



CHAPTER  1

GLASS BEVERAGE BOTTLES AND OUR ENVIRONMENT



1.1

The bulk of waste glass in Hong Kong is glass bottles (over 80%) and among which, a significant portion come from alcoholic drinks. As illustrated in Exhibit 1, in the past decade, the amount of waste glass bottles disposed of at landfills has stayed at around 250 tonnes per day (“tpd”), roughly equivalent to half a million 750mL bottles. That accounts for about 3% of our daily municipal solid waste disposal.

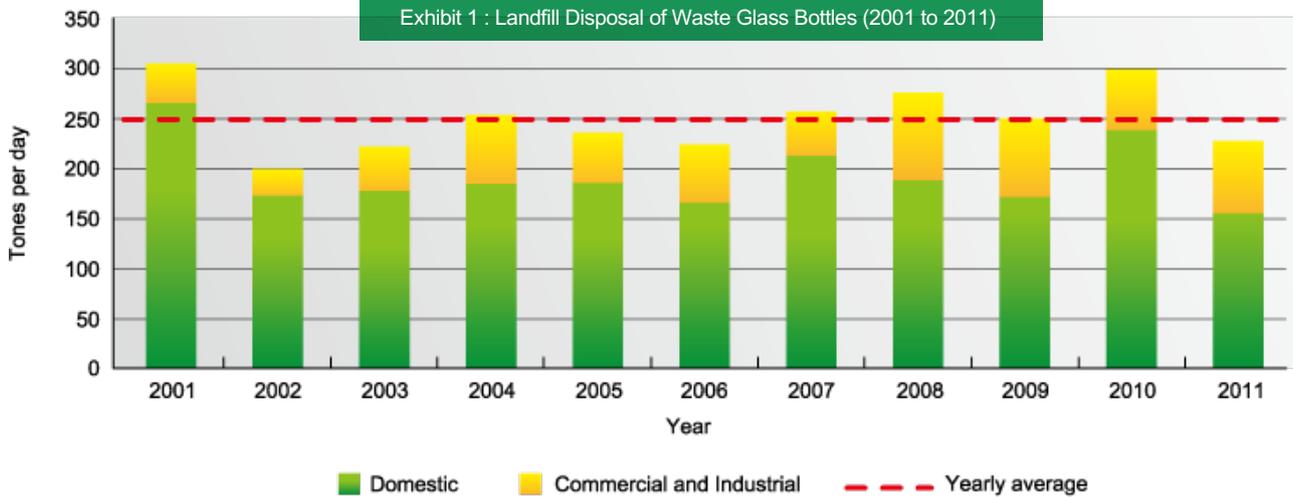


Do you know?

Glass is widely accepted as a recyclable material internationally

Glass consists mainly of silica, which is a natural raw substance like sand. Glass will unlikely pollute the environment or affect human health and thus can easily be reused and recycled. Glass is widely accepted as a recyclable material internationally.

Exhibit 1 : Landfill Disposal of Waste Glass Bottles (2001 to 2011)



1.2

Used glass is often recycled and turned into bottles elsewhere in the world. To recycle glass, it first has to be separated from the waste stream, then sorted and washed for re-bottling, or reprocessed into new bottles and other glass products. Recycling bottles is beneficial to the environment because it can save a lot of the energy used in the manufacturing process of glass from raw materials. There are also applications which turn waste glass into building materials, concrete and paving applications, in place of sand and other natural resources.



Glass is not waste but resource.

Prof. C.S. Poon of the Hong Kong Polytechnic University is one of the pioneers in Hong Kong conducting research on the potential applications of glass cullet in the construction industry. In 2004, he succeeded in substituting natural river sand with glass cullet for the production of paving blocks. Through on-going research, his subsequent findings have led to better performance eco-pavers suitable for wider uses in construction works.



Why glass beverage bottles have to end up in our landfills?

1.3

Not all the waste glass can be recycled in the same processes, however, glass products such as lamps, computer monitors or television screens may contain lead, mercury or other hazardous substances, which needs prior detoxification before recycling. Due to different physical properties, other glass materials such as tempered glass and glass cookware should not be mixed with ordinary glass bottles for recycling.



1.4

We wish to see beverage bottle recycling in Hong Kong, which accounted for 2/3 or 150 tpd (equivalent to 55,000 tonnes annually) out of all waste glass bottles in 2011. Among them, 130 tpd (i.e. over 85%) were from alcoholic drinks and 20 tpd (i.e. less than 15%) from non-alcoholic drinks.

The rest (about 1/3 or 90 tpd) contained food, sauce or other products. Beverage bottles are easy to clean, whereas the other bottles can adversely affect the recycling process if they are not thoroughly cleaned before recycling.

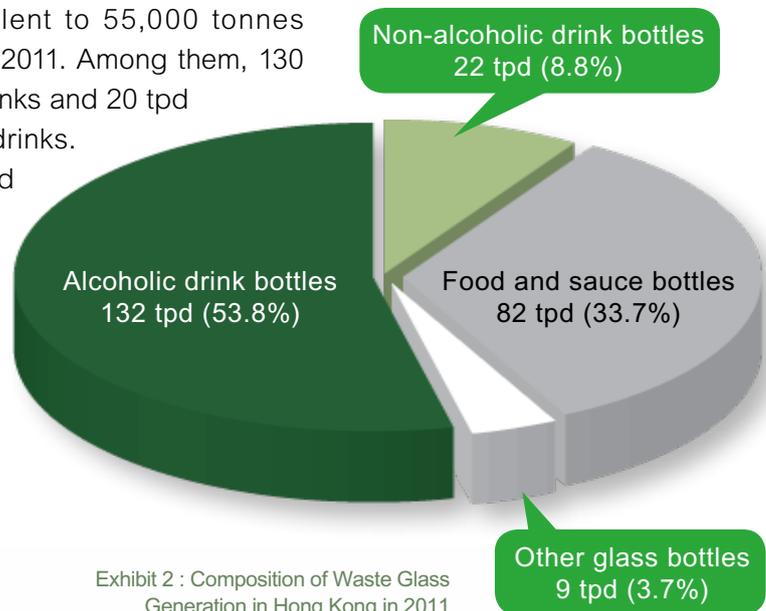


Exhibit 2 : Composition of Waste Glass Generation in Hong Kong in 2011



1.5

The majority of waste glass beverage bottles are currently landfilled in Hong Kong. But the limited space in the three existing landfills will be used up before 2020. This presents an urgent challenge to Hong Kong to reduce all types of waste, including glass. PRS is an effective means that must become an integral part of the strategy. A mandatory PRS is necessary because it will —

- (a) turn waste glass beverage bottles into a resource. This cannot be done without government intervention as glass has low commercial value;
- (b) lead to glass recycling which will in turn provide new opportunities for the environmental industry and in turn provide green jobs;
- (c) reduce the burden on landfills. Glass is non-combustible and is not suitable for any other treatment or disposal methods;
- (d) reduce the demand for other construction materials, such as river sand¹. Some of the side-products will have considerable impact on the environment;
- (e) stimulate behavioural change in source separation of used glass beverage bottles; and
- (f) catch up with many other jurisdictions which have already adopted forceful measures to deal with waste glass problems. Details will be given in the chapters to follow.

Remark :

1. River sand is commonly used in construction works. Dredging work for its extraction from rivers could disturb marine life and might cause damage to the river bed and the associated ecological system.





Do you know ?

“Deposit-and-Return”

We used to have an effective “Deposit-and-Return” system for recycling glass beverage bottles. Grocery stores and tuck-shops charge customers a small deposit which could be redeemed on return of a glass bottle after finishing the beverage. Such a system was underpinned by local re-bottling operations. Yet such operations have greatly diminished as a result of relocation out of Hong Kong or switch to other packaging materials. At present, only a few beverage manufacturers (e.g. milk, soft drinks) still maintain re-bottling operations and run “Deposit-and-Return” schemes.

