Mumbai, the 90% of the world’s megacities, exists in an ecologically sensitive coastal environment. Such a location is no coincidence; coastal cities have significant economic and environmental implications. As the population density increases and the landscape hardens, this entire ecological system faces degradation and even collapse. While Mumbai used to be lagoon with a rich and diverse habitat of mangrove forests, over the past decade, 90% of the habitat has been lost. Such extreme environmental degradation has lead to increased flooding, hypoxia, disease outbreaks and species extinction. At the same time continued growth and development is the corrosion of these rapidly dying megacities. The project proposes a new urban model that utilizes the coastal landscape around the Bay of Mumbai primarily characterized by its hydrology, with current development patterns threatening the sensitive ecology by channeling filling, and polluting the waterways.

**Riparian Urbanism** is a model of urbanization that conserves the existing coastal hydrology as the armature for development, providing a mechanism for protecting and maintaining the water quality, while allowing development to proceed. This type of urbanization gives privilege to the natural systems by regulating growth and density within enclaves, while creating a riparian buffer system along the seaward.

**Buffer Acquisition Phasing**

The Buffer Acquisition Phasing diagram illustrates the process in which the riparian buffer would be implemented. Over a period of 30 years, the buffer would be built through a process of conservation surgery. This allows the buffer to be built within a previously developed area, while causing the least amount of disruption to both the existing formal and informal developments.

**RESEARCH**

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**DESIGN**

The riparian buffer system is a multidimensional strategy that allocates a maximum 150-meter buffer from every waterbody for environmental, cultural, economic and transportation uses, which fluctuate depending on the program and stage of the buffer implementation. The buffer is designed to filter and protect water quality, while providing continuous wildlife habitat corridors. The cultural open space accessible and usable open space is to all residents, programmed to provide a variety of recreational experiences. In order to enhance its value, the buffer also contains a productive landscape to serve as an economic generator. Finally, the waterways are decommissioned eliminating the existing real and road transportation system while creating affordable and accessible water based transportation network.

**IMPLEMENT**

The center of the implementation strategy is through a process called conservation surgery. **Conservative surgery** is a mechanism for acquiring land justly. The area along Thane Creek, in Navi Mumbai, has already experienced encroachment into ecologically sensitive areas, much of which has already been developed. The first phase of the buffer implementation will allocate undeveloped land within the buffer system to be protected and then designed for its adjacent land use. The second phase will acquire land within the buffer by relocating informal settlements to adjacent areas and expanding the buffer to accommodate the remaining informal area. In order to ensure minimal disruption to the residents and an equitable relocation strategy, such informal area will be moved within or converted to adjacent areas. The third phase will acquire the remaining buffer, by relocating the existing informal developments outside of the buffer. To incentivize the process, landowners will be given increased land and other development to encourage redeveloping land outside the buffer.

**Megacities**

90% of the world’s world’s megacities are within coastal areas.

**Infrastructure Ecology Web**

The Infrastructure Ecology Web illustrates the dynamic of the infrastructure system in Mumbai. Energy, Agriculture, Health, and the Environment were analyzed to determine the inputs and outputs of each system and the relationship between them. Below is an enlargement of the Environment Web, which was organized around 6 basic questions:

1. What is the infrastructure?
2. What service does it provide?
3. What is its capacity?
4. What is it serving?
5. What are the threats?
6. To what extent is the infrastructure from the infrastructure