TROPICAL TOWN: RUMAH TAMBAH (RUBAH)

FIELD CONSTRUCTION PILOT GROUNDBREAKING CEREMONY

LOCATION
Kampung Tua Kampung Melayu
RT 1 RW 8 No. 12, Pantai Sekilak
Kel. Batu Besar Kec. Nongsia, Batam

DATE/ TIME
27 May 2016
1:30 PM

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A COLLABORATION BETWEEN

(FCL) FUTURE CITIES LABORATORY
(SEC) SINGAPORE-ETH CENTRE
UNIVERSITAS INDONESIA

1 of 3
Rumah Tambah (Rubah) and Tropical Town

New Sustainable Town Plan for Batam and Indonesia

RUMAH TAMBAH
A team of researchers at the Future Cities Laboratory (FCL) has designed a new sustainable housing type specifically for rapidly developing tropical cities. The house is called rumah tambah or rubah for short (‘expandable house’ in Bahasa).

It has specially designed foundations and roof that allow it to expand vertically from one up to three floors. The house can expand over time as the resident family and its income grows. The house also collects energy from the sun, rainwater from the sky and manages its own waste in a decentralised septic tank system.

FIRST PROTOTYPE CONSTRUCTED IN BATAM
The first prototype of the rumah tambah will be constructed in Batam, Indonesia. Last year Batam was the fastest growing city in the world, so it is a perfect place to test this new housing model. If successful the housing type will be exported to other parts of Indonesia and Southeast Asia.

TROPICAL TOWN
The housing type is a central part a larger design for a sustainable Tropical Town. Tropical Town is not a master plan, but a package of technologies and blueprint plans, embodying environmental principles, and supported by capacity building techniques. The package supports a population of 6,000 residents at a density of 540 people (net) per Hectare. The urban planning is organized around four nested scales: neighbourhood, village, town and region in which productive gardens, open public space and waste water management is integrated.

INTERNATIONAL EXPOSURE
The rumah tambah and Tropical Town have been exhibited at many international exhibitions, including: ‘Making City’, the 5th International Architecture Biennale Rotterdam (April 2012); ‘Smart City: The Next Generation’ the AEDES Gallery, Berlin (17 May – 4 July 2013); The University of Indonesia (December 2013); ETH Zürich (September 2014); URA ‘Future Cities: Research In Action’ (January 2015). Tropical Town plans were recently published in the Harvard Design Magazine (41, December 2015), ‘Wild City? The Migrant Settlements of Kampung Tower’.

COLLABORATORS
The project is a collaboration between FCL at the Singapore-ETH Centre (SEC) and the University of Indonesia. The local partners are the University of Riau Islands (UNRIKA) and the City of Batam, Indonesia. Local consultants and building specialists are also advising the project.

ABOUT THE FUTURE CITIES LABORATORY
The Future Cities Laboratory (FCL) is the first research programme of the Singapore-ETH Centre for Global Environmental Sustainability (SEC) – a collaboration between ETH Zurich and Singapore’s National Research Foundation, as part of the CREATE campus. FCL is a transdisciplinary research programme focused on sustainable urbanisation on different scales in a global perspective, laying the foundation for a new form of urban studies programme. FCL’s research areas encompass urban sustainability, materials science, advanced fabrication, architecture, engineering, landscape ecology, computer science, transport planning, and urban and territorial design.
Energy Storage
Electricity from the photovoltaic panels is stored in street food kitchens, motorbikes and electric bicycles.

Mosquito Trap
The mobile automated ovitrap reduces mosquitoes on site by 90%.

Rainwater Harvesting
2600 mm rainfall in Batam per year over the 40 sqm roof area yields 7666 litres/month.

Wastewater Production
1890 litres/person/month.

Expandable
1st storey of infrastructure provided with foundation suitable for growth to 3 storeys in the future.

Water Consumption
3900 litres/person/month.

Water Storage
1000 litres/tank.

Energy Production
518 kWh/month with 24 sqm roof mounted photovoltaic panels.

Energy Consumption
67 kWh/person/month.

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Energy Storage
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Plot Ratio
With a site of 60 sqm and a built area of 36 sqm, the plot ratio increases to 1.2 with the 2nd storey and then 1.8 with the 3rd storey.

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