

# Jewel Changi Airport set to be icon for Singapore, says architect Moshe Safdie

**M**ulti-award-winning architect Moshe Safdie says that he expects Jewel Changi Airport to become a powerful icon for Singapore.

Safdie, 80, who had also designed Marina Bay Sands (MBS), said he did not expect that MBS would become a landmark symbol of Singapore, possibly exceeding the status of the Sydney Opera House.

"I do predict now, though, that Jewel will become an icon for Singapore no less than MBS," he told reporters on Friday (April 12), ahead of Jewel Changi Airport's official opening on Wednesday.

While many architects focus on the outward structure and form of a building, much of Jewel's beauty lies within the 135,700 sq m development. The centerpiece of Jewel is a five-storey garden with a 40m-tall indoor waterfall and more than 2,000 trees and palms.

"That is the difference between the 10 minute 'wow' and the long lived 'wow,'" said the Canadian-Israeli designer.

When he first discussed with property developer CapitaLand for a thematic attraction to go with the retail space for Jewel, he said "the obvious ideas started flying around".

"Dinosaurs, an aquarium, some thematic kind of attraction. But we, as the architects in the room, resisted this notion of something limited."

Safdie, founder of Safdie Architects, says that such attractions have a limited lifespan and would appeal only to a particular age range.

"Why would passengers want to come back again after seeing it once?"

Instead, he aimed for an attraction that would appeal to every age and income group.

"That led me to think of some kind of great paradise and a mystical garden. Something that would be appropriate for an airport and that is a place of serenity and repose."

He drew inspiration from the science fiction film *Avatar* (2009), which had a landscape that he says blew his mind.

"At some point we tried to get a hanging rock for the garden. To be placed in the middle of the dome. But it was too heavy."

The shape of the building, he says, is like a doughnut, or in geometrical terms, a torus.

The unique shape means that rain that falls on the dome naturally collects towards the center, thus forming the building's indoor waterfall.

The HSBC Rain Vortex, the world's tallest indoor waterfall, features water falling through the roof at a velocity of 10,000 gallons per minute.

The water is then circulated through pipes concealed within the building. A water tank with a 500,000-liter capacity is stored at basement three of Jewel. Rainwater is also harvested for the landscape irrigation system.

While Safdie had quite a free hand, he faced some challenges while designing Jewel.

One consideration was the existing Skytrain tracks that will run through Jewel.

"When we designed the torus, we wanted it to be symmetrical with the oculus in the middle. That would have meant that since the train runs in the center line of the building - that every train coming through would get a train wash. I think that would have caused issues."



ANN/The Straits Times /Lim Yaohui

**New attraction:** Jewel Changi Airport architect Moshe Safdie drew inspiration from the science fiction film *Avatar* (2009), which had a landscape that he says blew his mind.

So the oculus of the torus had to be moved off-center, which was a "geometric nightmare". But he said the asymmetry makes the building more beautiful and "created a tension in the geometry".

Another challenge was height restrictions - the development had to be below the radar of Changi Airport's iconic control tower.

"That limited us to about 37m above street level. We could have used more height to get more curvature to the dome as it would have been more efficient."

But the biggest challenge, said Safdie, was making sure that the building was comfortable for both people and plants.

"We needed to get enough sunlight in for the plants but still keep the temperature at a comfortable 24 degrees for the people."

Besides air-conditioning, there are also chilled pipes in the floors and fogging devices near the top of the waterfall to cool the air. In an open space in Canopy Park, retractable shades have been mounted on the roof to help provide shade.

Asked what he thinks of comments that Jewel looks like MBS, Safdie is unperturbed.

"If Jewel looks like Marina Bay Sands, then I look like a horse. I can't see it. Yes, it has similar ingredients, it has shopping and gardens. But in essence they are totally different." (ANN/The Straits Times/Melissa Heng)



ANN/The Straits Times /Chong Jun Liang

**Amazing:** Mist descending from the HSBC Rain Vortex.

## No waste bulk stores start wooing customers

*Bulk stores, along with low waste movements, have started to emerge in Indonesia. Their mission is to reduce pollution that comes from plastic.*

Istu Septania

THE JAKARTA POST/JAKARTA

**S**usy Herawati observes a giant glass of cocoa powder at Saruga Package Free Shopping Store in Bintaro, Jakarta. She is there to restock her pantry staples and has come ready with her reusable containers.

It is her third visit to the store. "This store offers a really good concept," says Susy, a Bintaro resident "I don't want to create waste from packaging when I shop."

Saruga sells a wide assortment of food products, including pasta, grains, nuts, oats, honey, soy sauce, sugar, spice, coffee, tea, among other things. To shop at Saruga, you have to bring your own bags, jars, used glass bottles, or plastic containers. The store, however, provides glass jars, instead of plastic packaging, if customers forget to bring any with them.

"But that's only for urgent situations," says Saruga co-founder Adi Asmawan.

Customers shop for what they need and pay only for what they fill. The empty glass or plastic containers will be weighed first. After the containers are filled, they will be weighed again to determine the weight of their contents.

"In our store, you can buy as little as one gram of any item," says Adi.

Bulk grocery stores, which have been sprouting up in Europe and the United States in recent years, are reintroducing the old way of shopping while helping to educate the public about pollution from plastics in the environment.

The idea of opening a bulk store that raises public awareness about the danger of plastic waste came to Adi after he became fed up with ubiquitous garbage. "I'm a victim of trash. I often inhale smoke from burning trash, among other things."



Courtesy of Zero Waste Bali

**Raise your jar:** A customer looks around the Zero Waste Bali store.

Adi then tracked down the trash problems by researching on the internet and asking environmental groups about the waste footprint. He realized that to address the issue, the conventional business designs must change. Hence, he set up a staple store that offers no plastic packaging to its customers.

"We've always had traditional convenience stores," Adi says, laughing. "But then why don't we open a store but with an ethical concept, making it a sustainable and green business?"

Zero Waste Bali, which has been selling products with no packaging in Bali for almost a year, adopts the same concept and the same mission: plastic waste must be reduced.

Silvija Rumiha, the founder of Zero Waste Bali, had seen the alarming plastic pollution. But it got even worse when she went on a snorkeling trip last year. "I found the plastic floating in the ocean whilst I was snorkeling with manta rays totally disturbing," Silvija says.

Annually, Indonesia produces 3.2 million tons of plastic waste, 1.29 million tons of which ends up in the sea, making the country the second-largest ocean polluter after China, according to a 2016 study led by Jenna Jambeck from the University of Georgia. Indonesia, home to 264 million people, also produces around 9.8 billion disposable plastic bags from retailers each year, according to the Environment and Forestry Ministry.

Plastic pollution has come under the global spotlight in recent years. Restaurant chains such as KFC and McDonalds have begun no-straw campaigns. In the past year, Indonesia has started to see bulk stores appear in cities, aiming to minimize plastic waste from packaging. And more people are shopping there to adopt a low impact lifestyle.

Saruga has generated roughly 400 loyal customers since its opening in November last year. Zero Waste Bali, which has opened two stores in Bali, welcomes 30 customers each day.

"Since opening its doors, Zero Waste Bali has seen the number of customers increasing," Silvija says. "And I've already seen many changes in the community and other businesses, adopting similar practices

or offering alternatives to single use plastic."

To bring this green and ethical attitude beyond the kitchen, these bulk stores also sell personal hygiene care products, such as shampoo and liquid soap, in refillable dispensers. Soap bars with no packaging are also available.

Those who wish to join the zero-waste movement can purchase *lerak* fruit to replace detergent, or buy metal straws to replace the single-use plastic ones.

A number of supermarkets, such as Farmer's Market in Summarecon Mall Serpong and Lulu Hypermarket in Tangerang, Banten, have started to include bulk foods aisles, selling coffees, teas and seasonings.

Apparently, shopping at bulk stores is less convenient than in regular shops. It takes longer and customers have to bring their own containers, fill them, estimate the price for each product and have items weighed before they make payments.

"We have to be more patient when we shop without packaging," Susy says. "But that's alright for me."



JP/Istu Septania

**Single-use plastic no more:** Saruga Package Free Shopping Store offers a wide range of food and personal care products.