

# Impact of Banning and Standardising of Single-Use Plastics in the Fast Food Industry

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## INTRODUCTION

Plastic ocean pollution has become a matter of enormous concern around the world. Single-use plastics (SUPs) is one of the main of plastic ocean pollution (UNEP, 2018). Among industries which consume SUPs, such as health services, tourism, and the FFI, a significant number of single-use items made of plastic or paper are used. While the use of reusable items causes more climate change emission compared to SUPs (Blanca-Alcubilla et al., 2020; Chitaka et al., 2020), lessening the amount of plastic used for SUPs should be considered through either phasing out of unnecessary SUPs or minimizing the weight of each type of SUPs. Furthermore, ceasing the use of avoidable SUPs is a positive way to minimize the generation of plastic waste. In the FFI, reducing plastic waste generated is expressed by controlling the use of SUPs. Furthermore, many countries have already applied benchmarks for plastic packaging to limit the amount of plastic for packaging. Typically, in Singapore, the Singapore Packaging Agreement has adopted the packaging benchmarking database (Singapore National Environment Agency, 2016).

## MATERIALS AND METHODS

### Fast food company's profile and samples

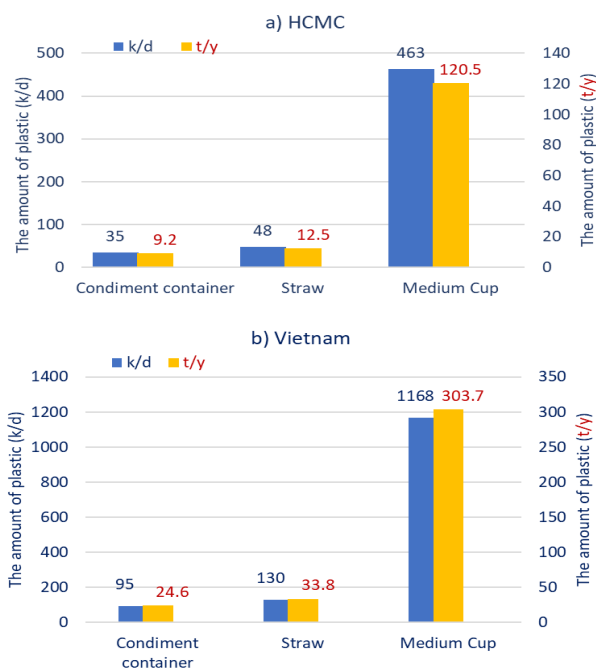
The research surveyed 126 restaurants of 183 restaurants belonging to six popular fast food companies, including Lotteria, KFC, Jollibee's, Popeyes Stores, Texas Chicken, and McDonald's in HCMC.

### Calculation

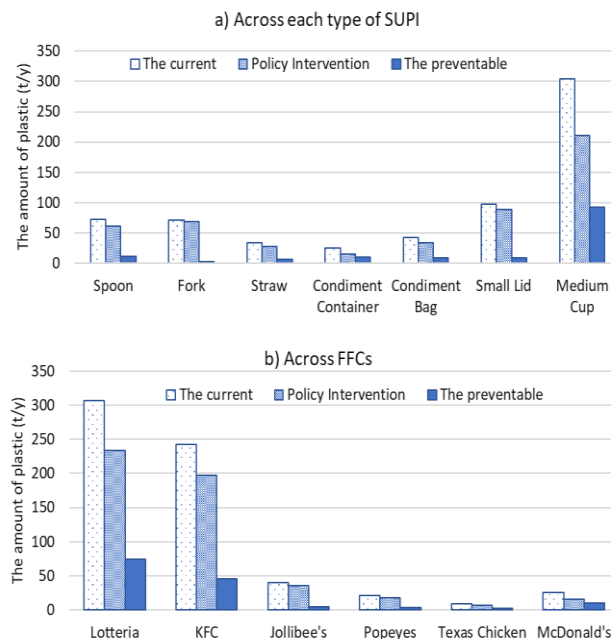
The total weight of individual SUI is denoted as  $w_1$  (gram). Data on the number of SUIs consumed per week (Monday through Friday) is denoted as  $m$  (items/week) and this data was provided by the restaurant managers. The total number of SUI consumed per day by a FFR is denoted by  $m_1$  (items):  $m_1 = \sum_1^{n_1} m$  [1]. The total average weight of SUI consumed per day by all surveyed restaurants is denoted as  $q_1$  (kg/day):  $q_1 = m_1 * w_1$  [2]. The average number of SUI consumed per day by FFR belonging to any FFC is denoted by  $m_2$  (items/day):  $m_2 = m_1/n_1 = (\sum_1^{n_1} m) / n_1$  [3]. The total weight of SUI consumed per day by FFC is denoted by  $q_2$  (kg/day). The value  $r$  – the number of FFRs of one FFC in HCMC at the period of the survey:  $q_2 = m_2 * r * w_1$  [4]. The value  $a$  (gram) is the lightest net weight of one type of SUI across six studied FFCs has been selected to use as the baseline for all FFCs. The amount of plastic preventable per each SUI by each FFC-  $b$ ;  $b = w_1 - a$  (g) [5]. The amount of plastic preventable by standardising each type of SUI of six selected FFCs –  $q_3$ :  $q_3 = m_2 * b * r$  [6].

## RESULTS AND DISCUSSION

### The potential implementation outcomes of stopping using the identified unnecessary SUPIs in the FFI in HCMC and Vietnam



**Figure 1.** The amount of plastic which would be avoided by banning using condiment containers, straws and medium cups in (a) HCMC and (b) Vietnam



**Figure 2.** The comparison of the total amount of plastic before and after adopting the policy of standardizing the weight of each SUPIs (a) by each type of SUPIs and (b) by FFCs in Vietnam

## CONCLUSION

Alternating in policies would be a high potential to reduce in the amount of plastic waste generated in the FFI. Stopping the use of the unnecessary SUPIs (condiment containers, plastic cups, and straws) would prevent a large amount of plastic (360 t/y in Vietnam, and 140 t/y in HCMC). Furthermore, 55 tons and 140 tons of plastic released into the environment each year in HCMC and Vietnam respectively, would be avoided by adopting the policy of standardising the weight of each type of SUPI in the FFI.

## ACKNOWLEDGEMENT

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