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Building Resilient Urban Communities

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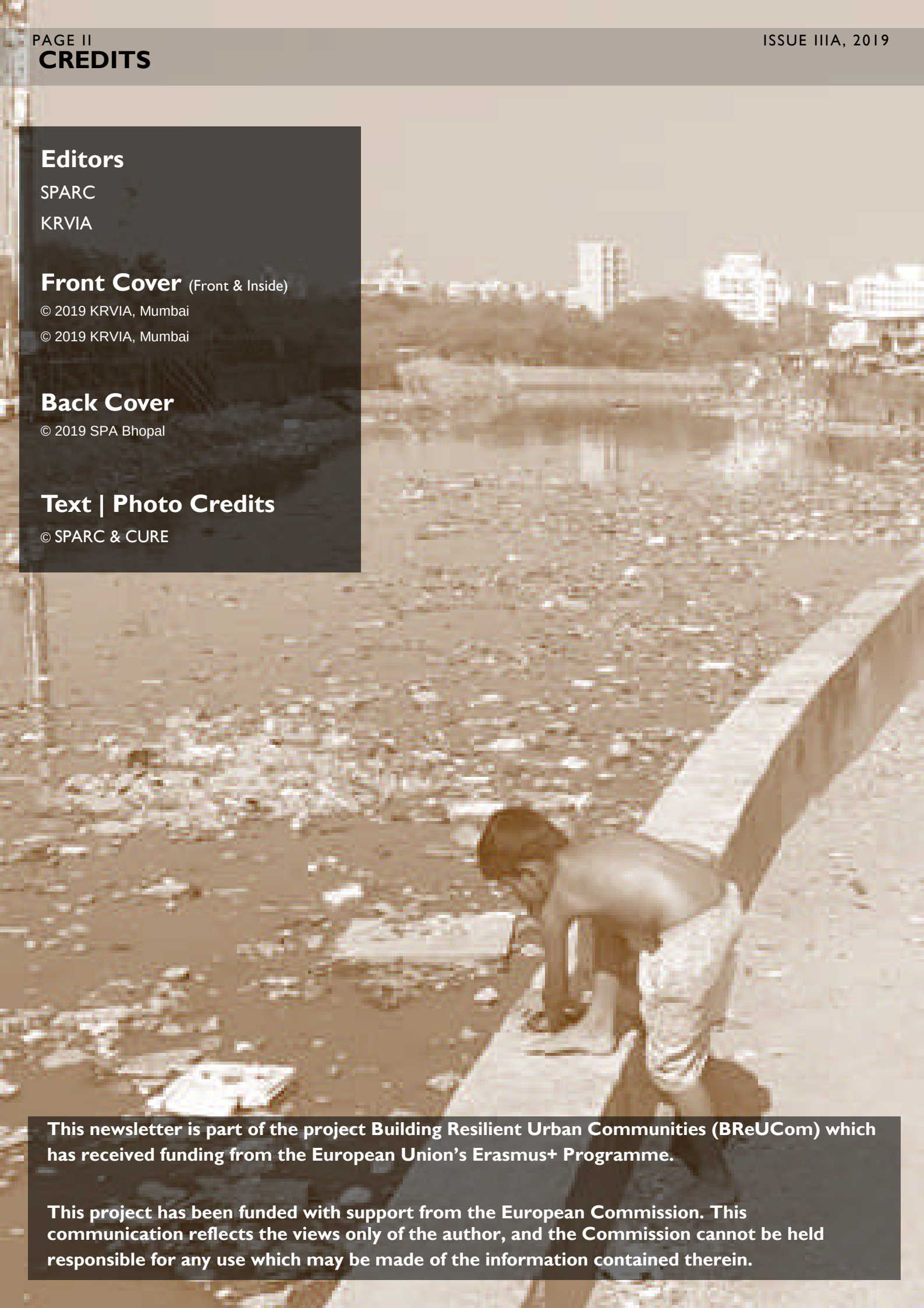

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Case Study Analyses

Index

Case Study Analyses	I
Resilience of a Historic Native Town: Case Study of Kalbadevi, Bohra Bazaar, Mumbai	II
Socio-Ecological Resilience of Peri-Urban Coastal Areas: Climate Change and its implications on urban peripheries of Mumbai	III
Water Resilience in the Historic Core City of Jodhpur	IV
Marginalized Communities and Climate Change: A case of Gazdhar Bandh	V
Climatic resilient planning and design for vulnerable urban hill settlements- A Case of Kullu region	VI
Climate-resilient adaptation of built-form in hilly region through traditional wisdom and best practices - A case of Himachal Pradesh	VII

Upcoming Events

- **Site Visits** in the Netherlands

Following are the case studies described in the newsletter:

Partner Institution	**Case Study**
KRVIA	Case Study 2: Resilience of a Historic Native Town: Case Study of Kalbadevi, Bohra Bazaar, Mumbai
KRVIA	Case Study 9: Socio-Ecological Resilience of Peri-Urban Coastal Areas: Climate Change and its implications on urban peripheries of Mumbai
SPAB & KRVIA	Case Study 5: Water Resilience in the historic core city of Jodhpur
SPAB & KRVIA	Case Study 6: Marginalized Communities and Climate Change: A case of Gazdhar Bandh
NITH	Case Study 4: Climatic resilient planning and design for vulnerable urban hill settlements- A Case of Kullu region
NITH & SPAV	Case Study 7: Climate-resilient adaptation of built-form in hilly region through traditional wisdom and best practices - A case of Himachal Pradesh

Case Study Briefs

Kamla Raheja Vidyanidhi Institute for Architecture and Environmental Studies, Mumbai, India

Resilience of a Historic Native Town: Case Study of Kalbadevi, Bohra Bazaar, Mumbai

Investigations into the kinds of vulnerabilities on this site led to realisation that the city simply could not reconcile to the sea water rise due to climate change. This is still perceived to be in a distant future if at all and confirming these scenarios was beyond our scope and the capacities. There were however more immediate stresses like change of livelihood and work activity patterns leading to deterioration of quality of life, building stock and street quality; and other kinds of pressures and shocks like further congestion of spaces as well as mobility due to a private vehicle centric aspirations of mobility, high rise typologies without adequate infrastructure and amenities and fire preparedness: which were possible to be studied and strategies to build or enhance resilience could be developed for the same.

Resilience of the historic native town was gauged using four parameters - Ecology, Livelihood, Infrastructure and Built stock.

Vulnerable to High Rise development- Timber Architecture of Native Town- Dr Cawasji Hormusji Street

Key Findings

- Rich community network across religious, regional identities, food and cultural diversities.

- Spirit of Entrepreneurship reflected in the livelihood activities

- Unreal Estate driven Speculative development pressures are not sustainable and resilient solutions. The new high rise typologies are leading to poor quality of urban spaces.

Lack of empathy towards heritage and myopic vision for a holistic development reflected in the development plan leading to relatively rapid erasure of the identity of the place.

- Lastly the preliminary interactions with stakeholders elicit mix responses ranging from largely despondency to few voices of hope.

From these findings, the following learnings emerged:

-There is a need for an alternate vision and strategy to singular development model of erasure of old fabric and new construction.

- Factors contributing to community living and sense of place and identity is under threat of gradual erosion and requires strategies of renewal or restoration and reinforcing .

- Dynamic and systematic data collection, updating and analysis will help in framing policy decisions to reduce disaster risks like fire and build resilience.

- Comprehensive framework and methodology for carrying out future studies in historic native towns are required to be developed further.

Socio-Ecological Resilience of Peri-Urban Coastal Areas: Climate Change and its implications on Urban Peripheries of Mumbai

Key Findings

The case study sites are unique in their physical geographic locations, communities inhabiting those areas and the way the communities and settlements interact with the larger landscape:

1. The unprecedented urban growth of Mumbai Metropolitan Region in the last 30 years or so has had an impact in all the three sites.

Vasai Fishing Village has seen more people move in from the inland older settlement to be closer to the water edge. There has also been a steady migration of workers from the northern Inland states of India to this settlement for aiding in the Fishing activities.

Panju Island has also seen an increase in population and municipal proposals of it being developed as a Tourism based destination has been proposed. No action has been taken on the proposals, they remain on paper.

Diva has seen unprecedented growth in the last 15 years from from being an agrarian based settlement to a 'commuter town' of Mumbai via the suburban rail network connectivity.

2. The increase in the pace of urbanization and the unregulated and ill-informed urbanisation in these three sites have only made them more vulnerable to the increased frequencies and intensities of climatic events like flooding/ erosion and vector borne diseases.

3. The recent developments in all the three case studies ignore the natural processes of the site.

4. Other than the climate induced catastrophic events like floodng, landslides etc, these communities are also vulnerable to everyday threats and hence the idea of resilience needs to take this aspect into consideration. For example, the only land connection to Panju Island is via an abandoned railway bridge across the creek. Parts of Vasai fishing village (Pachu Bandar and allied areas) do not have A large percent of the households of Diva do not have freshwater supply to their homes nor access to health centers.

4. Through the initial surveys and interactions with the locals, it is clear that they do not recognize the vulnerabilities that they are subject to or are aware of strategies of how to cope up with these.

The findings of the study point out to the fact that coastal peri-urban areas vary in its capacity to withstand climate change. The existing socio-ecological networks of the peri urban sites are not robust enough to ensure climatic resilience to the inhabitants and the landscape. The key agenda of the way forward should be to aid the authorities identify the vulnerabilities of the peri-urban communities. For this, the study aims at putting together a comprehensive Socio-ecological Resilience model for coastal peri-urban habitats covering sea-edge, estuarine and riverine edge conditions and develop the OCWs and PDPs based on the results inferred from the case studies and the literature review.

Panju Island does not have a direct bridge connection to the mainland. The ferry service is sometimes stopped during the heavy monsoons. The only option left with the residents is to walk over the abandoned rail line bridge to cross over the estuary.

Vasai Village Documentation by KRVIA Masters Students as part of the Pilot Course Studio conducted in 2019

School of Planning and Architecture, Bhopal, Madhya Pradesh, India & Kamla Raheja Vidyanidhi Institute for Architecture and Environmental Studies, Mumbai, India

Water Resilience in the Historic Core City of Jodhpur

Key Findings

The five hundred year old settlement is still self sufficient by way of holding of fresh water through its holding ponds, water channels and array of water systems.

These water systems have been in thorough neglect by way of disuse and pollution thereby leading to excess of water which is leading to excessive flooding in the monsoon and non monsoon months leading to damages and losses.

Other than using the existing water bodies and systems appropriately, excess water is pumped for 12 hours daily into the nallah whereas water to be used in the city is pumped from kilometers away through the Lift canal which seems very illogical.

Further the city suffers through the year through excessive heat gains thereby making it difficult for its residents to live comfortably.

Preliminary awareness and vulnerability surveys of the residents prove that the extensive and well conceived water resources need to be appropriately managed through institutions thereby increasing the resilience of its residents as well as the city.

KRVIA students at Padamsar lake at the edge of Meherangarh fort.

Irish activist Caron Rawnsley with KRVIA and SPAB students and ITC Netherlands faculty Andre Dsilva

Marginalized Communities and Climate Change: A Case of Gazdhar Bandh

Key Findings

The case study of Gazdhar Bandh reveals the peculiar nature of complexities that are embedded within the site conditions and as compared to other slums in Mumbai. The nature of preliminary findings is as follows:

Creation of community living (and land) within the land starved condition of the city displaces the development plan initiatives and state housing inability

The creation of Land comes in direct conflict with the fragile ecology at estuary condition.

The community has strong economic network with its surrounding and the city. The informality within the city has formal occupational engagement with the city.

The overall perspective of resilience requires the study of social-economic resilience and its understanding with ecological resilience and finds the balance.

The natural edge has been concretised along the length of the river.

Informal Settlements along the concretised naalah edge. *© 2019 KRVIA, MUMBAI AND SPA, BHOPAL*

National Institute of Technology, Hamirpur, Himachal Pradesh, India

Climate resilient planning and design for vulnerable urban hill settlements: A Case of Kullu region

Case Study Learnings

The study concludes that Bhuntar is vulnerable to floods as the major parts of the town falls under flood plain region under river Beas.

The haphazard construction makes the place visually unattractive and unsustainable. In order to further develop and maintain the identity of the place, bye laws must be implemented which focuses on the eco sensitivity of the place.

Naggar is a vernacular Heritage settlement that has evolved its development pattern over the time with the climatic resilient planning. This approach should be replicated on Bhuntar for making the region less vulnerable for floods. In order to be effective, stake holders need to include climatic resilient ideas in formation of local development plans and thus, deliver reduced vulnerability and increased resilience to climatic impacts.

Proper byelaws should be developed and implemented, considering the eco-sensitivity of the place. Flood plain areas should be demarcated for the possibilities and impacts.

Visual quality of the place should be maintained, as this place acts as a major node while approaching famous destinations like Kullu, Manali, Manikaran etc. Shift to conventional construction techniques should be minimised and traditional construction style should be encouraged.

Settlement of Naggar

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Aerial view of Bhuntar Settlement from Bijli Mahadev

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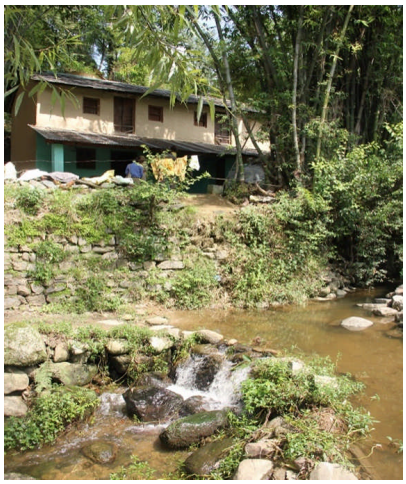
**National Institute of Technology, Hamirpur, Himachal Pradesh, India &
School of Planning and Architecture, Vijayawada, Andhra Pradesh, India**

Climate-resilient adaptation of built-form in hilly region through traditional wisdom and best practices—A case of Himachal Pradesh

Typical Vernacular House at Rajiana



Cluster surroundings

Case Study Learnings

The learnings from the case study are at three levels, as mentioned below:

Settlement Pattern

It is seen that the settlements have been carefully designed keeping in view the natural topography. The houses have been carefully sited in the natural environment so that there is minimal modification through cutting and filling. The settlement pattern is organic in nature and that has been derived so that nearness to perineal water source is maintained. The settlements are in synergy with the surrounding open stepped spaces and utilises the open spaces for cropping, horticulture and fodder storage. Use of natural springs are of high significance in each settlement. The springs are channelized in between the houses to form small reservoirs, check dams, and water spouts.

Also, the orientation of clusters and individual household has been decided to maximize the availability of sun in the courtyards and inside the houses. The buildings are usually two storeyed small structures and ample of surrounding open spaces have been left for adequate day-light, natural ventilation and also for the ease of watch their surrounding agricultural fields.

Cluster Level

The village is divided into caste based household clusters called mohallas. Each cluster has adequate open spaces in the surroundings. Each cluster has a common courtyard, that used for social interaction, secured children play area, handling of agricultural produce and also for various ceremonies. The spatial arrangement is organic, in which adequate space is kept between the houses to maintain privacy.

Unit Level

Every house has evolved through proper choice of slopes and orientation to gain stability, face sunlight and minimize risk of landslides. Built form typologies are simple plan forms, which are most suitable from the point of natural hazards. Households have ample planned open incidental spaces around for social interaction, that plays key role are making the community physically resilient and socially sustainable. The locally available building materials are economical, sustainable and support livelihood of local workforce. Interiors are designed in minimalistic approach with emphasis on roof patterns and walls to retain heat. Every house maintains plantation or gardens in the downward slope side with wide girth trees on the upward slope side to protect from landslide. The houses have proved to be thermally comfortable and energy efficient as compared to their modern counterparts.

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NEXT ISSUE:

Topics

- Report on case studies analysis of case studies 1, 3, 8 and 10