Humanising a **Metropolis**

At Interdesign 2014, hosted by Prin. L. N. Welingkar Institute of Management Development & Research (WeSchool), Mumbai in collaboration with International Council of Societies of Industrial Design (ICSID), 40 members from different countries, cultures and backgrounds worked together to design solutions for some of Mumbai's challenges. The theme of the forum was 'Humanising a metropolis', with subthemes of 'Visualizing Matunga as an Educational Township', 'Living with Rain', 'Zero Waste Household', 'Redefining the Outdoor Experience/Social Spaces', 'Health on the Go' and 'the Great Indian Bazaar' (Unorganized and Organized retail). Spearheaded by Prof Dr Uday Salunkhe, Group Director, Prof. Sudhakar Nadkarni, Dean Emeritus-Design, Prof Dr Pradeep Pendse, Dean- Innovation/design/IT and Prof Anand Dev James, Asst Prof-Business Design at WeSchool, the multifunctional student teams in just two weeks came up with some of the most innovative and exciting ideas. The two of these were - The Floating City and The Panchtatva Tower.

The Floating City

Conceptualized by: Håkan Mattsson, Lecturer, School of Innovation, Design and Engineering Mälardalen University and Yogesh Dandekar, Designer, TATA Elxsi

One challenge for Mumbai that especially caught interest was the city's freshwater supply. How could a city like Mumbai harvest monsoon rainwater efficiently and on a large scale when available space is very limited and extremely expensive.

As Mumbai is situated by the sea, it was natural to think about different sea-based solutions. Inspired by the type of self-rising garden swimming pools where an air-filled ring rises the pool as it is being filled, the team conceived a similar solution but on a much larger scale which would be filled with freshwater and float in the sea close to the city. The basic idea is to charge this huge flexible reservoir with rainwater during the monsoon season and then gradually use the water during the dry season. The reservoir can be filled both directly by the falling rain and via a pipeline system from trusted clean fresh water sources on the mainland, for example from big building rooftops. During the non-monsoon season, water is pumped back to mainland for 'normal' use and for charging of groundwater (lifting the water table).


Following are the preliminary requirements:

• The size should be very large for several reasons. Firstly, a really big reservoir can store a huge amount of freshwater and thereby really make a difference when harvesting rain. Secondly, a large structure is less affected by extreme weather conditions like stormy winds and big waves.

• The shape of the reservoir should be circular to get the maximum storage capacity from the investment in building materials.

• The reservoir should float and thereby follow the tides up and down. It should however, in a flexible way anchored to the seabed and not allowed to drift away.

In addition, the rim of the reservoir should be wide enough to enable residential and/or recreational apartments to be placed there. These seafront apartments with sea views could potentially have very high market value, as the housing will be within convenient boat commuting distance to Mumbai and still away from the city's noise and pollution, Selling or letting of these apartments could help the overall financing of the project.

Combining Floating City and Flexible Fresh Water Reservoir

Sea- based fresh water reservoir

Monsoon season fills the reservoir
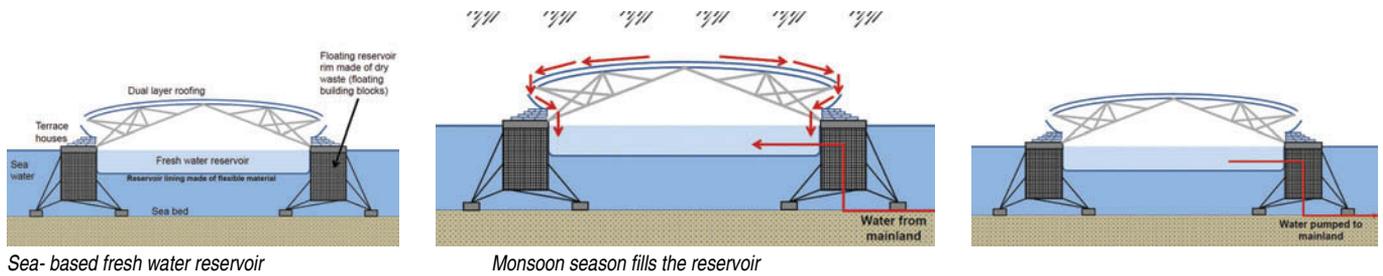
The proposed building materials

Preferably, the base of the floating rim should be made from recycled material. One idea is to produce floating building blocks using high quality plastic waste to enclose air bubbles and dry waste of lesser quality as filling material in the building blocks. These building modules will then be used to form the base of the floating rim. If this recycle method is used then great concern must be taken to make sure that the reused material in the building blocks cannot leak into the sea or into the reservoir.

The sustainability features

To prevent the freshwater in the reservoir from being sprayed and 'contaminated' by salty sea breezes, some kind of roofing needs to be added. This roof can be constructed in such a way that it also has a desalination function based on condensation principles. The desalination process can then help in adding freshwater to the reservoir. The floating city should also use wind generators and solar panels for its own power consumption and for driving the water pumps used in the system.

Steps proposed to avoid sea water pollution due to construction include use of 24 beams for roofing structure, resembling the 24 spokes found in the center of the Indian flag. For people flying to and from Mumbai this floating habitat could then be an interesting landmark easily recognizable from the air.

Panchtatva Tower

Conceptualized by: Prof Prakash Unakal (Design) WeSchool, Bangalore and Prof Mangesh Borse (Marketing), WeSchool Mumbai

The word 'Panchtatva' originates from Sanskrit, where "panch" stands for five and "tatva" indicates elements. As per the universal law of life of five basic elements or the "panchamahabhutas", these elements are linked to different senses: Akash (Sky or Space) (sight), Vayu (Air) (smell), Jal (Water) (sound), Agni (Fire) (touch) and Prithvi (Earth) (taste). The main aim here is to invoke people's consciousness about being a part of Mumbai city. It involves community planning by involving the community in every step of identifying and solving problems. The prototypes created under this theme complement each other and touch upon the various aspects of a society.

The philosophy behind the prototype created is as follows:

To motivate people to revitalize Mumbai by creating a link between the city, its people and the 'Panchtatva' - the five elements. The approach comprises the experience of the elements on the senses of people of Mumbai and aims to create an inclusive sustainable public space design with fusion of modern and Indian traditional elements.

The Design concept

The Pancha Tatva tower is designed with an intent of "creating public spaces which are inclusive" for diverse group of Mumbaikars including the uber rich as well as the bottom of the pyramid strata The concept emerges from the ancient Indian- panchatatvas and modernises it through a design at a grand scale with a contemporary feel to it.

The ethnography research pointed out the dire shortage of land in Mumbai with public spaces like parks and playgrounds either getting reduced or encroached upon. The existing public areas are poorly maintained while the prices of real estate keep sky rocketing and there is a huge divide between the haves and the have-nots, the old Mumbai and the progressive Mumbai. The Panchatatva tower conceived as an inclusive design will cohesively blend the new and old, rich and poor by providing experience of one element per level of the tower. While the ground level will have free access to all, the upper four levels will provide a revenue stream making the tower commercially self-sustaining. The tower is an excellent solution considering the limited open space available in many parts of the city.