# Life Cycle of Glass and Glass Products in Israel: Analytical Brief

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## 1. Introduction and General Context

Israel generates around 6 million tons of municipal solid waste (MSW) annually, of which approximately 77–80% is still sent to landfills. This represents one of the highest landfill rates among OECD countries (OECD, 2023). Only about 20% of waste undergoes reuse, recycling, or composting, even though national strategies envision a gradual transition to a circular economy, where waste becomes a resource. Glass constitutes a relatively small but symbolically important share of this stream. It is a material that can be endlessly recycled without losing quality, and thus serves as a ‘litmus test’ for the maturity of a recycling system. However, in Israel, the situation with glass reflects systemic weaknesses of the sector: insufficient infrastructure, logistical challenges, poor sorting quality, and a bias toward landfilling.

## 2. Legislative Framework and Responsible Organizations

The system of glass management falls under two main laws: the Packaging Law and the Deposit Law. The Deposit Law regulates beverage bottles and cans, requiring consumers to pay a small deposit upon purchase, refundable when the container is returned. The Packaging Law covers glass jars and bottles from products such as jams, sauces, coffee, and cosmetics—these are collected by the Tamir Recycling Corporation, which operates the well-known purple containers.

In 2021, the Ministry of Environmental Protection (MoEP) adopted the Sustainable Waste Economy Strategy 2021–2030, setting a target of 75% glass recycling by 2030. However, as the OECD notes, these goals have not yet been enshrined in law (OECD, 2023).

## 3. Three Main Glass Streams

### 3.1 Deposit Containers

Israel’s Deposit Return System (DRS) follows the European model, applying a deposit of about €0.10 on glass, plastic, and metal bottles. Consumers are refunded when returning empty containers. The collection rate of glass bottles under this system reaches around 90%, one of the highest globally (OECD, 2023). Most of these containers are either reused or recycled, including at Phoenicia Glass Works in Yeruham.

### 3.2 Tamir Purple Containers

The Tamir system covers non-deposit glass packaging. In 2016, the collection rate reached around 50% of the market volume, but only 40% of this material was actually recycled. The remainder was exported, mainly to Italy and Turkey. A key challenge lies in poor sorting—glass from purple bins is often mixed by color and contaminated with metals, ceramics, and plastics, reducing its value as secondary material and making domestic recycling economically unviable.

### 3.3 Glass in Mixed Waste

Around 3 million tons of unsorted waste are sent to landfills annually, and a significant portion of this stream consists of glass not captured by the deposit or Tamir systems. Only 6.4% of MSW is recycled domestically, and including composting, the total recovery rate is around 20.7%. In other words, roughly every fourth glass jar in Israel ends up buried underground.

## 4. Recycling and Landfilling Infrastructure

The only facility capable of recycling cullet into new glass containers is Phoenicia Glass Works in Yeruham (southern Israel). The plant uses over 50% secondary glass but operates below capacity due to poor input quality. According to the OECD, Israel has 11 landfills handling most unsorted waste, including Evron (near Acre) for Haifa and Krayot, Hiriya and Sorek in the center, and Dudaim, Nevatim, and Ramat Hovav in the south—the latter specializing in hazardous waste. OECD estimates that total landfill capacity will shrink from 45 million tons to 16 million by 2030, potentially leading to a waste crisis.

## 5. Export of Glass Waste

Part of the glass collected through Tamir and other channels is exported for recycling. According to Comtrade (HS 700100), in 2023 Israel exported around 45,000 tons of glass waste to Italy, 10,000 tons to Turkey, and several thousand to Spain. Average export prices ranged from $0.04 to $0.12 per kg, making exports economically marginal and logistically costly. Still, given the lack of sorting infrastructure, export remains a necessary interim measure.

## 6. Economic and Environmental Aspects

Using recycled glass yields clear benefits: reduced raw material consumption (sand, soda, limestone), 20–30% energy savings at 50% cullet input, and roughly 5% CO₂ emission reduction per each 10% of cullet added. Yet low sorting levels reduce cost-effectiveness. Low landfill prices make recycling financially unattractive, especially for municipalities paying fixed waste transport fees. Geographic disparities—production concentrated in the center but landfills in the north and south—add transport emissions. The waste sector accounts for about 8% of Israel’s total greenhouse gas emissions, triple the OECD average.

## 7. Regional Overview

• Northern Israel (Haifa and Galilee): Most municipalities have Tamir purple bins but no local recycling plants. Glass is sorted in Kiryat Ata and partially exported.  
• Central region (Tel Aviv, Rishon Lezion, Petah Tikva): Main source of waste; intermediate sorting stations are needed to reduce transport southward.  
• Southern region (Be’er Sheva, Yeruham, Dimona): Home to Phoenicia Glass Works and several landfills—high potential for a ‘glass cluster’ development.

## 8. Visualization of Glass Flows

Total glass volume ≈ 260,000 tons  
  
Deposit (DRS) — 35%  
Tamir (purple bins) — 20%  
Mixed waste — 45%  
  
Recycling: 90%  
Export: 60%  
Landfilling: 95%

## 9. Summary Table of Glass Flows

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| --- | --- | --- | --- |
| Glass Stream | Volume (t) | Domestic Recycling Share | Main Destinations |
| Deposit containers | ~90,000 | ~90% | Reuse / Recycling |
| Tamir (purple bins) | ~50,000 | ~40% | Partly recycled domestically, rest exported |
| Mixed waste | ~120,000 | ~5% | Landfilled |
| Total (estimate) | 260,000 | ~38% | — |

## 10. Conclusions and Development Directions

Israel is at a strategic crossroads. The current system of glass collection and recycling functions but does not ensure transition to a fully circular model. The key task is to retain glass within the country, improve its quality, and make recycling economically viable.

Recommendations:  
1. Establish regional color-sorting and cleaning centers.  
2. Increase landfill tariffs and introduce incentives for recyclers.  
3. Support Phoenicia Glass Works in expanding capacity and accepting clean glass from Tamir.  
4. Boost public engagement, especially in Haifa and Tel Aviv: awareness campaigns, visual guides, school and NGO projects.  
5. Publish municipal data on glass flows (recycling, export, landfilling).

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