Effects
WEEE Directive	<p>Upholds values presented in the Waste Framework Directive (WFD), such as improving the environmental performance up and downstream of Electrical and Electronic Equipment's (EEE's) life cycle.</p> <p>Requires separate collection and proper treatment of WEEE and sets targets for collection, recovery and recycling.</p> <p>Outlines measures to make it harder for exporters to disguise illegal shipments of WEEE.</p> <p>Reduces administrative burden through harmonisation of national EEE registers and of reporting formats.⁴⁴</p>	✓		✓	✓
CSRD and Sustainable Finance Package	<p>A current Non-Financial Reporting Directive (NFRD) requires large companies and groups across EU to publish information on environmental matters, social matters, treatment of employees, respect for human rights, anti-corruption and bribery, and diversity on company boards. The CSRD proposal would extend scope to all large companies (>500 employees) and companies listed on regulated markets.</p> <p>CSRD proposal sets out requirements for auditing of the reported information and introduces more detailed requirements for the reports.</p> <p>A Sustainable Finance Package was announced; designed to steer investment towards more sustainable technologies and businesses, using the reporting to inform investors of the social and environmental credentials of companies.</p> <p>A proposal for related directive on Corporate Sustainability and Due Diligence (CSDD) has also been adopted, which aims to endorse greater corporate responsibility, improve sustainability due diligence standards and corporate governance of human rights, and aid stakeholders' rights to access remedies.</p>	✓	✓	✓	✓



⁴⁴ European Commission (No Date) Waste from Electrical and Electronic Equipment (WEEE): https://environment.ec.europa.eu/topics/waste-and-recycling/waste-electrical-and-electronic-equipment-weee_en (Accessed November 2022)

Table 3-2 Additional policies relevant to the report context

Name	Overview			Upstream Effects	Downstream Effects
Sustainable and Smart Mobility Strategy	Three main objectives: increase the sustainability of transport (in terms of emissions and materials sourcing), make transport “smart” (taking advantage of digitalisation and automation to improve the connectivity and expand abilities of transport) and improve the resilience of transport (future-proofing the transport industry). ⁴⁵ Error! Reference source not found.		✓	✓	✓
Waste Shipment Regulation	Sets out plans to establish new rules for EU waste exports; puts in place mechanisms to restrict the export of hazardous and hard to recycle waste to non-OECD countries; improves the ease with which waste can be transported for recycling or re-use within EU member states and sets out measures for tackling illegal waste shipments. The main objectives of the Regulation are to protect the environment and human health.	✓	✓	✓	✓
CEAP	Sets out a range of initiatives to improve circularity along the entire life cycle of different products. It feeds into many different Directives, calling for updated measures with the aim of making sustainable products the norm in the EU, empowering consumers and public buyers, focusing on the sectors that use most resources and where the potential for circularity is high such as: electronics and ICT, batteries and vehicles, packaging, plastics, textiles, construction and buildings, food, water and nutrients, ensuring less waste, making circularity work for people, regions and cities, leading global efforts on circular economy. ⁴⁶	✓	✓	✓	✓
Circular Electronics Initiative	A non-legislative initiative which arose from the CEAP. Stipulates regulatory measures for electronics and ICT including mobile phones, tablets and laptops under the Ecodesign Directive. Measures include regulations for electronics and ICT including mobile phones, tablets and laptops under the Ecodesign Directive, implementation of the ‘right to repair’, including a right to update obsolete software, regulations on chargers for mobile phones. and similar devices (including the introduction of a common charger), improvement of the collection and treatment of waste electrical and electronic equipment, a review of EU rules on restrictions of hazardous substances in electrical and electronic equipment	✓		✓	✓
European Community Whole Vehicle	A certification process that ensures vehicles placed on the market in the EU meet relevant environmental, safety and security standards.		✓	✓	✓

⁴⁵ 2ZeroEmission.eu (2020) Sustainable and Smart Mobility Strategy – European transport on track for the future: <https://www.2zeroemission.eu/mediaroom/sustainable-and-smart-mobility-strategy-european-transport-on-track-for-the-future/> (Accessed November 2022)

⁴⁶ European Commission (2020) Circular Economy Action Plan: https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en (Accessed November 2022)

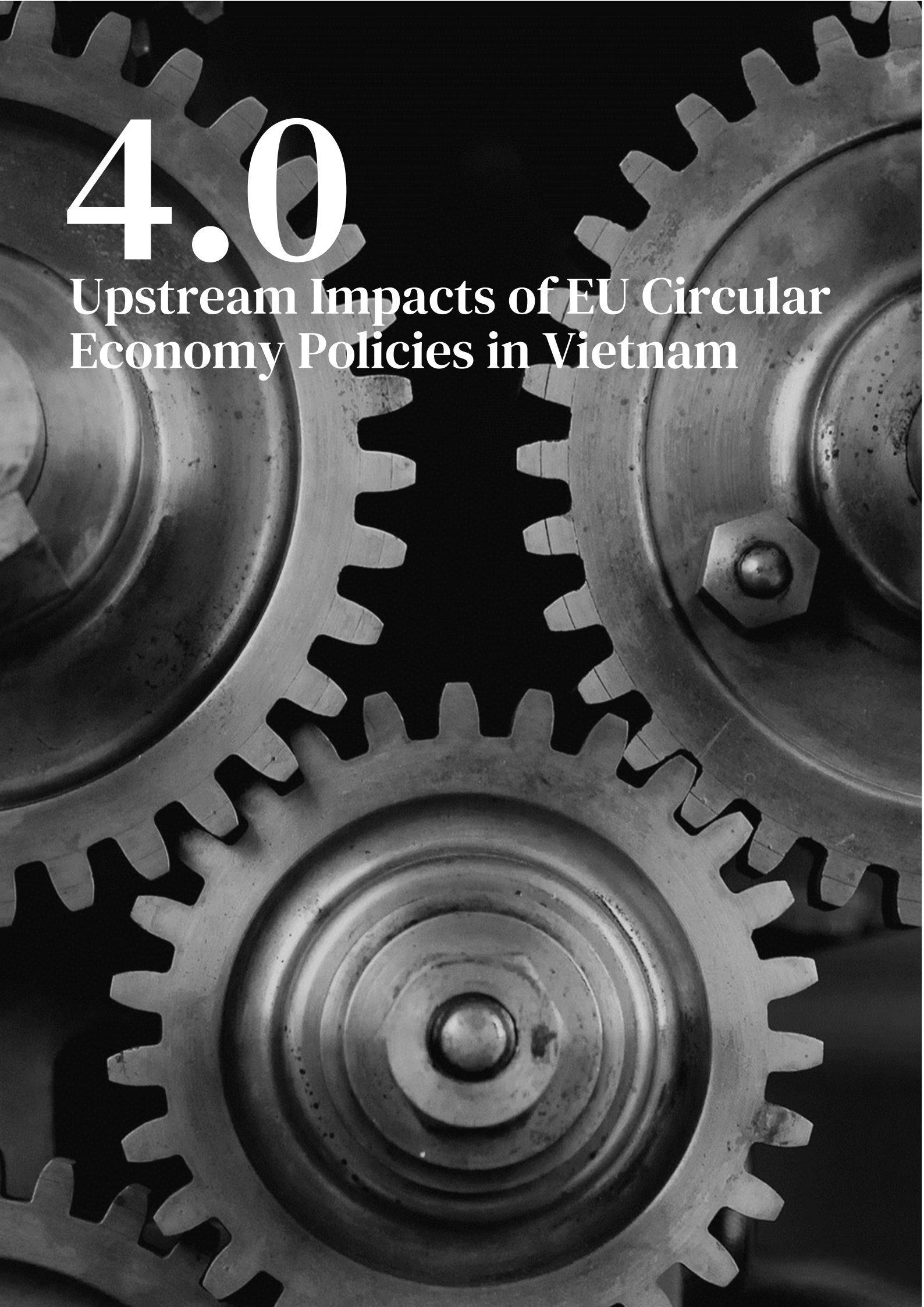
Name	Overview			Upstream Effects	Downstream Effects
Type Approval (ECVVTA)					
Tyre Labelling Regulation	A standalone ecolabelling regulation, not informed by the ESPR. It reports the efficiency of the tyre (alongside other parameters such as wet grip). This labelling informs and therefore influences consumer choice in tyres.		✓	✓	✓
Chemicals Strategy for Sustainability	Published in 2020 as part of the European Green Deal. According to the European Commission, the strategy <i>“strives for a toxic-free environment, where chemicals are produced and used in a way that maximises their contribution to society including achieving the green and digital transition, while avoiding harm to the planet and to current and future generations.”</i> ⁴⁷ The Strategy calls for revisions of REACH and RoHS (see below).	✓	✓	✓	✓
Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)	REACH was adopted in 2007 with the purpose of protecting human and environmental health, as well as enhancing the competitiveness of the EU chemicals industry. ⁴⁸ Revisions to REACH include more restrictions for harmful substances, with broader grouping to help better cooperation, a regularly reviewed rolling list of substances and the aim of giving more transparency to stakeholders so that they can better keep abreast of changes.	✓	✓	✓	✓
Restriction of Hazardous Substances Directive (RoHS)	The RoHS regulates the use of toxic materials in electrical and electronic devices, systems and toys. All products with an electrical and electronic component must comply with the restrictions unless they are specifically exempt. As part of the RoHS, a specific directive addressing the use of hazardous substances in Electrical and Electronic Equipment (EEE) was devised and implemented in 2011. This compliments the Waste Electrical and Electronic Equipment (WEEE) Directive.	✓		✓	✓

⁴⁷ European Commission (2020) Chemicals Strategy for Sustainability Towards a Toxic-Free Environment

⁴⁸ ECHA (n.d.) Understanding REACH: <https://echa.europa.eu/regulations/reach/understanding-reach> (Accessed November 2022)

4.0

Upstream Impacts of EU Circular Economy Policies in Vietnam



Vietnam has been chosen as an example for assessing the impacts of EU circular economy policies on the upstream supply chain in the electronics and vehicles sectors because the country is a significant export partner for the EU in electronics and has both established and emerging auto-parts manufacturing industries.

This section provides an introduction to the trading relationship between the EU and Vietnam, followed by a detailed analysis of potential upstream impacts in Vietnam across the electronics and vehicles sectors.

4.1 Background

Trade between EU Member States and Vietnam has been strengthened in recent years, with the signing of the EU-Vietnam Free Trade Agreement (EVFTA) and an Investment Protection Agreement in 2019. These agreements came into force in 2020, removing 99% of tariffs and reducing other regulatory barriers.⁴⁹ The EVFTA also sets standards for labour, environmental and consumer protection, through commitments to effective implementation of the principles of the International Labour Organisation (ILO) and international environmental protection instruments such as the Paris Agreement.⁵⁰

Since the establishment of these agreements, trade between the EU and Vietnam has grown significantly. The first six months of 2022 saw a trade surplus to Vietnam valued at USD\$15.5 billion, representing a near 40% year-on-year increase.⁵¹ Previous years' trading between the EU and Vietnam is shown in **Figure 4-1**, highlighting the growing importance of this trade relationship, especially relative to Vietnamese Gross Domestic Product (GDP). In 2021, Vietnam had a 1.8% share in the value of EU imports of goods, making it the EU's 11th largest partner in imports.⁵²

The Government of Vietnam has, in recent years, been implementing various new policies to improve Environmental, Social and Governance (ESG) performance, with the aim of bringing Vietnam in line with the growing global trend for improved ESG outcomes.⁵³

The incentive for the Vietnamese government to improve the ESG performance of the country's businesses does not lie solely in their desire to attract investors with high environmental and social standards, but in that reducing environmental impacts is in the country's self-interest. Vietnam is highly vulnerable to natural disasters related to climate change, sharing number one position with Bangladesh in terms of flood risk globally.^{54,55}

⁴⁹ European Commission (2020) EU-Vietnam trade agreement enters into force: https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1412 (Accessed October 2022)

⁵⁰ European Commission (2022) Standards and values. <https://circabc.europa.eu/ui/group/09242a36-a438-40fd-a7af-fe32e36cbd0e/library/d9bcaa49-3b0d-4da0-9294-f227159b8c16/details> (Accessed November 2022)

⁵¹ Vietnam Briefing (2022) Vietnam-EU Trade Surplus Underlines Growing Trade Relations: <https://www.vietnam-briefing.com/news/vietnam-eu-trade-surplus-underlines-growing-trade-relations.html/> (Accessed October 2022)

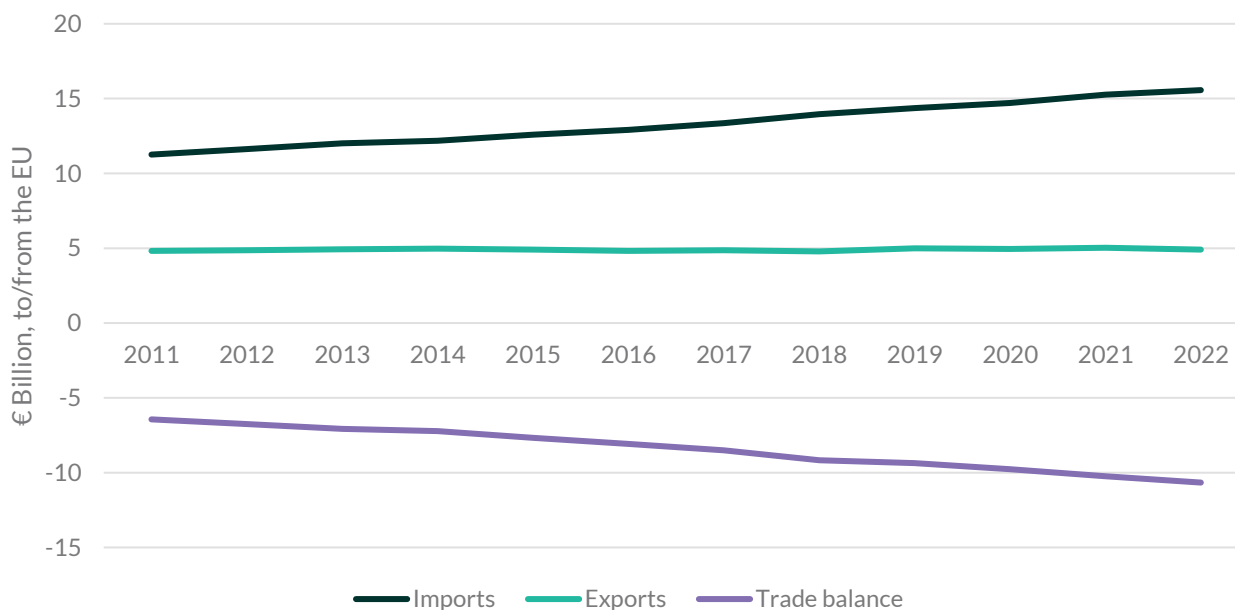
⁵² Eurostat (2022) Vietnam-EU - international trade in goods statistics: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Vietnam-EU_-_international_trade_in_goods_statistics#EU_and_Vietnam_in_world_trade_in_goods (Accessed November 2022)

⁵³ IFLR (2022) Vietnam catches up with global ESG trends: <https://www.iflr.com/article/2a647zxame68p5ftezpxd/vietnam-catches-up-with-global-esg-trends> (Accessed November 2022)

⁵⁴ The World Bank Group and the Asian Development Bank (2021) Climate Risk Country Profile: Vietnam.

⁵⁵ Grantham Research Institute (2015) Climate Change Legislation in Vietnam (An excerpt from The 2015 Global Climate Legislation Study): <https://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/05/VIETNAM.pdf> (Accessed November 2022)

Figure 4-1 Imports, exports and trade balance between the EU and Vietnam, 2011-2022
(€ Billion, to/from the EU)



Source: Eurostat (2022) (online data code: ext_st_eu27_2020sitc and DS-018995)⁵⁶

4.1.1 Electronics

The electronics sector is an important export industry for Vietnam. Globally, Vietnam ranks 10th in the export value of electronics, with Samsung being Vietnam's biggest foreign investor and companies such as Apple moving large amounts of production to Vietnam following the deterioration of US-China relations.^{57,58}

Of the top 20 products⁵⁹ imported to the EU from Vietnam, ordered by trade value, seven can be classified as parts of or whole units of electronic equipment, with telecommunications equipment ranking the highest of all traded goods (see **Figure 4-2**). For Vietnam, Europe represents the second largest export market for electronics, with one-third of its telephone exports destined for EU countries.⁶⁰

Actions are being taken to improve the environmental impact of the Vietnamese electronics sector. Apple's Environmental Progress Report (2022), claims that the company has been working with the Vietnamese government to create policies to increase the use of renewable energy sources, enshrining net zero goals into national legislation.⁶¹ Additionally, Apple have put in place a tray-reuse scheme for a final assembly supplier in Vietnam who previously had

⁵⁶ Eurostat (2022) Vietnam-EU - international trade in goods statistics: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Vietnam-EU - international trade in goods statistics](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Vietnam-EU_-_international_trade_in_goods_statistics) (Accessed November 2022)

⁵⁷ Viettonkin Consulting (2022) The journey of Samsung in Vietnam: <https://www.viettonkinconsulting.com/news/the-journey-of-samsung-in-vietnam/> (Accessed November 2022)

⁵⁸ Vietnam Briefing (2022) Why Apple is diversifying and looking to Vietnam as an alternate production center: <https://www.vietnam-briefing.com/news/why-apple-is-diversifying-and-looking-to-vietnam-as-an-alternate-production-center.html/> (Accessed November 2022)

⁵⁹ Grouped according to their Standard International Trade Classification (SITC) codes.

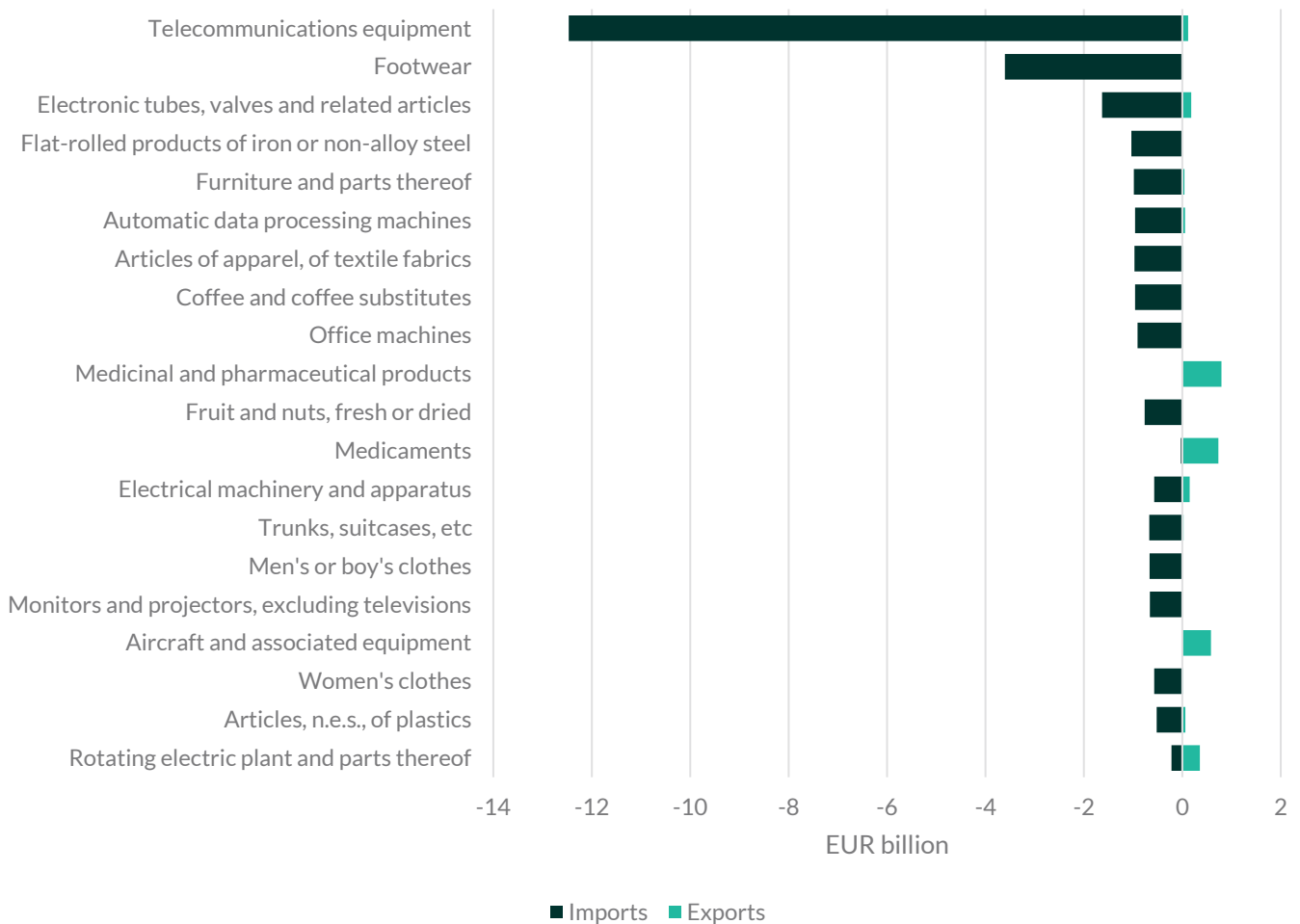
⁶⁰ HQTS (2020) How the EU-Vietnam free-trade agreement (EVFTA) will affect electronic exports: <https://www.hqts.com/how-the-eu-vietnam-free-trade-agreement-evfta-will-affect-electronic-exports/> (Accessed November 2022)

⁶¹ Apple (2022) Environmental Progress Report: https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2022.pdf (Accessed November 2022)

no access to recycling infrastructure, enabling them to become the first zero-waste manufacturing site in the country.⁶²

Such large and small-scale actions not only positively affect the Vietnamese population by increasing investment into a green economy, but also benefit the companies involved by providing them with a marketing advantage.

Figure 4-2 EU-Vietnam most traded goods, 2021 (€ Billion)



Source: Eurostat (online data code: DS-018995)⁶³

⁶² E-mail from Apple sustainability contact to Eunomia (2022)

⁶³ Eurostat (2022) Vietnam-EU – international trade in goods statistics: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Vietnam-EU - international trade in goods statistics#Recent developments](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Vietnam-EU_-_international_trade_in_goods_statistics#Recent_developments) (Accessed November 2022)

4.1.2 Vehicles

Vietnam's main contributions to the upstream automotive industry include: the production of natural rubber, which is used in the manufacture of tyres and some other car parts; tyre manufacturing; and the manufacture of frames, chairs and wires for auto-manufacturers including Toyota, Ford and Honda.⁶⁴

Vietnam is the third largest natural rubber producer worldwide, providing 10% of global supply in 2020.⁶⁵ Additionally, the Vietnamese tyre industry is booming, with a forecast Compound Annual Growth Rate (CAGR) of 20.5% between 2022 and 2031.⁶⁶ Two of the top ten tyre exporters in Vietnam are domestic companies - Southern Rubber JSC and Da Nang Rubber JSC - with the rest being foreign companies. In 2017, the country earned US\$920 million from EU tyre exports, up 44% from 2016, but sales deteriorated during the covid-19 pandemic when car manufacture slowed due to a shortage of computer chips.^{67,68}

Vietnam's automobile industry has also been expanding rapidly in recent years, with large investments to kickstart the manufacture of batteries for electric vehicles (EVs).^{69,70}

4.2 Upstream Opportunities and Risks

This Section provides an analysis of the upstream opportunities and risks generated by the EU's circular economy policies in Vietnam in the electronics and vehicles sectors. The EU circular economy policies the upstream analysis focuses on are:

- Batteries Regulation
- Ecodesign Framework Directive
- Energy Labelling Directive
- the new Ecodesign for Sustainable Products Regulation (ESPR)
- End-of-Life Vehicles (ELV) Directive
- Waste Electrical and Electronic Equipment (WEEE) Directive
- Corporate Sustainability Reporting Directive (CSRD)
- Sustainable Finance Package.

The opportunities and risks identified are categorised as economic, social, environmental or geo-political.

⁶⁴ VN Express International (2021) 95 pct made-in-Vietnam auto parts for foreign brands: <https://e.vnexpress.net/news/business/industries/95-pct-made-in-vietnam-auto-parts-for-foreign-brands-4346022.html> (Accessed November 2022)

⁶⁵ Statista (2021) Total Vietnam natural rubber production: <https://www.statista.com/statistics/1283440/total-vietnam-natural-rubber-production/> (Accessed November 2022)

⁶⁶ Research and Markets (2022) Research Report on Vietnam's Automotive Tire Industry 2022-2031: https://www.researchandmarkets.com/reports/5639697/research-report-on-vietnams-automotive-tire?utm_source=GNOM&utm_medium=PressRelease&utm_code=h837z3&utm_campaign=1747404+-+Vietnam+Automotive+Tire+Industry+Report+2022+Featuring+Bridgestone%2c+Michelin%2c+Yokohama%2c+Sailun%2c+Kumho%2c+CHENG+SHIN%2c+KENDA%2c+Sailun%2c+Guizhou+Tire%2c+Jinyu%2c+Goodyear&utm_exec=chdo54prd (Accessed November 2022)

⁶⁷ Rubber and Tyre Vietnam (2022) Tyre Vietnam 2023: <https://www.rubber-tyre.com.vn/en/tyre-vietnam-2.html> (Accessed November 2022)

⁶⁸ Pricewaterhouse Coopers Vietnam (2020) Vietnam Automotive Industry: Impact of COVID-19 and Navigating the Turbulence

⁶⁹ TechWireAsia.com (2021) Vinfast builds Vietnam's first EV battery factory: <https://techwireasia.com/2021/12/vingroup-builds-vietnams-first-ev-battery-factory/> (Accessed November 2022)

⁷⁰ Cekindo (2021) The Thriving Landscape of Vietnam's Automobile Industry: <https://www.cekindo.vn/blog/the-thriving-landscape-of-vietnams-automobile-industry> (Accessed November 2022)

4.2.1 Economic Opportunities and Risks in Vietnam

Electronics

Although research shows that product and service regulation is, in general, positively correlated with domestic industry competitiveness, barriers to innovation may occur if new ecodesign requirements are setting requirements related to resources and materials.⁷¹ While the existing Ecodesign Directive mainly focuses on the energy-related products, the newly proposed Ecodesign for Sustainable Products Regulation (ESPR) sets requirements for a range of additional products, including electronics. However, since the ESPR has not yet been implemented, there is currently no empirical evidence available on the impact of these requirements on businesses' competitiveness. The requirements will result in extensive changes to the way products are designed and brought to market. For example, the regulation may alter Samsung's product innovation, such as the folding "Flip" series of phones, because this design is not compatible with the repair requirements of the ESPR.⁷² The extent to which the EU's ecodesign requirements pose a risk or opportunity for Vietnam's electronics producers will depend on how producers, such as Samsung, respond to the ecodesign requirements through design alterations, as well as the dependence of Vietnamese manufacturing operations on particular designs.

The design changes required for electronics to comply with the ESPR and the associated changes to the manufacturing processes that are likely to be needed, increase costs for electronics manufacturers, such as Samsung and Apple. These changes may also necessitate a change of components supplier, some of which are Vietnamese SMEs (particularly in the case of Samsung). An industry strategy for avoiding supply chain problems is to contract multiple suppliers for components, some of which will be domestic, e.g., Samsung has procured multiple local domestic suppliers in Vietnam over the last two years.⁷³ Manufacturers may also be encouraged to drop smaller, domestic components suppliers due to the increased information requirements imposed by the EU's proposed ESPR, e.g., the Digital Product Passport (DPP). Managing information inputs from multiple components suppliers creates additional administrative burden, which might lead manufacturers to scale down the number of components suppliers they contract.

On the other hand, if Vietnam's electronics manufacturers are able to comply with ecodesign requirements, the ESPR offers a growth opportunity for Vietnam's electronics industry. Requirements under the ESPR pose a challenge to current global supply chains as they restrict flexibility in product design.⁷⁴ Vietnam can take advantage of characteristics that favour trade with the EU to capture a greater market share: it is a growing economy with strong and growing trade relationships with the EU; it has proximity to other Asian powerhouses such as China and access to shipping routes; and it is improving national infrastructure.⁷⁵

Further, Vietnam's growing electronics manufacturing industry has an opportunity to align production with the EU's ecodesign requirements while the infrastructure and workforce are in the early stages of development, avoiding costs associated with retrofitting manufacturing plants and retraining workers. Apple is moving large amounts of

⁷¹ Nordic Council of Ministers (2014) Addressing resource efficiency through the Ecodesign Directive: A review of opportunities and barriers

⁷² European Commission (2022) Feedback from: Anonymous [Samsung]: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12797-Designing-mobile-phones-and-tablets-to-be-sustainable-ecodesign/F3346392_en (Accessed November 2022)

⁷³ Vietnam Plus (2021) Samsung Vietnam helps local firms join global supply chain: <https://en.vietnamplus.vn/samsung-vietnam-helps-local-firms-join-global-supply-chain/207116.vnp> (Accessed November 2022)

⁷⁴ European Commission (2022) Feedback from: Consumer Technology Association (CTA): https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12797-Designing-mobile-phones-and-tablets-to-be-sustainable-ecodesign/F3346571_en (Accessed November 2022)

⁷⁵ Cekindo (2020) Invest in Vietnam for These 6 Compelling Reasons: <https://www.cekindo.vn/blog/investing-vietnam-2020-reasons#:~:text=Strategically%20Great%20Location.favorable%20investment%20hotspot%20for%20foreigners.&text=Thanks%20to%20its%20huge%20coastline.routes%20for%20exports%20and%20imports> (Accessed November 2022)

electronics production to Vietnam as a result of deteriorating US-China relations and these operations can be developed in a way that facilitates the manufacture of products that meet EU ecodesign requirements.

Adopting ecodesign principles would also help to increase the resource efficiency of manufacturers across the electronics and vehicles sectors, which could reduce input costs and positively impact the competitiveness of a business. The requirements of the ESPR also present an opportunity for Vietnam's electronics manufacturers to charge premiums for greener products. The requirement for products to have a Digital Product Passport (DPP) would enable Vietnam's electronics manufacturing industry to better understand the circularity of components sourced through upstream supply chains and to choose more circular components. Electronics manufacturers could then add premiums for greener products.⁷⁶ In particular, Samsung produces 60% of its mobile phone handsets in Vietnam, but many components are manufactured abroad and assembled in Vietnam.⁷⁷ With a DPP, Samsung would be able to track the sustainability credentials of imported components.

Batteries

Adapting to the requirements of the Batteries Regulation, which cover the entire life cycle of batteries,⁷⁸ could be a growth opportunity for Vietnam's EV battery manufacturers. The EV battery manufacturing industry in Vietnam is in its infancy; there has been recent large investment to kick start EV battery manufacturing in Vietnam and there are manufacturing plants due for completion this year.^{79,80} It will be easier for manufacturers to adapt their infrastructure, manufacturing processes and workforce to meet EU requirements at this early stage of development, and possibly leapfrog more established manufacturers. Additionally, aligning with EU requirements for battery manufacturing would position Vietnam well to trade with North America and other countries buying into schemes such as the proposed global DPP for batteries, which has been endorsed by the Canadian and US administrations, in the future.⁸¹

Similarly, new nickel mining operations in Vietnam could be established in such a way that would allow them to supply battery manufacturers selling to the EU market. Vietnam has nickel reserves and is currently planning to re-open nickel mines that had previously been closed due to unprofitability. There is an opportunity for Vietnam to operate these mines in a way that would meet requirements relating to the responsible sourcing of materials, under the EU's new Batteries Regulation.

Vehicles

EU circular economy policies pose challenges for Vietnamese vehicle parts manufacturers. The EU's ELV Directive sets requirements for inclusion of recycled content in the manufacturing of vehicles. Vehicle frames, chairs and wires are manufactured in Vietnam for the likes of Toyota, Ford and Honda.⁸² Chair producers in particular may face difficulties in meeting recycled content requirements, as they use a mixture of materials, some particularly complex e.g., fabric, which makes it harder or more expensive to find a supplier that can provide quality materials that also contain recycled content.

⁷⁶ Circularise (2022) Digital product passports (DPP): what, how, and why? <https://www.circularise.com/blog/digital-product-passports-dpp-what-how-and-why> (Accessed November 2022)

⁷⁷ Asia Perspective (2022) Electronics Manufacturing in Vietnam: An Introduction: <https://www.asiaperspective.com/vietnam-electronics-manufacturing-sourcing/> (Accessed November 2022)

⁷⁸ European Parliament (2022) Briefing Note - New EU regulatory framework for batteries

⁷⁹ TechWireAsia.com (2021) Vinfast builds Vietnam's first EV battery factory: <https://techwireasia.com/2021/12/vingroup-builds-vietnams-first-ev-battery-factory/> (Accessed November 2022)

⁸⁰ Cekindo (2021) The Thriving Landscape of Vietnam's Automobile Industry: <https://www.ekindo.vn/blog/the-thriving-landscape-of-vietnams-automobile-industry> (Accessed November 2022)

⁸¹ Global Battery Alliance (2022) Action Partnerships: Battery Passport: <https://www.globalbattery.org/battery-passport/> (Accessed November 2022)

⁸² VN Express International (2021) 95 pct made-in-Vietnam auto parts for foreign brands: <https://e.vnexpress.net/news/business/industries/95-pct-made-in-vietnam-auto-parts-for-foreign-brands-4346022.html> (Accessed November 2022)

4.2.2 Social Opportunities and Risks in Vietnam

The requirement for products to have a Digital Product Passport (DPP) under the Ecodesign for Sustainable Products Regulation (ESPR) may disadvantage small Vietnamese electronics components suppliers, leading to a loss of local employment opportunities in Vietnam's electronics sector. To avoid supply chain problems, electronics manufacturers in Vietnam often contract multiple, small components suppliers. For example, Samsung has procured multiple local domestic suppliers in Vietnam over the last two years.⁸³ Smaller components suppliers will likely find it more difficult to deal with the administrative burden created by the increased information requirements necessary for a DPP. This could result in electronics manufacturers substituting small, domestic suppliers for a larger, foreign component supplier, resulting in a loss of local employment opportunities.

However, the EU's circular economy policies generate the potential for job creation elsewhere. If the growth opportunities for Vietnam's electronics manufacturing, EV battery manufacturing and nickel mining industries, described in Section 4.2.1, are taken, then new jobs would be created in these industries in Vietnam.

Depending on the exact reporting requirements that are to be implemented under the EU's recently adopted Corporate Sustainability Reporting Directive (CSRD), investment into Vietnamese companies may be at risk due to increased transparency around Vietnam's historically poor human rights performance.⁸⁴ Conversely, the potential for loss of investment may apply pressure to the Vietnamese government to take action on improving human rights in the country, which would improve conditions for the Vietnamese population.

Additionally, a Sustainable Finance Package has been announced by the EU which was designed to help steer investment towards more sustainable technologies and businesses. These policy drivers will impose costs on Vietnamese-based businesses that trade with the EU, as they will need to either align their sustainability credentials with the EU's requirements or face losing business.

4.2.3 Environmental Opportunities and Risks in Vietnam

The EU's circular economy policies could have positive environmental impacts in terms of reducing the pollution and emissions associated with vehicle parts and battery manufacturing in Vietnam.

The EU's ELV Directive requires Member States to encourage vehicle, material and equipment manufacturers to incorporate recycled material into new vehicles. By increasing the recycled content of the vehicle components, they produce, Vietnam's car frame and wire manufacturers could reduce the material and carbon footprints of their products. This has positive environmental impacts in terms of reduced raw material extraction and associated air, water and soil pollution, as well as reduced greenhouse gas emissions.

The EU's Batteries Regulation introduces progressive requirements to minimise the carbon footprint of EV batteries. If Vietnam's emerging EV battery manufacturing industry aligns with the requirements of the Batteries Regulation, this will have positive environmental impacts in terms of reduced greenhouse gas emissions.

⁸³ Vietnam Plus (2021) Samsung Vietnam helps local firms join global supply chain: <https://en.vietnamplus.vn/samsung-vietnam-helps-local-firms-join-global-supply-chain/207116.vnp> (Accessed November 2022)

⁸⁴ Human Rights Watch (2019) Vietnam Events of 2019: <https://www.hrw.org/world-report/2020/country-chapters/vietnam> (Accessed November 2022)

4.2.4 Geo-political Opportunities and Risks in Vietnam

The EU's Batteries Regulation and ESPR impose more stringent requirements on Vietnam's electronics and EV battery manufacturers wishing to export to the EU market. These policies could be viewed as protectionist by the EU's trade partners, and risk causing tensions in the trading relationship between the EU and Vietnam.

On the other hand, Vietnam has an opportunity to strengthen trading relationships with the EU by aligning production with the Batteries Regulation and ESPR. Large foreign investors in the electronics industry, such as Apple, have been moving production to Vietnam following the deterioration of US-China relations.^{85,86} The increase in electronics manufacturing in Vietnam represents an opportunity for Vietnam to build stronger trading relationships with the EU, and thereby continue to grow the industry, by complying with relevant regulations.

More broadly, setting new national legislation to align with the EU's circular economy policies could help Vietnam grow its national economy, increasing the country's economic significance globally. Trade liberalisation has been a key driver of Vietnam's economic rise over the last two decades⁸⁷ and the EVFTA is expected to provide a foundation for Vietnam to take advantage of new export opportunities to the EU over coming years.⁸⁸ However, Vietnamese electronics manufacturers, for example, will only be able to access the EU market, if their products meet the requirements of EU circular economy policies.

Please find a summary of risks and opportunities for **upstream and downstream** countries in Section 5.3.

⁸⁵ Viettonkin Consulting (2022) The journey of Samsung in Vietnam: <https://www.viettonkinconsulting.com/news/the-journey-of-samsung-in-vietnam/> (Accessed November 2022)

⁸⁶ Vietnam Briefing (2022) Why Apple is diversifying and looking to Vietnam as an alternate production center: <https://www.vietnam-briefing.com/news/why-apple-is-diversifying-and-looking-to-vietnam-as-an-alternate-production-center.html/> (Accessed November 2022)

⁸⁷ World Economic Forum (2018) The story of Viet Nam's economic miracle: <https://www.weforum.org/agenda/2018/09/how-vietnam-became-an-economic-miracle/> (Accessed November 2022)

⁸⁸ Vietnam Plus (2021) Vietnam's exports to EU forecast to grow further in 2022: <https://en.vietnamplus.vn/vietnams-exports-to-eu-forecast-to-grow-further-in-2022/219787.vnp> (Accessed November 2022)

5.0

Downstream Impacts of EU Circular Economy Policies in Nigeria



Nigeria has been chosen as an example for assessing the impacts of EU circular economy policies on the downstream supply chain in the electronics and vehicles sectors because the country is Africa's largest economy and most populous nation and is a major recipient of used electronics and vehicles from abroad.⁸⁹

This section provides an introduction to the trading relationship between the EU and Nigeria, followed by a detailed analysis of potential downstream impacts in Nigeria across the electronics and vehicles sectors.

5.1 Background

African nations currently trade more with the EU than within the African continent and, in line with this wider trend, the EU is Nigeria's biggest trade partner. Although, a 2019 continental trade agreement, the African Continental Free Trade Agreement (AfCFTA), is expected to remove trade barriers and tariffs between African nations and increase trade within the continent.⁹⁰

An EU- West Africa Economic Partnership Agreement (EPA) has been ratified by all parties, including 15 West African states, Economic Community of West African States (ECOWAS) and the West African Economic and Monetary Union (WAEMU), except Nigeria. Nigeria is the final party to sign and is therefore 'blocking' the agreement.⁹¹ Nigeria, the largest economy in Africa, believes that the EPA is inflexible and contains insufficient financial guarantees from the EU.⁹² Additionally, President Buhari has stated "Our industries cannot compete with the more efficient and highly technologically driven industries in Europe".⁹³

Nigeria's reluctance to join the EU-West Africa EPA is indicative of the historically tense economic relationship between the EU and Nigeria. The EU's current policy environment could place further strain on the relationship if opportunities are not provided for Nigerian businesses. In 2021, a 2021-2027 "Joint Ministerial Roadmap" was drawn up between the EU and Nigeria, focusing on a Green and Digital Economy; Governance, Peace and Migration; and Human Development.⁹⁴

A stakeholder in Nigeria emphasised the message that, given the strategic trade relationship between Nigeria and the EU, there will indeed be ripple effects of EU circular economy policies across the Nigerian economy, but that this should be taken as an opportunity to accelerate the transition to a circular economy in Nigeria.

⁸⁹ UNEP (2019) Nigeria turns the tide on electronic waste. <https://www.unep.org/news-and-stories/press-release/nigeria-turns-tide-electronic-waste>

⁹⁰ Politico (2022) It's time for a new economic deal between the EU and Africa: <https://www.politico.eu/article/its-time-for-a-new-economic-deal-between-the-eu-and-africa/> (Accessed November 2022)

⁹¹ European Commission (No Date) EPA – West Africa: <https://trade.ec.europa.eu/access-to-markets/en/content/epa-west-africa> (Accessed November 2022)

⁹² Akinyooye (2020) Africa – EU Trade Relations: Legal Analysis of the Dispute Settlement Mechanisms under the West Africa – EU Economic Partnership Agreement. ELTE LJ, 2020/1, p.125

⁹³ CNN (2018) Nigeria rejects West Africa-EU free trade agreement: <https://edition.cnn.com/2018/04/06/africa/nigeria-free-trade-west-africa-eu/index.html> (Accessed November 2022)

⁹⁴ Press and information team of the Delegation to NIGERIA (2022) EU pledges Stronger Commitment to its Partnership with Nigeria: https://www.eeas.europa.eu/delegations/nigeria/eu-pledges-stronger-commitment-its-partnership-nigeria_en?s=114 (Accessed November 2022)

5.1.1 Electronics

Electronic waste is the fastest growing waste stream in the world, projected to more than double by 2050 from 2010 levels.⁹⁵

European member states have a history of exporting used electronic and electrical equipment to Nigeria, including legal and illegal activities. The e-waste recycling sector in Nigeria is not well regulated; waste is dumped in residential areas and processed informally, and is often set alight to remove plastics and recover metals, releasing toxic chemicals into the air and contaminating drinking water.⁹⁶ The informal nature of recycling activities also means that health and safety standards are lacking,^{97,98} and so the presence of substances such as mercury in e-waste poses a health hazard to those working in the sector.

In 2011, electronic waste (e-waste) was added to Nigeria's Harmful Waste Act, which restricts the purchase, sale, importation, transit and transportation of harmful waste; but the regulation did not appear to impact imports due to ineffective penalties for e-waste importers.⁹⁹ In 2019, the Nigerian Government, the Global Environment Facility (GEF) and United Nations Environment Programme (UNEP) initiated a project called "Circular Economy Approaches for the Electronics Sector in Nigeria", investing \$15 million to create a financially sustainable circular economy approach for electronics in Nigeria with a view to protecting the health of Nigerians and the environment.¹⁰⁰ There have been recent legislative attempts to control e-waste, for example, the Hazardous and Electronic Waste Control and Management Bill. However, re-use and reprocessing of e-waste is a large and lucrative market in Nigeria, with "Computer Village" in Lagos (a large area dedicated to the refurbishment of used electronic goods) generating the equivalent of USD\$2 billion per year in revenue, and so there is little incentive to abide by such laws.¹⁰¹

5.1.2 Vehicles

Nigeria is the biggest importer of used vehicles in Africa.¹⁰² According to the former Acting Director-General of the National Automotive Design and Development Council (NADDC), Nigeria officially imports an average of 400,000 vehicles annually, but a great deal of vehicles are illegally smuggled into the country.¹⁰³ In his opinion, imports of second hand or scrap cars from the EU and North America currently undermine the capacity for upstream assembly of vehicles in Nigeria, reducing growth in this sector (an area which could contribute significantly to GDP if it were to thrive).

⁹⁵ UNU and UNEP-IETC (2019) Future E-Waste Scenarios

⁹⁶ The Conversation (2021) Nigeria's electronic waste is a public health problem and needs urgent attention: <https://theconversation.com/nigerias-electronic-waste-is-a-public-health-problem-and-needs-urgent-attention-163537#:~:text=Electronic%20waste%20components%20are%20toxic,second%20in%20Africa%20after%20Egypt> (Accessed November 2022)

⁹⁷ United Nations University (2018) Thousands of tonnes of e-waste is shipped illegally to Nigeria inside used vehicles: <https://ehs.unu.edu/media/press-releases/thousands-of-tonnes-of-e-waste-is-shipped-illegally-to-nigeria-inside-used-vehicles.html> (Accessed November 2022)

⁹⁸ Basel Convention, UNEP and EMPA (2012) e-Waste Country Assessment Nigeria

⁹⁹ Techpoint Africa (2022) Nigeria has an electronic waste problem, but an e-waste bill may not be the solution: <https://techpoint.africa/2022/09/05/e-waste-in-nigeria> (Accessed November 2022)

¹⁰⁰ UNEP (2019) Nigeria turns the tide on electronic waste: <https://www.unep.org/news-and-stories/press-release/nigeria-turns-tide-electronic-waste> (Accessed November 2022)

¹⁰¹ Techpoint.Africa (2022) Nigeria has an electronic waste problem, but an e-waste bill may not be the solution: <https://techpoint.africa/2022/09/05/e-waste-in-nigeria> (Accessed November 2022)

¹⁰² Statista (2021) Number of used vehicles imported into selected African countries in 2018: <https://www.statista.com/statistics/1261496/number-of-used-vehicles-imported-into-selected-african-countries/> (Accessed November 2022)

¹⁰³ AllAfrica.com/Daily Trust (2022) Nigeria: How Vehicle Imports Jumped By 40% in 2021 – Expert: <https://allafrica.com/stories/202201070019.html> (Accessed November 2022)

Imports of used vehicles to Nigeria have been increasing over recent years, with a 12.6% increase between 2020 and 2021, attributed to a reduction on import duty.¹⁰⁴ However, further changes to taxes and duties on vehicles may slow the growing demand for used vehicles that is resulting from an increasing middle class population.¹⁰⁵ A reduction in duty on the purchase of vehicles in Nigeria has been introduced, in parallel with a 15% import tax increase for used vehicles (which was previously only applied to new vehicles).¹⁰⁶

Although the re-use of vehicles makes an important contribution to the circular economy, the use of older vehicles with poorer environmental performance is contributing to, for example, increased air pollution.¹⁰⁷ The Nigerian Government has imposed a ban on the import of vehicles more than 12 years old,¹⁰⁸ but smuggling of vehicles that breach import requirements is thought to be commonplace.¹⁰⁹ Additionally, many of the used cars imported into Nigeria are not fit for purpose and are utilised in unroadworthy condition or sent to junkyards or abandoned in public or private spaces, with few formal car recyclers and inadequate infrastructure to process them.¹¹⁰

Trade in spare parts is widespread in Nigeria as the population are better able to afford repair of a vehicle than procurement of a new (or used) car.¹¹¹ End-of-life vehicles that have been abandoned are often dismantled illegally by the informal sector.¹¹²

5.2 Downstream Opportunities and Risks

This Section provides an analysis of the downstream opportunities and risks generated by the EU's circular economy policies in Nigeria in the electronics and vehicles sectors.

The EU circular economy policies the downstream analysis focuses on are:

- Batteries Regulation
- Ecodesign Framework Directive
- Energy Labelling Directive
- the new Ecodesign for Sustainable Products Regulation (ESPR)
- End-of-Life Vehicles (ELV) Directive
- Waste Electrical and Electronic Equipment (WEEE) Directive
- Waste Shipment Regulation.

The opportunities and risks identified are categorised as economic, social, environmental or geo-political.

¹⁰⁴ Vanguard (2022) Nigeria's import bill on used vehicles rises 12% to N617.5bn: <https://www.vanguardngr.com/2022/03/nigerias-import-bill-on-used-vehicles-rises-12-to-n617-5bn/> (Accessed November 2022)

¹⁰⁵ Japanese Car Trade (2021) Nigeria used car market: <https://blog.japanesecartrade.com/347-nigeria-used-car-market/> (Accessed November 2022)

¹⁰⁶ The Guardian [Nigeria] (2022) That controversial duty on imported vehicles: <https://guardian.ng/opinion/that-controversial-duty-on-imported-vehicles/> (Accessed November 2022)

¹⁰⁷ Ajayi & Dosunmu (2002) Environmental hazards of importing used vehicles into Nigeria. Proceedings of International Symposium on Environmental Pollution Control and Waste Management 7-10 January 2002, Tunis (EPCOWM'2002), p.521-532

¹⁰⁸ Nigeria Customs Service (2022) Import Prohibition List: https://customs.gov.ng/?page_id=3075 (Accessed November 2022)

¹⁰⁹ Ade (2022) Still On The Auto Policy And Influx Of Over-aged Vehicles Into Nigeria. Shipping Position Online.

<https://shippingposition.com.ng/still-on-the-auto-policy-and-influx-of-over-aged-vehicles-into-nigeria/>; Mukabana, S. (2020) Used car industry causes concern in Africa over "dumping" regulations. CGTN Africa: <https://africa.cgtn.com/2020/03/01/used-car-industry-causes-concern-in-africa-over-dumping-regulations/> (Accessed November 2022)

¹¹⁰ Nigerian Investment Promotion Commission (2021) FG Targets N100bn Annual Revenue from Proposed Vehicles Recycling Policy: <https://www.nipc.gov.ng/2021/12/17/fg-targets-n100bn-annual-revenue-from-proposed-vehicles-recycling-policy/> (Accessed November 2022)

¹¹¹ Okafor (2017) The realities of recycling in Nigeria's spare parts market (Presentation for FORS Automotive Recyclers Association Recycling 2017 Conference): https://fors.pl/world_konference/K.Okafor.pdf (Accessed November 2022)

¹¹² Numfor, S.A., Omosa, G.B., Zhang, Z., Matsubae, K. (2021) A Review of Challenges and Opportunities for End-of-Life Vehicle Recycling in Developing Countries and Emerging Economies: A SWOT Analysis. Sustainability. 13(9):4918: <https://doi.org/10.3390/su13094918> (Accessed November 2022)

5.2.1 Economic Opportunities and Risks in Nigeria

The EU's circular economy policies could result in reduced inputs for the e-waste and ELV recycling industries in Nigeria. Currently, Nigeria imports significant quantities of e-waste. Implementation of the EU's Ecodesign regulations to consumer electronics aims to reduce the amount of e-waste generated, due to the requirements of the proposed regulation for improved durability, reusability, upgradability and repairability of electronics. The proposed reform of the ESPR may further reduce the material input to the formal and informal e-waste recycling industries in Nigeria. Eunomia understands from a stakeholder interview with E-waste Producer Responsibility Organisation Nigeria (EPRON) that many people in Nigeria make an income from selling used electrical and electronic equipment imported from the EU. This business opportunity will be reduced if less used electrical and electronic equipment is coming into Nigeria from the EU.

The requirements of the proposed ESPR for increased repairability of products, reduction of substances inhibiting circularity, and for the recycled content of products should also increase the value of individual parts and recycled materials from e-waste and end-of-life vehicles. This will incentivise more recycling and repair of both electronics and vehicles in Europe, which would reduce the amount of e-waste and ELVs exported to Nigeria and, thus, the input to Nigeria's e-waste recycling and ELV recycling industries. Similarly, if amendments to the EU's Batteries Regulation improve material recovery from batteries, then more batteries may remain in the EU for material recovery, reducing material input to Nigeria's e-waste recycling and ELV recycling industries. In addition, the possibility of expanding specific targets for reuse and recycling, and requirements on recycled content, raised in the public consultation on upcoming revisions to the EU's ELV Directive,¹¹³ are aimed at boosting the market for secondary raw materials and could result in fewer ELVs being exported to Nigeria. One stakeholder in Nigeria thought that reduced inputs of used vehicles to the Nigerian market may have a short-term impact on the aluminium processing industry, because aluminium recovered from properly managed ELVs is an important input to this industry, which converts the material into aluminium sheets for export. However, the stakeholder suggested that new sources of material could likely be found to fill the gap.

Further, restrictions on the export of hazardous and hard to recycle waste to non-OECD countries, under proposed revisions to the EU's Waste Shipment Regulation, could reduce the amount of ELV and lithium-ion battery waste available to Nigeria for reprocessing, particularly the informal sector. On the other hand, the Nigerian formal downstream sector could mitigate this risk for non-hazardous waste by adhering to stricter standards for the handling of waste and obtaining international certification such as that provided by the International Organization for Standardization (ISO). Whilst this would impose an upfront cost for businesses, it may help to prevent them from losing supplies of waste because waste shipments would need to be diverted to facilities that meet the standards for receiving them.¹¹⁴ This could benefit Nigeria's formal ELV recycling sector as the visibility and predictability of incoming waste shipments would be improved.

The impacts of the EU's Batteries Regulation on the availability of inputs to the ELV recycling industry in Nigeria, may be felt more acutely by the informal sector as the regulation's stronger Due Diligence requirements across the whole battery supply chain will likely mean that more battery waste will be diverted to the formal sector.

¹¹³ European Commission (2022) Factual summary report on the public consultation for the impact assessment of the review of the Directive 2000/53/EC on End-of-Life Vehicles and of the Directive 2005/64/EC on the type-approval of motor vehicles with regard to their reusability, recyclability and recoverability. https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12633-End-of-life-vehicles-revision-of-EU-rules/public-consultation_en (Accessed November 2022)

¹¹⁴ UNEP (2020) Used vehicles and the environment: <https://www.unep.org/resources/report/global-trade-used-vehicles-report> (Accessed November 2022)

The requirement under the proposed ESPR for products to have a DPP, could also disadvantage Nigeria's informal e-waste recyclers. It is likely that the DPP will be accessed through a barcode or QR code printed on a product, which would link to an online database and would be scanned at each stage in the product's life cycle. The informal recycling sector may not have the knowledge, technology or literacy (or a combination of all three) necessary to read or act on the information provided by a DPP, which would lead to the benefits of the DPP being lost and put informal e-waste recyclers at a competitive disadvantage. However, the DPP will contain more detailed information about recyclable content of a product. For those e-waste recyclers in Nigeria able to make use of this information, likely in the formal sector, the DPP may increase the value of e-waste because it should help them to identify better methods for the recycling of products. Based on the stakeholder interview with E-waste Producer Responsibility Organisation Nigeria (EPRON) Eunomia assumes that the benefits afforded to recyclers by the DPP, in terms of being able to work from a position of knowledge about the recyclability of the components of a product, are likely to outweigh the downside, in terms of the administrative burden created by the DPP for these recyclers. Eunomia understands from the stakeholder engagement that the accountability provided by the DPP should help to improve the viability of EPR systems in Nigeria. This is because producers can feel more secure and confident that their products are not being counterfeited, meaning that they do not find themselves responsible for paying EPR fees for products that they have not produced. The stakeholder indicated that counterfeiting of electronics is a significant challenge to making EPR schemes work in Nigeria.

Amendments to the EU's Batteries Regulation that aim to ensure batteries can be removed more easily from electrical appliances also provide an economic opportunity for Nigeria's e-waste recycling industry. Undamaged batteries retain more value due to the possibility of reusing them in the same or similar appliances (e.g., a laptop may break but the battery may still be in good condition).

Similarly, in the vehicles sector, the requirements to be potentially proposed under the reformed ELV in coming years and aiming at improving reparability of vehicles, should make it easier for Nigeria's auto parts recyclers to remove and replace vehicle parts. Demand for auto parts will increase, providing a growth opportunity for Nigeria's auto parts recycling industry.

5.2.2 Social Opportunities and Risks in Nigeria

Potential risks to the flow of material input to the formal and informal e-waste and ELV downstream industries in Nigeria, identified in Section 5.2.1, also imply risks to the employment of workers in these sectors. A stakeholder commented that a reduction in the import of used products from the EU would also reduce access to these goods for Nigerian consumers, who may not be able to afford such items new.

On the other hand, potential growth opportunities for the formal e-waste and ELV recycling industries, identified in Section 5.2.1, present job creation opportunities in these industries. A stakeholder in Nigeria highlighted that EU circular economy policies could accelerate the establishment of green skills, green jobs and green technologies in Nigeria, as the Nigerian policy landscape adapts to meet targets or impositions from the EU. Another stakeholder agreed that new employment opportunities would be created, for example, in the areas of repair and recycling of products, contributing to local economic development. It was emphasised by a stakeholder that, currently, it is the informal sector that is mostly responsible for collecting, processing and recycling e-waste in Nigeria. Growth of the formal e-waste recycling industry could, therefore, create new jobs in the formal sector.

Increased opportunities for formal employment would allow workers to move out of the informal e-waste and ELV recycling sectors, reducing the health and safety risks to these workers. In the informal sectors there is little

governance of how waste is processed, which leaves workers vulnerable to exposure to hazardous materials and safety risks. A stakeholder highlighted that the formal WEEE recycling industry in Nigeria is still undeveloped and does not yet, for example, have the treatment facilities for correctly dismantling WEEE.

Amendments to the EU's Batteries Regulation should also reduce health risks to workers in Nigeria's e-waste and ELV processing sectors. On the e-waste side, amendments which aim to ensure that batteries can be removed more easily from electrical appliances should reduce health risks to workers because potentially hazardous chemicals are more likely to remain contained in the battery. In both industries, amendments that demand a stronger Due Diligence (DD) regime will force battery producers to examine the entire supply chain and ensure that the end-of-life treatment of their batteries is conducted responsibly. This should improve health outcomes for those working in the e-waste and ELV recycling industries in Nigeria.

Opportunities for job creation and/or increased wages for workers may also be generated by the EU's proposed ESPR. The requirement for more recycled content in products may drive increases in prices of recyclable materials, which could raise incomes and/or create opportunities for new jobs in Nigeria's e-waste and ELV recycling industries. In the vehicles sector especially, the requirement to reduce substances inhibiting circularity in products should increase the recyclability of vehicle parts, and so increase the market value of recyclable vehicle parts. This could be an opportunity for job creation and/or raised incomes in Nigeria's formal auto part recycling sector.

5.2.3 Environmental Opportunities and Risks in Nigeria

Restrictions on the export of hazardous and hard to recycle waste to non-OECD countries, under proposed revisions to the EU's Waste Shipment Regulation, could reduce negative environmental impacts caused by the incorrect processing or illegal dumping of imported ELVs in Nigeria.

In addition, the requirement to limit hazardous substances such as lead, mercury, cadmium and hexavalent chromium in vehicles under the EU's ELV Directive should reduce the risk of negative environmental impacts in Nigeria caused by chemical leaching from improperly managed ELVs.

The EU's ELV Directive also aims to improve the environmental performance of vehicles. This should improve environmental outcomes in Nigeria over time because vehicles exported from the EU and sold for re-use in the Nigerian market will have better environmental performance than vehicles currently in use in Nigeria.

5.2.4 Geo-political Opportunities and Risks in Nigeria

As noted in Section 5.1, Nigeria is currently blocking an Economic Partnership Agreement with the EU. This situation poses both opportunities and risks for Nigeria.

While the economic relationship between the EU and Nigeria is strained, additional requirements imposed on Nigeria by the EU's circular economy policies risk placing further tension on the trade relationship between the two parties.

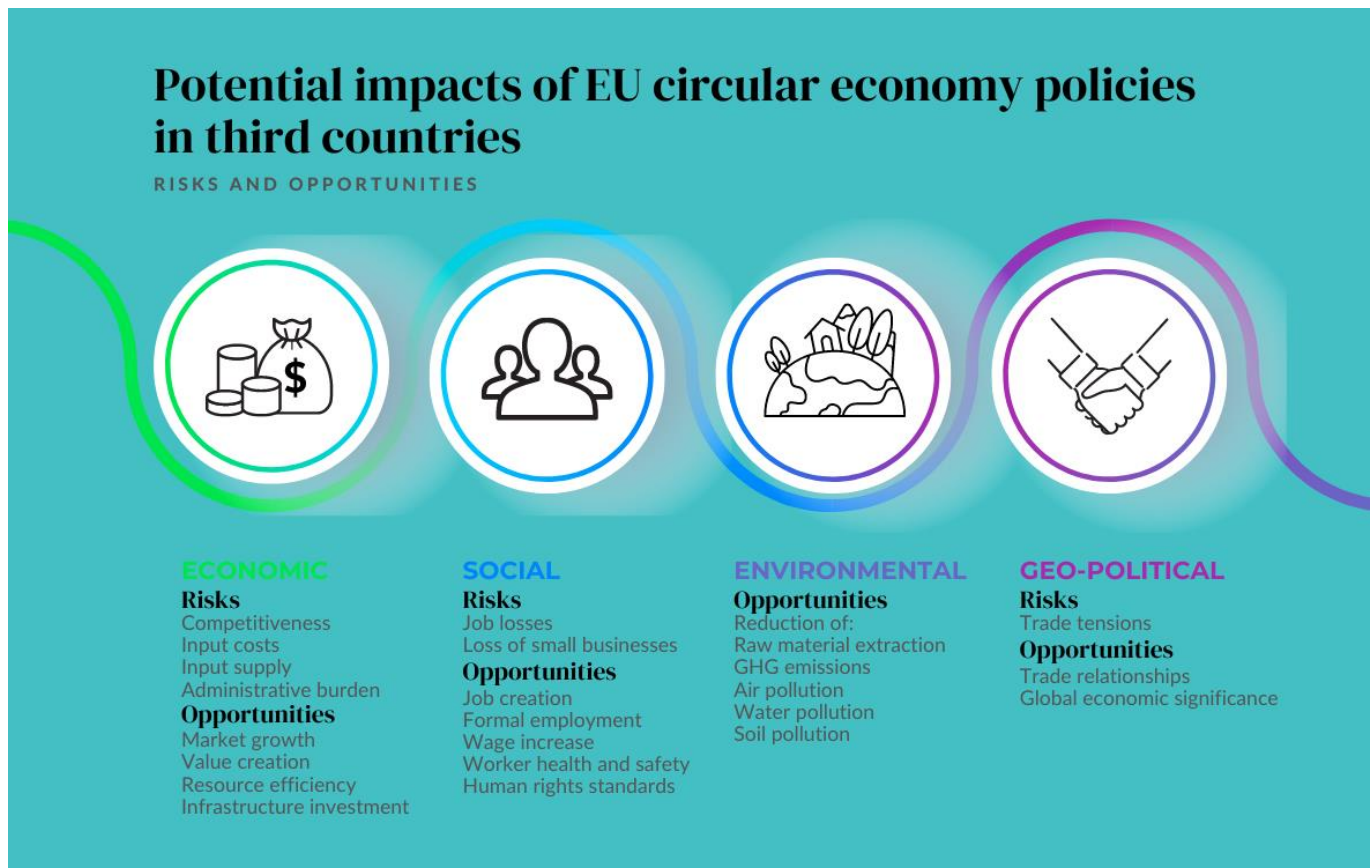
However, in aligning with EU circular economy policies, there is an opportunity for Nigeria to replicate relevant EU legislation in their own national legislation, and thereby improve circular economy practices in Nigeria.

The current relationship between Nigeria and the EU has also gained attention from the UN which has offered investment into circular economy infrastructure. This represents an opportunity for Nigeria to implement and improve their circular economy infrastructure.

5.3 Summary of Upstream and Downstream Opportunities and Risks

The following image summarises risks and opportunities for **upstream** and **downstream** countries.

Figure 5-1 Summary of upstream and downstream opportunities and risks



A close-up photograph of a hand stacking colorful wooden blocks. The blocks are in various colors including yellow, red, blue, and green. The hand is positioned on the right side of the frame, with fingers visible as it places a red block on top of a blue one. The background is a plain, light-colored surface. The overall scene suggests a process of building or construction, which metaphorically relates to the 'Indicators for Assessing Impacts' mentioned in the text.

6.0

Indicators for Assessing Impacts

This Section identifies indicators that can be used to measure the opportunities and risks that EU circular economy policies may have on third countries, identified in Sections 4.0 and 5.0. Use of these indicators would enable impact assessments, evaluations and other studies to incorporate the potential impacts that policies have outside the country of implementation. The indicators are provided in a longlist and then are narrowed down to a shortlist. The chosen indicators are then applied to case studies in the electronic and vehicles sectors to demonstrate how they can be utilised in practice.

6.1 Potential Indicators for Opportunities and Risks

The longlist of potential indicators is provided in **Table 6-1** below. The table provides a list of categories identified in the typology, the opportunities and risks identified within each category, and relevant indicators for each opportunity/risk. The indicators can be used to quantitatively capture the opportunities or risks and can be used in impact assessments or evaluations of policies, to incorporate consideration of the impacts on third countries.

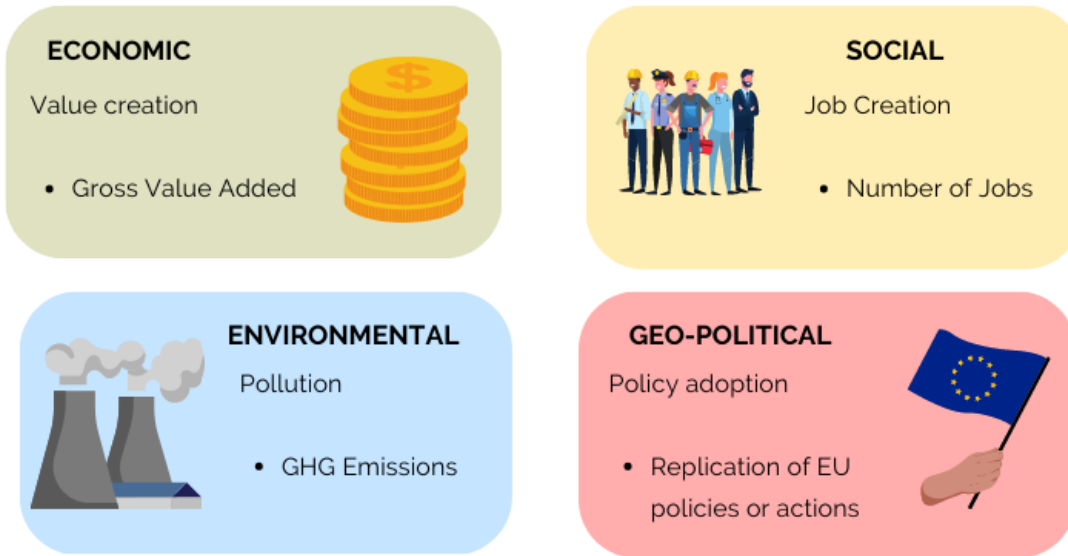
Table 6-1 Longlist of Indicators

Category	Opportunity/ Risk	Indicator
Economic	Market growth	<ul style="list-style-type: none"> • Market size • Growth rate • Number of products manufactured • Value of exports • Value of imports
	Green premium	<ul style="list-style-type: none"> • Product price • Profit margin
	Value creation	<ul style="list-style-type: none"> • Gross Value Added • Profit margin • Value of exports • Supply chain upgrading
	Resource efficiency	<ul style="list-style-type: none"> • Weight of material inputs • Material input costs • Profit margin
	Input costs	<ul style="list-style-type: none"> • R&D spend • Infrastructure investment • Workforce training costs
	Input supply	<ul style="list-style-type: none"> • Weight of material inputs • Cost of inputs

Category	Opportunity/ Risk	Indicator
	Competitiveness	<ul style="list-style-type: none"> • Product price • Product sales • Market share
	Administrative burden	<ul style="list-style-type: none"> • Administrative costs
	Compliance with EU requirements	<ul style="list-style-type: none"> • Number of compliant exporters • Rate of change in product exports to EU • Compliance costs
Social	Job creation	<ul style="list-style-type: none"> • Number of jobs (in the formal sector) • Average wages • Inclusivity of jobs • Skill level of jobs
	Worker health and safety	<ul style="list-style-type: none"> • Incidence of illness/ accidents related to exposure to hazardous chemicals • Incidence of accidents in the workplace • Average level of health and safety training
	Human rights standards	<ul style="list-style-type: none"> • Working hours • Working conditions (minimum wage, union rights, etc.) • Age of employees • Contract conditions (no zero contract hours) • Gender of employees
Environmental	Pollution	<ul style="list-style-type: none"> • Air quality • Water quality • Soil toxicity • GHG emissions
	Raw material extraction	<ul style="list-style-type: none"> • Volume of raw material mined
	Waste management	<ul style="list-style-type: none"> • Waste sent to landfill • Waste sent to incineration • Waste recycled
Geo-political	Supply chain dominance	<ul style="list-style-type: none"> • Location of material/ parts suppliers
	Policy adoption	<ul style="list-style-type: none"> • Replication of EU policies or actions
	Relationships	<ul style="list-style-type: none"> • Trade agreements joined • Tariffs implemented

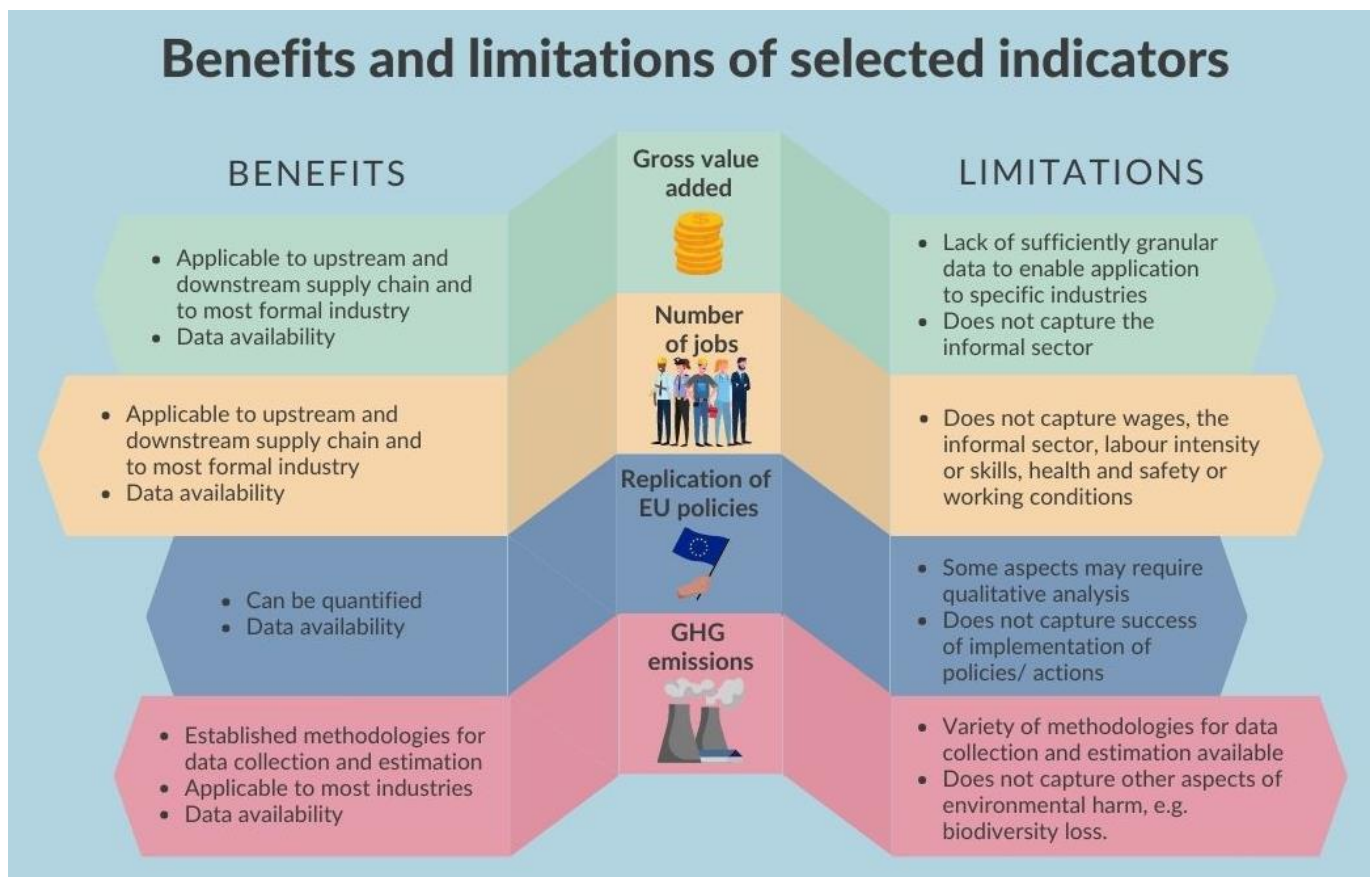
The longlist of indicators was further narrowed down to a shortlist, based on considerations of data availability, credibility, feasibility and applicability. The short list is presented in **Figure 6-1** below.

Figure 6-1: Shortlist of Indicators



These indicators can be quantified and analysed in line with the EU’s Better Regulation Guidelines and Toolbox, as discussed in Section 3.1. Figure 6-1 displays the expected benefits and limitations of the selected indicators when applying them in practice.

Figure 6-1: Indicator Benefits and Limitations



When applying the indicators in practice, it is important to note that the change in an indicator may not be solely attributed to a policy. Therefore, the indicators are suggested to be used in conjunction with impact evaluation methods to calculate the impact a policy may have on third countries.

In the following section we discuss how these shortlisted indicators can be used to assess the impact of EU CE policies in third countries along with some methodological considerations.

6.2 Overview of Assessment Methodology

It should be noted that the shortlisted indicators are already used in assessing the impacts of proposed EU policies on the EU and the Member States. Therefore, the impacts of the proposed EU CE policies on third countries could be estimated using a similar methodology applied for estimating the impact on EU countries. Below we present some of the key methodological steps that could be employed for assessing the impacts of EU CE policies on third countries.

6.2.1 Identifying All Impacted Countries and Selecting Some Example Countries

CE policies in the EU can affect a number of third countries which have trade relationships with the EU for the products relevant to the policy in question. For example, CE policies related to vehicles, such as the ELV Directive, will affect all third countries which export manufactured vehicles and/or vehicle components (upstream), as well as third countries which either import new vehicles manufactured in the EU or import vehicles from EU at the end of their life (downstream). The nature of the impacts will depend on whether it is an upstream or a downstream trade relationship. So, the first step in assessing the impacts of CE policies of third countries should be to identify all countries that have a trade relationship with EU for the relevant products affected by the CE policy that is being assessed, along with identifying the nature of the trade relationship (upstream or downstream). That can easily be done using relevant trade databases, such as the EU COMEXT or UN COMTRADE databases. These databases can provide data on the amount and value of the imported and exported products for all countries.

Given that it will be extremely difficult to assess the impacts of EU CE policies on each third country individually due to potential data gaps, it might be easier to first assess the impacts for a few example countries, and then extrapolate the estimated impacts on the example countries to the rest of the third countries. Example countries should cover both upstream and downstream countries, so that relevant impacts for upstream and downstream example countries can be extrapolated to all upstream and downstream countries, respectively. Choice of example countries should be determined by the availability of relevant data, so that impacts can be assessed quantitatively where possible.

6.2.2 Identifying Relevant Sectors and Impacts to Assess

The next step should be to identify the relevant sectors affected by the CE policy that is being assessed. For this we need to consider both upstream and downstream sectors. Once the affected sectors are identified, we can then identify the impacts to be assessed on these sectors in terms of each of the shortlisted indicators. Below we present some examples of upstream and downstream impacts for the electronics sector under the ESPR and the WEEE Directive, as well as for the vehicles sector under the ELV Directive.

6.2.2.1 Electronics

Upstream

The ESPR will focus on specific ecodesign requirements for electronics such as “energy use or efficiency, durability and reliability, and recycled content”. With regard to the recycled content requirement, the ESPR does not yet specify a particular level, but it does identify a potential “requirement for minimum quantities of recycled content” to be included in products placed on the EU market. The aim of the recycled content requirement is to lessen the amount of virgin material extracted and used for electronics production, as well as to promote circular economy business models. This will impact the design requirements that electronic manufacturers will have to comply with when exporting to the EU. As an example, the following indicators can capture the potential impacts that the recycled content requirements of the ESPR may have on third countries:

Table 6-22 Application of selected indicators to capture upstream impacts under ESPR

Indicator	Application
Change in GVA	<ul style="list-style-type: none"> • Material sorting and recycling industry in third countries • Electronic component manufacturers in third countries
Change in number of jobs	<ul style="list-style-type: none"> • Material recycling industry in third countries • Electronic component manufacturing industry in third countries
Change in GHG emissions	<ul style="list-style-type: none"> • Associated with replacing virgin materials with recycled content in electronics manufacturing
Adoption or replication of policy/ action	<ul style="list-style-type: none"> • Adoption of the requirement for a minimum amount of recycled content to be included in electronics manufacturing within national legislation

Downstream

The WEEE Directive provides a minimum collection rate of Electrical and Electronic Equipment (EEE) placed on the market. Article 7 of the WEEE Directive states that “each Member State shall ensure the implementation of the ‘producer responsibility’ principle and, on that basis, that a minimum collection rate is achieved annually”. More specifically, “from 2019, the minimum collection rate to be achieved annually shall be 65 % of the average weight of EEE placed on the market in the three preceding years in the Member State concerned, or alternatively 85 % of WEEE generated on the territory of that Member State”. The aim of the Directive is to reduce the amount of waste from electrical and electronic equipment that ends up in landfill and the collected e-waste will be recycled and reused; however, the Directive can result in fewer used electronics going to third countries. This can limit an individual’s access to more advanced technology that they could not have previously been able to afford due to the used electronics being cheaper than new ones. Additionally, this can also impact the resale of electrical components that were recovered from used electronic devices in third countries. The following indicators can capture the potential impacts that the minimum collection rate under the WEEE Directive may have on third countries:

Table 6-3 Application of selected indicators to capture downstream impacts of the WEEE Directive

Indicator	Application
Change in GVA	<ul style="list-style-type: none"> • Electronic recyclers in third countries • Electronic component resale industry in third countries • Electronic reuse and repair industry in third countries
Change in number of jobs	<ul style="list-style-type: none"> • Electronic recycling industry in third countries • Electronic component resale industry in third countries • Electronic reuse and repair industry in third countries
Change in GHG emissions	<ul style="list-style-type: none"> • Associated with increasing the collection and subsequently the recycling rate of electronics • Associated with the decrease of used electronics imports into third countries
Adoption or replication of policy/ action	<ul style="list-style-type: none"> • Adoption of targets or requirements in the national legislation of third countries for a minimum percentage of the average weight of EEE placed on the market to be collected

6.2.2.2 Vehicles

Upstream

The ELV Directive includes a requirement for Member States to “*encourage vehicle manufacturers, in liaison with material and equipment manufacturers, to integrate an increasing quantity of recycled material in vehicles and other products, in order to develop the markets for recycled materials*”. This design requirement for manufacturers in the upstream vehicles supply chain should help to reduce the material and carbon footprints of vehicles. However, this requirement may also make it more difficult or expensive for these manufacturers to produce vehicle components and vehicles that meet the standards necessary to sell to the EU market. The indicators of impacts in third countries can be applied to study the potential impacts of this requirement of the EU’s ELV Directive:

Table 6-4 Application of selected indicators to capture upstream impacts of ELV Directive

Indicator	Application
Change in GVA	<ul style="list-style-type: none"> • Vehicle component manufacturers in third countries • Material recycling industry in third countries
Change in number of jobs	<ul style="list-style-type: none"> • Vehicle component manufacturing industry in third countries • Material recycling industry in third countries
Change in GHG emissions	<ul style="list-style-type: none"> • Associated with replacing virgin materials with recycled content in vehicle manufacturing
Adoption or replication of policy/ action	<ul style="list-style-type: none"> • Adoption of requirements in third countries for the inclusion of recycled material in vehicles

Downstream

The ELV Directive includes an article on reuse and recovery of ELVs, which sets specific targets for the minimum proportion of a vehicle's weight that must be reused or recovered. This requirement should facilitate better reuse and recovery of material from ELVs within EU Member States. A potential impact of this requirement is a reduction in the number of vehicles exported from the EU to third countries, resulting in a reduction in inputs to the ELV recycling industry in third countries. The indicators of impacts in third countries can be applied to study the potential impacts of this requirement of the EU's ELV Directive:

Table 6-5 Application of selected indicators to capture downstream impacts of ELV Directive

Indicator	Application
Change in GVA	<ul style="list-style-type: none"> • Vehicle recyclers in third countries • Vehicle remanufacturers in third countries
Change in number of jobs	<ul style="list-style-type: none"> • Vehicle recycling industry in third countries • Vehicle remanufacturing industry in third countries
Change in GHG emissions	<ul style="list-style-type: none"> • Associated with increasing the reuse and recycling rate of ELVs
Adoption or replication of policy/ action	<ul style="list-style-type: none"> • Adoption of targets in third countries for a minimum proportion of a vehicle's weight that must be reused or recovered

6.2.3 Identifying the Data Needs

The next step in assessing the impacts of EU CE policies on third countries should be to identify the data that would be needed to assess the impacts using the selected indicators. This exercise should be straightforward, given that the selected indicators are very similar to the indicators that are used for undertaking impact assessment for the EU countries. To assess the impacts highlighted in Section 6.2.2, the following key data will be needed.

- Output produced for the relevant sectors;
- Employment for the relevant sectors;
- Energy use for relevant sectors;
- Gross Value Added (GVA) for the relevant sectors;
- Input costs;
- Prices of outputs;

Some of the above data are likely to be collected and published by national statistical authorities for the selected countries whose impacts are being assessed. In addition, data might be available through sector specific reports produced by academia, industry, national government departments, and multilateral organisations (e.g., the World Bank, UNDP, OECD, etc.). Where data is not readily available, involving relevant stakeholders can provide additional sources for gathering the required data.

6.2.4 Involving Relevant Stakeholders

Engaging with relevant stakeholders can ease the process of identifying and collating the relevant data and evidence needed for assessing the impacts on selected third countries. While involving relevant stakeholders can help gather the required data and evidence in the short term for an individual impact assessment exercise, there is also a need for longer term engagement by the European Commission with such stakeholders to achieve ongoing improvements in understanding of impacts through improved data gathering and knowledge exchange.

One of the key stakeholders to engage with should be the national statistical authorities. Working with them would provide access to various key relevant published and unpublished data for assessing the impacts, as well as identifying data gaps and potential solutions for overcoming these data gaps. In addition, national industry bodies for the relevant sectors should be another key stakeholder group to engage with, as they can help identify and provide access to the required sector specific data and research.

Besides national stakeholder groups, relevant regional stakeholder groups and networks should also be involved, as they can help identify relevant national stakeholders to engage with. Example stakeholder networks include, Association of Southeast Asian Nations (ASEAN), Circular Economy Stakeholder Platform, African Circular Economy Network (ACEN), etc.

6.2.5 Estimation of Impacts

6.2.5.1 Modelling Approaches

To estimate the impact of EU CE policies on third countries quantitatively, modelling techniques should be employed where possible. Given that the indicators shortlisted for assessing the impacts on the third countries are already being used for assessing impacts on EU countries, the modelling approaches used in assessing the impacts of EU CE policies on EU countries can also be replicated for assessing the impacts on third countries.

Impacts of an EU CE policy on EU countries are usually estimated by first modelling the change in product flows and/or waste flows for the relevant product or product groups as a result of the CE policy implementation, and then combining these modelled product/waste flows with data on unit impact factors (i.e., the change in impact for a unit change in product flow or waste flow) available from the existing literature.

When modelling the change in product/waste flows as a result of an EU CE policy implementation, it should be possible to also model the change in import of relevant raw materials/products and export of relevant products/waste as a result of the implementation of that policy. The modelled change in imports and exports resulting from the policy implementation can then be combined with the impact factors available for other countries from the existing literature. This can be illustrated using the following example.

The requirement for increasing the collection and recycling for e-waste under the WEEE Directive could result in fewer used electronics going to third countries. Suppose the impact assessment exercise for the WEEE Directive has estimated that EU export of e-waste will be reduced by 1 million tonnes. A study also found that for every 1,000 tonnes of e-waste recycled, 15 sorting and recycling jobs are created and 200 repairing jobs are created. Combining these two estimates, we can conclude that a reduction of 1 million tonne of e-waste export from the EU could result in a loss of 15,000 sorting jobs and 200,000 repairing jobs in third countries as a whole.

It should be noted that the impacts on third countries estimated using the above technique might need to be adjusted depending on the applicability of the impact factors for modelling the impacts on the third countries. For example, if we have used GHG emission factors for vehicle remanufacturing from an EU country to calculate the GHG emission saving in a third country, the GHG emission factor from the EU country should be adjusted, where possible, to reflect the different energy mix. However, this kind of adjustment often might not be possible due to a lack of required data for the third countries, in which it is necessary to highlight the potential difference in impacts because of using incorrect GHG emission factors.

Once the upstream and downstream impacts for the chosen example third countries have been modelled, the estimated impacts on the example countries can be extrapolated to the rest of the relevant third countries as a whole. This can be done using the relative shares of trade with the EU compared to those for the example countries. The relative share of trade with the EU for different countries can be calculated using various trade databases, such as the EU COMETX or the UN COMTRADE.

6.2.5.2 Use of Proxy Indicators

When data is not available for key indicators for measuring the impacts of EU CE policies on third countries, it might be possible to use proxy indicators to assess relevant impacts. Availability of proxy indicators will depend on the impact that is being measured. For example, if data on GVA of relevant sectors is not available to measure the economic impacts, approximate economic impacts can be estimated by using the value of the output (i.e., output multiplied by the average price of the output) for these sectors, as data on output of different sectors and associated prices might be more readily available compared to data on sectoral GVA. If data on price and quantity of outputs are not also available, then another proxy indicator that could be used for assessing economic impacts is GDP, as it might be possible to apportion the country's GDP to particular sectors based on the share of these sectors in the economy.

6.2.5.3 Qualitative Assessment

When it is not possible to estimate the impacts quantitatively due to lack of available data, a qualitative synopsis of potential impacts as well as their potential magnitude should be provided. The qualitative assessment should also accompany the rationale and evidence, where available, in support of the discussion.

For example, when assessing the upstream impacts of the ESPR on third countries, it might not be possible to quantitatively estimate the impact on GVA of the electronics manufacturing sector. However, it could, for example, be qualitatively assessed that implementing ecodesign requirements can lead to cost saving for the electronics manufacturers, leading to an increase in GVA for the sector. This is reflected in a study on ecodesign compliance in East Asia, which found that in Vietnam, the companies interviewed were implementing the ecodesign requirements and saw the benefits from implementation in their product development process as it made the product more cost effective.¹¹⁵

¹¹⁵ Lindhal, M. (2007). The state of eco-design in Asian electrical and electronic companies. *Asia Eco-design Electronics*: https://cfsd.org.uk/aede/english/State-of-Eco-Design-Report_aw-for-web.pdf (Accessed April 2023)

7.0

Conclusions



7.1 Future Considerations

The need to transition to a climate neutral, resource-efficient and circular economy is an increasingly urgent global issue. The success of the transition relies on change at a global scale. The EU is progressing on its journey towards a circular economy, with strong efforts being made to set a policy framework that will accelerate change and guide EU countries through the transition (see Section 3.3). But the transition will not be completed by the EU alone; countries outside of the EU must not be left behind.

The EU has recognised the important role it can play in bringing about the transition to a circular economy at the global level, by using its power and influence to lead third countries towards the same goals. However, data relating to potential impacts of the EU's circular economy policies in third countries are currently limited. This study has highlighted the need for improved tracking and accountability of impacts of the EU's circular economy policies in third countries in the policymaking process. Improved data is an essential underpinning requirement, that will facilitate greater co-operation, and lead to a more rapid adoption of a circular economy globally.

The study has examined potential upstream and downstream impacts of EU circular economy policies in the electronics and vehicles industries in third countries, and has identified a number of economic, social, environmental and geo-political risks and opportunities (see **The following** image summarises risks and opportunities for upstream and downstream countries).

Figure 5-1) relevant to the two focus sectors. Other sectors might have other impacts, leading to different risks and opportunities, that are not captured in this study. In order for action to be taken to mitigate negative impacts and maximise positive opportunities of EU circular economy policies in third countries, information on the potential reach and scale of such impacts is required. Therefore, better measurement of these impacts and their integration into EU impact assessments are necessary steps towards improving EU policymaking.

The indicators identified in **Table 6-1** of this study highlight options for measuring relevant impacts of EU circular economy policies. However, considerations relating to data availability, feasibility of measurement and applicability to relevant industries limit the use of indicators in practice. A shortlist of indicators recommended for use in EU impact assessments includes: gross value added, number of jobs, GHG emissions and replication of EU policies or actions (see **Figure 6-1: Shortlist of Indicators**).

Given that the shortlisted indicators are already used in assessing the impacts of proposed EU policies on the EU and the Member States, the methodologies for estimating the impact on EU countries can be used to estimate the impacts on third countries. The study also presented some additional methodological considerations for assessing the impacts on third countries.

The study highlighted the need for involving relevant stakeholder groups for collecting some of the required data for third countries, as well as identify potential data gaps. Moreover, there is also a need for longer term engagement by the European Commission with such stakeholders to achieve ongoing improvements in understanding of impacts through improved data gathering and knowledge exchange. New stakeholder working groups should be established in different regions and with strategic trading partners. This can also be achieved through other multilateral development organisations such as GIZ that already has an established network in different regions around the world.

The European Commission should also undertake more research on impacts of different EU interventions on third countries and/or assist third countries in undertaking these assessments. Databases should be developed using the

results from these studies, for example LCA databases with estimates of impacts from third countries, so that they can be used for undertaking future impact assessments.

Beyond improving the availability of information about potential impacts of EU circular economy policies in third countries, further progress is required to find solutions that will minimise the risks and maximise the opportunities for third countries. These may include financial support for investment in circular economy infrastructure, such as recycling facilities, technical assistance to help companies comply with EU product requirements, or the provision of incentives to companies or countries that promote a circular economy business model. Solutions will need to be tailored to suit the country context, working in close collaboration with partners on the ground in third countries. The uptake of these recommendations will further encourage a fair shift to a global circular economy.

7.2 Recommendations for Further Work

This study provides the grounding for future work to be undertaken. There could be further research into other focus sectors, countries, European policies, to identify and analyse specific impacts that EU policies have in other sectors on third countries. For example, it would be valuable to conduct further research into the EU's Strategy for Sustainable Textiles as it is expected to have a significant impact on third countries due to the volume of textile imports into the EU and used textiles exports from the EU to third countries. Research on sectors such as textiles or chemicals would include analysis on other regulations and would aid the identification of further impacts.

Another prevalent opportunity for additional work that would build upon this study would be for the identified indicators to be modelled or quantified to provide an estimate of impact in specific countries. This would allow for the indicators to be used in practice and could help further refine the process for capturing impacts in third countries. The quantification would also help provide insight as to the scale of the impact which could further inform mitigation measures. A study on other sectors, such as textiles, could also include an aspect on modelling or quantification of the proposed indicators.

Future work could focus on specific impact assessments, and further exploring and expanding techniques for the development of legislation, such as Foresight techniques (e.g. structured analyses of drivers and emerging trends in order to approach issues in an anticipatory way) and the EU's Better Regulation Guidelines and Toolbox, to identify and mitigate against unwanted impacts on third countries whilst ensuring that countries can benefit to the fullest from positive impacts in the future.

Appendix



A 1.0 Glossary

Acronym	Description
ACEN	African Circular Economy Network
AfCFTA	African Continental Free Trade Agreement
ASEAN	Association of Southeast Asian Nations
CAGR	Compound Annual Growth Rate
CEAP	Circular Economy Action Plan
CSRD	Corporate Sustainability Reporting Directive
DD	Due Diligence
DPP	Digital Product Passport
ECOWAS	Economic Community of West African States
ECWVTA	European Community Whole Vehicle Type Approval
EEE	Electrical and Electronic Equipment
ELV	End-of-Life Vehicles
EoL	End-of-Life
EPA	EU- West Africa Economic Partnership Agreement
EPR	Extended Producer Responsibility
EPRON	E-waste Producer Responsibility Organisation Nigeria
ESG	Environmental, Social and Governance
ESPR	Ecodesign for Sustainable Products Regulation
EU	European Union
EV	Electric Vehicle
EVFTA	EU-Vietnam Free Trade Agreement
CE	Circular Economy
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GVA	Gross Value Added
ICT	Information and communications technology
ILO	International Labour Organisation
ISO	International Organization for Standardization
LCA	Life Cycle Assessment

NADDC	National Automotive Design and Development Council
NFRD	Non-Financial Reporting Directive
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RoHS	Restriction of Hazardous Substances
SUP	Single-Use Plastics
UN	United Nations
WAEMU	West African Economic and Monetary Union
WEEE	Waste Electrical and Electronic Equipment
WFD	Waste Framework Directive

