

Circular Economy

Mitsui & Co. is working to realize a circular economy by curbing the resources and energy consumption and waste generation through circulation of resources and products at various stages in economic activities, while aiming to achieve both economic growth and reduction of environmental loads by creating added value through circulation.

In addition to the traditional “3Rs”, the creation of a circular economy requires efforts on various levels, such as introduction of designs and materials that minimize resource inputs, promotion of sharing to improve usage rates for products and services, extension of product life cycle through maintenance and repurposing, and development of mechanisms that allow the utilization of items once regarded as waste for other purposes. Using robust business infrastructure built through the repetition of “challenge and innovation”, Mitsui is contributing to the creation of a circular economy through initiatives in various business fields.

Business Initiatives Relating to a Circular Economy

Activity

Theme	Activities /Scale
3R design, reduce	Our partner Gestamp Automoción S.A. contributes to energy efficiency improvement of vehicles on a global basis by designing and supplying light weight parts that are 100% recyclable.
	By manufacturing high-performance packaging materials, Prime Evolve Singapore Pte., in which Mitsui has invested, is responding to demand for down gauging packaging so as to reduce the amount of raw material in packaging while maintaining the quality of the packaging itself.
	Mitsui subsidiary Vendor Service Co. supplies thinner, lighter, and simpler food packaging materials, such as top seals, to convenience stores.
	The U.S. company Osisoft, LLC, in which Mitsui has invested, is contributing to reduce defective parts percentages in manufacturing by providing IoT data management services and software to various industries.
	Through its participation in CEFLEX (a circular economy for flexible packaging), an NGO dedicated to collaboration on plastic packaging recycling in Europe, Mitsui is exploring collection, sorting, and recycling infrastructure systems for flexible plastic packaging.
Reusable and biodegradable materials	Mitsui subsidiary Vendor Service Co. uses biomass film, biomass ink, aluminum-free paper packaging, thinned wood, recycled film, and FSC-certified paper in its products.
	Prime Evolve Singapore Pte., in which Mitsui has invested, manufactures high-performance packaging materials and develops more functional and new packaging materials to realize recyclable and sustainable packaging.
	Through its investment in Minima Technology Co. in Taiwan, our subsidiary Mitsui & Co. Plastics is building a business based on biodegradable plastic compounds and products.
Life cycle extension, reuse	By utilizing comprehensive maintenance technology provided by SHO-BOND & MT Infrastructure Maintenance Corporation (SB&M), a joint venture with SHO-BOND HOLDINGS CO. Mitsui is exploring to extend the service life of infrastructure in overseas countries.
	Our affiliated company M&B Conversions facilitates the repurposing of passenger aircraft replaced by newer models by converting them to cargo aircraft.
Waste reduction, recycling	Our affiliated company MM & KENZAI Corporation collects and sells metal scraps from demolished structures and from the processing of iron and steel products. It also promotes recycling of non-metallic materials. Handling volume of metal scraps: 7 million tons/year

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Waste reduction, recycling	Our affiliated company Kyoei Recycling Co. uses dust mainly obtained from shredded end-of-life vehicles as feedstock for gasification melting furnaces. Gas produced is used as fuel at the nearby Kyoei Steel Yamaguchi Division facility, while the hot slag produced is sold to refiners. Waste processing capacity: 28,000 tons/year
	Our subsidiary Mitsui Bussan Metals Co. collects and sells non-ferrous scrap, such as aluminum, copper, and titanium, from various sources, including demolished buildings, disassembled automobiles and electrical goods, and scrapped PCBs. It also handles recycled metals and alloys made from non-ferrous scrap. Handling volume of non-ferrous scrap and recycled metal: 300,000 tons/year
	Our investee Sims, one of the world's leading recyclers, engages in recycling of metals and electronic equipment as well as processing of municipal waste from New York City. Handling volume of metal scraps: 9.8 million tons/year
	Beijing Shougang LanzaTech New Energy Science & Technology (SGLT) in China, in which Mitsui has invested, is a next-generation ethanol manufacturing company. It uses microbial fermentation technology developed by US-based LanzaTech Inc., a company that we invested in to convert waste gas into fuels and chemicals. SGLT is a commercial-scale manufacturer of next-generation ethanol using waste gas from steel works as raw material. By using waste gas that was formerly released into the atmosphere to produce ethanol as an alternative to petroleum-derived gasoline, SGLT contributes to the reduction of GHG emissions. Greenhouse gas emission reduction: 50-70% (compared with gasoline)
	Our subsidiary Mitsui Norin Co. effectively utilizes waste, including the use of tea leaf residues as a raw material for fertilizers. Waste reduction: 920.4 tons/year
	Our subsidiary Bussan Food Materials Co. produces juice from fruit pulp attached to calyces (sepals) from cut strawberries. Waste reduction: 13 tons/year
	Our affiliated company Konan Utility Co. dries sludge from sewage treatment plants and converts it into boiler fuel in a drying and conversion facility. As a company engaged in environment-friendly business activities, it is registered under the Hyogo Prefectural Government's Hyogo Biomass Eco Model scheme. Waste reduction: 3,080 tons/year
	Our subsidiary Prifoods Co. effectively utilizes waste through the commercial use of poultry manure as a fertilizer, and as a snow melting agent after carbonization. Waste reduction: 71,670 tons/year
	Sugar cane residue (bagasse) from a sugar manufacturing business operated jointly by Mitsui and Mitsui Sugar Co. in Thailand is used as fuel for biomass power generation, and the electric power is used for the operation of its plants with surplus electric power being sold, contributing to an increase in the use of renewable energy in Thailand. Waste reduction: 900,000 tons/year
	Our subsidiary Retail System Service Co. recycles animal feed and compost and has developed a practical deodorizing and sterilizing material for cleaning retail outlets by use of recycled coffee grounds.
Sharing platforms	Our subsidiary Car Club Pte operates Singapore's largest car sharing business.
XaaS (X as a Service)	Mitsui has conducted two trials of an on-demand taxi-sharing scheme in Arai City, Kumamoto Prefecture. A full-scale service is planned to commence in the year ending March 2021.
	Mitsui provides battery leasing services (Battery as a Service) through its investee, Forsee Power in France.
	Our affiliated company NOBORI operates a cloud-based medical picture archiving and communication system (PACS) in Japan. It has a 70% share of the market of cloud-based PACS services.
	Our subsidiary +Automation Inc. provides a Robotics-as-a-Service (RaaS) that enables logistics facilities to cope efficiently with increasing cargo volumes in an environment of labor shortages as well as smaller lot and more diversified delivery patterns.
	Through Air as a Service (AaaS), jointly established by Mitsui and Daikin Airtechnology and Engineering Co., we provide subscription services for optimized air conditioning for a fixed monthly fee by means of IoT-based remote management. Power consumption in facilities that use this service is reduced by around 20%.