a   b   c   d

e   f   g   h

i   j   k   l

1

A RIVER IN NEED
An urban intervention for a sustainable restoration of the Ganga

The Ganga (or the Ganges), one of the greatest rivers in the world, is almost one with human civilisation, directly and indirectly supporting about 10 percent of the world's population. It carries a variety of flora and fauna, providing life and livelihood. More than a natural resource, what makes the Ganga precious is its close link to the Indian psyche—religious and life cycle connotations flow in its waters; daily acts and rituals serve as constant reminders. There is now even a court order in India to treat the river as a living entity—any violation against it is treated as violating human life.
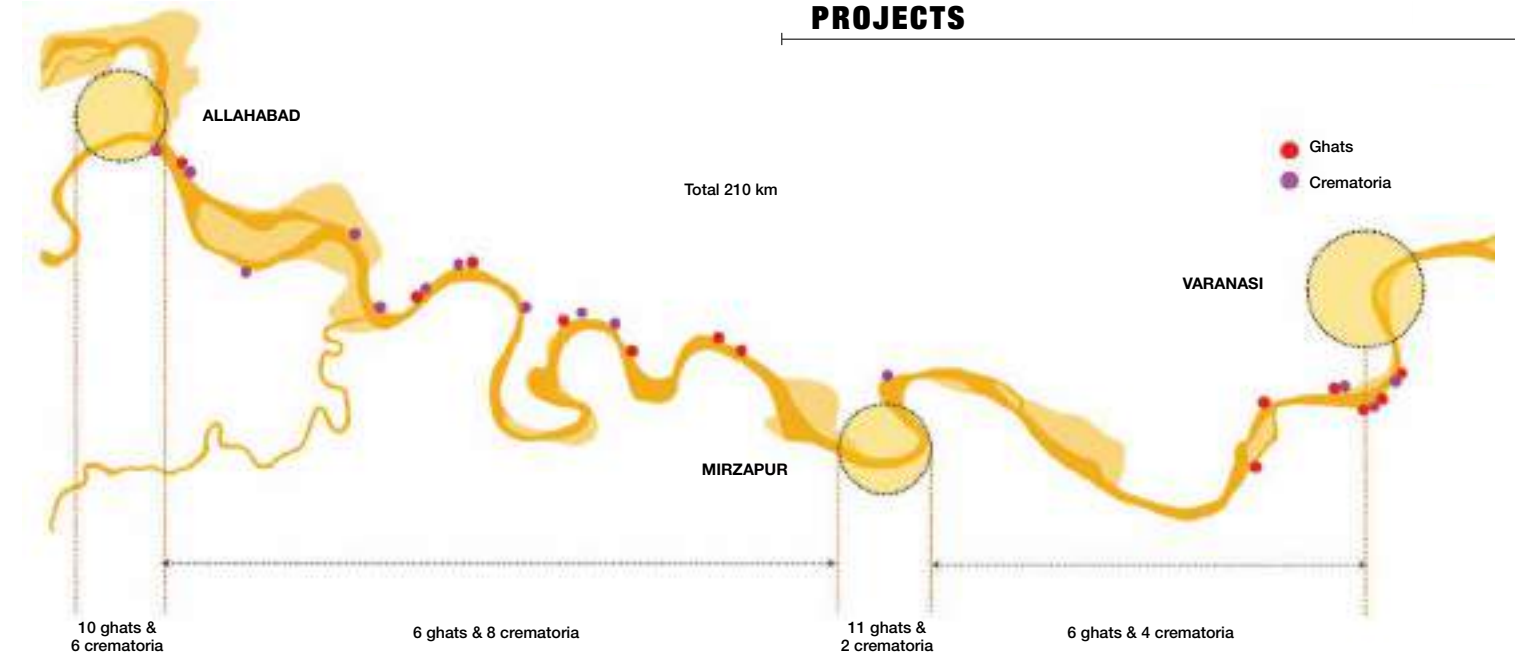
Yet, the Ganga is dying. The issues that the river faces today are environmental, social, hydrological and infrastructural. Whilst all are important, the most critical one to tackle is the Ganga's environmental degradation. It probably carries more sewage than any other water body in the world today, where 260 million litres of industrial waste pours into it every day—more than the output of several nations. In addition, it contains pesticides and is highly contaminated by ritual waste and human remains. While the Ganga provides life to a significant portion of the population, the number of waterborne deaths it causes due to pollution, at a conservative estimate, is 600,000 per year.

1 From top left: a) Changing space close to ritual pond; b) Ritual pond to control waste; c) Colonnade for uninterrupted river flow; d) Extended platforms at all levels assist in accessing boats; e) Performing space for events and other activities; f) Public space for larger social gatherings; g) Small platforms for daily rituals; h) Ghat platforms respond to changing water levels; i) Extended upper promenade for amenities and public facilities; j) Facilities like parking and spillover space at upper promenade; k) Placing amenities close to public gathering zones with easy access; l) Low maintenance amenity buildings above flood level   **2** Typical crematorium rendering

2

ALLAHABAD

Total 210 km

VARANASI

● Ghats
● Crematoria

MIRZAPUR

10 ghats &
6 crematoria

6 ghats & 8 crematoria

11 ghats &
2 crematoria

6 ghats & 4 crematoria

6

As such, the architects wanted to intervene on how the river could be used, especially on how the end of life is carried out. As cremation is usually carried out on wooden pyres on the Ganga, it contributes to deforestation and results in riverside areas becoming silted quagmires. High cremation costs often mean that the wood required is inadequate, and as a consequence, partially burnt bodies pollute the river. To implement an environmentally friendly initiative, the architects aim to design a crematorium and actual pyre that will be able to reduce the amount of wood required to 30 percent, thereby also reducing the cost of cremation, which is often higher than the annual income of a household.

A large-scale vision and small-scale execution are key to a successful implementation. Whilst looking at rejuvenating the usage of the river, a prime concern has been dealing with the erosion of the river bank, which is addressed by researching and redesigning traditional, vernacular learning of the way the river edge was treated. For example, building ghats will help stabilise the river edge while offering an interface between human and water. When redeveloped, it is hoped that these ghats will not only serve their traditional ritualistic purposes but also function as public spaces. In addition, *chaupals* (open spaces for the community, usually under the shade of trees) will be reintroduced as shade canopies for social gatherings.

The provision of ritual tanks and various other urban design structures, which come in the form of platforms for discourse and cremation, will allow activities to take place in a controlled way, thus potentially reducing pollution. Columns with smart technology will be positioned on the ghats. These columns provide not only drinking water, but also function as additional framework for wireless connectivity, solar power stations as well as increased shaded areas. This allows public spaces to run almost entirely on solar power, a connected area with Wi-Fi network.

The architects had also looked at varying flood levels on the ghats, and proposed to introduce reforestation with resilient plants as well as hume pipes to stabilise the edges. Piers have been designed to support water transport along the river. Permeable materials—such as bricks, Kota and Dholpur stones as well as red sandstones—are locally available and will be used to allow for water percolation. The stones will be used for flooring/paving, as well as in the built structures that are designed to be submerged at high tides. Low-maintenance bricks can be made from good-quality soil that are sourced from the region, and is thus suitable to be the main building material for almost all structures. These structures will be lifted above ground level for natural ventilation, ideal for a hot climate.

The architects' social agenda is to respond to a river in need, in this case one that sustains one of the highest populations in the world. Its resurrection will ensure a balanced water system that will deliver opportunities for future generations.

PROJECT DATA
Project Name
A River in Need
Locations
Kila Ghat, Shree Narayan Ghat and Daragunj Cremetorium, Allahabad; Serpur Ghat, Mirzapur to Varanasi
Status
Proposal and advocacy
Site Areas
Kila Ghat: 7,500 square metres;
Shree Narayan Ghat:
950 square metres;
Daragunj Cremetorium:
3,550 square metres;
Serpur Ghat: 770 square metres
Gross Floor Areas
Kila Ghat: 300 square metres;
Shree Narayan Ghat:
105 square metres;
Daragunj Cremetorium:
450 square metres;
Serpur Ghat: 105 square metres
Building Heights
Kila Ghat: 4.1 metres;
Shree Narayan Ghat: 4.1 metres;
Daragunj Cremetorium: 4.1 metres;
Cremation Shed 6.3 metres;
Serpur Ghat: 4.1 metres
Client/Owner
Government of India
Architecture Firm
Morphogenesis

Principal Architect
Sonali Rastogi
Main Contractor
Local vendors
Images/Photos
Morphogenesis

3 Typical ghat on high water level
4 Typical ghat on normal water level during monsoon **5** Typical ghat on low water level **6** River stretch with site locations **7** Smart columns to create performance background

3

4

5

7