Media: New Straits Time

Date: 3 Dec 2019

CHALLENGE: ZERO PLASTIC WASTE BY 2030

Microplastic consists of microfibres from synthetic fabrics, microbeads used in some hygiene and beauty categories, and other tiny plastic particles that result from the degradation of larger pieces of plastic over time.

This is not an entirely new issue. For decades, countless people and companies around the world have been following the "reduce, reuse, recycle" approach, which aims to reduce plastic waste by decreasing the amount of plastic that is required as well as the amount that's thrown away. But plastic waste is a stubborn problem – like plastic itself, it never seems to go away.

Reducing Plastic Production

If you think about it, the "three R's" – reduce, reuse, and recycle – are listed in order of difficulty, from easiest to hardest. As a global food product manufacturer, Ajinomoto Co. has been focusing on reducing plastic production for many years.

Since the year 2000, our plastic reduction efforts have reached 72 of our products, resulting in an annual reduction of plastic use by about 3,500 tons. To visualise how large that amount is, consider that an average Asian elephant weighs 2.5 to 5.5 tons. So we have reduced plastic use by the equivalent of the weight of 1,000 elephants per year.

In some cases, plastic can be replaced by another material. For example, by changing our "HON-DASHI®" flavour seasoning product's packaging from plastic to paper, we were able to avoid producing 11 tons of plastic each year.

In other cases, when the use of plastic is essential in terms of product safety and shelf life, but with the improvement of product shape and filling method, more compact (light weight) packaging can still be considered. For example, in our "Blendy® Café Latory®" instant coffee product, we were able to reduce the length of the "stick" packages by 20mm, leading to another reduction of 20 tons of plastic.

The list goes on and on, and the products we have targeted are not only in the Japanese market – we were able to eliminate more than 2,000 tons of plastic per year by redesigning the portion size of our "Masako®" seasoning product, which is marketed in Indonesia.

What about "reuse"?

"Reuse," the second of the "Three R's," is a great idea – if the material is right. For example, we reuse glass all the time, because it's strong and easy to clean. Of course, durable plastic items such as cafeteria trays and lawn chairs are used many times. But single-use plastics, including PET (polyethylene terephthalate) bottles, are not appropriate for reuse in terms of strength and hygiene.

Recycling: The Biggest Challenge

Unfortunately, reducing plastic use is not enough to eliminate plastic waste. To reach our goal, we must place a strong focus on recycling. For most people, recycling plastic probably doesn't seem very difficult. Just your PET bottles from the rest of the rubbish, and a truck comes and takes everything away. But the truth is that plastic recycling is a lot more complicated than most people think. The reason is that there are many different types of plastic, and there are various ways in which they can be recycled.

Among the varieties of plastic, PET bottles are relatively simple to recycle. The reason is that PET bottles uniformly consist of just one type of plastic – polyethylene terephthalate. Therefore, PET bottles can be compacted together and then used to make new bottles, or other materials and products such as fabric, other plastic items like cafeteria trays, and even stationery goods.

As a result, the recycling rate of PET bottles is relatively higher than other types of plastic–85 per cent in Japan, 42 per cent in Europe, and 21 per cent in the United States.

On the other hand, the plastic used in food packaging is much harder to recycle. The primary function of this plastic is to ensure the safety of food, which also results in reduced food loss. This involves providing a barrier against bacteria, moisture, ultraviolet light, and other potential "food spoilers". To achieve this function, the plastic used in food packaging consists of multiple, dissimilar layers. Therefore, it cannot simply be compacted together and used again the way that PET bottles can

Innovation in Plastic Recycling

Researchers and scientists the world over are exploring new avenues to solve this problem. One promising avenue is the development of new materials. Recently, biodegradable plastic made from cassava recently captured the attention and imagination of the media, with the potential of replacing the non-degradable plastic bags commonly used in supermarkets and convenience stores. Unfortunately, biodegradable plastic has low biostability–in other words, it is sensitive to degradation by biological agents. This makes it unsuitable for food packaging, in which the plastic must act as a barrier against biological agents. Furthermore, for practical reasons, solubility is not necessarily a desirable quality for the plastics used in food packaging.

Another approach is to consider different ways of recycling. There are three major methods: material recycling (recycling to plastic materials), chemical recycling (recycling to plastic raw materials), and energy recovery (recovery as energy). Although each method has strengths and weaknesses, Ajinomoto Co. pays attention to all innovations and developments that can offer practical and positive solutions as we drive towards elimination of plastic waste. Ultimately, we believe that the best solutions will be those that contribute to a "circular economy" that minimises waste and optimises the use of existing resources.

Working Independently and in Cooperation

Reducing plastic waste to zero by the year 2030 requires a monumental effort, and it cannot be achieved by any one corporation. That's why Ajinomoto Co. is actively seeking partnerships. For example, we are a charter member of CLOMA–the Clean Oceans Material Alliance–which was established earlier this year by industry, government, and research institutes. CLOMA is taking a multi-faceted approach to change the "plastic ecosystem," including the behaviour of individuals, through a combination of innovation, collaboration, and promotional activities.

Ajinomoto Co. has implemented meaningful reductions in the amount of plastic we use by rethinking our packaging, product by product. Of course, this effort will continue. In addition, we are putting forth a comprehensive effort to recycle as much of the plastic as is technologically possible.

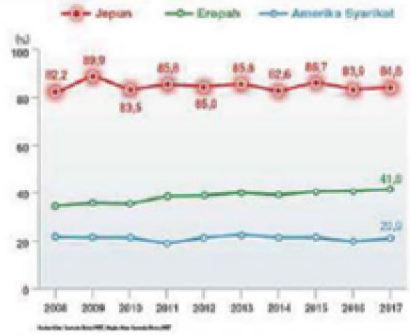
We firmly believe that through a combination of our cooperative and independent efforts, we will fulfill our responsibility to help create "the circular economy" that will sustainably help people to eat well and live well – well into the future.

References:

1. "What are microplastics?" National Ocean Service, https://oceanservice.noaa.gov/facts/microplastics.html.
2. "Production, use, and fate of all plastics ever made" Science Advances, 19 Jul 2017: Vol. 3, no. 7, e1700782. https://advances.sciencemag.org/content/3/7/e1700782.full
3. "How Much Do Elephants Weigh in Tons?" Reference, https://www.reference.com/pets-animals/much-elephants-weigh-tons-36807d7c55c0caa4.
4. Tim Horvyak "Plastic fantastic: How does Tokyo recycle its waste?" https://www.japantimes.co.jp/life/2017/06/10/environment/plastic-fantastic-tokyo-recycle-waste/#.XSsm8bpuK88.
5. Sheila van Santen "What are the disadvantages of bioplastics?" Quora, 15 Oct 2018 https://www.quora.com/What-are-the-disadvantages-of-bioplastics.

■ Contoh pengurangan plastik dalam produk Kumpulan Ajinomoto

■ Kadar kitar semula botol PET



■ Contoh jenis lapisan plastik dan fungsi dalam pembungkusan makanan

■ Pengurusan plastik dalam ekonomi pusingan

THERE is a need to reduce plastic waste, in particular, in our oceans. There has also been more interest in the existence of "microplastic", defined as particles of plastic less than 5mm in length.