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# In the swing of things

*Who says you have to see in order to become a world-class golfer?*



► **Also inside:**  
**New Environment reporter Jesse Fox examines the economics of turning trash into cash – pg.16**

**DIVIDE AND CONQUER.** The key to making the plan work is the ability to separate the trash at its source: the shuk. (Daniel Cherrin)



# Efficient market theory

*Why waste money throwing tons of leftover produce and garbage from our open-air markets into landfills, when it can be re-processed and made into a profit?*

• By Jesse Fox  
Photos by Daniel Cherrin

**D**usk at the Carmel Market in south Tel Aviv. Sellers unload the last of their wares as the day winds down. Everything is hawked at discount prices, and whatever doesn't sell gets tossed out.

Small mountains of trash begin to appear around the market, containing a mixture of plastic bags, cardboard boxes, vegetable peels, squeezed fruits. A group of foreign workers picks through the piles, looking for salvageable goods, before tractors show up and clear away the piles of trash.

The Carmel Market, like hundreds of other open markets in cities all over Israel, is a massive source of waste. According to Tel Aviv's Sanitation Department, the market produces around 15 tons of waste a day – roughly equivalent to the amount of waste generated per day by 7,500 people.

What happens to all this trash? Does it end up in landfills, or is it recycled? After all, Israel has one of the highest rates of recovered wastewater usage in the world. If raw sewage can be transformed into a valuable resource that serves the needs of the country's farmers, surely a use can be found for large quantities of organic waste?

According to Moti Doytscher, deputy director of Tel Aviv's Sanitation Department, waste from the Carmel Market is collected by the city and taken to the Hiriya dump site for sorting and transfer. Hiriya – operated by the Dan Region Association of Towns, Sanitation and Waste Disposal – was an active landfill until 1998, and a trash mountain still stands as a monument to its past. In recent years, however, Hiriya has become the operations base for a number of recycling initiatives.

Haim Feldman, who now works at the Adam and Eve ecological farm near Modi'in, used to work at Hiriya. "Every day, a few thousand tons of trash are brought to Hiriya, and classified into three categories:

construction waste, yard waste and household waste, which is mostly organic waste. This is what the Carmel Market sends," he tells *Metro*.

A company called Arrow Ecology uses a small portion of this, some 200 tons, which is sent to a facility where it is used to create compost and biogas. Compost is created by the natural decomposition of organic material, such as vegetables and yard waste, and biogas is a byproduct of the process.

But the majority of the organic waste that Hiriya receives is sent to landfills in southern Israel.

According to Feldman, the compost produced at Hiriya is of a very low quality, due to the presence of inorganic materials. "Plastic bags are a terrible problem," Feldman says. "The organic and household waste that is processed at Hiriya is composted in a very short, accelerated process, and then sold for use in landscaping. It's not of a high enough quality to be used for agriculture, mainly because of the plastic bags."

Feldman believes that this problem and others could be solved by separating the market's trash on site, as is done in other countries. In Jakarta, Indonesia, for example, vegetable markets have recently launched a project to compost the market's organic waste on the premises. The move is intended to reduce costs; cut down on the amount of trash that reaches landfills; and keep inorganic material out of the compost.

"The market could be generating three tons of compost daily, but the Merchants' Committee probably isn't aware of this and is probably not interested. Their main goal is that the market be clean and meet the requirements of the Health Ministry," Feldman says.

Indeed, when asked about trash disposal at the market, Neshat Hussein, chairman of the Carmel Market Merchants' Committee, responds: "I have no idea. The city takes care of that with their contractors. They collect the trash here every day."

In the past, projects have attempted to advocate separating the market's waste. Gilead Ostrovsky of the Israel Union for Environmental Defense tells *Metro* that the idea has been proposed several times, but nothing ever came of it. According to Ostrovsky, the market's trash is composed mainly of organic waste and cardboard – both of which are easily compostable.

"Separating the garbage at the Carmel Market is too expensive," says Doytscher. And what about putting out receptacles, so that the merchants can put their trash directly into separate bins, instead of separating the trash later on? "I wouldn't put that responsibility on the merchants. Anyway, there

is limited space for them to do so. However, I would be very happy to see an entrepreneur come with plans to collect the organic waste and do something with it – but as far as I know, it probably wouldn't be profitable."

Amiad Lapidot, a former naval officer who studied urban planning at the Technion-Israel Institute of Technology, disagrees. "Organic waste from Israel's open-air markets could provide an opportunity for a real win-win situation."

Lapidot, with the help of the Israel Venture Network, has founded an organization called Eretz Carmel. Based in Kerem Maharal, Eretz Carmel collects organic waste from Lapidot's neighbors in the Hof Hacarmel region south of Haifa and transforms it into high-quality organic compost using natural processes that take approximately six months for each batch. The compost is then sold to local farmers.

Lapidot believes that if the city and merchants recognized the value of the market's waste, they could not only seriously reduce the amount of trash and pollution they create, but could derive significant economic benefits from composting. And he says he's got the numbers to prove it.

"Today, the city collects the trash from the Carmel Market and takes it to the Hiriya, which pays NIS 115 per ton, plus an NIS 20 landfill tax, which goes up all the time. But what they are actually doing is paying to get rid of something that has an economic value. Ten tons of organic waste can produce two to three tons of compost, and each ton of compost is worth about NIS 200."

Therefore, he explains, "instead of

## Meanwhile... in another part of town

At the other end of the city, the idea of making compost out of organic waste is beginning to catch on. The Tel Aviv Municipality is currently in the planning stages of a pilot project to install compost bins in several apartment buildings in Ramat Aviv Gimmel. The project, led by the

city's director of environmental education, Judith West, aims to educate children about the importance of closing the purchase-consumption-waste cycle and encourage families to take responsibility for the waste they produce.

– J.F.

costing the city about NIS 2,000 a day, the market could actually be making thousands of shekels a month out of its trash. But the only way to do this is if the trash were separated at the source. This just needs to be explained to the merchants."

The Carmel Market merchants, however, are experiencing the green wave washing over Israel these days just like everyone else, and even have a few ideas of their own about the market's trash. Ezra, a vegetable seller, says, "I don't know about everyone else here, but I'm in favor of separating our trash. I personally don't throw out my vegetables – volunteers come on Fridays and take them for the African refugees who live near the new Central Bus Station."

Ezra also disapproves of plastic bags. "It's unbelievable how many... we throw away here. Lately, I'm seeing a lot of shoppers with multi-use bags. We didn't [used to] have plastic bags in the market, and everyone used paper bags. In my opinion, we need to bring back the paper bags. Maybe when they ren-

ovate the market, like they did with the Hatikva Market, they'll put some containers here and we can begin to separate our waste."

Plans are currently afloat for an NIS 150-million renovation to the 88-year-old Carmel Market. The project is slated to include serious infrastructure improvements, new stalls, roofing, and a new parking lot. At the moment, however, there are no plans to install facilities for separating organic waste.

Meanwhile, the Carmel Market may be getting some healthy competition from an unexpected place – Jerusalem, where the newly renovated Mahaneh Yehuda Market is planning its own garbage separation and composting project. Lapidot says that he's currently working with the Mahaneh Yehuda Market – the country's largest open-air market – on a plan for separating and composting organic waste. He says that the "goal is to discuss options for better utilization of the market's trash."



*'I don't know about everyone else here, but I'm in favor of separating our trash. I personally don't throw out my vegetables – volunteers come on Fridays and take them for the African refugees who live near the New Central Bus Station' – Ezra, vegetable merchant*

NECESSARY WASTE. As the business day winds down, piles of useful trash begin to grow higher. (Daniel Cherrin)