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# WHEN KIDS TAKE TO THE FLOOR

A city school where students wield not just the pen but also the broom **NEWS 4**

# XPRESS

OUT EVERY THURSDAY

ISSUE NO. 115

## OUT OF THIS WORLD

These towers are a futuristic way of growing crops and they could soon be part of Dubai's skyline.

**Derek Baldwin** has the details **NEWS 6-7**

**CAR WARS** Model-car lovers take their passion to new heights as they face-off on Karama streets **LIFE 24-25**

**WISE GAI** The UAE's football chief talks frankly about the first season of the professional league **SPORT 42-43**

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Good Samaritans pitch in to help ailing girl after reading XPRESS story

**COMMUNITY 17**

### GEN X GENNY

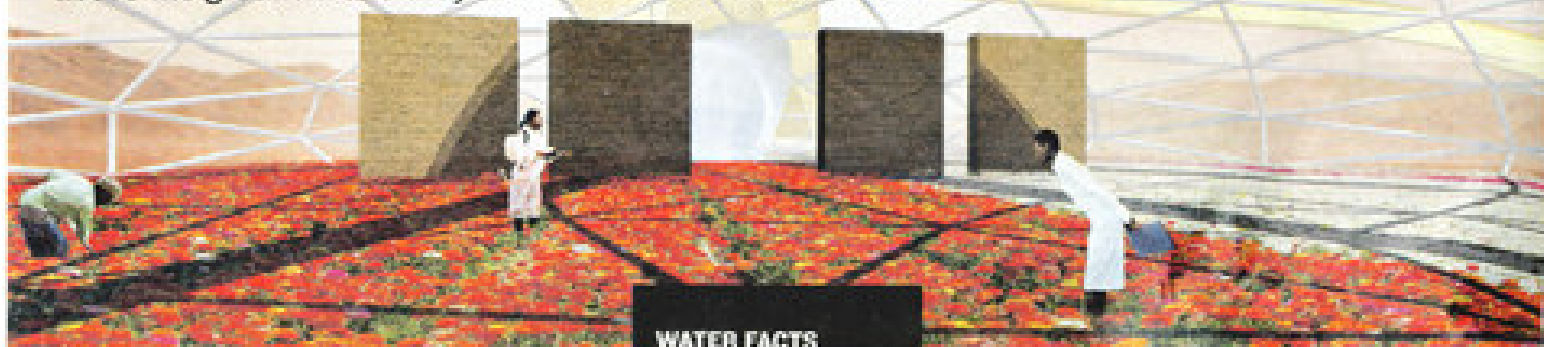
Bollywood queen gets personal **LIFE 29**



## HEIGHT OF IMAGINATION

## SPACE AGE FARMING

Two Italian inventors have come up with a unique vertical seawater farm design to grow crops on pods suspended high above the ground... and they are in Dubai to sell their dream



## COVER STORY

BY BOB BALEWEN  
DESIGN REPORTER

**DUBAI** Two Italian architects behind the world's first believed seawater vertical farm project are in Dubai meeting with companies interested in making their 300-metre-tall eco-project a reality, X-press has learnt.

The project is based on the principles of the ancient Arabian wind towers to capture humidity and irrigate crops grown high above the ground.

Stadiomobile founding archi-

sects Antonio Girardi and Christiana Favretto are promoting their other-worldly design stacked with five elliptical-shaped, climate-controlled pods 70 metres long and 50 metres wide in which high humidity indoor conditions mixed with dry desert air help evaporate saline water into fresh water.

The vertical tower is designed to be constructed near the Gulf or sea creek shorelines to ensure a constant source of seawater.

The Venetian firm says the system uses "seawater to cool and humidity greenhouses and to convert sufficient humidity back into fresh water to irrigate the crops".

The process may prove a seri-

## WATER FACTS

- Agriculture accounts for 70 per cent of freshwater withdrawals from rivers, lakes and aquifers, up to 90 per cent in developing countries
- Rain-fed agriculture covers 80 per cent of the world's cultivated land
- Irrigated agriculture covers 275 million hectares - about 20 per cent of cultivated land - and accounts for 40 per cent of global food production
- From 1900-2000, because of increase in agricultural productivity, 38 per cent more food will be produced with 13 per cent more water

SOURCE: UNITED NATIONS

ous alternative to siphoning millions of litres of precious freshwater from dwindling desert aquifers in an Arabian Peninsula struggling to keep pace with new development and growing farming demands.

## A DIFFERENT TREE

In an exclusive interview, Girardi likened the stadiomobile seawater vertical farm structures to ecologically friendly trees that are a symbol of nature.

"This is a sort of tree with water in the basement," he said in an interview. "It has branches in the shape of five cocoon greenhouses. When you have a rain forest tropical atmosphere (inside the

pods), the plants do not need a lot of fresh water for irrigation."

"Water demands by crops are reduced "as they are not stressed by excessive transpiration".

Virtually any agricultural crop can be grown inside the pods from tomatoes and lettuce to celery and strawberries, he said.

To reduce the carbon footprint of each seawater vertical farm, each of the pods is covered with a transparent polymee-type membrane that allows sunlight in, negating the need to install electrical growing lights overhead, he said. "We wanted a very green model," Girardi added.

To keep it simple but highly powerful, Favretto said the design



TWO GOOD: Christiana Favretto and Antonio Girardi explain their project

## THE POD ON A POLE

Measuring 70 metres by 50 metres, each pod (right) suspended on sky-high vertical towers are a complete climate-controlled agricultural unit



THE VERTICAL TOWER

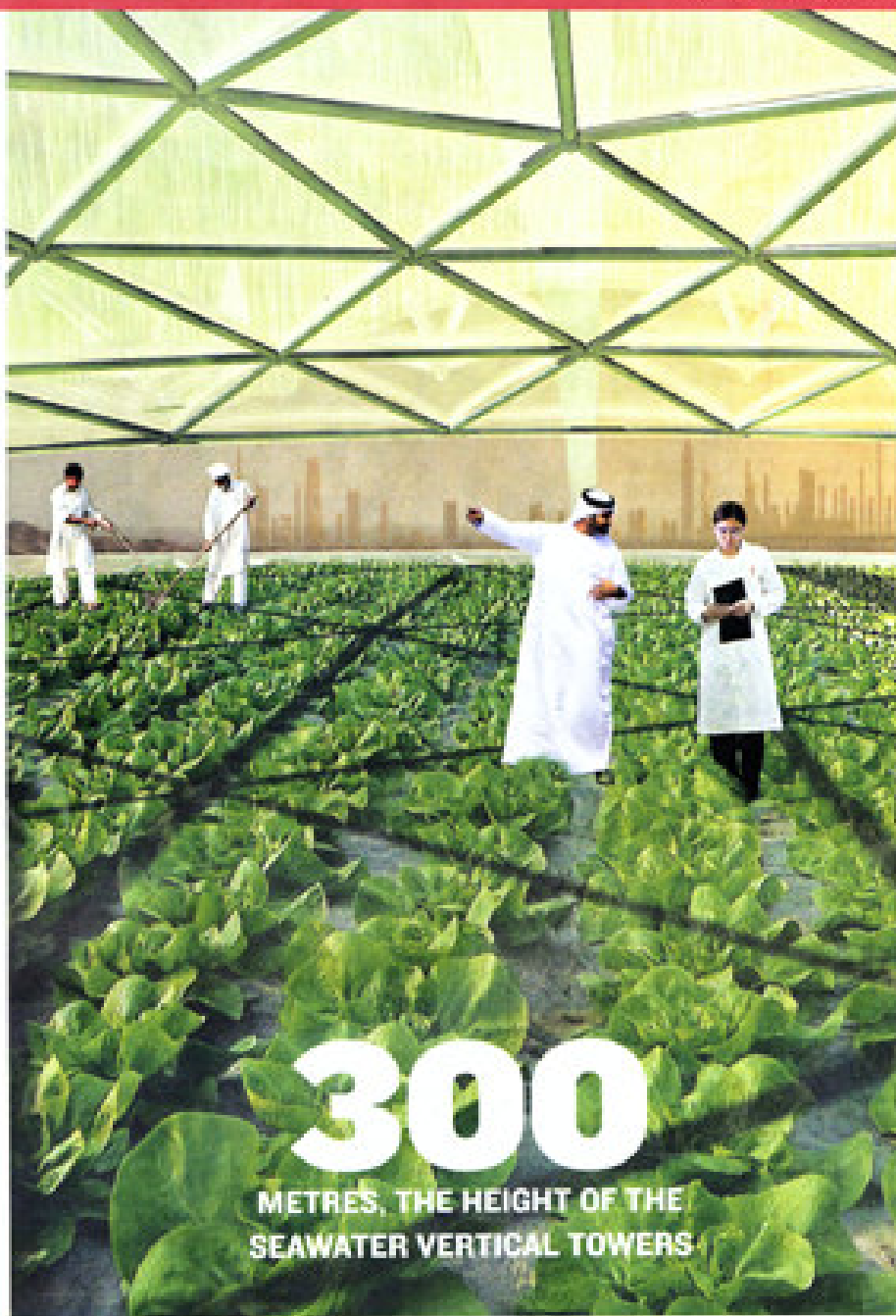
SEAWATER VERTICAL

FIVE REASONS GOING FOR THE PROJECT

Girardi and Favretto, residents of Venice, Italy, say they have worked for two years in the UAE on infrastructure and housing projects, while doing research on the new project.

The top five issues they stayed focused on while creating their unique seawater vertical farm design were:

- **Lack of fresh water:** Gap in demand and supply of water is an issue. Agriculture accounts for 70 per cent of water used and is a major pressure point
- **Desalination:** Abu Dhabi has five large desalination plants that consume huge energy, which requires large amounts of fuel, which also mean release of large amounts of gas into the atmosphere
- **Space constraints:** According to the UN, the world population is expected to increase from 6.7 billion in 2007 to 9.2 billion in 2050. In the same period, the population living in urban areas is projected to rise from 3.3 billion to 6.4 billion. This means less space to produce food for a growing populace
- **Food transport:** According to the Food and Agriculture Organisation (FAO), the food and agricultural sector is responsible for more than one third of global greenhouse gas emissions, where transport is responsible for 2.5 per cent of the food chain's emissions and food refrigeration accounts for 18 per cent
- **The settlements:** Extensive use of space can damage the natural environment of the country and, especially in some countries, settlements in un-urbanised lands can be very expensive, unsafe and difficult to protect



**300**  
METRES, THE HEIGHT OF THE SEAWATER VERTICAL TOWERS

COOL CONCEPT: Crops from strawberries to celery and tomatoes to lettuce can be grown in these pods, as seen in these artist's sketches

essentially incorporated the ancient Arab wind tower design to avoid the need for electrical fans to move air around.

Warm air is naturally forced upward by what Favretto called the "stack effect" inside the trunk of the vertical farm tower. When the warm air comes into contact with plastic tubes filled with cooler seawater, drops of fresh condensed water are formed and pooled to constantly replenish crops.

CHIMNEY EFFECT

"The chimney effect was something that was used in Arabian culture," Favretto said. "We have tried to reproduce this kind of experience in a new way. We studied a lot of Arab architecture. They had many incredible technologies to cool their houses. A lot of contemporary architecture has forgotten about it. Our design is a study of the past."

To evaporate the water, the design uses "cardboard sheets" that "crystallise calcium carbonate from the sea water and harden like sea shells".

The farms weren't designed with only function in mind. They are also meant to visually capture the imagination of those who believe in eco-cities of the future, Girardi said. "This is also a landmark for the city. Burj Dubai is a symbol of innovation. Our seawater vertical farm would be a landmark of development. It's a new way to see Dubai," he said.



YOU SPEAK

- Do you think this concept is too good to be true?
- Do Dubai and the UAE really need such a project?
- Would you like to visit or even work in one of these pods?

Tell us what you think.  
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THE DIMENSIONS

