

- Case Study - Innovations in express packaging



**Sustainable
development
goals (SDGs)**

Goal 9: Industry, innovation and infrastructure

Goal 11: Sustainable cities and communities

Goal 12: Responsible consumption and production



**Relevant concept/
issues**

Carbon cycle and climate change



Relevant sector

Administrative and support service activities

Carbon emissions caused by express packaging

The rapid development of e-commerce and logistics has made online shopping a global trend, but it has also caused a problem with over-packaging. In China, the logistics system is highly developed thanks to its huge online market. Although it is convenient for consumers, the logistics system also causes carbon emissions. From 2009 to 2019, carbon emissions from logistics enterprises in China increased from 2.2 billion tons to 4 billion tons (Xie, 2022). One important cause is the packaging. Online sellers tend to over pack. They use extra layers of plastic wrap to ensure the commodity being shipped is intact. Most of the packages are non-degradable materials, so they cannot degrade in nature, like. In most cases, these packages are discarded and become sources of pollution and carbon emissions.



Fig. 1. Issues caused by over-packaging.
Source: Unsplash.

Action against over-packaging

To solve this problem, logistics enterprises, other enterprises and the government are taking measures to reduce, reuse and recycle, as well as using degradable materials, which can degrade naturally and so reduce carbon emissions.

Fig. 2. explains some actions that can be taken to combat over-packaging: purchasing standard sized boxes so that they can be reused; using degradable materials like bioplastics; encouraging people to reuse the packages; and reducing the amount of packaging and tape.



Fig. 2. Actions to combat over-packaging.
Source: Shi, 2019.

1. Use recyclable materials

Logistics enterprises are trying to use more degradable materials to replace plastics. During the 2021 “Double Eleven Shopping Festival”, over 15 million parcels were sent by Cainiao, a logistics enterprise in the Alibaba Group, used degradable green packaging (Green Packaging, 2021).

2. Improving packaging – Using zipper boxes and electronic sheets

Enterprises are also improving the way they pack. Plastic tape remains a major source of carbon emissions. Therefore, many top logistics enterprises, including Cainiao and Shunfeng, changed their packaging into zipper boxes without tape seals. Enterprises have also changed the traditional paper surface sheets into electronic sheets, which can be read on smart phones and PDAs, thereby reducing the amount of paper used in logistics chains.



Fig. 3. Cainiao’s recyclable box with no tape.
Source: Green Packaging, 2019.

3. Encourage consumers to recycle and reuse packaging

Various ways are adopted to encourage people to recycle packaging. Cainiao set up a "personal carbon-reduction bill" to record their customer's recycle and reuse behaviors, and to present them with awards based on their records (Xiao & Li, 2021). In November 2021, 1.2 million people were involved (Green Packaging, 2021).



Fig. 4. Recycle point set by logistic enterprises.
Source: Green Packaging, 2019.

Progress in reducing carbon emissions

Between 2018 and 2020, the carbon emission per kilogram produced by single express delivery was successfully reduced from 0.091 to 0.061 (Xiao & Li, 2021). This was achieved by reducing the amount of packaging, using recyclable materials and reusing packaging boxes. This number is expected to continue decreasing by maintaining these measures.

These measures also changed people's minds. As customers, they used to consider convenience to be the first priority, but with measures that encourage people to recycle and reuse packaging, people began to reuse the boxes or take them to recycle points, instead of throwing them away. Some people also stopped purchasing commodities with unnecessary packaging, to drive enterprises to reduce packaging use in their production.

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