



Singapore's pavilion at Expo 2020 Dubai features 80,000 plants from 170 different species, many arranged as hanging gardens. Credit...Katarina Premfors for The New York Times

**By Sam Lubell, New York Times**

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Since its inception, the World's Fair has been a way of telling a story through architecture, planning and experience. The first fair, set in London in 1851, was called the Great Exhibition of the Works of Industry of All Nations. Its message — told through the soaring iron and glass Crystal Palace, as well as hundreds of exhibits — was about showcasing the rising industrial capabilities of the world. (And, more specifically, those of Britain.)

The theme of the 1964-65 fair in New York, "Peace Through Understanding," set out to unite a divided globe through a vision of space-age futurism that many believed would supersede age-old grudges and problems.



### **At the World Expo Pavilions, Future Visions Combine Past and Present**

Conversations with three figures integral to the conception of the expo.

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In a world that has been turned upside down in recent years by a pandemic, unrest and environmental catastrophe, the timely story of [Expo 2020 Dubai](#) is about communication, healing and building a better world. “Connecting Minds, Creating the Future” is the official theme, while the event has the equally relevant sub-themes of sustainability, mobility and opportunity. The 2020 fair, which opened this month, was delayed because of the pandemic and will continue through March.

Building this layered narrative into the physical fabric of the event began well before 2013, when Dubai won an international competition, staged by the Bureau International des Expositions, to host what would be the first World Expo in the Middle East. Despite tweaks, the site’s original master plan, which was designed by the architecture and planning firm [HOK](#) (it was later adjusted and executed by another major design firm, [AECOM](#)), remains pretty much the same: a more than 1,000-acre site divided equally into petal-shaped zones representing sustainability, opportunity and mobility. Each zone is anchored by a large, themed pavilion set to remain after the fair.



The centerpiece of the expo, Al Wasl Plaza, is a digitally designed interpretation of the event's logo, based on an ancient jewel recently discovered near the site. Credit...Katarina Premfors for The New York Times

## Making Connections

The expo's overarching focus of connecting people from around the world (a role Dubai has long played thanks to its position as a vital port bridging the Persian Gulf with Africa and Asia) is embedded everywhere across this sprawling site, which was only a few years ago a barren desert. The centerpiece is a dome-covered gathering space, designed by the Chicago architects [Adrian Smith + Gordon Gill Architecture](#), called [Al Wasl Plaza](#). (Al Wasl means "the connection" in Arabic. The steel dome itself is more than 220 feet tall and more than 800 feet in diameter.)

Extending from this spot are a series of parks, pathways, wide arching boulevards, ring roads, alleys and public art pieces, all intended to encourage interaction, easy navigation, broad sightlines and exploration. Larger pavilions are generally located along the periphery to leave plenty of room for mingling in the center. Two additional "petals" extending from the central plaza contain more public spaces such as stages, amphitheaters, lounges, dining areas, more parks and playgrounds. And to take it all in, there is the Garden in the Sky, a 180-foot-tall observation tower and "flying park."



Black-and-white striped paths in public areas mimic traditional Emirati weaving patterns. Credit...Katarina Premfors for The New York Times

“The intention is to create a critical mass of people,” said [Daniel Hajjar, managing principal at HOK](#). “We designed so many types of locations where people can meet and communicate. It’s very intuitive.”

Because of the [coronavirus pandemic](#), this type of intensive gathering is being regulated by strict precautions, including mask and vaccination requirements, and limitations to the number of people in the fair and inside each exhibit. Dubai’s climate (particularly in the milder months when the show is taking place) allows much of the interaction to take place outdoors.

The other crucial source of “connecting minds” is the fair’s expansive collection of national pavilions, which fill most of the site and immerse visitors in cultures and messages from around the world. This year a record 191 countries are participating, according to the organizers, and for the first time in expo history, each has its own pavilion, ranging from hulking buildings to booths inside shared facilities.



The Opportunity Pavilion at the expo. Opportunity is a sub-theme of the event, along with mobility and sustainability. Credit...Katarina Premfors for The New York Times

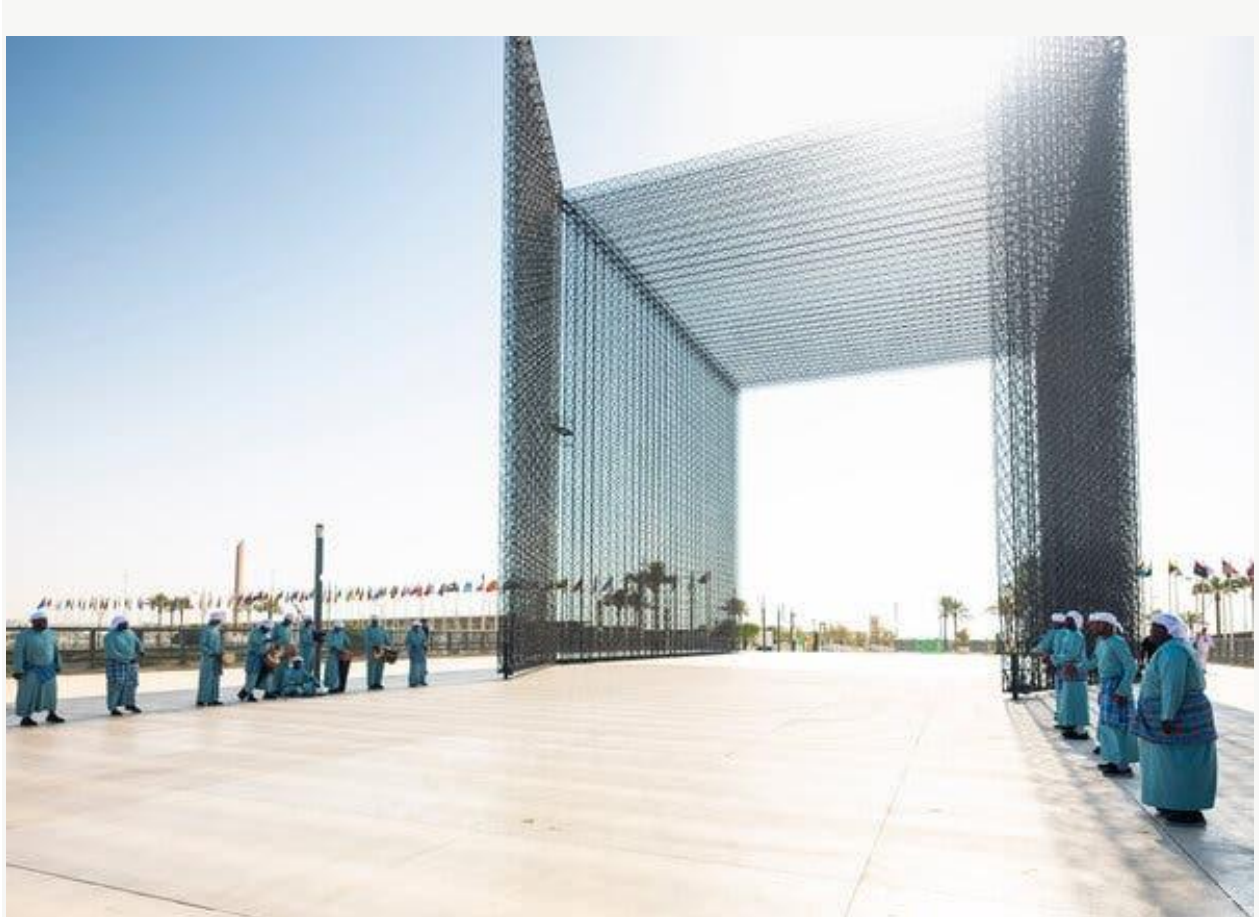
You might first be drawn to dazzling, over-scaled structures from the likes of Italy (topped by a trio of giant boat hulls and wrapped by rope curtains to demonstrate the power of using existing materials in construction), Spain (whose lower floor contains a 3-D-printed artificial forest), South Korea (whose triangular exterior reveals varying images and colors through rotating cubes), Australia (a fascinating latticed structure with its own bordering soccer field, called Aussie Park) and Canada (whose circular wooden edifice contains a 360-degree theater showcasing the country's immense natural diversity).

You can learn enlightening lessons by exploring more modest, but equally engaging, creations by smaller or less wealthy countries. Angola's pavilion, with a facade incorporating diamond panels in various colors, is inspired by [Sona geometry](#), an ancient art of patterned sand drawing. Chile's pavilion is influenced by its many red climate stations in Antarctica, which monitor ice melt and rising sea levels. And despite being one of the world's tiniest countries, Luxembourg has a remarkable [Möbius strip-inspired](#) pavilion (representing the country's circular economy) that is filled with personal stories of its diverse citizens. It even has its own tubelike exterior slide.

Some entries border on miraculous. Initially scuttled by the fall of its government, Afghanistan's pavilion now showcases Afghan bronzes, jades, calligraphy and pottery, compiled by the private collector Mohammed Omer Rahimy. Guinea's pavilion — telling

the story of water's vital environmental and financial role in a country nicknamed "West Africa's Water Tower" — had been put in jeopardy by [the country's coup](#). But its organizers pressed on.

"We'd been working on the project for four years," said Seriane Kenema, the pavilion's deputy commissioner. "We're quite stubborn and we wanted to present what Guinea has to offer."



The opening ceremony for the entry portals at Expo 2020 Dubai, which were designed by Asif Khan. Credit...Katarina Premfors for The New York Times

## Goals and Needs

In addition to welcoming guest countries and highlighting worldwide goals, world's fairs have of course always been about promoting the host country and region. Since this is the first one ever held in the Middle East (or in the entire region also containing Africa and South Asia, for that matter), the expo is a chance for the United Arab Emirates to set a carefully crafted image for the world as a place that is modern, tolerant, and full of opportunity. A place that can create magic from nothing, and skillfully balance modernity and heritage. A place that, while known for oil production, is embracing a sustainable model for energy and development.

These goals, of course, dovetail with urgent global needs, and the fair has partnered with the United Nations — which has its own pavilion — to highlight its sustainable-development goals.

“We’ve always lived a sustainable life,” said Ahmed Al Khatib, the expo’s chief development and delivery officer, referring to Emiratis. “The scarcity of water, of food. We’ve always been about protecting natural resources as much as possible.”

Although its carbon emissions [have been questioned by some](#), the sustainability pavilion, Terra, designed by the British architectural firm Grimshaw, is the showstopper in this department. Its giant, funnel-shaped canopy, embedded with [photovoltaic panels](#) that power much of the exhibit, also collects rain for future use, and shades the pavilion’s surrounding native landscape (which itself is used to clean and recycle dirty water from the building). Its grouping of metallic solar “trees” actually move with the sun to collect maximum light energy. The building’s air-handling system collects condensation and filters it for water use, while much of the pavilion is embedded into the ground to keep it naturally cooler. The building will be used after the show as a permanent sustainability museum.



Emirati dancers welcoming visitors to the Sustainability Pavilion. Credit...Katarina Premfors for The New York Times

“Architecture says so much,” said Andrew Whalley, the chairman of Grimshaw, who described his recent visit to the pavilion as a kind of immersive theater. “When I was in the courtyard, under the shade, there was quite a good breeze, and it was 20 degrees cooler than at the rest of the fair. You look up at the sunlight dappling between the PVs

[photovoltaic panels], and you start to understand how we really can build more sustainably.”

He noted that this type of built narrative could provide a valuable example as we approach a global tipping point: “The next decade is absolutely critical for mankind. If we get it right, we can still have a healthy planet for our children and grandchildren.”

Likewise, almost every national pavilion, big or small, contains sustainable elements, often showcasing high- and low-tech ideas you have never heard of or supercharged versions of those you have. The Czech pavilion extracts water vapor from the air; Azerbaijan’s pavilion features an air cushion roof to cool high temperatures; the giant cones of Austria’s pavilion draw from the Arab tradition of cooling wind towers. Morocco’s pavilion is constructed of rammed earth, a welcome alternative to carbon intensive steel or concrete. Singapore’s eye-popping entry features 80,000 plants from 170 different species, many arranged as hanging gardens.

And the entire fair — not just its pavilions — is aiming to be sustainable, relying primarily on solar farms and other renewable resources for energy, and recycling much of its water, whether it comes from ground runoff or bathrooms. All buildings that the United Arab Emirates has constructed are at least LEED (Leadership in Energy and Environmental Design) Gold rated, while during build-out, organizers worked to recycle construction waste whenever possible and to, for example, embed roadway asphalt with a mixture that includes recycled tires.

“Very little is going to waste, and everything is being built with an eye to the future,” Mr. Al Khatib declared. “This is the most sustainable expo in the history of expos.”

Perhaps more sustainable than any strategy, most of the fair (unlike virtually any World Expo in the past) will be recycled, becoming a new neighborhood located strategically between the city’s airports and transit hubs and easily accessible via metro. (Unlike the United Arab Emirates’ buildings, most national pavilions will be broken down.)

Mr. Al Khatib said: “Most expos leave a building or a zone behind. For us, we are actually leaving a city. Our buildings are to be converted to commercial spaces, residences, hospitals, clinics and schools.”

The so-called legacy mode of the expo has been built in since the beginning.

“What the plan did was allow them to develop post-expo in a very controlled manner, as opposed to stuff just sort of getting dropped on the site,” said Mr. Hajjar of HOK. “The question was, ‘Why would people come to the site after the expo?’ So you had to create a place and a narrative that would attract people and businesses here.”





The United Kingdom's pavilion is made of cross-laminated timber and displays an illuminated series of A.I.-generated poems based on words provided by visitors. Credit... Katarina Premfors for The New York Times

## Tradition and Innovation

While so much of Dubai Expo 2020 is about looking to the future, there is a balancing act going on here: The United Arab Emirates is equally set on celebrating its region's history and traditions.

The show's walking paths, lined with hearty local [Ghaf trees](#) (the national tree) are marked by black and white striations that recall a traditional [Emirati weaving pattern called Sadu](#). Many of its benches are reproductions of those found in old Dubai, while others are concrete abstractions designed by the calligrapher Lara Captan, capturing Arabic words selected by a group of Emirati thinkers, scientists and poets.

A London-based designer, Asif Khan, oversaw the event's public realm and created its massive entry portals. Their intricate carbon-fiber patterning was resolved by airplane engineers and manufactured partly by robots, but they recall ancient [Arabic Mashrabiya](#) patterns.

"In researching the project I found a country that has long understood its past but was always looking into the future," Mr. Khan said.



The United Arab Emirates' pavilion, viewed from Al Wasl Plaza. Credit...Katarina Premfors for The New York Times

The equally futuristic Al Wasl dome is a digitally designed steel interpretation of the Expo's logo, based on an ancient jewel recently discovered near the site.

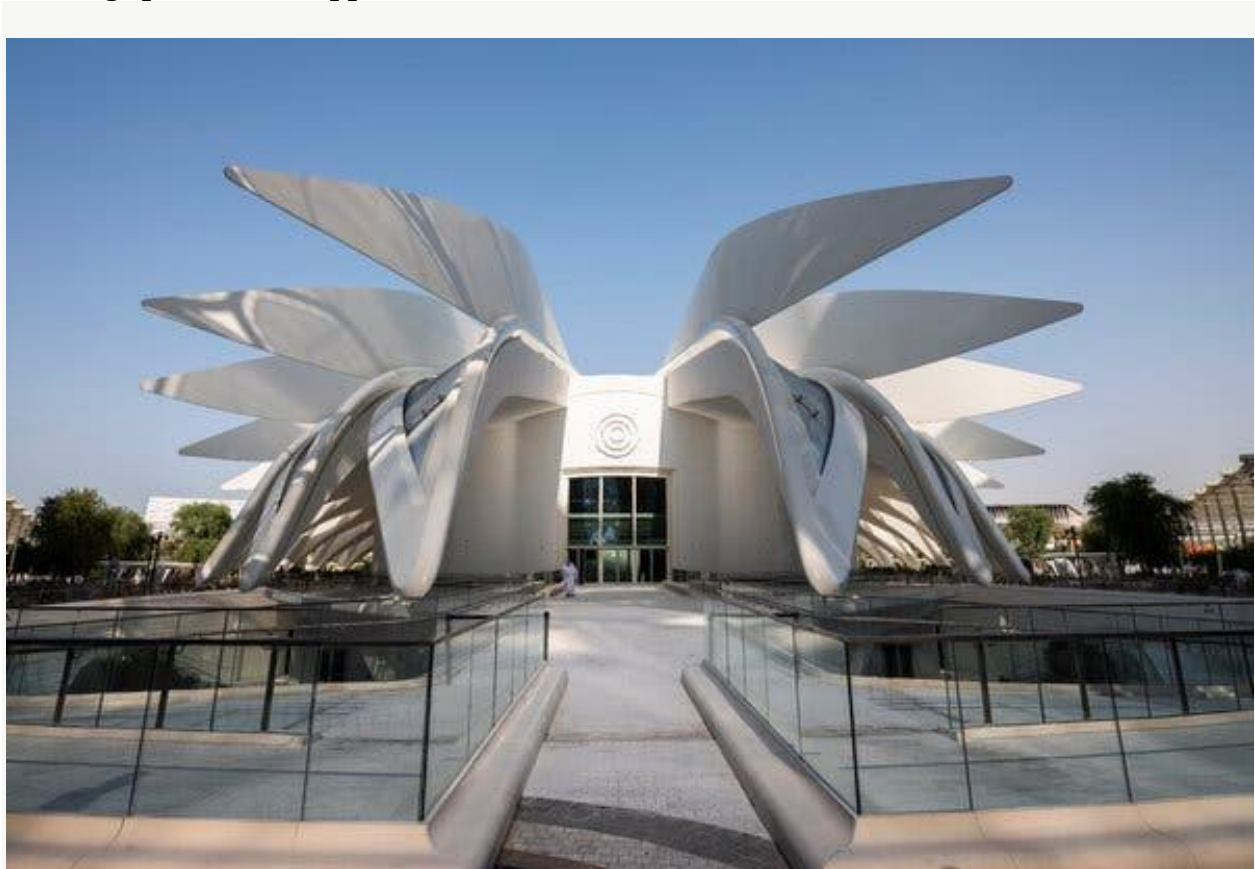
"Everywhere you go, it looks and feels like the U.A.E.," added Mr. Al Khatib, sitting in an office overlooking that dome.

Of course, every world's fair needs some razzle-dazzle to point to the future and draw people in and help them absorb its often complex issues. (Would anyone still remember Paris's 1889 exhibition were it not for the Eiffel Tower?)

Es Devlin, a renowned designer who has devised sets for both Kanye West and Broadway, was part of a team that created the United Kingdom's cone-shaped pavilion, which is made of cross-laminated timber and displays an illuminated series of A.I.-generated poems based on words provided by visitors. Inside the Sustainability Pavilion, exhibits designed in part by a former theater producer, Tom Hennes of Thinc in New

York, immerse visitors in nature and our destruction of it, including eye-popping walks through forests and oceans, and later an encounter with a giant claw called the “gnasher” that is eating up environments much as humans are.

Inside the Brazil Pavilion, a team including the Rio- and New York-based digital design experts Cactus (they’ve worked for Beyoncé and Ai Wei Wei, among others) recreated the Amazon rainforest through myriad projections onto ceilings and floors, huge waterproof fabric walls, and a rippling water feature. The stainless-steel curves of the Mobility Pavilion, called Alif after the first letter of the Arabic alphabet, resemble a Ferrari or a rocket (perfect for a building that showcases perhaps the most futuristic technology of any in the show, including drones, automated vehicles and even jetpacks). And the Opportunity Pavilion’s cantilevering metallic grids of steel, which shield a meeting space below, appear to launch themselves forward.



The Emirati pavilion, designed by Santiago Calatrava, was inspired by the shape of a falcon’s wing. Credit...Katarina Premfors for The New York Times

Probably the most dramatic of the national pavilions is the United Arab Emirates’ own, designed by the architectural showman Santiago Calatrava. (Mr. Calatrava also designed Qatar’s nearby pavilion.) Inspired by the shape of a falcon’s wing (falconry is a cultural staple of the region), its multiple carbon fiber wings pivot and open up, creating an intriguing grand reveal and symbolizing the country’s determined embrace of the future and its opening to the world. (The gesture also helps keep the pavilion’s solar panels clean in case of sandstorms.)

Inside, visitors advance through a carefully choreographed sequence of spaces up to a lofty and natural-light-filled dome crowned by the expo's logo, which forms a large skylight. It is a clear symbol of a sustainable, high-tech future, and a vibrant, culturally-informed present.

“Expos are a chance for countries to show the best version of themselves,” Mr. Calatrava said. “Telling a story about their country, showing their products and capabilities, and lending a message of welcoming people into their country and showing it in a positive and constructive way.”

He added: “These fairs have been connecting people all over the world for more than 150 years. They are still alive, and they still have something to tell.”

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