https://blog.en.erste-am.com/plastic-in-our-environment/

Plastic in our Environment

Stefanie Schock

© iStock

The world consumes resources more quickly and at larger quantities than our population is growing: in 2050, more than 9bn people with three times today's per capita income will form the basis of demand for natural resources. The OECD therefore regards the doubling of today's material input as realistic. The global plastics production reflects this very situation: according to data provided by the International Organisation for Standardisation, said production amounted to 322mn tonnes in 2015 and had thus increased by a factor of 20x since 1964. For the coming 20 years, a further doubling is expected, with plastic packaging making up the lion's share.

Plastic comes with a vast array of uses: plastic packaging can be used to prolong durability and can thus cut down on food waste. Also, lighter packaging saves fuel in transport. However, problems arise at the back end of the process: only 14% of packaging is recycled (by comparison, paper has a recycling rate of 58%, and steel and iron has one of 70-90%). The material also loses in value through sorting and treatment, as a result of which only 5% of material value remains in existence. This means that about USD 80 to 120bn are lost every year.

More plastic than fish

90% of the production of plastic is based on fossil energy carriers; it could account for 20% of total oil consumption in 2050. In addition, 32% of plastic packaging exits the system without control and ends up for example in the ocean. The MacArthur Foundation estimates the costs of emissions and affected ecosystems at an annual USD 40bn.

The plastic contamination of the sea causes environmental problems: some 8 tonnes are dumped in the oceans every year, which has led to a total amount of plastic of 150 tonnes currently floating in the sea. At constant rates of contamination and measured in kilo, there might be more plastic than fish in the oceans by 2050. The environmental damage is grave: at the moment, some 1,400 animal species living in or close to the sea are affected or contaminated by plastic waste. *"We assume that by 2050 almost all marine birds will have plastic particles in their stomachs; the natural habitat such as coral reefs are also damaged by plastic waste deposits,"* explains Georg Scattolin, Head of International Programme, WWF Austria.

Plastic particles can remain in the environment for up to 400 years and may also enter the human food chain. Microplastics have been found in fish, mussels, crayfish, and table salt.

Enzymes against plastic waste

Several solutions have been discussed, for example an enzyme that can degrade plastic effectively. This enzyme was discovered by a Japanese team in 2016 and analysed for its structure by English scientists. This accidentally spawned an optimised version that facilitated the breaking of long polyethylene terephthalate (PET) chains. However, in order to make its industrial use possible, the process speed will still have to be ramped up.

The Austrian Centre of Industrial Biotechnology has engaged in research on plastic-degrading enzymes since 2001 as well. The fundamental problem of classic recycling, i.e. the fact that in terms of quality the recycled material does not hold a candle to the original material, is to be solved by the use of enzymes. PET materials of similar quality could be produced, which would cut the degradation process from 400 years to 3-4 weeks.

AIFMG in connection with the InvFG 2011. The fund prospectus, Information for Investors pursuant to § 21 AIFMG, and the key investor document/KID can be viewed in their latest versions at the web site www.erste-am.com or obtained in their latest versions free of charge from the domicile of the management company and the domicile of the custodian bank. The exact date of the most recent publication of the fund prospectus, the languages in which the key investor document is available, and any additional locations where the documents can be obtained can be viewed on the web site www.erste-am.com.

This document serves as additional information for our investors and is based on the knowledge of the staff responsible for preparing it at the time of preparation. Our analyses and conclusions are general in nature and do not take into account the individual needs of our investors in terms of earnings, taxation, and risk appetite. Past performance is not a reliable indicator of the future performance of a fund.

Stefanie Schock

Senior Research Analyst, Erste Asset Management