CIRCULAR ECONOMY AND SUSTAINABILITY

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The materials we consume – minerals, metals, fossil fuels and biomass – in large quantities, generate significant environmental and climate impacts and significant economic costs. The strong growth in global material harvesting, by as much as 3.5 times in less than fifty years, from 26.7 in 1970 to 92 billion tonnes in 2017, is one of the main problems for climate and ecological sustainability. If the current trend in global material consumption were to continue, this would result in 170-180 billion tonnes being needed by 2050: a quantity that is not available and that, among other things, would lead to an increase in greenhouse gas emissions incompatible with any assumption of decarbonisation. From the unsustainability, both economic and ecological, in our age, with a world population of 7.8 billion and growing, and globalised development, of an economy based on massive consumption of materials comes the need for a change of economic model: from linear to circular to achieve four objectives:

- Reducing the use of resources, of the amount of material used in making a product or providing a service: reduction achieved

through product and process design, circular design, for products that save materials and generate less waste and scrap, enabling shared uses (sharing, rentals, multifunctional spaces, etc.).
- prolonging the use of resources: by optimising their utilisation and reuse, optimising and extending the useful life of goods, with materials and services that prolong the life of goods, with repair and regeneration, renovation and remodelling.
- increase recycling and reuse of waste: prevent waste generation, increase quality separate collection, increase reuse and recycling, recyclability of products and use of recycled materials.
- promote the regenerative bio-economy of sectors based on the use of renewable biological resources, primary production (agriculture, forestry, fisheries and aquaculture) and other sectors using these resources (for the production of food, feed, green chemistry, energy and services).
In 2019, Italy introduced 637.3 million tonnes (Mt) of materials into its production and consumption system, of which approximately half (316 Mt) were imported. About 152 Mt were exported, the remaining 484 Mt were consumed internally. With a total consumption of 484 Mt, during the same year approximately 180 Mt were produced between municipal and special waste, of which approximately 38 Mt are waste generated by the treatment of other waste. In other words, 22.5% of the materials released into national production and consumption have become waste. In 2019, material was recycled for a total amount of almost 125 Mt (113 Mt of special waste and about 13.5 Mt of urban waste) with a circularity rate of 19%. 55 Mt of waste went to landfill or energy recovery. Italy is a resource-processing country, is poor in raw materials and depends heavily on their importation. The conversion towards greater circularity is a great opportunity for the Italian economy, as well as for ecological and climate sustainability.