Global Plastics Flow 2023:

There is clear progress in recycling and waste management – but pressure to act on environmental pollution remains high

- 71% of global plastic waste is disposed of in an environmentally friendly manner (2018: 68%)
- The global recycling rate averages 12 %
- 80% of post-consumer recyclates are produced in Europe and Asia
- Best practices demonstrate the effectiveness of various measures

Berlin – Düsseldorf – Frankfurt 8 October 2025 – The latest survey, "Global Plastics Flow 2023" – conducted by Conversio Market & Strategy – shows that awareness and initiatives for the environmentally sound treatment of plastic waste and its circular economy are increasing worldwide, but that progress is not yet satisfactory in relation to rising plastic production.

The analysis clearly shows that plastic waste is a global problem, but the causes and challenges vary considerably from region to region. Investment in waste and recycling infrastructure, as well as consistently expanded producer responsibility (EPR systems) are crucial to reduce the global mismanagement of plastic waste effectively and expand the circular economy.

'We are confident that the challenges of waste management have been recognised and are being tackled in a committed and coordinated manner in many parts of the world. At the same time, we cannot be satisfied with the dynamics of recycling and waste treatment compared to the production of new plastics,' say the initiators of the study, BKV, GKV, VDMA, Wir sind Kunststoff (We are Plastics) and Messe Düsseldorf (Düsseldorf Exhibition Centre).

Results and global trends: waste is increasingly disposed of in an environmentally friendly manner

In 2023, 414 million tonnes of plastics were produced worldwide, while around 300 million tonnes of waste were gererated. This development is driven by dynamic economic growth in Asia, rising incomes, population growth, and accelerated industrialisation – particularly in parts of China.

The good news is that 71% of plastic waste is now being treated in an environmentally friendly manner worldwide (68% in 2018). However, the proportion of "*mismanaged plastic waste*"

remains alarmingly high at 29%. Nevertheless, the amount of plastic waste improperly disposed of is growing at a slower rate than the total amount of waste, at 1.9%, which indicates a gradual improvement. The situation remains problematic in countries with weak waste management infrastructure, including many regions in Africa and Asia.

Environmentally sound waste disposal recorded the most dynamic growth at +4.6%, demonstrating that waste treatment is catching up and improving. The main drivers behind this development are increasing capacity for energy recovery in Asia.

Plastic waste collected for recycling rose by +3.0%, indicating steady progress, albeit slower than the growth in total waste volumes.

“Despite the sobering global figures, the Global Plastics Flow study also highlights encouraging and effective levers for improved waste management. A sustainable transformation can be achieved through the interaction of various instruments,” according to the study's initiators. “Extended producer responsibility plays a particularly effective role in this. If manufacturers take financial and organisational responsibility for the post-use phase, this will lead to a long-term shift towards a closed and sustainable plastics material flow, with more recycling and less release into the environment.”

Figures demonstrate that efforts so far have been worthwhile

The positive changes can be traced using concrete figures from the following three countries/regions as examples:

EU 27+3 Plastic waste grew by an average of 2.1% per year between 2018 and 2023. Waste that was disposed of properly increased at the same rate (+2.2%). However, waste collected for recycling actually increased by an average of 5.9% per year, while waste entering the environment decreased by 0.6%.

Colombia In Colombia, the amount of plastic waste has grown by 1.7%. Properly disposed waste rose by an average of 5.0% per year, and the amount used for recycling rose by as much as 24.6%. Waste entering the environment fell by 6.5%.

China The amount of plastic waste increased by an average of 3.5% annually. The amount of waste that was disposed of properly grew by 8.3%, and the amount intended for recycling by 5.9%. Waste entering the environment in China even fell by 9.7%.

“These successes serve as an example and stimulus to vigorously promote environmentally friendly plastic recycling,” say the survey’s initiators. “A clear commitment to the circular economy is having an impact and must also be made at a global level. That is why a global plastics agreement is so important.”

Key figures on material flows in 2018 and 2023

The comprehensive survey provides important figures on global plastics production, recycling, and the degree of organised disposal and treatment. At a global level, the following key findings were obtained in comparison with the 2018 study:

- **Production:** Worldwide, 414 million tonnes of plastics were produced (370 Mt in 2018)
- **Processing:** In addition to the 377 million tonnes of new (mainly fossil-based) material, a further 37 million tonnes of recycled material was processed, resulting in a total amount of plastic processed annually of 414 million tonnes (370 Mt in 2018).

- **Post-consumer waste:** The total amount of plastic goods used generated around 300 million tonnes of consumer-related plastic waste per year (250 Mt in 2018).
- **Waste management:** A total of 213 million tonnes of plastic waste was collected (171 Mt in 2018).
- **Environmental waste input:** 87 million tonnes (= 29%) of plastic waste are disposed of improperly, for example in illegal dumps or carelessly discarded (79 Mt in 2018 = 31%).

Addendum to the "Global Plastics Flow 2023" press release of 8 October 2025

The global transformation of plastic waste flows begins in individual countries – figures prove the effectiveness of the measures

These immense challenges show that progress in plastic waste management and plastic recycling requires profound infrastructural, political, economic and social changes.

Europe In many EU-27+3 countries, the legal regulations based on the principle of product responsibility form the basis for comprehensive waste and recycling management. Particularly effective measures in this regard include clear regulatory frameworks (e.g. landfill bans, high recycling targets), well-developed infrastructure for recycling and energy recovery, effective EPR systems, take-back and deposit systems, advanced sorting systems and investment in innovative technologies. Plastic waste collected in Europe grew by an average of 2.1% per year between 2018 and 2023. The amount of waste that was properly disposed of increased at the same rate (+2.2%). The amount of waste collected for recycling even increased by an average of 5.9% per year. An additionally encouraging statistic is that waste entering the environment has decreased by 0.6%.

Latin America In Colombia, EPR laws and the Colombian Plastics Pact set ambitious recycling targets (e.g. 50% packaging recycling by 2030, 30% use of recycled materials). The planned formal integration of over 70,000 waste pickers and modern urban infrastructure projects are leading to high collection and recycling rates and better social participation. The amount of plastic waste has increased by 1.7%. Properly disposed waste rose by an average of 5.0% per year, and waste for recycling increased by as much as 24.6%. Waste entering the environment decreased by 6.5%.

Asia China is promoting the circular economy through regulatory and infrastructural measures, including national guidelines, massive capacity increases in the waste-to-energy sector and integration of the informal sector. As a result, recycling rates for PET and other packaging have risen significantly. The average annual increase in plastic waste is around 3.5%. Properly disposed waste increased by 8.3% and waste collected for recycling by 5.9%. Waste entering the environment in China actually fell by 9.7%.

Cluster of measures for improved plastic waste management

Best practices in different countries are based on clear legal frameworks, comprehensive infrastructure, consistent producer responsibility, social participation, and a focus on innovation and recycling. Successful countries and regions are characterised by a combination of those approaches.

- **Legal framework conditions and policy:** Legal requirements with EPR (extended producer responsibility) and collection/recycling quotas, national strategies, high standards through best available technologies and standards, and public awareness campaigns.
- **Infrastructure and technical solutions:** Establishment and expansion of recycling facilities, material recovery facilities (MRFs), waste-to-energy (WtE) capacities and circular economy initiatives.
- **Waste separation and collection systems:** Introduction and expansion of separate collection systems, deposit systems for bottles and integration of informal collection structures.
- **Multi-stakeholder cooperation and commitment:** cooperation between government, industry, NGOs and the informal collection sector, as well as voluntary pacts and initiatives.
- **Innovation, pilot projects and digitalisation:** development of new recycling technologies and use of digital solutions for tracking.

Challenges and urgent need for action

The key challenges and weaknesses in plastic waste management relate to infrastructure, collection systems, recycling markets, policy measures and social aspects. They can be precisely identified from the data provided in the Global Plastics Flow Report 2023, and differentiated by region and application sector.

- **Inadequate collection and treatment systems:** Many regions, particularly in Africa, Asia and Latin America, lack comprehensive, formal waste collection systems. The informal sector often plays the leading role, resulting in insufficient traceability and improper treatment. Open dumps, and uncontrolled burning and plastic leakage into the environment and the sea remain widespread.
- **Low recycling rates and losses:** Despite rising waste volumes, the amount collected for recycling is growing more slowly than total waste generation. Only around 17% of global plastic waste is collected for recycling, with the effective recycling rate globally standing at around 12%. A total of 80% of post-consumer recyclates are produced in Europe and Asia.
- **Market weaknesses for recyclates:** The economic incentive for plastic collection and recycling remains low in many places. The sale of recycled materials is uncertain; low prices for new fossil-based plastics prevent investment in efficient recycling infrastructure.
- **Difficult handling of durable products:** In long-life applications such as construction, electronics and automotive, waste volumes accumulate over time, which makes monitoring and efficient recycling difficult. In particular, the establishment of closed-loop take-back systems for these sectors is inadequate.
- **Danger posed by illegal exports:** Plastic waste that is officially exported for recycling often ends up in countries with weak infrastructures, where it is ultimately disposed of improperly (illegal exports, “waste dumping”).
- **Lack of political coordination and implementation:** Many countries have taken measures (e.g. EPR systems, single-use plastic bans), but enforcement is often inconsistent, fragmented and ineffective.

About the survey:
The survey *The Global Plastics Flow 2023* is based on the first edition (2019, reference year 2018) and analyses plastic flows in 45 countries covering 63% of the world population and 81% of global GDP. Findings were extrapolated at a global level based on data obtained in the individual countries and applications, as well as contributions from national industry representatives. The survey offers a comprehensive overview of end-consumer plastic waste, focusing on waste generation, collection and losses resulting from improper disposal. Compared to 2019, the 2023 edition deepens the analysis beyond the packaging sector to include plastic applications in other areas (construction, automotive industry, electronic and other durable products). The aim is to showcase the progress in the global circular economy with a particular focus on the development of waste management as well as litter prevention.

The survey is accessible via the BKV GmbH website.

Initial Situation

Sponsors and Initiators of the Global Plastics Flow Study 2023

(BKV GmbH) A company of the German plastics industry, which provides facts and figures about resource efficiency and circularity of plastics
www.bkv-gmbh.de

(K Fair) International fair for the plastics and rubber industry in Düsseldorf, Germany
www.k-online.de

(GKV) Umbrella organisation for plastics processors associations in Germany
www.gkv.de

(VDMA) German association representing the mechanical engineering industry
www.vdma.org

(We are Plastics GbR), a joint initiative of the plastics industry
www.dein-kunststoff.de