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External implications of the circular economy transition of the Netherlands and the EU

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The Netherlands' National Circular Economy Programme reflects its objective of a fair circular economy transition that limits negative consequences for low- and middle-income Countries (LMICs). To deliver on this ambition, it is essential to integrate the implications for LMICs in the programme's implementation and within other government policies and programmes.

This literature review paper synthesises research on the external implications of the circular economy transition of the Netherlands and the EU. It explores the opportunities and challenges for LMICs, and the support that the EU and the Netherlands can provide to create the right conditions for countries to benefit from the transition and mitigate negative effects.

Some key issues highlighted in this paper are:

- There is a risk that increased demand for critical raw materials needed for green transition can replicate some of the harmful exploitative practices of a linear economy. Sustainable mining practices to create decent work opportunities and greater local value addition should thus be essential components of a circular economy transition.
- Countries' ability to move towards higher value activities of circular design and emerging sectors of recycling and repair will depend on existing capacities, access to technologies, infrastructure and an appropriate policy environment. Countries unable to make such a transition would lose out.
- The EU and the Netherlands can make use of trade policy measures and instruments for private sector development support to promote a just global circular economy transition. Greater efforts can also be made to harmonise circular economy standards, involving stakeholders from LMICs.
- Addressing international dimensions of circular transition requires a holistic approach, integrating implications in existing policies and programmes with stronger involvement from different ministries.

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Acronyms

AIV	Adviesraad Internationale Vraagstukken
BCI	Better Cotton Initiative
CEAP	Circular Economy Action Plan
CGE	Computable General Equilibrium
CSDDD	Corporate Sustainability Due Diligence Directive
CSRD	Corporate Sustainability Reporting Directie
DRC	Democratic Republic of Congo
EBA	Everything but Arms
ECDPM	European Centre for Development Policy Management
EEB	European Environmental Bureau
EIB	European Investment Bank
ELV	End Of Life Vehicles
EPR	Extended Producer Responsibility
EPRM	European Partnership for Responsible Minerals
ESPR	Ecodesign for Sustainable Products Regulation
EU	European Union
FMO	Dutch Entrepreneurial Development Bank
GDP	Gross Domestic Product
GSP	General Scheme of Preferences
GTP	Global Trace Protocol
HS	Harmonised System
IEA	International Energy Agency
IISD	International Institute for Sustainable Development
ILO	International Labour Organization
IMVO	Internationaal Maatschappelijk Verantwoord Ondernemen
INRA	Institut National de la Recherche Agronomique
IRP	Institutional Relations and Partnerships
ISO	International Organisation for Standardisation
KU	Katholic University
LMICS	Low and/or Middle Income Countries
MSME	Micro, Small and Medium Enterprises
NEF	Near East Foundation
NPCE	National Programme Circular Energy
OECD	Organisation for Economic Cooperation and Development
PACE	Parliamentary Assembly of the Council of Europe
PBL	Netherlands Environmental Assessment Agency (Planbureau voor de Leefomgeving)
PGM	Platinum Group Metals
rPET	Recycled Polyethylene Terephthalate,
TNO	Netherlands Organisation for Applied Scientific Research
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UNU	United Nations University
US	United States
WBCSD	World Business Council for Sustainable Development
WEF	World Economic Forum
WTO	World Trade Organization

1. Introduction

The circular economy holds transformative potential for achieving prosperity and social value while minimising our environmental footprint and operating within planetary boundaries. In the Netherlands and the EU more broadly, there is an ambition to move away from a linear economy towards a more circular system. In 2016, the Netherlands became one of the leading countries in the world to set its ambition for a transition to a circular economy with the launch of the government-wide circular economy programme. A new iteration of the programme (National Circular Economy Programme (NPCE), 2023-2030) was recently introduced. It aims to minimise environmental footprint and improve security of supply of materials, while acknowledging the relevance of a just transition, focusing on jobs and working conditions. At the EU level a new Circular Economy Action Plan (CEAP) was adopted in 2020, succeeding the 2015 plan, which represents one of the main building blocks of the European Green Deal.

While various aspects of a circular economy transition in the Netherlands and the EU would impact Dutch/European businesses, consumers, and residents, there are potential implications for countries outside of Europe. The Dutch/European economy is inextricably linked to the global economy through global supply chains and international trade, including the economies of low- and middle-income countries (LMICs). Changing consumption and production patterns in the Netherlands and the EU more broadly have environmental, social and economic repercussions for the rest of the world, particularly LMICs. In 2017, the Netherlands ranked tenth in the world for imports of goods and sixth for exports (Lucas et al. 2022). The impacts on LMICs can both be positive and negative, based on different contexts and scenarios.

While the international dimensions of a circular economy transition are receiving increasing attention, there is still limited knowledge about linkages between countries with insufficient data to make definitive assertions (Brink et al. 2021, EEB 2023). A successful circular economy transition is one that is just, guided by the need to protect the health of the planet and the rights of all its inhabitants, including the right to fairness and equity (AIV 2023). The NPCE frames the outcome of such a transition as a fair distribution of benefits and burdens, not only among citizens and businesses but also spanning the national versus international context and across generations (NPCE 2023).

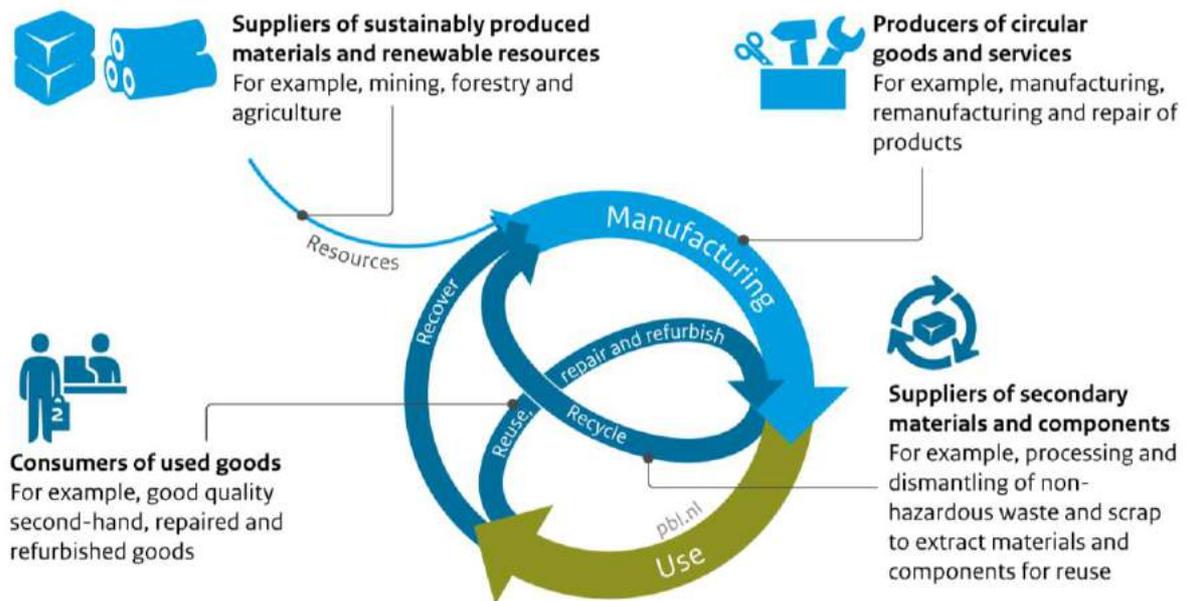
While discussing accelerated transition towards a circular economy in the Netherlands, the Dutch Parliament, in December 2022, identified a noticeable gap in understanding the implications of the circular economy transition on the rest of the world. The Parliament issued a *Motie*¹ to the Ministry of Infrastructure and Water Management to assess the effects of circular transitions on developing countries and provide recommendations on mitigating potential negative effects. This literature review paper aims to provide some initial answers to the request in the *Motie*. More precisely, the paper assesses the implications of the Netherlands' and EU's transition to a circular economy on LMICs based on a review of existing literature. It thus serves as a scene setter that can guide further research and help narrow down the broad scope of the question for more specific requests (focused on particular contexts, sectors or aspects of circular economy) by parliament or the political leadership in departments.

The paper draws heavily from and builds on the work of Ashraf and van Seters (2021), which focuses on the role of LMICs in the circular economy transition of the Netherlands and the EU, given the similar scope of research. It draws inspiration from the framework proposed by Lucas et al. (2022) for understanding the roles of LMICs in the Dutch circular economy (see Figure 1). The framework illustrates the different roles that LMICs play at every stage of global value chains within a circular economic system; supplying raw materials and producing goods and services, as well

¹ [Amended Van der Graaf/Bouchalikh motion on mapping the effects on developing countries of the transition to a circular economy \(replacing 36200-XII-72\).](#)

as providing a market for recyclable and reusable materials generated in the EU, both as consumers of used goods and as suppliers of secondary materials and components. Indeed, the type of circular economy transition in the Netherlands and the EU will determine what these roles will look like for LMICs, as well as their implications for social and environmental well-being in LMICs. At the same time, the policy landscape, economic infrastructure, skills and other conditions in LMICs will be important in determining the extent to which the circular economy transition would be an opportunity or challenge for these countries.

Figure 1: Role of low-and middle-income countries in a circular economy of the Netherlands



Source: Lucas et al. 2022

The paper is organised as follows: Section 2 examines the implications of the Netherlands' transition to a circular economy for LMICs. Section 3 outlines some relevant policy measures and actions that the Dutch government can take to mitigate risks and harness opportunities that the circular economy transition offers to LMICs. The final section presents concluding remarks.

2. Implications for low-and middle-income countries

This chapter discusses the implications of the circular economy transition of the EU and the Netherlands on LMICs along the different stages of the supply chain, highlighting the roles that the countries can play using the above described framework of PBL: Section 2.1 will discuss the implications of a change in **demand for raw materials** on countries that supply materials and resources; section 2.2 , discusses the impact on countries that produce goods and services given the changing requirements of **product design**; section 2.3 will highlight how circular economy strategies regarding **trade in reusable goods and waste** impact countries that provide a market for used goods and supply secondary components.. The last section (2.4) highlights the impacts related to **due diligence and traceability** which are relevant for all stages of the supply chain.



2.1. Demand for raw materials

Circular economy related policies and strategies aim to reduce resource and material demand

Circular economy strategies are aimed at reducing resource demand, which can have significant implications for low-income, resource-dependent countries. Reducing and substituting raw material² demand is indeed among the core objectives of the Dutch National Circular Economy Programme, and is a key feature of circular economy policies at the EU level. A cornerstone of the EU CEAP is the introduction of ecodesign requirements, which aims to make products easier to repair, reuse and recycle along with being made with recycled materials. This will contribute to reducing demand for material resources by increasing the use of secondary materials and keeping products in use longer. Other (voluntary) measures are also being introduced in the EU and member states to encourage consumers to demand fewer products. In the Netherlands the Ministry of Infrastructure and Water Management has been running the ‘Preloved Fashion Fair’ campaign that uses advertising and social media to try to encourage people to buy more used clothing.³ The campaign will be intensified in the coming years, in line with the National Circular Economy Programme focus on reducing raw materials use and carbon footprint, both from a production and consumption perspective. In addition, to reduce third-country resource dependency, the EU is striving to step up critical raw mineral extraction within its borders as well as scale up processing and refining capacity. The proposal for critical raw materials act sets certain objectives for domestic extraction, processing and recycling (European Commission 2023a). The Netherlands also supports the agenda of upscaling of European mining (Government of the Netherlands 2022).

While a potential decrease in demand of raw materials can lead to job and income losses, it can also provide opportunities for diversification and help lower negative environmental and social impacts

A fall in the demand of raw materials in the EU and member states and an increase in critical raw materials extraction, processing and recycling within the EU arguably corresponds with a loss of export earnings and the risk of job losses for countries dependent on the extractive sector (Schröder 2020; OECD 2020; UNEP and IRP 2020; van Der Ven 2020; Kettunen et al. 2019; Preston et al. 2019). This would particularly be the case for countries which heavily depend on raw materials exports. For example, exports of raw materials constitute 34.9% of the Republic of Congo’s public revenue, while at least 6 African countries depend on these exports for 15% of their GDP (Langsdorf and Duin 2022). Demand for raw materials will also depend on the degree to which waste recycling is realised. While different commodities will behave differently, it is expected that by 2030, waste recycling statistics will increase for low-tech materials like copper and iron ore (de Jong et al. 2016). For key exporters of iron ore and copper to Europe,

² Raw materials are any basic or starting material from which a finished product is made. They are unfinished substances or unrefined natural resources used in the production of finished goods. Some examples are wood, cotton, coal, crude oil, raw biomass, mineral ores, and rubber blanks.

³ [Tweedehands kleding steeds populairder: 'Als het goed is, waarom niet?'](#)

such as Mauritania and Liberia for iron ore, and Zambia and the DRC for copper, this is a factor they should consider in the near future.

On the plus side, a reduction in resource extraction means lower impact on the environment and decreased occurrence of socially unsustainable practices. In the textile sector, reduced demand for new cotton will decrease water use needed to grow cotton which will be especially beneficial in water stressed areas given that a single cotton t-shirt requires 2,700 litres of fresh water to make, enough to meet one person's drinking needs for 2.5 years (European Parliament 2020). Likewise, activities related to resource extraction in LMICs frequently coincide with a range of social issues and instances of labour rights violations. A fall in demand for critical metals, for instance, could help prevent exploitative and dangerous jobs in mining metals (Sovacool et al. 2020, Circle Economy 2022). Indeed this will only happen if the jobs are replaced with safer, more inclusive alternatives, as discussed later in this section.

A move away from raw material extraction can also be an opportunity to diversify the economy and support local value addition, depending on the country's ability to adapt to the changes. Countries can take advantage of the increased demand for repurposed materials for instance, and develop facilities for reprocessing the raw materials they produce in the first place. Taking the example of cotton, countries producing the crop can potentially develop a reprocessing industry for secondary (used) cotton material, shifting the type of jobs available within the country and creating the need for reskilling workers. This may not be easy, at least in the short run, for countries highly dependent on cotton production without any fibre processing industry currently set up (Circle Economy 2020). This could also lead to a change in the locations where employment opportunities are found, potentially driving rural residents to migrate to urban areas, away from cotton production towards (re)processing. This can have implications for housing, transport and resource use in urban areas, which creates the need for sustainable urban models, a priority in several rapidly urbanising LMICs.

It is however unlikely that global raw material demand would fall substantially, while demand for critical raw materials will increase creating opportunities for LMICs

The likelihood of raw material demand falling substantially in the short run is low and subject to several factors. Population growth and rising incomes are likely to contribute to growing raw material demand globally, including in LMICs (Blot et al. 2022; de Jong et al. 2016; Circle Economy 2020), which are projected to account for more than half of all global consumption by 2030 (Kettunen et al. 2019). The OECD projects a doubling of global primary raw materials use, from 79 gigatonnes to 167 gigatonnes between 2011 and 2060. (OECD 2018a). It is also uncertain whether a transition towards a more circular economy in the Netherlands and the EU more broadly could lead to a significant impact on LMICs, as this depends also on what other major importers will do.

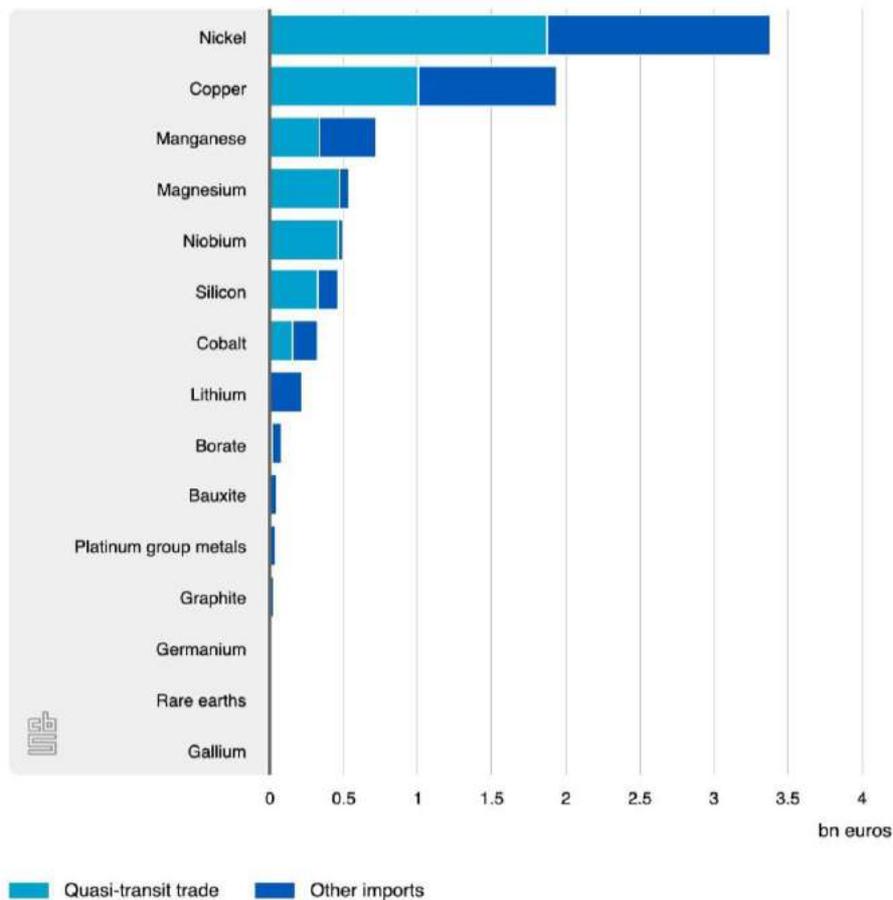
In parallel, the demand for critical raw materials is not likely to slow down in the foreseeable future, particularly in more industrialised countries (de Jong et al. 2016; KU Leuven 2022; Blot et al. 2022). As Europe moves towards more renewable energy production and electric mobility, mineral-rich countries are likely to experience a rise in demand for cobalt, nickel, lithium and other critical minerals needed for the energy transition (IEA 2021; To 2022). In 2020, more than 2 million electric vehicles were registered in the EU, which is expected to rise to 7-20 million in 2025 and 18-61 million in 2030 (Langsdorf and Duin 2022). Consequently, the EU demand for lithium batteries powering electric vehicles and energy storage is set to increase 12 times by 2030 (21 times by 2050).⁴ In 2022, the Netherlands imported approximately 227 million euros of lithium (of which 13 million euros were in quasi-transit trade)⁵ and 334 million euros of cobalt (of which 157 million euros were in quasi-transit trade) (Figure 2). Many of these key minerals for the green transition are found in LMICs, while not exclusively. For example, the African continent has virtually all

⁴ [Factsheet on European Critical Raw Materials Act.](#)

⁵ Imported foreign goods that undergo little if any processing in the Netherlands and are then exported again.

the raw materials needed to produce batteries (AIV 2023). At present 64% of bauxite demand in the EU is imported from Guinea and about 90% of the platinum group metals (PGM) from South Africa. (European Commission 2020a). However, requirements for recycled content and targets for recycling efficiency, as well as EU's ambition to reduce third-country resource-dependency can have a dampening effect on demand for critical raw materials (AIV 2023). The batteries regulation for instance sets targets for producers to collect waste portable batteries and provides for mandatory minimum levels of recycled content for certain batteries (European Parliament and the European Council 2023).

Figure 2: Dutch imports of critical and strategic raw materials, 2022



Source: CBS 2023

For countries to benefit from the growing demand for critical raw materials, it is essential to support just transition of workers and invest in local value addition

In light of growing demand for certain critical raw materials, the effect of a circular economy transition on workers and the environment will depend on the extent to which responsible mining practices are integrated in the circular economy agenda. It is important that exploitative practices of the linear economy are not replaced with the same type of jobs in a circular system. This means supporting mining practices that protect the environment as well as improve working conditions, which is not yet sufficiently the case (AIV 2023). For instance, lithium mining in Chile leads to the depletion of local water resources and chemical pollution, which is harmful to local communities and ecosystems (Sticco et al. 2021). The Netherlands promotes more responsible, sustainable mining in resource-rich countries, by providing financial support and contributing to the establishment and functioning of international (multi-stakeholder) initiatives that continue to grow. At the EU level, the Netherlands was one of the initiators of

the European Partnership for Responsible Minerals (EPRM), funding for which was extended for a further five years in 2021 (Government of the Netherlands 2022). Such initiatives help to avoid perpetuating unsustainable practices and support a more just and greener circular economy transition beyond Europe.

In a similar vein, the growing demand for critical materials can contribute to the economic and development objectives of LMICs. This would require investing in value addition to create wealth and jobs locally, and provide opportunities for diversification (UNU-INRA 2021). Many lower-income countries are involved in mining of critical raw materials, but higher value activities including processing and manufacturing are often carried out elsewhere, as acknowledged by the Netherlands' 2022 National Resource Strategy. Without efforts to create more value locally, increased critical raw material extraction risks reinforcing the colonial model of extractivism as illustrated by the example of Democratic Republic of the Congo (DRC) (see Box 1). From a global perspective, processing and production of final products, for instance batteries, in extractive countries would arguably cost less and entail lower emissions than exporting raw materials to other countries (UNECA and BloombergNEF 2021). The new Dutch Africa Strategy focuses on win-win partnerships around sustainable economic cooperation and downstream processing in Africa.

Box 1: DRC's potential as a supplier of cobalt for green transition



The Democratic Republic of the Congo (DRC) currently accounts for nearly 70% of the world's cobalt production (WEF 2020), which makes the country an important player in the global energy transition regarding energy storage and electric mobility. Global demand for cobalt has increased tremendously in the past decade; 145000 tonnes have been extracted between 2010–2019, compared to 38000 tonnes in 1970–2009, contributing to increased export revenues of the DRC. The EU relies on DRC for 68% of its cobalt demand (European Commission 2020).

However, DRC, like other LMICs, is not fully benefiting from the extraction of this strategic mineral. As a commodity exporter, the country is still locked in the mining and mineral processing stage, and is stuck at the bottom of the global battery and electric vehicle value chain. At present, the DRC only captures 3% of a total global value that is expected to reach US\$ 8.8 trillion by 2025 (Bloomberg NEF 2021). Moreover, cobalt mining in the DRC is rife with child labour and frequent violent political conflicts (Raji 2021).

This points to the critical need to create more value locally, strengthen productive capacities and promote sustainable mining and production in LMICs to benefit from the growing demand of critical raw materials, including from the EU. In this regard, the EU has recently signed a Memorandum of Understanding with Zambia and DRC to boost sustainable and responsible critical raw material production and processing⁶.

Increasing demand for bioresources can have negative impacts on food systems and biodiversity in LMICs

Finally, the circular economy transition in the Netherlands and the EU can increase the demand for bioresources used to substitute finite materials, which can have an effect on LMICs. While bioresources, such as agricultural and forest products, and biofuels can be a good alternative to non-renewable resources, the increased demand can have negative impacts on food systems and biodiversity (Lucas et al. 2022). This can be particularly challenging for lower income countries that are prone to climate change risks and already face food security threats. The Netherlands has a strong focus on the substitution of abiotic resources, which could lead to increased biomass imports, for instance, resulting in competition with food production or biodiversity losses in exporting countries, especially if other (bigger) countries decide to follow suit (CE Delft 2020; Langsdorf and Duin 2022). The Circular Economy Programme addresses this concern and commits to avoid shifting the burden of the circular economy transition upon LMICs, highlighting the importance of European and international cooperation.

⁶ [Global Gateway: EU signs strategic partnerships on critical raw materials value chains with DRC and Zambia and advances cooperation with US and other key partners to develop the 'Lobito Corridor'.](#)

2.2 Product design

Mandatory circular design requirements for certain products are introduced, while actions are being taken to stimulate demand for circular products

Designing circular products is about introducing recycled content, using sustainable materials, and creating more durable and repairable products. It also entails avoiding the use of materials that are hazardous to human health and the environment, such as microplastics. This is a key component of circular economy strategies of the EU and the Netherlands. In the Netherlands, the National Circular Economy Programme envisions increasing the percentage of renewable raw materials used, and proposes a goal for the extension of the lifespan of products, including through reuse, refurbishment and repair (Ministry of Infrastructure and Water Management 2023). With respect to textiles, the Policy Programme for Circular Textiles 2020-2025 sets targets for recycled/sustainable material use in textiles. For instance, by 2030 all textile products sold in the Netherlands should contain at least 50% of sustainable material, and at least 30% of that 50% should be recycled material (Government of the Netherlands 2020). At the EU level, product design requirements appear in several regulations, including the earlier mentioned ecodesign requirements proposed in the Ecodesign for Sustainable Products Regulation (ESPR) (European Commission 2022a).

Other policy measures include upgraded rules on packaging and packaging waste, including design and waste management (European Commission 2022b), and mandatory minimum levels of recycled content for certain types of batteries (European Parliament and the Council 2023). In addition to regulatory measures, the market for recycled materials will be stimulated by green public procurement, sustainability commitments of brands and EU taxonomy, among others (UNIDO and Chatham House 2022). The Denim Deal is an example of an initiative the Netherlands supports, which brings together actors along the value chain to use more recycled material in newly produced denim garments. Members of the Denim deal aim to include 20% post-consumer recycled cotton in denim garments in the coming years, while the government has committed to purchase corporate clothing with a minimum of 25% in 2025 (Government of the Netherlands 2020).

Investing in more circular design can help countries move to higher value activities

Many LMICs depend on foreign markets, including the EU, as they embark on the path to export-led industrialisation. In light of the changing policy requirements, producers in these countries may be required to shift to more circular design, to access the EU market. This can create opportunities for job creation and development in higher-value processing, as well as in the emerging sectors of recycling, repurposing and reuse of materials, while supporting the industrialisation objectives of LMICs (UNEP and IRP 2020; van der Ven 2020 and 2022). In particular, 'early movers' are likely to gain the most from seizing this opportunity (Ahiabile and Triki 2021; UNIDO and Chatham House 2022, EEB 2023; Ashraf and Karkare 2023). Producers who take a lead in aligning their manufacturing processes and reskilling workers can tap into the rapidly growing and high-value markets. It can also be an opportunity to charge premiums for greener products. Responding to the changing market conditions can provide an impetus to diversify the country's supply of inputs, as there is motivation to create a supply of alternative recycled inputs. For instance, the demand for recycled plastics, especially recycled polyethylene terephthalate (rPET), will exceed supply by about 45% by 2025 (Feng et al. 2022). Early movers have a better chance of securing the inputs they need to meet their own sustainability targets and comply with increasingly stringent regulatory standards. Box 3 discusses the potential for circular design in Vietnam's electronics industry.

It is relevant to note that circular economy practices, such as repair recycling and refurbishment, have long existed in many LMICs without having been labelled as such. For example, in Kenya recycling by utilising used clothing in the production of blankets has been happening for several years (Ashraf and Karkare 2023). However, these activities

mostly happen on a small scale, in the informal sector. It would be valuable to find ways to support and upscale these traditional models often referred to as “frugal innovation”, in the transition towards a circular economy (Ezeudu et al. 2022).

Box 2: Circular design in Vietnam's growing electronics industry



Vietnam's electronics sector is an important industry, with the country ranked 10th globally in terms of electronics export value. Europe is Vietnam's second-largest electronic export market, accounting for one-third of its total telephone exports. The EU-Vietnam Free Trade Agreement, which entered into force in 2020, has boosted trade between the EU and Vietnam (Vietnam Briefing 2023). Given the potential growth of the electronics sector and the existing trade agreement, Vietnam has an opportunity to align its production with the EU's upcoming ecodesign requirements.

Adopting circular principles would help to improve resource efficiency of manufacturers which could reduce input costs and improve competitiveness. Ecodesign requirements also present an opportunity for Vietnam's electronics manufacturers to charge premiums for greener products. Realigning the production and workforce to the new requirements may be easier for products still in the early stages of development, avoiding the costs associated with retrofitting manufacturing plants and retraining workers (EEB 2023).

Due to worsening U.S.-China relations, Apple is relocating a significant portion of its electronics manufacturing to Vietnam, creating an opportunity to develop these operations in a way that facilitates the manufacture of products that meet EU's ecodesign requirements. Better product design to reduce wastage can also afford environmental benefits given that electronic waste is one of the fastest-growing concerns in Vietnam, with the country producing 257 kilotonnes (kt) of e-waste in 2019 (Poudel et al 2023). It is relevant to note that Vietnamese suppliers, particularly micro, small and medium-sized enterprises (MSMEs) will require support to meet the new requirements.

However, opportunities for upgrading depend on existing capabilities, policy frameworks, infrastructure and access to technology

Producers in LMICs that lack the capacity to swiftly adapt to the changing requirements will lose out and may face non-tariff barriers to trade (van der Ven 2022; UNIDO and Chatham House 2022; Langsdorf and Duin 2022, AIV 2023). Investing in circular design will require capital investment, removal of policy barriers, and skills training, and will bring additional costs of compliance. In particular, the demand for recycled content may grow faster than the ability of producer countries to establish effective reverse logistics supply networks (UNIDO and Chatham House 2022). Circular design may require highly technical solutions, involving equipment that is expensive to purchase and maintain. A reliance on high-tech innovations and infrastructure could present a number of issues for lower-income countries. An example is textile recycling, particularly fibre-to fibre recycling, which requires capital investment as well as a reliable supply of used textiles (Ashraf and Karkare 2023). While producing countries have the option of importing textile waste, it may not be a reliable feedstock as waste trade tightens (as discussed in the next section). As such, creating recycled materials from domestic collection and recycling will give producers more resilience. Relatedly, it is challenging for businesses that work in and export to multiple countries to comply with the various regulations and standards mushrooming in various parts of the world, including the EU. This points to the need for more harmonisation of regulations and targeted capacity building in LMICs.

Changing design requirements influence the competitive advantage of LMICs in dealing with secondary raw materials. As products are designed for easier repair, disassembly and recycling, Dutch/European companies may find it more economically viable to manage materials domestically (using digital and automatic technologies) (Barrie and Schröder 2021). More complex (or obsolete) goods that are more difficult to recycle/repair and lower in value may be shipped abroad. As such, closing loops by processing post-consumer materials within the EU can have consequences for labour-intensive waste and recycling industries in LMICs. Similarly, a reduction in manufacturing costs through new technologies, such as 3D printing, could allow companies to 'reshore' parts of production back to

high-income countries. Technologies of reverse logistics and other digital solutions required for a circular economy would also be more accessible for high-income countries. There is also the potential danger of becoming dependent on technological expertise that does not make use of local knowledge, materials, and skills. (Circle Economy 2022). Circular transition in the apparel industry in the EU, for example, is associated with 50,000 job opportunities in the EU (in reuse and recycling activities), as opposed to an estimated decline of over 400,000 jobs in value chains outside the region (in apparel production activities) (Repp et al. 2021).

However, reshoring all production in the EU may be a ‘utopia’ for some types of products/materials. Moving production operations to Europe implies that companies would be willing and able to significantly increase production costs. The alternative would be to transform or adapt existing manufacturing processes in LMICs, for example in the clothing manufacturing industry, to incorporate repair, refurbishment, recycling and use of recycled materials. While this requires investment, it may be a more affordable option than moving entire manufacturing industries back to the EU.

2.2. Trade and reusable goods and waste

Circular economy related policies and strategies are aiming to improve collection, recycling and reuse of products/materials in the EU, while reducing the export of waste that cannot be managed properly

End of life products can be categorised into i) reusable components ii) recyclable waste – raw materials that have a secondary use iii) or final waste that cannot be recycled (Kettunen et al. 2019). Better recovery of end-of-life products (and materials) to allow for more reuse, repair and recycling is an important part of the Dutch (and EU) circular economy ambitions. This also includes better management of waste that leaves the EU. The recent revision of the EU’s Waste Shipment Regulation is meant to reduce the export of waste to countries that cannot manage it properly. The revision has the key aims of preventing the transfer of EU waste problems to third countries, facilitating the transport of waste for recycling and reuse in the EU, and better combating illegal waste shipments. The Netherlands is committed to this agenda and aims for “the highest possible quality processing” of all its waste within the EU (Ministry of Infrastructure and Water Management 2023). In addition, policies such as Extended Producer Responsibility (EPR) will support better sorting and collection of waste in the EU. EPR policies make producers responsible for (the costs of) the collection and recycling of used products, and can also include minimum objectives for, for example, collection, recycling and/or reuse. While most EU member states have EPR systems in place for certain product categories, the proposed revision of the Waste Framework Directive (European Commission 2023b) has introduced general minimum requirements to improve harmonisation and aims to strengthen enforcement of EPR obligations. The Netherlands has a legally required EPR for several product groups such as cars, packaging, batteries and electronic and electrical devices, and is being extended to other products.

Consumers in LMICs can benefit from imports of affordable second-hand goods, while recyclable waste can be channelled to productive activities

With respect to end-of-life products, international trade can provide opportunities for value retention and extension, by keeping products in use longer. It allows products to have a second life abroad. International trade in reusable goods and recyclable waste can also potentially generate socio-economic gains for LMICs. There are large markets for second-hand goods in LMICs, such as for clothing and electronic equipment, providing people access to affordable second-hand goods and generating incomes and jobs (OECD 2020; Langsdorf and Duin 2022). For example, a study from the Institute of Economic Affairs (IEA) in Kenya found that the used textile industry is crucial to Kenya’s economy, creating direct jobs for about two million people, and providing good value clothing to consumers on limited budgets (IEA 2021). Similarly, channelling recyclable waste to countries with a comparative

advantage in recycling and repair can create economies of scale, as well as generate valuable resources for local industries. For instance, in 2014 India accounted for 13% of global secondary steel production despite limited domestic supplies of steel scrap, implying the important role of trade in recyclable waste for material recovery (OECD 2018b).

Products designed with circular requirements can aid recycling, repair and repurposing, as well as ensure safe reuse

More circular requirements for finished products, as discussed in the previous section, can also have positive effects for recycling and reuse of products in LMICs. Recycling is becoming easier and more lucrative due to ecodesign requirements as well as other policies. Amendments to the EU's Batteries Regulation, for instance, aim to ensure batteries can be removed more easily from electrical appliances (EEB 2023). This provides an economic opportunity for LMICs involved in e-waste recycling as undamaged batteries retain more value. In the vehicles sector, the requirements under the proposal for regulation on end-of-life vehicles (ELVs) (European Commission 2023c) aimed at improving reparability of vehicles, should make it easier for auto parts recyclers in LMICs to remove and replace vehicle parts. In a similar vein, designing products that can be repaired easily can avoid recycling activities that recover resources in ways harmful to health and the environment, an issue particularly for e-waste (Langsdorf and Duin 2022). However, as mentioned earlier, it is possible that as products are designed for easier repair, disassembly and recycling, Dutch/European companies may find it more economically viable to manage materials domestically.

With respect to second hand product use, the requirement to limit hazardous substances as well as improve environmental performance of products will also afford benefits for human health and the environment in LMICs. For example, the proposed ELV regulation will limit the use of hazardous substances such as lead, mercury and cadmium in vehicles, which should reduce the risk of chemical leaching from improperly managed ELVs (EEB 2023). The repurposing of used electric vehicle batteries for energy storage, as envisioned in the Battery Regulation proposal, could help generate renewable energy, particularly in rural areas (To 2022).

However, for trade in end-of-life materials to be beneficial, it is necessary for importing countries to have in place the relevant infrastructure, regulatory frameworks and capacity to safely process these materials

It is relevant here to note that while waste exported from the EU for recycling is categorised as recyclable waste, there is uncertainty about whether the waste is actually recycled and if so under which conditions (Kettunen et al. 2019). Newly-industrialised and non-industrialised countries have very high levels of activity in lower-value repair/repurposing and remanufacturing processes, but often lack the formalised infrastructure to facilitate higher-value processing (IRP 2018). This is extra concerning in case the EU increasingly exports complex and/or low-quality recyclable materials. Several lower-income countries receive large, often illegal, shipments of low-quality second-hand products that outstrip local demand and recycling capacities. The result could be undesirable downcycling and higher amounts of materials being landfilled or incinerated, which is detrimental to the environment and human health. The textile sector is a prime example with increasingly low-quality second-hand clothing exported to Africa. Ghana, with a population of 31 million, receives 30 million used garments every fortnight (Ahiabile and Triki 2021). Out of these an estimated 40% are deemed worthless on arrival and end up in landfill sites. With respect to used plastics, it is estimated that the treatment in non-EU countries causes higher CO₂ emissions and environmental pressure, often leading to plastic leakage into the environment (Langsdorf and Duin 2022). Box 3 highlights the challenges faced by Indonesia due to huge amounts of plastic waste import.

In addition, the waste economy in LMICs is predominantly informal and vulnerable to workers' rights violations. Most of the estimated 20 million informal waste workers are located in middle-income countries (OECD 2016). These

workers face serious ‘decent work deficits’, including low wages, long working hours and work-related hazards, despite the fact that they perform a vital public service at little or no extra cost to state authorities (ILO 2018, Oates et al. 2023). There is a risk that the negative environmental and socio-economic impacts in the current linear economy are repeated in the circular economy. A just circular economy transition in LMICs requires support to the informal sectors and efforts to create more decent work opportunities (EEB 2023; Circle Economy 2022).

Box 3: The issue of imported plastic waste in Indonesia



Indonesia is a major destination country for plastic waste, generated predominantly by OECD countries. The Netherlands plays a leading role in international trade in plastic waste, with waste exports to non-Western countries rising significantly over the past few years. In 2021, the Netherlands was the largest exporter of plastic waste to Indonesia (Plastic Soup Foundation 2022).

The rising volumes of plastic waste outstrip Indonesia's capacity to manage such waste. The present recycling capacity is 730,000 tonnes against 12.24 million tonnes of plastic waste⁷. The waste is also frequently contaminated or composed of compound materials, making it unsuitable for high-value recycling. Around 83% of plastic waste in Indonesia is thus poorly handled, casting serious doubts on the notion that plastic waste is exported to the country for recycling (Jambeck et al. 2015). As a result, much of the waste either ends up in rivers or is incinerated. Microplastics are found in more than 80% of the fish in the water and the incinerated waste releases hazardous substances that fall onto fields and are inhaled (Plastic Soup Foundation 2022).

In addition, workers at these waste sites are frequently subjected to harmful working conditions. Much of the work in the plastic waste industry in Indonesia is carried out by informal waste pickers and recyclers who often operate in hazardous conditions, getting exposed to toxic materials while lacking access to proper safety equipment and protective gear. The effects of such waste sites, and plastic waste in general, disproportionately affect the socially marginalised and women who live in informal settlements that are exposed to the accumulation of such wastes (Wakunuma 2022).

Banning trade in end-of-life products altogether may not solve the issues.

It is because of these challenges and risks that several countries have imposed bans on waste imports to prevent waste dumping that is harmful to the environment and does not add value to the economy. China's ban on waste imports for recycling in 2017 was followed by a number of countries, including Thailand's ban on imports of all plastic waste (Kettunen et al. 2019). Some LMICs are also restricting imports of second-hand products and reusable materials to protect local industries. In 2015, several East African countries proposed a ban on the import of used textiles in an attempt to protect the domestic industry from large volumes of low-priced used second-hand garments (Preston et al. 2019). It should however be recognised that a ban on used products does not automatically protect the local industry from cheaper alternatives (Circle Economy 2022). An example is the textile industry in South Africa, which is in decline despite a long-term ban on the import of used textiles (Watson et al. 2016). A key determinant of this has been the industry's inability to compete with the influx of cheap clothing from Asia. To illustrate, exports of new clothing from China to Sub-Saharan Africa as a whole increased by 471% between 2005 and 2017 (Lu 2018).

Clear classification of waste will help promote trade in value retaining materials and goods, while preventing harmful waste dumping

Banning waste imports altogether prevents the possibility of the earlier mentioned value-creating processes, as well as access to affordable goods. Instead, there is a critical need for correct sorting on quality locally within the EU to prevent low-quality or damaged used products that have no value on the second-hand market from being dumped in low-income countries, (Langsdorf and Duin 2022; Schroeder and Barrie 2022; Circle Economy 2020). It is also important to develop clear definitions and distinctions between the different classifications of waste, to prevent the

⁷ Independent Commodity Intelligence Services (2021). Recycling Supply Tracker – Global: <https://www.icis.com/explore>.

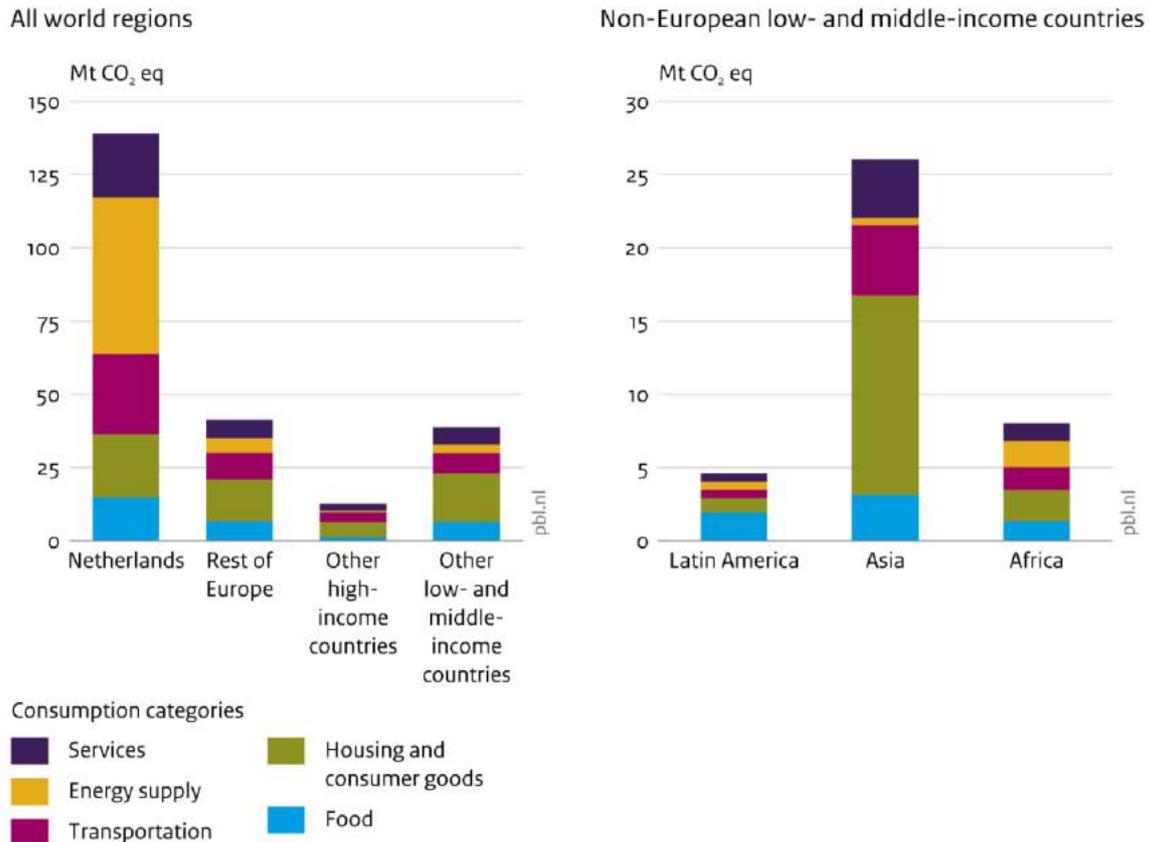
export of harmful materials while facilitating the trade of recyclable waste. It can be challenging for businesses to move waste materials from one country to another, given the varying definitions and regulatory procedures, which creates disincentives for trade in potentially valuable waste materials. The earlier mentioned Waste Shipment Regulation is an example of a policy aimed at avoiding detrimental waste exports as it requires the consent of non-OECD in importing certain types of waste and requires importing countries to prove that they can treat the waste in an environmentally sustainable manner. EPR policies in the EU can further facilitate better sorting locally before exporting.

2.3. Due diligence and traceability

Policy measures are introduced to improve supply chain traceability and due diligence to track, manage and report on risks related to environmental sustainability

In 2015, approximately 40% of the greenhouse gas footprint associated with Dutch consumption was located outside of the Netherlands, with LMICs accounting for 17%. Notably, nearly two-thirds of these LMICs were concentrated in Asia, primarily in consumer goods and machinery production (Lucas et al. 2022; see Figure 3). This illustrates the global environmental impact of Dutch consumption patterns, particularly in the context of manufacturing activities in LMICs. Many of the products consumed in the Netherlands and the EU more broadly originate from complex global value chains with poor transparency and traceability (Jennings et al. 2022, OECD 2021) This makes it challenging to respond to and prevent environmental impacts along the value chain, keep track of materials (and substances of concern), and provide accurate information to consumers to make conscious choices.

Figure 3: Distribution of the greenhouse gas consumption footprint of the Netherlands, 2015



Source: Lucas et al. 2022

The EU has introduced a number of policy measures to improve the provision and tracking of information. The ecodesign regulation will introduce digital product passports with a unique product identifier, which will provide actors along the value chain with information on the circularity and environmental aspects of a product (European Commission 2022a). In addition, the 2022 Commission proposal for Empowering consumers for the green transition (European Commission 2022c), and the upcoming proposal for a Green Claims Directive are aimed at fostering transparency by ensuring that environmental claims by companies meet certain minimum criteria, and are substantiated through approved methodologies/standards (European Commission 2023d). Furthermore, the Non-Financial Reporting Directive requires companies to disclose information on what they see as the risks and opportunities arising from social and environmental issues, including for example a requirement for certain companies to report on their CO2 emissions by 2025 (European Commission 2014). These rules are strengthened in the recently enforced Corporate Sustainability Reporting Directive (CSRD) which replaces the Non-Financial Reporting Directive (European Parliament and the Council 2022).

Furthermore, the 2022 proposal for a Corporate Sustainability Due Diligence Directive (CSDDD) introduces social and environmental due diligence obligations for all companies placing their products on the EU market (European Commission 2022d). It consolidates the due diligence regulations which several EU member states already have in place. The recently adopted EU Deforestation Regulation sets due diligence requirements for operators and traders to ensure that only “deforestation-free” products are placed on, or exported from the EU market (European Commission 2023e). The Netherlands supports the legislation on international corporate social responsibility, and is in the process of developing a national CSDDD legislation that promotes a level playing field with neighbouring countries and is in line with the implementation of possible EU legislation.⁸

Improved traceability and due diligence can encourage more sustainable and cost-efficient practices

Due diligence and traceability requirements, and more environmentally-aware consumers, can be viewed as a way of encouraging cleaner (cost-saving) production processes and lower environmental footprints in LMICs that produce for the European market (OECD 2018b; van der Ven 2022; EEB 2023; PACE 2021a). Traceability can be a key enabler for creating more circular production processes. Tracking resource use and waste generated at each stage of the production process, for instance in the textile value chain, is important to understand the hotspots with respect to environmental impact, and to adopt more circular processes. As compared to changes in *product design*, there is more traction and progress on enhancing circularity in *production processes*, for instance in water and energy management, in LMICs as it has more direct impact on production costs and competitiveness (van der Ven 2022; Ashraf and Karkare 2023). This should also improve health outcomes for those working across the value chain including in waste and recycling industries, for instance by avoiding toxic practices (EEB 2023; Circle Economy 2020).

However, it can be challenging and costly to comply with the requirements particularly for MSMEs and actors in the informal sector

Tracking, reporting and mitigating environmental impacts throughout value chains can entail significant measurement and reporting costs for actors in LMICs, particularly micro, small and medium enterprises (MSMEs), and can have unintended consequences. The impact would depend on the degree to which upstream actors would be required to provide information about environmental impacts and adopt risk mitigation strategies. Factory-level due diligence is considered increasingly important to hold brands accountable for social and environmental impacts, but it also means an increase in costs for producers, particularly for smaller suppliers. While the costs for producers will increase, labelling and product information are unlikely to shift demand to green products in the near term (UNIDO and Chatham House 2022). This means that brands may not be willing to compensate producers, particularly

⁸ [Wet verantwoord en duurzaam internationaal ondernemen.](#)

for cheap mass-produced goods, such as garments in the “fast” fashion industry. These requirements may also encourage brands to drop smaller suppliers due to the increased information requirements (EEB 2023). In the case of cobalt production in DRC, increased awareness about the harsh conditions in which small-scale local miners were operating had unintended consequences. Car company executives, concerned about the reputational risks, decided to address the issue by avoiding purchasing cobalt from small-scale miners, and in some cases, even avoiding the DRC as a source altogether, if possible (Sanderson 2022).

Relatedly it would be challenging to improve traceability of the informal sector (Lucas et al. 2022). As mentioned earlier, waste collection in LMICs often consists of an informal network of waste collectors and local vendors which makes it extremely challenging to collect data and report on social and environmental aspects (van der Ven 2022). In addition, the informal sector is also active in several (low-value) upstream activities in LMICs, where the risk of social and environmental harm is high but visibility is very poor. Box 4 illustrates traceability challenges by discussing the case of the cotton supply chain in Pakistan.

Box 4: Traceability challenges in Pakistan’s cotton supply chain



The EU is Pakistan’s second most important trading partner, with exports dominated by textiles and clothing⁹. Pakistan has increased its share of the EU’s cotton imports in the last 5 years⁹, and the extension of the EU’s Generalised System of Preferences-Plus programme to Pakistan is expected to act as a further stimulus. This underscores the importance for Pakistan to comply with the upcoming due diligence and traceability requirements from the EU.

While half of the cotton grown in Pakistan is certified through certification programmes, such as the Better Cotton Initiative (BCI) and CottonConnect, downstream companies apply limited due diligence requirements for spinners and mills, given the difficulties of ascertaining the origin and production conditions of material inputs (GTP 2022). There remain several challenges in improving traceability across the value chain. For instance Pakistan, unlike some other countries, does not have a government managed database for bale IDs (IDs assigned to cotton bales at ginning units) that can be used to support traceability.

Low access to the Internet, particularly in villages and rural areas (less than 8%)¹⁰ is another bottleneck to traceability. Detailed evidence on subcontractors is also limited, as is the case in other LMICs. Subcontractors, mostly in second and third tiers of the value chain, such as spinning and dyeing, are often operating in the informal sector which make data collection extra challenging (Zhou 2017). Improving traceability of the cotton supply chain requires a holistic approach involving, among others, support for better technology access, skills training and national level data management.

Finally, it is important to recognise that higher due diligence, reporting or other standards from the EU may not automatically lead to improved circularity outcomes in LMICs, especially in the absence of support from the EU and others. Higher standards for the European market could lead to a shift in trade patterns only, with some LMICs moving their exports to countries with lower market access standards (AIV 2023). With regard to deforestation, for example, products from recently deforested areas could be exported to China, while products from pre-existing plantations could all go to the European market (FERN 2023).

3. Policy recommendations

The previous chapter has highlighted the importance of creating the right conditions to allow LMICs to benefit from a circular economy transition in the Netherlands and the EU, while mitigating the risk of perpetuating the unsustainable practices of a linear economy. Based on the key issues discussed above, this section will present some policy recommendations: (3.1) creating and harmonising **circular economy standards** that allow clear definition and classification of material streams to facilitate trade in end-of-life products; (3.2) better utilising **EU trade policy**

⁹ [EU trade relations with Pakistan](#), European Commission.

measures to promote circular economy in global value chains and facilitate trade in circular products; (3.3) providing **private sector development** support to create enabling policy environment in LMICs, enhance capacities and infrastructure, and improving coordination between value chain actors; and (3.4) conducting **research on impacts on LMICs** to map the impact of changing trade flows on LMICs and improve data collection for better transparency and due diligence.

It is important to note that while circular economy policies need to integrate international dimensions, these considerations also need to be reflected in existing policies and programmes to ensure coherence. This section will provide insights into some of these policies, as stated above. This underscores the importance of a more holistic approach with stronger involvement from the different ministries, as well as better integration of circular economy ambitions in the policy coherence for development (PCD) action plan and its monitoring framework (AIV 2023, Lucas et al. 2022, OECD 2023).¹⁰

3.1. Circular economy standards

Prioritising the development of circular economy standards and their subsequent harmonisation is extremely important. It is vital to establish uniformity and coherence across different levels of standards, including product- and principle-based standards. The Netherlands government can support the harmonisation of definitions and classifications for different material streams such as waste, scrap, secondary raw materials, and goods for refurbishment and remanufacturing. This harmonisation not only aids in preventing harmful dumping practices in LMICs but also facilitates recycling and refurbishing processes. It allows handlers of imported materials to more easily classify and process different types of materials (Brink et al. 2021; PACE 2021b; Lucas et al. 2022; UNIDO and Chatham House 2022).

Furthermore, harmonising standards can dissuade LMICs from implementing protectionist measures, possibly opening up markets for Dutch and European businesses to access end-of-life material streams (Ashraf and van Seters 2021). Harmonisation of standards for product design and production processes is also critical. Because products are vital components of global value chains, they are subject to different regulations and requirements in different countries. Although domestic policies such as eco-design regulations can advance circular economy transitions, a more global approach to the design and production of circular goods and services is required (OECD 2020).

It is imperative to include LMICs in the development of global standards for the circular economy to ensure that their perspectives and interests are adequately reflected. The International Organisation for Standardisation's (ISO) standard for the circular economy which is expected to be completed in 2024 (Heras-Saizarbitoria et al. 2023), is a key step in this direction. This ongoing process includes ISO's commitment to engage experts and stakeholders from LMICs and undertake relevant capacity-building actions (Ashraf and van Seters 2021). It is important that actors in LMICs, particularly MSMEs and actors in the informal sector are not excluded from the supply chain because of the standards but rather are supported in their compliance efforts, as discussed in section 3.3.

¹⁰ Although several themes have a strong connection to the circular economy in theory, the action plan does not yet make the connection to the Dutch circular economy ambitions and strategies. In this regard, it is important to formulate clear and measurable indicators related to the circular economy. Most indicators for the climate theme are formulated at the level of policy inputs and outputs, not at the level of results and impacts (AIV 2023).

The Netherlands can contribute to such initiatives by promoting greater engagement of stakeholders from LMICs and sharing lessons and experiences from the European Union's efforts to establish circular economy standards. Furthermore, both the Netherlands and the EU could play a role in fostering international dialogues aimed at developing global standards that consider LMICs' aspirations and interests. In parallel, bilateral/multilateral cooperation between the Netherlands/the EU and LMICs is required to align and mutually recognise each other's standards and regulations.

3.2. EU trade policy measures

EU trade policy measures can play a key role for the circular economy transition, including in relation to trading partners that are LMICs. This is recognised in the EU's trade policy (2021a), which reflects the ambition "to ensure that trade tools accompany and support a global transition towards a climate neutral economy, including accelerating investments in clean energy and promoting value chains that are circular, responsible and sustainable". This needs to be put into practice in the years to come. The Netherlands and other EU member states can guide and support this process, not in the least in the context of the Council of the EU in Brussels and by embassies teaming up with EU delegations in trade partner countries.

Bilateral trade agreements can be an important tool, as is recognised in the EU's circular economy action plan, which includes the commitment to ensure that free trade agreements reflect the enhanced objectives of the circular economy (European Commission 2020b). In this light, the European Commission (2022e) has set concrete policy priorities and action points to enhance the contribution of trade agreements to sustainable development. This builds on the trend in recent years of more encompassing environment-related provisions in EU trade agreements (Ashraf et al. 2020) and the recognition that there is scope for further enhancement of the role that trade agreements play in promoting sustainable development (European Commission 2022e). It includes a commitment to better mainstream sustainability throughout trade agreements rather than limiting the scope to the Trade and Sustainable Development Chapters that feature in EU trade agreements since 2011 (Kettunen et al. 2020). This can relate for instance to provisions on technical standards, removing subsidies for 'linear' activities such as fossil fuel extraction, market access for trade in goods and services relevant to the circular economy, as well as the development and transfer of technologies supporting resource efficiency (Barrie and Schröder 2021; Bellmann and Sell 2021; Circle Economy 2022; European Commission 2022e; UNEP and IRP 2021; van der Ven 2020 and 2022). In line with calls for stronger monitoring and enforcement of sustainability provisions (Kettunen et al. 2020; UNEP and IRP 2021), the European Commission (2022e) has also committed to resorting to sanctions if key labour and climate commitments are not met. The EU envisages better covering sustainability dimensions in impact assessments of trade agreements, with a view to identifying country-specific sustainability priorities. The EU furthermore seeks to reinforce the role of civil society, including through empowering the 'Domestic Advisory Groups' of trade agreements, for example by giving them more information, making it easier for them to file complaints and providing resources for their functioning. The effectiveness of these ambitious recent commitments to make trade agreements work better for the circular economy transition and sustainability more broadly will depend on their actual implementation.

Unilateral trade schemes can also play a role, in particular the EU's Generalised Scheme of Preferences (GSP), which provides tariff preferences to various LMICs. A revision of the GSP scheme is currently being negotiated by the European Commission, the European Parliament and the Council.¹¹ The legislative proposal of the European

¹¹ The GSP consists of three arrangements, namely Everything but Arms (EBA), standard GSP and GSP+. The current GSP regulation states no end date for the EBA arrangement, while the standard GSP and GSP+ are set to expire by 31 December 2023. As the negotiations are still ongoing, the Commission has proposed to maintain the current GSP and GSP+ arrangements until the moment a successor regulation is agreed among legislators and enters into force, after an appropriate transition period (European Commission 2023f).

Commission that forms the basis of the negotiations (European Commission 2021b) seeks to strengthen the scheme's social, labour, environmental and climate dimensions and expand the grounds for the withdrawal of preferences in case of serious and systematic violations. The Netherlands and other EU member states can influence the final shape of the new GSP, and thus the integration of dimensions related to the circular economy, and follow their implementation closely.

The EU can also pursue the trade and circular economy agenda at the international level. This could usefully include contributing to revisions of the World Customs Organization Harmonized System (HS) codes to better distinguish between different types of materials/products traded (Barrie and Grooby 2023; Bellmann and Sell 2021; Lucas et al. 2022). For instance, HS-code 6309 titled 'worn clothing and other worn articles' covers very diverse products including all sorts of worn clothing, footwear, blankets and articles for interior furnishing. This very broad category makes it difficult to ascertain what is actually being shipped. It is also seen that collectors tend to report non-reusable textiles (textile waste intended for recycling) also under HS-code 6309 for used clothing (Watson et al. 2016). New classifications could also be considered for goods that are critical for the circular economy transition, such as repair, refurbishment, remanufacturing or recycling activities (Barrie and Grooby 2023). However, revising HS codes can be a cumbersome process and is only done every five years (Ashraf and van Seters 2021). For example, the new Harmonised System codes for e-waste coming into effect from 2022 took around two decades to develop (OECD 2020). In this regard, the EU could promote discussions around the feasibility of revising HS codes in multilateral forums, particularly in the World Trade Organization (WTO).

More broadly, the EU can contribute to ensuring that discussions about the circular economy at the World Trade Organization and other international forums take account of the interests and concerns of lower-income countries (UNEP and IRP 2020).

3.3. Private sector development support

Incorporating circular considerations in trade agreements and schemes is not sufficient in itself. Aid for trade holds significant promise in helping LMICs capitalise on trade opportunities arising from the circular economy while mitigating adverse consequences resulting from this transition. It can therefore be helpful to integrate circular economy priorities into Aid for Trade and development cooperation efforts more broadly (Barrie and Schröder 2021; Kettunen et al. 2019; UNEP and IRP 2020). Trade and investment promotion instruments can also be better harnessed. This is in line with the ambition of the Netherlands to 'green' its trade and development cooperation instruments, as reflected in its Foreign Trade and Development Cooperation strategy (Ministry of Foreign Affairs 2022). This kind of support can benefit not only the private sector in LMICs but also Dutch/European companies (intending to) invest in circular economy related projects in these countries. A more supportive policy environment, skilled workforce and appropriate infrastructure can facilitate investments and allow companies to take greater risks, while efforts to connect actors from the EU and LMICs can improve understanding and cooperation. At the same time the private sector in the Netherlands and the EU can play a part in promoting just a circular economy transition in LMICs, as discussed below.

Enabling policy environment: Development cooperation funding can support policy reform initiatives in LMICs to create an enabling policy environment for more circular and inclusive approaches and to prevent potential negative environmental, social, and health consequences, such as those caused by poor waste management (Preston et al. 2019). This includes removing legal barriers to more circular approaches (IRP 2018). A strategic approach could involve providing support for the development and implementation of national circular economy strategies or

roadmaps at the request of LMICs (WBCSD 2021; Barrie and Schröder 2021). It is important to ensure that just transition principles are integrated in these national plans and policies (Schroeder and Barrie 2022). In this regard, the Netherlands and other development actors can play a part in facilitating the involvement of different relevant actors in the policy making process including representatives from the informal sector. An example is the support provided by the Dutch organisation TNO to Malawi, Zambia and Zimbabwe to develop actionable, sustainable and circular waste management roadmaps through a multi-stakeholder approach.¹² Another example is the Netherlands' support to create favourable conditions for sustainable mining in the DRC by enhancing certification mechanisms, promoting stronger local policies and improving labour standards and infrastructure. The EU and its member states, including the Netherlands, can also share lessons learned from developing and implementing their own circular economy plans and policies. The International Resource Panel (IRP) argues for a step-wise approach to supporting LMICs, with policy reform as a short-term measure, while focusing medium- and long-term efforts on skills, technology and infrastructure (IRP 2018).

Skills development: Gaps in relevant knowledge and skills are critical challenges in transitioning to an inclusive circular economy. To address this, it is essential to first identify the specific skills that require development, while incorporating both sectoral and economy-wide perspectives in such assessment (ILO 2018). Better information can feed into LMICs' skill development policies and their implementation, as well as the Netherlands' and EU's support in this regard. The Netherlands is well positioned in this regard due to its extensive experience in managing transition for workers, particularly as a result of its efforts for a fair and just transition of 50,000 affected workers who lost their jobs when 12 coal mines were closed in the 1960s and 1970s (IISD 2017). To promote a transition towards a circular economy, relevant skills include advanced recycling techniques, sustainable mining for critical raw materials and resource efficiency and eco-innovation, among others. The private sector in the EU and the Netherlands can also play a role in contributing to skills development in LMICs (WBCSD 2021). An example is the EU-funded SWITCH to Circular Economy Value Chains programme that supports MSME suppliers in developing countries which are part of the value chains of large EU manufacturers and buyers.¹³ The programme uses EU multinationals-led pilot projects to demonstrate how their suppliers can be empowered to implement circular practices. The programme also encourages collaboration platforms for multinationals and their lower tier suppliers to enable sharing of experience and best practices. In designing a skills development programme it is also important to involve social partners to match skills demand with supply and to ensure equitable outcomes, including gender equality.

Infrastructure: Another area of potential support is the strengthening of collection, sorting and recycling infrastructure in LMICs (Ashraf and Karkare 2023; PACE 2021a,b,c). This can relate to the planning of, as well as the facilitation of investments in, these structures. Development banks can play a pivotal role in this effort by providing seed funding or participating in blended finance arrangements, which combine grants and loans (PACE 2021a,b,c). An example is the support provided by the Dutch Entrepreneurial Development Bank FMO and the European Investment Bank (EIB) for solid waste management in Morocco. When engaging in this field, it is crucial to keep in mind the long-term economic viability of waste management systems and infrastructures and the need to customise initiatives to fit the unique context of each country, working in close collaboration with local partners on the ground (EEB 2023). It is essential to ensure that the chosen technology aligns with local cultural and economic conditions, utilises locally available resources, and can be maintained and operated by the local population (Circle Economy 2022). Regional approaches can also be valuable to seize opportunities for economies of scale. Public and private actors can scope regional collaborations to develop sorting and recycling ecosystems, for example a regional e-waste hub (PACE 2021c).

¹² <https://www.tno.nl/en/about-tno/tno-society/innovation-development/circular-economy/from-litter-resource/>

¹³ <https://www.switchtocircular.eu/>

Direct technical and financial assistance to businesses for more circular approaches: Direct assistance to companies in LMICs, particularly MSMEs, to pilot more circular approaches while providing decent work is another potential area that could bring benefits. Technical assistance and financial access can encourage companies to adopt more circular business models (PACE 2021a,b,c). Think for example of support to comply with upcoming circular design requirements, as well as upstream production improvements, such as reducing water and chemical usage and shifting to renewable energy use. In addition, existing frameworks for investor action on social justice need adapting to integrate circular economy considerations, while just transition principles equally need to be applied to circular economy investment funds and programmes (Circle Economy 2022). It is important to note that most business opportunities supported through the aid and trade agenda have benefited the Dutch private sector rather than businesses in LMICs. In 2021, 53% of the contracts awarded went to contractors in the Netherlands while only 24% were awarded to contractors in LMICs (OECD 2023). It is thus important to encourage the involvement of local businesses in Dutch-supported contracting opportunities.

Matchmaking: Support can also be provided to connect value chain actors. This can help suppliers and buyers find each other, as well as improve understanding and collaboration among supply chain actors, such as between manufacturers and recyclers. The Netherlands and the EU more broadly, can support the development of platforms for secondary material suppliers and buyers to find each other in LMICs as well as more global platforms to connect businesses across borders (WBCSD 2021). The Netherlands Circular Economy Hotspot provides this kind of service, albeit broader, as it supports countries in setting up circular economy hubs that facilitate networking, such as the Circular Business Platform Lagos launched in October 2021, and the South African Circular Platform,¹⁴ which is in the making. A sectoral initiative supported by the Netherlands, which may also provide inspiration and lessons for replication in other countries and sectors, is the Circular Fashion Partnership. It brings together fashion brands (from the EU and beyond), manufacturers and recyclers to reuse and recycle textile waste in Bangladesh, with support of P4G.¹⁵ At the EU level, the circular economy action plan announced that more circular economy missions will be organised, which in the past have also targeted LMICs, such as Colombia, India and Indonesia (Ashraf et al. 2020). The Netherlands can facilitate the participation of Dutch companies in such future missions, as it can open important strategic opportunities for Dutch companies.

Voluntary agreements and multi-stakeholder initiatives: It is valuable to create platforms that bring together actors from the EU and the Netherlands to address complex sustainability issues in a particular value chain, while committing to more sustainable and responsible practices. Multi-stakeholder platforms can also act as accompanying measures of upcoming policies to facilitate implementation and enhance impact. They can also support companies to comply with changing policy requirements. The European Partnership for Responsible Minerals (EPRM), as mentioned earlier, was created as an accompanying measure to the EU Conflict Minerals Regulation on supply chain due diligence. Companies pool resources to fund projects that improve social and economic conditions for mine workers and local mining communities, as well as use the platform to exchange expertise and knowledge on due diligence practices.

It is important to recognise that these different types of support need to better integrate and advance decent work, not least in relation to informal workers. This could for example be tackled by including informal workers in the development of professional collection and recycling infrastructure by setting up informal-formal partnerships, protecting informal workers' safety and health and investing in up- and re-skilling programmes (PACE 2021a,b,c). Supporting workers to transition into formal employment can be part of this agenda, as a means to improve their precarious situation, not as an end in itself. Policy dialogues often tend to be between formal actors, while the voice of informal workers should also be heard.

¹⁴ [Circular economy possibilities in South Africa](#), Holland Circular Hotspot.

¹⁵ [Bangladesh apparel industry moving further into the circular economy](#), Textile Focus, 2 April 2021.

3.4. Research on impacts on LMICs

As highlighted throughout the paper, there is a need to better understand the impact on and role of LMICs in the transition to a circular economy in the Netherlands and the EU more broadly. The current circular economy discourse in the EU is primarily focused on increasing the EU's economic resilience and international competitiveness through a more circular economy. Information on linkages between countries is currently limited, with insufficient data to back up assertions (Brink et al. 2021, EEB 2023).

The Netherlands strives for a fair circular economy transition and, relatedly, seeks to limit negative consequences of its circular transition on production and developing countries, as is stated in the National Circular Economy Programme. To deliver on this ambition, it is important to better integrate the implications on LMICs in the monitoring and evaluation framework of the National Circular Economy Programme. The framework is described in the Work Programme for the Monitoring and Steering for a Circular Economy, in which LMICs receive little attention. The work programme consists of different elements, including product group analysis. Currently, the priority product groups of construction, plastics and renewable energy are being analysed, while other product groups are expected to follow. It is therefore a timely opportunity to incorporate LMICs, and external dimensions more generally, both social and environmental, in these product group analysis. At the EU level, the Netherlands is actively contributing to the efforts of the European Environment Agency and the European Commission to expand the monitoring framework and indicators for the circular economy. In these efforts, the Netherlands could pay attention to linkages with LMICs and a fair circular economy transition.

Understanding the external implications of circular economy transition requires data on the impact of changing trade flows on LMICs. This would help to identify ways in which these countries can leverage potential opportunities and mitigate challenges. As such a 'participatory roadmapping' approach to assess potential winners and losers could be an effective strategy for guiding policy design and cooperation efforts in the Netherlands and the EU (UNEP and IRP 2021; Schröder 2020). Trade and material flow modelling to test different assumptions and scenarios could be particularly useful given the uncertainty surrounding the precise nature of a more circular economy in the Netherlands and the EU, as well as how it would manifest in specific contexts in different LMICs. Some progress in this regard has already been made. The computable general equilibrium (CGE) model ENV-Linkages developed by the OECD can be used to model the impact of circular economy policies on global trade flows (Dellink 2020), and the IRP uses multi-regional input-output analysis to develop a global material flow account (UNEP and IRP 2020). PBL Netherlands Environmental Assessment Agency has developed a global CGE model for the assessment of circular economy policies that aims to link physical flows and stocks of the most relevant materials in the global economy (kilotons) to the economic flows between countries and sectors (PBL 2021).

Governments can also support tracking of material flows, particularly through the creation of a national database on material flows. The more disaggregated the data, in terms of product types/material types, the more useful it can be for value chain actors, for example to base investment decisions on. As a starting point, the Netherlands could track the total volume of waste that is collected, with data on the proportion handled locally and the proportion that is exported. Efforts have already been made in this regard, notably the development of a Materials Monitor that observes physical material flows from, to and within the economy.¹⁶ The aim is to monitor the government's progress towards achieving a fully circular economy by 2050. The Netherlands, or EU more broadly, could also collaborate with international organisations, businesses and governments in LMICs to work towards harmonising circularity monitoring methods (WBCSD 2021).

To complement trade flow modelling, further analysis on the impact of trade flows on the labour market in LMICs is needed. Since the social impacts of transitioning to a circular economy have received less attention, there is a paucity

¹⁶ [Developing a material flow monitor for the Netherlands from national statistical data](#), CBS.

of comprehensive data on job losses and gains, including gender-disaggregated outcomes. Research in this area has mainly concentrated on a very limited number of specific sectors of interest, with little consideration given to the broader systemic and societal ramifications of circular economy transitions (ILO 2018). For instance, Circle Economy has developed an accessible online tool – the Circular Jobs Monitor – that keeps track of the number and range of jobs that are part of the circular economy. This includes occupations that are directly involved in or indirectly support a circular economy strategy.¹⁷ Such models can be usefully extended to encompass other sectors that may be negatively affected by a circular economy transition.

Relatedly, a better understanding of the local impact on communities in LMICs is required. This may entail the adoption of qualitative and longitudinal impact assessment approaches to assess potential effects on communities over a longer period of time. It is also important to consider cultural perspectives, for instance towards reuse and recycling, in assessing impacts on countries, which is a blind spot in current research approaches (Circle Economy 2020).

More research and data collection that addresses the lack of transparency and due diligence in value chains is also crucially needed. Many companies currently still have little information about what is happening along the value chain, including after products have been sold. Creating more transparency in the entire chain, including its foreign parts, is a necessary step to consider all impacts throughout the chain when making decisions (Lucas et al. 2022). In addition, better data collection and availability are required to support the development and use of standards. Data on product characteristics at various stages of the product's life cycle, as well as its movement in the global trading system, is required. New technologies, such as blockchain, can play a role, especially to support the private sector in collecting relevant data (PACE 2021a).

4. Conclusion

The National Circular Economy Programme of the Netherlands commits to minimising the environmental footprint of Dutch production and consumption and ensuring a just transition. Integrating international dimensions in the circular economy agenda of the Netherlands is thus essential to delivering on these objectives. Key international dimensions discussed in the paper are:

Environmental implications: Integrating external dimensions in Dutch and EU circular economy strategies can positively affect the environment, given certain conditions are in place.

- Circular economy strategies are aimed at reducing material demand which can, in principle, help curb the harmful environmental impacts associated with resource extraction. At the same time, there is a risk that the expected rise in demand for critical raw materials needed for green transition can replicate the harmful resource extraction practices of a linear economy. Sustainable mining and resource extraction policies should thus be an essential component of a circular economy transition.
- Sustainable product policies and due diligence requirements can also encourage LMICs to shift to more circular product design and greener production processes, provided that countries have capacities to adapt to the changes and do not end up diverting their exports to countries with less stringent environmental requirements.
- Products that are discarded in the EU can be exported for reuse, while channelling certain types of recyclable waste streams to countries that have a comparative advantage in recycling and repair of that waste stream can create economies of scale. On the other hand, in the absence of proper infrastructure, regulatory

¹⁷ The monitor currently provides data for several territories in Northern Europe and North America, and may be expanded to territories across the globe. See: Circular Jobs Monitor, Circle Economy.

frameworks and capacity in LMICs, waste exported from the EU can be detrimental to the environment. The result could be undesirable downcycling and higher amounts of materials being landfilled or incinerated.

Socio-economic implications: A transition towards a more circular economy in the Netherlands and the EU more broadly can create incentives for economic diversification and job creation in LMICs, given certain conditions are in place.

- A move away from raw materials extraction and manufacturing can create opportunities for job creation and development in higher-value downstream processing, as well as in recycling and repurposing. Countries can also benefit from increased critical raw material extraction, provided that workers are given decent jobs and efforts are made to increase local value addition. Without these safeguards the exploitative practices of traditional mining can end up being repeated in a circular economy.
- Trade in reusable materials can provide people with access to affordable second-hand goods, while imported recyclable waste can be a valuable input for local industries. For this to happen it is necessary for importing countries to have in place the relevant infrastructure, regulatory frameworks and capacity to safely process these materials, and for there to be a clear classification of end-of-life materials traded.
- Investing in more circular design can help countries move to higher value activities, while greater traceability and due diligence can allow efficiency gains and possibility of green premiums. These opportunities for upgrading depend to a large extent on existing capabilities, policy environment and access to technologies. Countries that are unable to make such a transition would lose out. Redistribution of jobs and economic activity is likely to be uneven, with LMICs likely to experience job losses and fall in export earnings, at least in the short term. Workers in the informal waste sector, which is already vulnerable to worker rights violations, are particularly at risk.

In light of this, the paper has discussed relevant policy measures and actions that create conditions for LMICs to benefit from a circular economy transition in the EU and the Netherlands, while mitigating potential risks, thereby promoting a just transition. Key recommendations are:

- Circular economy standards: The Netherlands and the EU can promote the development and harmonisation of circular economy standards, as well as support stakeholders in LMICs to be better included in international processes.
- EU trade policy measures: Trade policy measures, such as trade agreements and the unilateral Generalised System of Preferences, can be better utilised to promote circular economy in global value chains.
- Private sector development support: Development cooperation (particularly Aid for Trade) as well as trade and investment promotion tools, can help LMICs to seize circular economy-related trade opportunities and mitigate negative spillover effects resulting from a circular economy transition.
- Research on the impacts on LMICs: Mapping the impacts on different LMICs is important to better guide policy design and implementation.
- Policy coherence: addressing international dimensions of circular transition requires a holistic approach, integrating implications in existing policies and programmes, collaborating across ministries, and better incorporating the ambitions in the policy coherence action plan.

This paper prepares the ground for further research focused on more specific issues and countries. As highlighted throughout the paper the impacts on LMICs would vary for different countries, depending on the local policy landscape, infrastructure, and the ability to adapt to changing market conditions. Implications also depend on the stage of the value chain in question (raw materials extraction, product design or trade in reusable materials and waste). Ultimately a thorough analysis of the external implications would help the Netherlands and the EU in designing more inclusive policies and action which promote a just global circular economy.

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