



**SWACHH BHARAT
ABHIYAAN**
EK KADAM SWACHHATA KI ORE



एक कदम स्वच्छता की ओर

“Glass Packaging” supporting “Swachh Bharat Abhiyaan”

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Introduction

● At present, glass and plastic containers are the PRIMARY PACKAGING MATERIALS for

- ✓ Processed foods,
- ✓ Pharmaceuticals,
- ✓ Beverages,
- ✓ Carbonated drinks,
- ✓ Cosmetics, etc.

● Glass packaging helps “Swachh Bharat Abhiyaan” along with protection of “Health” and “Environment”.

How?

- ✓ 100% recyclable – *beneficial to the environment and make it pollution-free*
- ✓ Totally inert to the contents, heat, and UV rays – *thus protect the contents – beneficial to health*

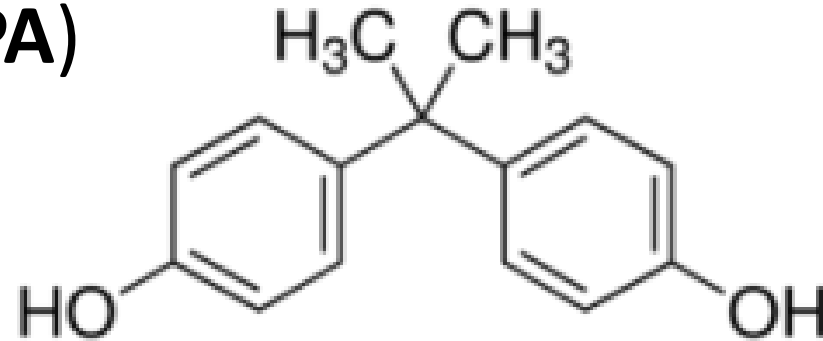
- Plastic packaging does not help “Swachh Bharat Abhiyaan” and it is harmful to “Health” and “Environment”.

How?

- Millions of plastic containers are being dumped in our surroundings (the environment) every year. Each bottle will take 1,000 years to biodegrade.



● Bisphenol-A (BPA)



- a plastic hardening agent prevalent in plastic containers. It is health hazardous, creates Cancer, Diabetics, Asthma, Infertility, Metabolic and Neurological diseases.

● Plastics production produces 14% of toxic air emissions and each plant emits an average of 300-500 gallons of contaminated wastewater per minute.

Advantages and Disadvantages of Glass as Packaging Containers

Advantages	Disadvantages	Way out
Product Characteristics and Food Compatibility		
<ul style="list-style-type: none">- No reaction with contents (INERT)- Does not contain any toxic components- Withstand heat processing- Impermeable to moisture and gases	<ul style="list-style-type: none">- Brittle and breakable- Needs a separate closure	<ul style="list-style-type: none">- Make harder or hardened glass containers
Environmental Issues		
<ul style="list-style-type: none">- 100% Recyclable- Reusable	<ul style="list-style-type: none">- Heavy and bulky to transport	<ul style="list-style-type: none">- Make light weight container- Enhance recyclability

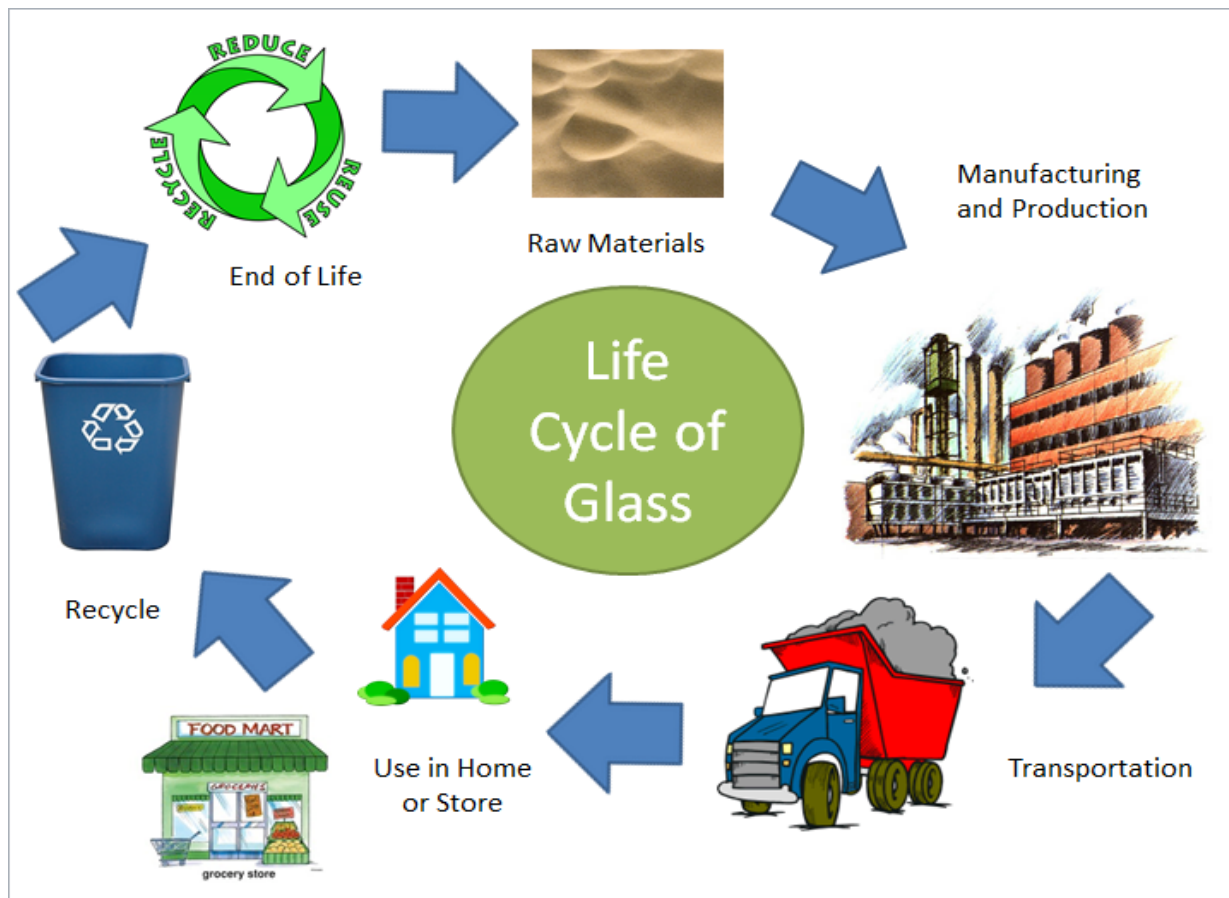
Advantages and Disadvantages of Glass as Packaging Containers

Advantages	Disadvantages	Way out
Consumer and Marketing Issues		
<ul style="list-style-type: none">-Transparent, allows consumer to see the product- Can be colored for light sensitive products	<ul style="list-style-type: none">- Poor portability- Heavy- Breakable- Relatively difficult to decorate	<ul style="list-style-type: none">- Make light weight container- Make harder or hardened glass containers
Cost		
<ul style="list-style-type: none">- Low cost material	<ul style="list-style-type: none">- Somewhat costly to transport	<ul style="list-style-type: none">-Make light weight container- Make harder or hardened glass containers

**Industry's Commitment
for
Clean India Campaign**

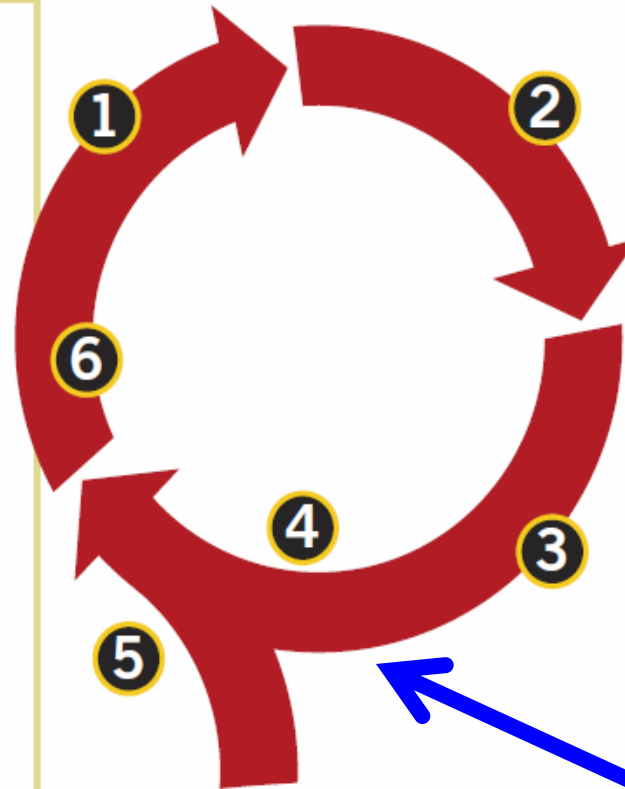
1. Per capita consumption of glass (kg): India – 1.4, Japan – 10.2, UK & USA – 27.5, France – 63.9, and South Korea – 89.0. Therefore, there is a significant scope of growth of per capita consumption of glass in India, that is, production of glass containers.

2. Increase Recycling Glass Containers - Recycling Save Energy / Improve Air Quality / Reduce Litter



Glass: The Perfect Cycle

1. The new glass packaging is filled with product and distributed through retail outlets.
2. The product is purchased by consumers and consumed.
3. Containers are collected through curbside, drop-off centers, and commercial on-premises locations.
4. Recovered glass packaging is crushed into cullet and used as raw material to make new glass packaging.
5. Virgin raw materials are added as needed to the mix for new packaging.
6. The raw material is formed into new glass packaging.



Advantages of Recycling

- ✓ Glass is endlessly Recyclable – “Bottle to Bottle” ... over and over, without practical limitation
- ✓ Saves natural resources - One ton of cullet substitutes / saves approximately 1.17 tons of the earth’s natural resources and at the same time saving valuable landfill space
- ✓ Reduces emissions and extends furnace life ... because cullet takes less energy / lower temperatures to melt than virgin raw materials
 - A 10% increase in cullet further improves air quality by reducing: Particulates as much as 8%; Nitrogen Oxide as much as 4%; Sulfur Oxides as much as 10%; Energy requirement by 3-4%;
 - For every 6 tons of cullet used, 1 ton of CO₂ emission is reduced

3. Weight Reduction (lightweight glass containers)

- Glass packaging industry should look for the ways to reduce weight of the glass containers through better designing and with no loss of quality.

Advantages of Weight Reduction

- ✓ By reducing weight, companies are able to save raw materials and melting costs.
- ✓ Production lines can run at a much faster rate because there is less glass per container and less energy needed for cooling. As a result light weight glass containers can be more economical and competitively priced with lower environmental impact.
- ✓ Lower transportation costs.

4. Strengthening of glass containers

- Glass packaging industry should look for the ways to strengthen glass containers through thermal hardening, surface treatments, and better designing.

Advantages of Strengthening of glass containers

- Lower breakage rate
- Easy portability

5. Industry should develop channel to buy the broken glasses, and cooperate with municipalities to take back the used glass containers.

6. Packaging glasses do not contain heavy metals; it contains mainly non-harmful SiO_2 , Na_2O , and CaO . Therefore unintentional introduction of toxic heavy metals (like cadmium, mercury, lead and hexavalent chromium in packaging or packaging components) should be avoided during manufacture due to use of recycled glass content.

7. Should maintain BIS standards for manufacturing container glasses.

8. Glass industry urg Govt. to increase usage of glass containers in packaging ***(Please send the complete plan to the Govt. Deptt. for consideration).***

9. Glass industry conduct campaign among consumers to increase of usage of glass in packaging

Glass a Sustainable Packaging Material

1. Various glass containers used as packaging materials



2. Advantages of use of glass as packaging materials

- ✓ Glass Packaging is inert, gas-tight, and ensures taste preservation
- ✓ Consumers prefer glass as packaging material for ensuring purity, quality, and healthiness
- ✓ It is environmentally friendly with 100% unlimited recyclability
- ✓ Packaging glass industry has a global sustainability approach
- ✓ Sustainability covers economical, social and ecological aspects
- ✓ Use of cullet saves energy and reduces CO₂ emissions
- ✓ Batch and cullet preheating improves energy efficiency for melting
- ✓ Lightweight technology helps to conserve raw materials and energy
- ✓ Hardglass is an innovative approach to produce a more robust and lighter glass packaging and improve its carbon footprint

Therefore, Container glasses are *the* sustainable packaging materials

**Corporate Social Responsibility of
Glass Manufacturers
and
other Stakeholders**

Social

- Should maintain comprehensive health and safety regulations
- Should meet employees' social requirements – irrespective of location
- Encourage the consumers to use glass packed materials

Ecological

Manufacturing Process – taking responsibility for our environment

- Use of cullet (recycled)
- Batch (raw materials) and cullet preheating

Product – taking responsibility for the product and its quality

- Lightweight technology

Goal: Weight reductions

- ❖ Benefits: raw material savings, energy savings, CO₂ reduction, smaller carbon

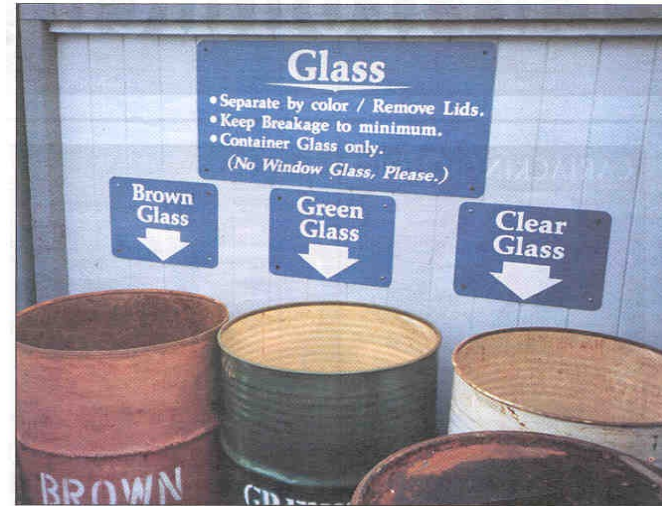
footprint Hardglass Goal – to produce a more robust and/or a lighter bottle

Economical

- Sustainability and long-term economic success are interdependent
- **Buy back the used glass containers – the packagers**
- Planning for long-term success instead of short-term profit maximization

**Roles of
Environment and Health Depts.,
State and Central Govt.**

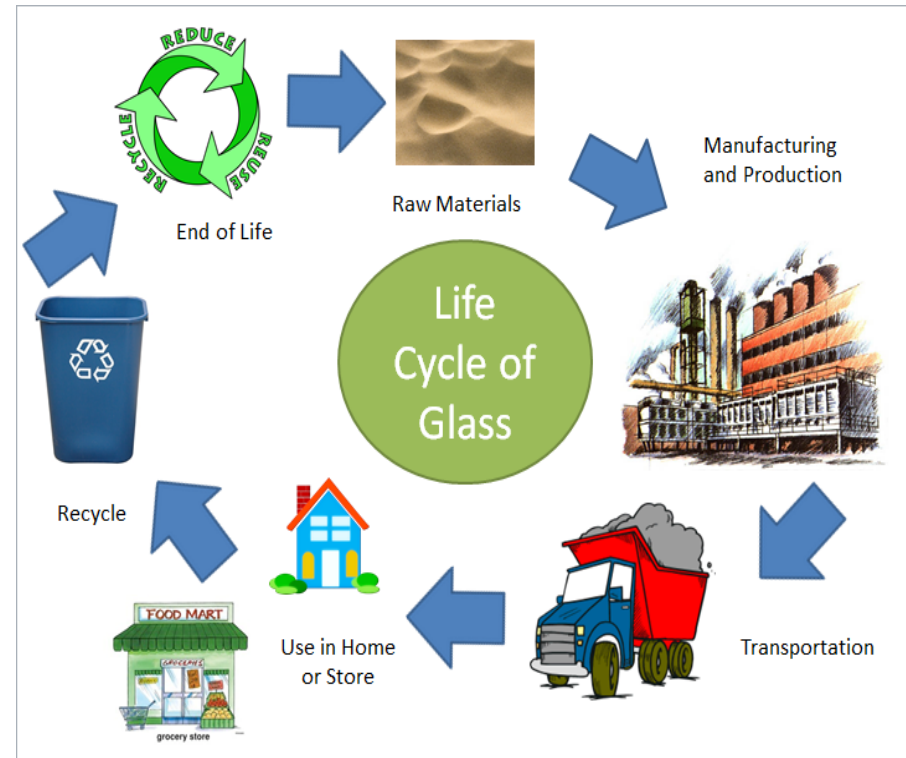
- Municipality should make satisfactory arrangements for collection and disposal of used containers
- Establish channel to return to glass containers to the manufacturers



- State and Central Govt. should establish guidelines for packaging Processed foods, Pharmaceuticals, Beverages, Carbonated drinks, Cosmetics, etc. in glass containers
- State and Central Govt. should encourage people to use Processed foods, Pharmaceuticals, Beverages, Carbonated drinks, Cosmetics, etc. packaged in glass containers
- State and Central Govt. should publicise the benefit of use of glass containers in packaging

Way forward

- ✓ Enhance recyclability
 - ✓ **Make light weight container**
 - ✓ Make harder or hardened glass containers
-
- ✓ **Municipality should make satisfactory arrangements for collection and disposal of used containers; also channel to return to glass container to the manufacturers**
 - ✓ State and Central Govt. should establish guidelines for packaging Processed foods, Pharmaceuticals, Beverages, Carbonated drinks, Cosmetics, etc. in glass containers



“Sustainable glass packaging” will help businesses, governments, consumers, and make environment clean -
Swachh Bharat Abhiyaan

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Thank You All
for your kind attention