



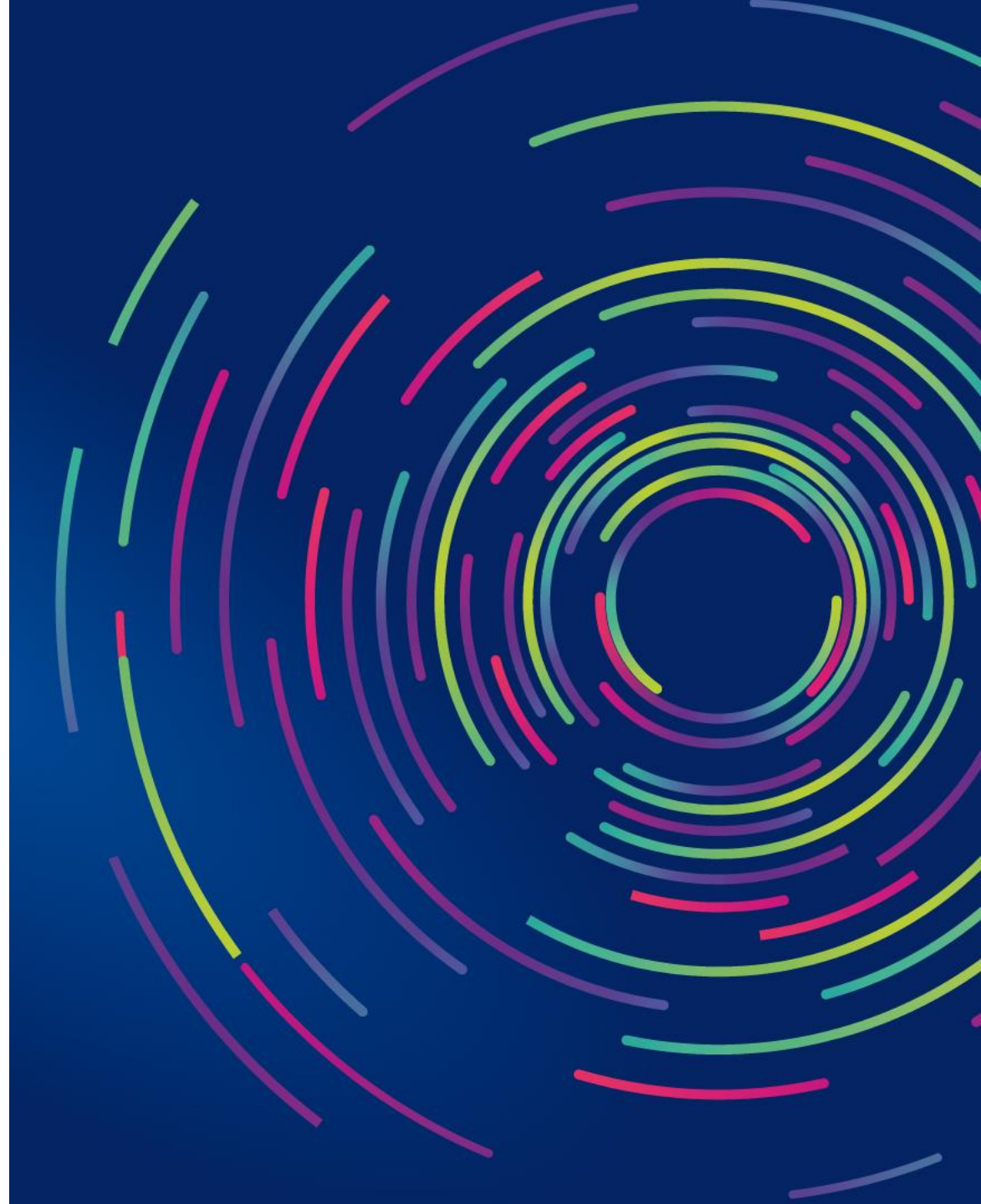
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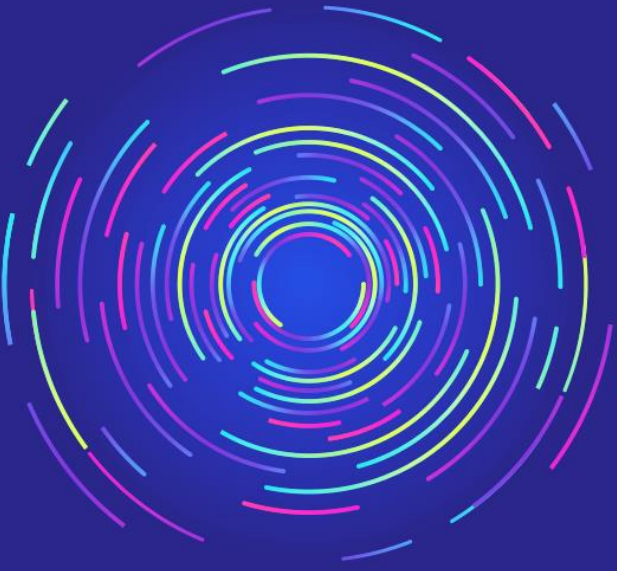
Sustainable Development Foundation

CIRCULAR ECONOMY STATE OF THE ART AND OUTLOOK, BEFORE AND AFTER THE EMERGENCY

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Circular economy state of the art before the emergency

The exponential growth of global resource consumption is environmentally and economically unsustainable

Material consumption is growing at a double the rate of the population

From 1970 to 2017



Global population has **doubled**: from 3.7 billion to 7.5 billion

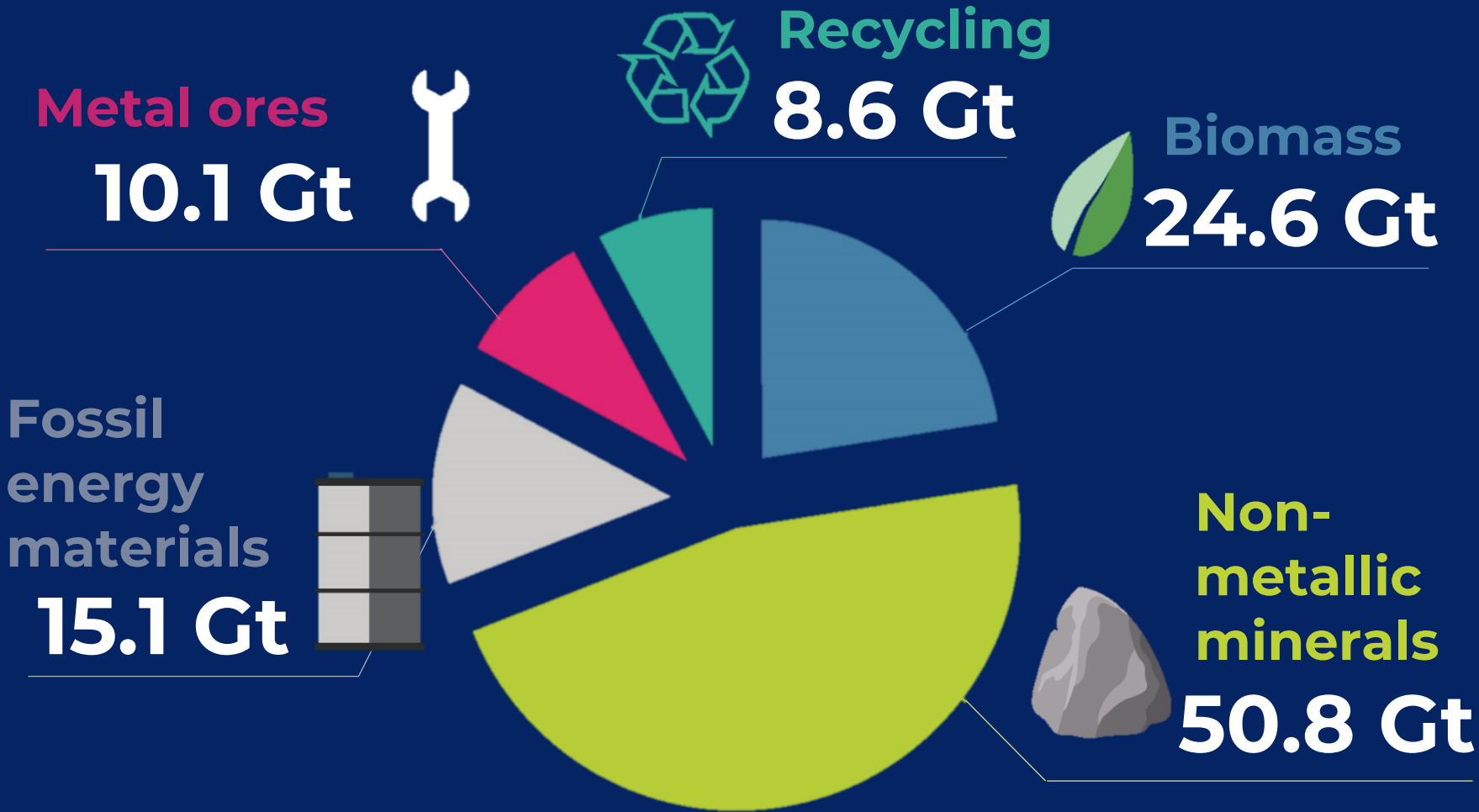


Global extraction of materials has more than **tripled**: from 27 billion tons to 92 billion tons



Global resource consumption per capita has **doubled**: from 7.2 tons to 14.5 tons

Moving from a linear to a circular economy model is an epochal challenge



Resource consumption composition 2017

Biomass 24.6%

Non-metallic minerals 46.5%

Fossil energy materials 13.8%

Metal ores 9.3%

Recycling 9.3%

Source: The circularity gap Report 2020 Circle Economy

Circular economic performance evaluation



In January 2018 the European Commission adopted a new set of measures, including a Monitoring Framework on progress towards a circular economy at EU and national level

Some indicators of circular economy

 Resource productivity

 Computer and personal and household goods repair

 Recycling rate

 Circular material use rate

Resource productivity

European data for 2018 confirm the growth of previous years with an average increase in productivity of 41%.

Italy in 2018, following an increase of 12%, reaches 3.49 €/kg.



3.49 €/kg



2.99 €/kg



2.71 €/kg



2.58 €/kg



0.64 €/kg



Computer and personal and household goods repair

In Italy in 2017 there were **25,000 repair companies** of electronic goods and other goods (e.g. clothing, footwear, watches, jewelry, furniture).

The value of production is € 2.1 billion, (€ -900 million compared to 2008).

There are 13,120 employees in repair companies.

Employees in full time equivalent units - number



39,771



27,062



26,840



14,206

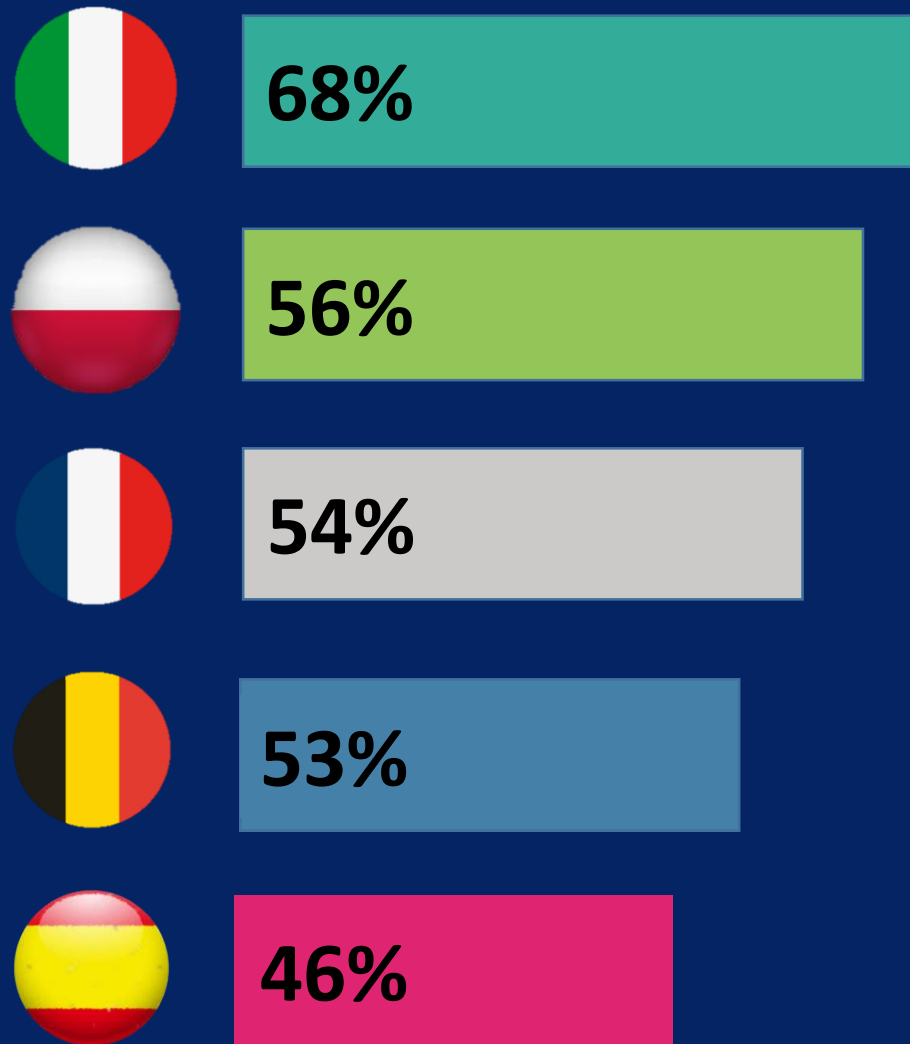


13,120

Recycling rate

For Europe, the recycling rate of all waste in 2016 was 57%, while **in Italy this figure was 68%**, lower only than Belgium, the Netherlands and Slovenia.

Recycling rate of all waste excluding major mineral waste



Source: Eurostat

**To make the circular economy,
we need to increase
circular material use**

Circular Material Use rate

The CMU rate is defined as the ratio of the amount of waste recycled in domestic recovery plants to the overall material use (domestic material consumption + waste recycled)

European CMU average in 2017: was 11.7%.

In Italy it was 17.7%.



CMU 18.6%



CMU 17.7%



CMU 11.6%



CMU 9.5%



CMU 8.2%

Italy must increase circular material use

Even though Italy is in a good position,

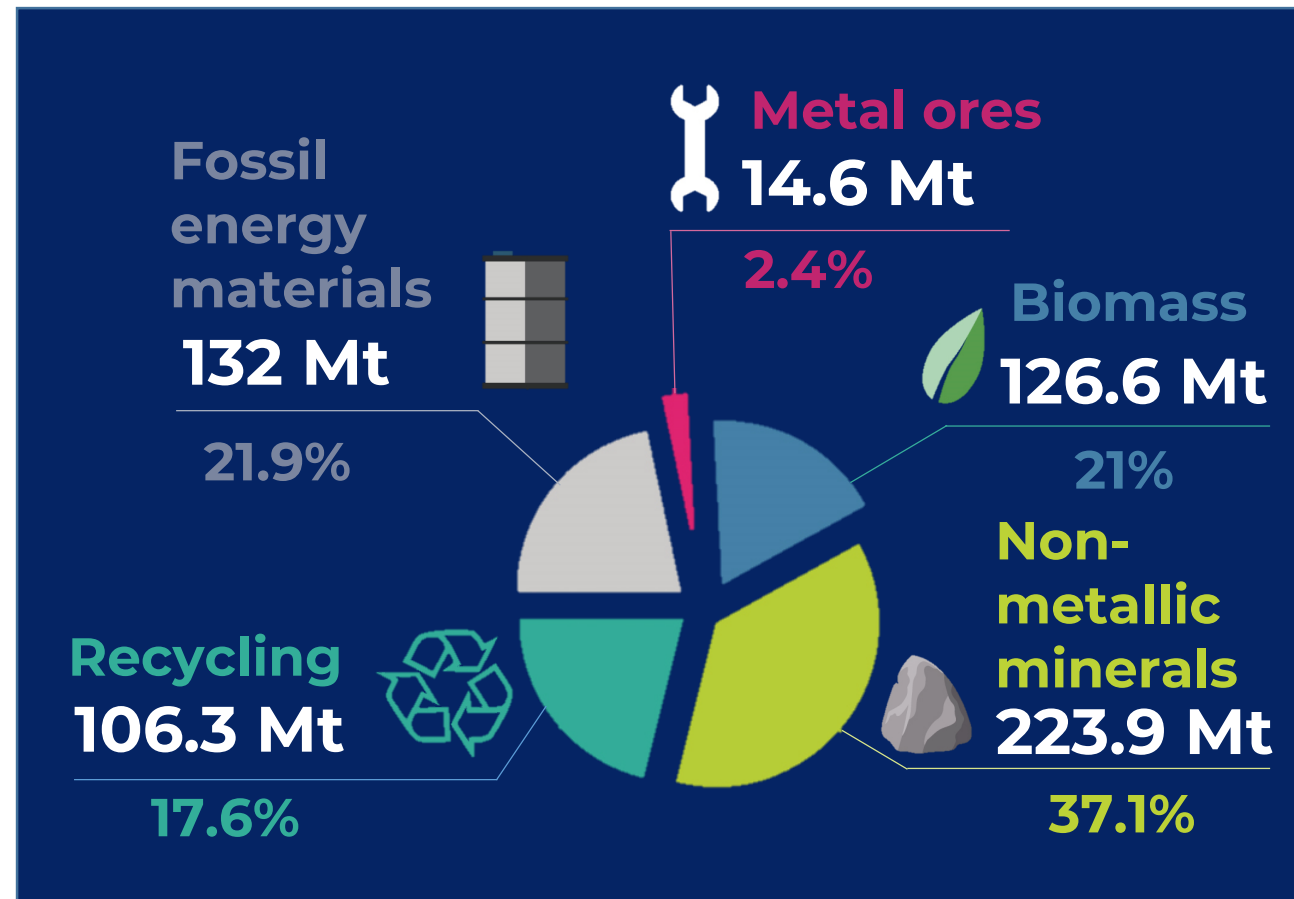
to raise the rate of circular material use it is necessary:

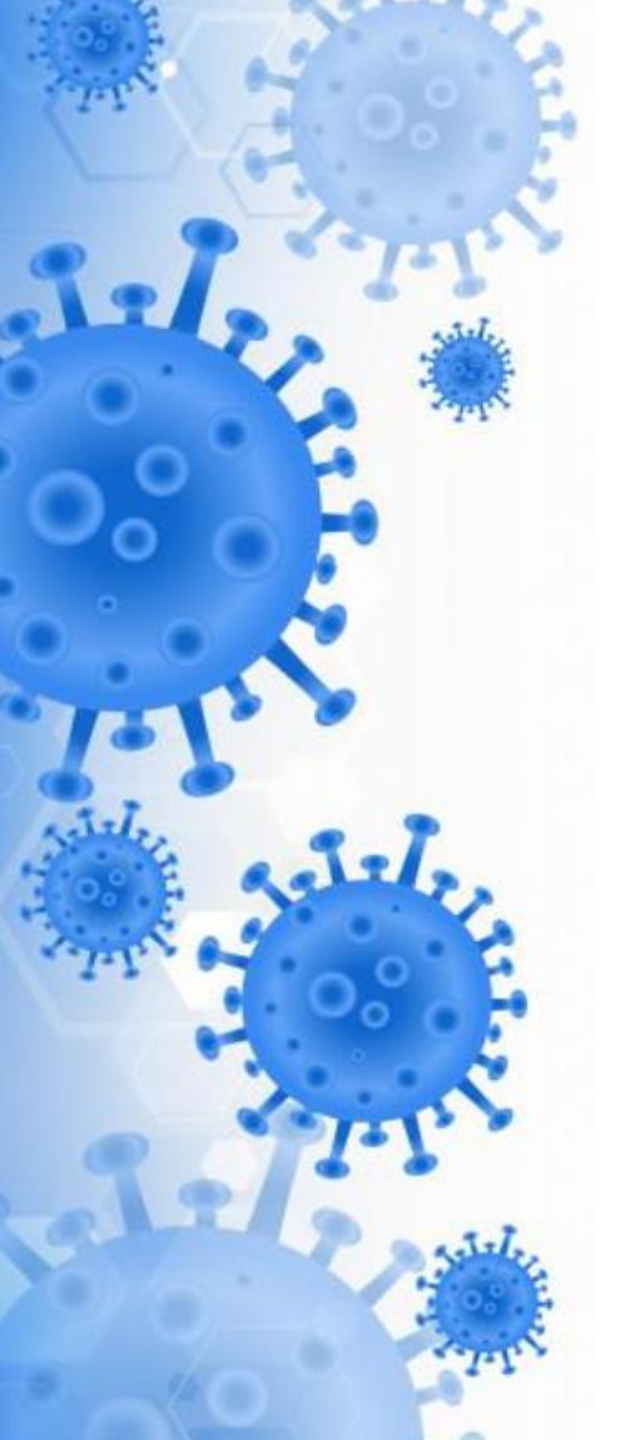
to reduce the consumption of materials and to increase

- the recycling of waste and,
- the reuse of secondary raw materials to replace virgin raw materials

Material consumption in Italy (2016)

TOTAL 603.4 Mt





Circular economy outlook after the emergency



Background data

In the first quarter of 2020 there was:

- a progressive reduction in overall consumption: -4% compared to the same period of the previous year (Istat)
- an increase in some consumer items, such as food, and boom in online commerce: the number of online consumers tripled in the lockdown (Netcomm Consortium)
- an impact of the pandemic in all food sectors. COVID-19 has posed a serious threat to food security but, from a global perspective, agricultural commodity markets are proving more resilient to the pandemic than many other sectors (FAO).



Waste management

The COVID-19 epidemic and the lockdown of numerous economic activities have had direct and indirect repercussions also on municipal waste management:

- Reduction in municipal waste production: 10-14% in the months of the lockdown (estimates by Ispra and Utilitalia). 1.5 Mt less municipal waste on an annual basis (-5%) (Ispra projections).
- Household and organic waste increased whereas assimilated waste decreased (packaging, bulky waste, WEEE).
- Stopping of municipal waste exports: Italy exports an average of 500 kt each year, in the seven-week lockdown the export of 16 kt of municipal waste (including plasmix) was blocked, with an annual projection of 123 kt (Utilitalia).



Waste management

- During the lockdown citizens did not abandon the habit of separating their waste.
- In the two-month period March-April the collection of packaging waste increased from all supply chains with the exception of wood (mainly used for industrial packaging and production systems that were stopped during the lockdown).
- There were difficulties in selling secondary raw materials obtained from waste recycling during the lockdown due to the shutdown of industries and the activities that use them.



Waste management

- The Italian waste sector was going through a complex period even before this emergency, in the face of some critical issues:
 - poor plant capacity for the management of some types of waste
 - blocking of waste imports from China
 - difficulties and delays for the new authorizations and for the renewals of waste recycling activities that require the end of waste qualification to create saleable products



The circular economy and Covid-19 pandemic

The Covid-19 pandemic has revealed our system's exposure to risks and challenged us to rethink and redesign our current economic model. The circular economy is now more relevant than ever.

- The Ellen MacArthur Foundation explored how circular economy strategies and opportunities will help to build a resilient, low carbon, and prosperous recovery. There are different attractive circular investment opportunities that spread across five key sectors:
 - The built environment
 - Mobility
 - Plastic packaging
 - Food
 - Fashion

Built environment



The pandemic has impacted the built environment sector in profound ways. Global lockdowns confined people to their homes and severely restricted the ability of construction supply chains to function. Shortages and delays in retrieving necessary virgin materials, and the shutdown of many building sites, have left the industry cash-strapped.

The circular economy presents solutions to address these issues and seize these opportunities in alignment with future trends, by creating built environments that are safe, liveable, cost effective, and contribute to achieving climate targets. Many circular investment opportunities that could help attain this vision exist, however two are especially attractive:

1. Renovation and upgrade of buildings
2. Material reuse and recycling infrastructure

The transport sector has been one of the hardest hit by the pandemic and finds itself in a serious and unprecedented economic situation. The introduction of lockdown measures, travel restrictions, the closure of schools and non-essential businesses, and social distancing, have collectively had a significant impact.

A circular economy approach to the recovery offers the opportunity to leverage these trends to tackle key challenges and shape a more resilient mobility system that is clean, adaptable, and interconnected, and that also meets climate targets. Many circular investment opportunities that could help attain this vision exist, however two are especially attractive:

1. Multimodal mobility infrastructure
2. Refurbishment, remanufacturing, and repair of infrastructure

Plastic packaging



As the world is fighting the Covid-19 pandemic, plastics have become an even more key staple of our everyday life, with the global medical community requiring protective equipment, customers stockpiling sanitary products, supermarkets increasing their grocery packaging, and retailers relying on e-commerce shipments, etc.

The circular economy can play a vital role in tackling the plastic waste issue where the system for plastic packaging delivers cost and material savings and also keeps waste and pollution out of the environment. Many circular investment opportunities that could help attain this vision exist, for example:

1. Innovative reuse business models for plastic packaging
2. Collection, sorting, and recycling infrastructure

Food



The pandemic has had mixed impacts on the food industry:

- there has been a global increase in food expenditure on groceries, as the popularity of cooking from scratch has grown
- panic purchasing and disruptions to the global supply chain following the onset of the pandemic have led to short-term food shortages of certain products in grocery stores.

The circular economy offers many solutions that can leverage these trends and address issues faced by the food industry. Many circular investment opportunities that could help attain this vision exist, for example:

1. Tools enabling farmers to shift to regenerative agricultural production models
2. Increasing food and by-product collection, redistribution, and valorization infrastructure

Fashion



The fashion industry has been among those consumer good sectors most deeply affected by the pandemic. As with other industries, the sector's heavy reliance on global supply chains has caused difficulties for businesses trying to obtain products from their manufacturers.

The circular economy presents attractive opportunities for redesigning the fashion industry to become more resilient and environmentally beneficial; ensuring clothing is used more, and made to be made again, from safe, renewable and recycled inputs. Many investments can help pave the way for a more resilient and environmentally beneficial fashion industry of the future, for example:

1. Rental and resale business models
2. Collection, sorting, and revalorisation infrastructure



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Thank you for your attention

Emmanuela Pettinao

