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The practice of tree worship and the territorial production of urban space in the Indian neighbourhood

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ABSTRACT
In India, there are religious practices intersecting with the process of urbanization at various levels. This paper looks at the practice of tree worship which continues to be a part of everyday life here. Specifically, it looks at how the Peepul tree (Ficus Religiosa) shrine with its serpent stones and the raised platform around it (katte) contributes to the territorial production of urban space in the city of Bangalore. Based on a study of 10 kattes in the city, it finds that these urban spaces belong either to a process of territorialization by the local community or its deterritorialization by the government. The paper builds a theoretical argument for how the katte as a ‘human activity node’ contributes to an ‘urban web’ which is categorized here as the physical layer. It finds that the Peepul tree could enable a ‘network of relations’, termed as the social layer. It suggests that the information fields generated within these layers influences collective memory of the people. Finally, the paper argues that the two layers acting together can help formulate an urban design model that can minimize deterritorialization.

Introduction
In India, there are religious practices intersecting with the process of urbanization at various levels. This paper looks at the practice of tree worship which continues to be a part of the everyday culture of the people (Haberman 2013). Specifically, it looks at how the Peepul tree (Ficus Religiosa) shrine with its serpent stones and the raised platform around it, locally called the katte, contributes to the territorial production of urban space in the city of Bangalore (Figure 1).

In Bangalore, as in several other Indian cities, it can be found that while the Administrators imagine a city that meets global standards of urban form and infrastructure, at the neighbourhood level people continue to pray at the local tree shrines, making the spaces around them into places of memory and cultural value. With the growth of the IT industry and the onset of economic liberalization in the early 1990s, Bangalore has grown substantially both economically and spatially. This has led to tremendous pressure on infrastructure and resources such as water supply, energy, public transportation, land, etc. The demand for real estate has also affected the city’s public open spaces. Several lakes have been converted to residential layouts, bus-stands and stadiums through formal sanctions from the government.
The traffic congestion in the city is an outcome of random changes in land use from residential to commercial and industrial, changes that do not reflect what is proposed in the master plan. The city’s planning authorities address mobility issues through increased road-widening and the construction of flyovers and underpasses. In trying to ease the congestion on roads, the felling of trees by the government has been rampant (Sudhira, Ramachandra, and Subrahmanya 2007). However, in the midst of this government-driven urban planning, the katte as an urban space seems to have been sustained as a response to people’s religious and social lives and therefore emerges as an alternative process of city-making. It is perhaps what Carmona et al. (2010, 72) referred to as “the un-self-conscious processes of urban adaptation & change” that continually shape the built environment. The role of ‘process’ in urban design is discussed further later in the paper.

Although the katte exists as a part of the urban neighbourhood, its origin lies in the rural setting of India. The rural population in India according to the 2011 census is 68.84% and the urban population is 31.16%. In Bangalore, the city has been absorbing many villages into the urban fabric. From 1901–1971, the city area increased from 20.7 sq. miles to 60 sq. miles and absorbed approximately 100 villages into the city structure (Prakasa Rao and Tewari 1979). In 2001, the proposed metropolitan area was 124 sq. miles with an additional 218 villages located within it (Nair 2005). Nair points out that even as the city engulfs the villages as it expands, the rural street patterns sometimes survive in the middle of a geometric grid of the new layout. She notes that one of the elements that has survived the rapid urbanization is the temple of the village goddess with the Peepul tree and its platform or katte. These distinctive elements of a rural past seem to have survived more due to the efforts of the local communities than those of the authorities, especially because, the integration of these streets, temples or the kattes into the city layout have never been attempted in the formal planning exercises. Although kattes exist in several parts of the city, they stand in isolation, sometimes with no relation to the urban fabric that is developing around them. The traditional urban space is gradually being eroded, resulting in what Trancik (1986) referred to as ‘lost space’ or the unstructured urban spaces that fail to connect with each other in a coherent way.

Figure 1. The Peepul tree and the platform around it, locally called the katte.
The territorial production of urban space

At present there is no mechanism to resolve the conflict between the urban planning criteria that the government relies on and community urban life. According to Ravindra (2010), the Master Plan as the instrument used for urban spatial planning has proved inadequate for the city of Bangalore, and one of the factors he cites for this failure is the lack of citizen participation. Recent participation in a citizen-led tree festival in the city led to the awareness that people continue to worship trees, and what was interesting from an urban design perspective was that they informally generate community space as they do this. This research finds that these urban spaces belong either to a process of territorialization by the local community or its deterritorialization by the government.

Hall (1969) defines ‘territoriality’ as behaviour by which an organism lays claim to an area, creating a tangible or intangible boundary and defending it against members of its own species. Territoriality can also be understood as a spatial strategy to affect, influence or control resources and people by appropriating an area around them (Sack 1986). This research looks at how the territorialization of a katte occurs as people gradually create a community space around the tree through its everyday worship. The process of deterritorialization that takes place is studied as the government widens a road or builds a flyover and the katte is partially or completely encroached upon. It is important to study this because as people territorialize the katte, they not only informally generate urban space but are often able to sustain it.

In his work on the materiality of territorial production, Karrholm (2007) brought together research on territoriality and actor-network theory to investigate how material design influences power relations within public space. He differentiated between the different forms of territorial productions as being a collective effort of both human and non-human actants. The paper offered a “conceptual framework for empirical investigations of territorial structures” (Karrholm 2007, 25) that the author uses as the basis for this research. One of the questions it tries to answer is ‘How do people territorialize the katte?’ It extends the work of Karrholm in that it links the ‘concept of territoriality’ to the ‘theory of the urban web’ (Salingaros 1998) in order to develop an in-depth understanding of urban design as a ‘process’ at the neighbourhood level.

The katte as an ordering principle of urban design

Today, there is an emerging group of research scholars who believe that to understand urbanism in the contemporary context, it is necessary to study the processes of city-making generated by communities at the local level. They suggest an approach that responds to the ecological, political and social complexity of the present city (Hou et al. 2014). The katte is one such community-generated urban process occurring both at the social and physical level, and one that is present in almost every neighbourhood. Unlike urban spaces that have location-specific characteristics resulting from social activities within a given neighbourhood, the katte seems to be a repetitive element in the urban fabric existing in several neighbourhoods across the city, with the Peepul tree as its common feature. Janaki Nair (2000) points out that in Bangalore, the town planners want to follow the Singapore model to take the city forward. However, the city needs to find its own relevant and local solutions to the problems of urban growth. This paper attempts to understand the coming together of people
at the neighbourhood katte through the everyday practice of tree worship and draws upon
the work of Salingaros (1998) to analyze this further.

In order to develop a successful urban design, Salingaros proposed the theory of the
urban web — a complex organizing structure which comprised human activity nodes and
the interconnections between them. A ‘human activity node’ is an urban space that harbours
human activity and points of encounter between people. The reason this research draws
upon the work of Salingaros is because in his research the forces governing the growth of
cities are studied in terms of relationships and movements. His intent is to work towards
how one can plan better neighbourhoods or revitalize existing ones through focusing on
connective processes. This research looks at 10 kattes across multiple locations in the city.
An attempt is made to build a theoretical argument for how the katte as a ‘human activity
node’ contributes to an ‘urban web’ (Salingaros 1998), or the physical layer and how the
Peepul tree seen as an ‘actant’ contributes to a network of relations (Karrholm 2007) or the
social layer. The research also finds that information fields generated within these layers
influences collective memory which can sometimes prevent deterritorialization from taking
place or minimize it, and suggests an urban design model based on this.

**The practice of tree worship**

Henry Whitehead (1921) points out that in India, the people of the villages worshipped
nature as well as their local deities, who were seen to either inflict or ward off diseases and
other calamities. In many villages, he found the shrine to be simply a platform under a tree,
with a stone or an iron spear stuck on it to represent the deity. Often, the boundary stone
of the village lands was regarded as a habitation of a local deity. One of the trees that was
worshipped was the Peepul tree, also known as the *Ashvattha* in Sanskrit literature. In several
neighbourhoods in Bangalore, a Mariamma shrine and an *aswath katte*, as it is locally called,
together form a religious and community space. The Peepul tree is also important from an
ecological perspective. Ecologists consider the Peepul or the *Ficus Religiosa* as one of the
‘keystone’ species (Colding and Folke 1997). The keystone species are crucial in maintaining
the diversity of their ecological communities (Paine 1969) and a species whose loss can
precipitate much further extinction (Mills, Soulé, and Doak 1993). The ecological significance
of the Peepul tree is embedded in the daily rituals and the annual religious festivals. In India,
cultural traditions and social restraints seem to have helped the society maintain its needs
in balance with the natural environment. Some of the limits that these traditions specify are
the territory over which humans may exploit plants and animals, the season in which the
exploitation may be permitted and the method of exploitation (Gadgil 1987).

**The spatial and ritual practices of tree worship**

The starting point for a katte is a Peepul tree, however, there are rituals linked to tree worship
that generate the need for physical space around the tree. These rituals, such as the *pradak-
shina* or circumambulation (Figure 2), the tying of the sacred thread, serpent stone worship
and worshipping the *nava graha* (nine planets), require the movement of people around
and next to the tree. Initially, the worship of the tree begins with the *pradakshina* and the
tying of the sacred thread. Gradually, the community adds serpent stones to the space and
sometimes the representation of the *nava graha.*³
The nagakkals or serpent stones are the snake divinities who bring fertility to women and are considered by some people to represent their departed ancestors (Simoons 1998). It is a common practice for people to celebrate the ‘marriage’ of the Peepul tree with the Neem tree (*Azadirachta indica*) by planting them side by side. While the Peepul represents a male god, Neem represents the female deity (Chandrakanth et al. 1990). Sometimes a platform is found that envelops two Peepul trees and a Neem tree, making the katte into a substantial urban element and generator of community space.

**Study area and methods**

The kattes included in this study are mainly from the neighbourhoods of Bannerghatta Road and Gottigere in South Bangalore; the Mavalli and Sampangirammagar neighbourhoods in Central Bangalore, and from Avenue Road that belongs to the oldest part of Bangalore, the Pete (fort-settlement). The Bannerghatta and Gottigere neighbourhoods are representative of rural hinterland of Bangalore that was absorbed into the main city less than 20 years ago. The people who resided in the old Mavalli neighbourhood were the gardeners who served Lalbagh, the botanical garden adjoining it that was established by the ruler Hyder Ali in the second half of the eighteenth century. The Sampangirammagar neighbourhood is historically important in the context of this study because the Tigalas or the gardener community of Bangalore resided in this region. The Pete area was established by the ruler Kempegowda-I in 1537 AD. The town had two main streets, Chickpete Street, that ran east to west and Doddapete Street (the present Avenue Road) that ran north to south.

Ashwath kattes have so far not been mapped in the city of Bangalore. Therefore, there is no comprehensive listing of kattes or documented visual evidence available on the location of kattes in the various neighbourhoods. Hence, the snowballing technique was used to identify the kattes. The data collection began with walking through these neighbourhoods, looking for a katte and documenting it. As this process started, the local residents began to suggest where the more significant kattes could be found. Some of the early discoveries of kattes were also found by chance, i.e. they were made during discussions that were held as...
part of the citizen-led tree festival Neralu or through participation in conducted heritage walks in the traditional neighbourhoods in the city.

The study used ethnographic research methods such as participant observation, open-ended interviews, photography and spatial mapping. The data collection included interviews with three temple trustees, five residents of the neighbourhood, two members of citizen action groups who were involved with protests against the felling of trees, two officials of BBMP (Bangalore Municipal Corporation) and one of the local political leaders. The duration of each of the interviews was approximately 30–45 minutes. Often, the same individual was interviewed multiple times for an in-depth understanding of the urban space and its everyday functioning. Some of these interviews were conducted in Kannada and Telugu, the local languages spoken here. These were often recorded and later translated into English. The temple officials also made available copies of booklets about the temple trust (in Kannada) and photographs from the festival celebrations conducted here in the previous years.

Whilst understanding the process of territorialization at the Dodda Mavalli katte, meetings with the temple trustees mostly took place between 6:30 to 8:30 am since they regularly came to the katte at this time. It was a time of the day when a large number of people from the neighbourhood came to the Mariamma shrine, the ashwath katte or the open market. It was possible to gradually develop a rapport with the trustees and engage in informal conversations about the history of the katte as well as the multifarious activities that happened there on an everyday basis. An understanding of the ‘marking of the katte territory’ was developed based on the trustees’ recollection of important events and temple documents. In order to understand deterritorialization, interviews with two government officials and newspaper articles were the sources of data. The field investigations were carried out over a six-month period from April to September 2014. In order to strengthen the background on the practice of tree worship, additional secondary data were sourced from books and journals on conservation ecology and development.

Findings

In order to understand the everyday use of the urban space, this paper attempts to look at how territorialization and deterritorialization occur as a result of the actions of the government and the community. It later discusses how the urban space is transformed on the basis of the human interactions that take place. During the data collection, kattes were identified based on the activities that might generate these interactions. The key findings of the study are that the katte is used either for religious activities or for both religious and non-religious activities. From the data gathered, three categories emerged: kattes as religious spaces; kattes as religious + social spaces; and kattes as religious + economic spaces.

During the data collection phase, it was also found that there are several ‘kattes as roadside shrines’ throughout the city, where the Peepul tree is being worshipped and has serpent stones next to it but has not generated an urban space around it. In addition to this, there is also the katte as an exclusive social space. In Bangalore, it is locally called the somberi katte where somberi means an ‘idle person’. It is usually frequented by the men in the neighbourhood, a place where friends run into each other, a place that might have a roadside tea stall next to it. In this research, the ‘katte as a roadside shrine’ and the ‘somberi katte’ are not included. The focus is primarily on those kattes that developed as community spaces with religious, social and economic functions.
spaces are described and later, details are given about the process of territorialization in one katte.

The ‘katte as religious space’ could either be a katte within large temple grounds or it could be a katte next to a small temple. For example, kattes can be found inside the Ranganathaswamy temple in the Pete or inner-city core of Bangalore (Figure 3). The temple was established in 1628 and there are two Peepul trees within the temple complex. This traditional neighbourhood was originally a conglomeration of different artisan-trader communities, and each community built its own shrine which often had an ashwath katte next to it. Here, the nature of human interactions is different from other kattes in that the women groups in the neighbourhood find the serenity of the temple and the katte to be a conducive environment for their weekly meetings. Another example of a ‘katte as a religious space’ is the one adjoining the Mahabaleeshwara Swamy Devasthanam located at Subaiah circle. This katte continues as a place of worship in the midst of the city’s dense traffic. It is almost a trapezoidal traffic island with vehicular roads on all sides. To the north of the katte is the dense urban fabric that makes the Sampangiramnagar neighbourhood. It is in the vicinity of the area where the historical Sampangi tank once stood.

The katte adjoining the Panchalingeshwara temple in Sampangiramnagar (Figure 4) is an example of the ‘katte as a religious + social space’ because right next to it is the Siddappa Mess, a popular breakfast place. The Mess is run from the house where the owner Siddappa and his family live. The entrance to this house is from a public open space where a Peepul tree has been worshipped for many years. It is used both for public consumption (the katte) and for private consumption (the Siddappa Mess).

There is minimal interaction between the people who come to eat at the Mess and those who come to pray at the katte. However, the queues to the Mess are always long and whilst people wait outside, they interact within their own small groups and sometimes with other groups, making it into a social space as well. In the Mavalli neighbourhood of Bangalore, there is a katte which is part of an urban space that is both a marketplace and a religious space (Figure 5). This is an example of a ‘katte as a religious + economic space’ that is explained in greater detail in the next section.

Figure 3. Katte as a religious space: at the Ranganatha Swamy Temple in Chickpete.
The focus is on the process of territorialization in the Dodda Mavalli katte, particularly because it was found that the multiplicity of its use— as a temple space, an ashwath katte and the open market— this public space generates a spatial complexity. There are interdependencies between the different stakeholders wherein the marking and defending of

**Figure 4.** Katte as a religious + social space: plan of the katte next to Siddappa Mess.

**Figure 5.** Katte as a religious + economic space: the Mariamma shrine, katte and open market in Dodda Mavalli.

**The process of territorialization**

The focus is on the process of territorialization in the Dodda Mavalli katte, particularly because it was found that the multiplicity of its use — as a temple space, an ashwath katte and the open market — this public space generates a spatial complexity. There are interdependencies between the different stakeholders wherein the marking and defending of
territories becomes more interesting to study. During the process of territorialization, the stages that are found to occur are: the planting of a Peepul tree and a Neem tree; worshipping of the trees and tying of the sacred thread; the installing of serpent stones; constructing a brick/stone platform and building a temple shrine. It is important to understand how the community creates through this process of territorialization opportunities to come together both on an everyday basis and on a periodic basis. As Talen (1999) points out, physical design may not in itself create a ‘sense of community’ but it can increase its probability.

**The history of the Mariamma shrine and the katte**

The origin of this ashwath katte goes back to the time when the Mariamma temple was established here more than 150 years ago. At that time, Mavalli was an area covered with Mango orchards with a village settlement within it. In 1898, a Plague hit the city of Bangalore and the government proposed a new layout as a model hygienic suburb at Basavanagudi adjoining Mavalli (Nair 2005). While these new plans were being drawn up by the ruling authorities, the local communities began to set up Mariamma temples in almost every neighbourhood to appease the Plague goddess.6

For the people in this neighbourhood, this community space has been there as far back as they can remember. Approximately 100–120 years ago this one-acre piece of land was donated to the temple by one of the residents of Mavalli.

**The structure of the Mariamma shrine and the katte**

This shrine and katte complex (Figure 6) is located on Susheela Road in Mavalli. It is bounded to the north by Venkatappa Street and to the south by Papaiah Road.

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**Figure 6.** Plan of the katte at Dodda Mavalli.
Within the complex, there is an open market (locally referred to as santhe) which takes place every day from 6 am to 3 pm. There is also a marriage hall and choultry that was built with an open space in front of it. Next to the marriage hall and opposite the Mariamma shrine is an enclosed temple with the Utsav murti (Festival statue). There is a space earmarked for the Agni kund (fire well) which is used for rituals during the village festival.

The marking of the katte territory
The marking of territory began more than 150 years ago with the consecration of the Mariamma shrine and the Ashwath katte (Figure 7). It was about 25 years ago, that a separate Utsav murti (festival statue) was established within another enclosed temple. For many years, a temporary structure next to this enclosed temple functioned as a government-aided school.

However, in 2011, the marriage hall, the choultry and the administrative offices of the Grama Seva Sangha were constructed and the school moved to another location in the city. The open space in front of the Mariamma shrine that had until then been used entirely for the open market was now divided for two purposes, first, as an open market, second, as an open space for the marriage parties. In the evenings, after 4 pm, the market activities end and the space of the open market functions as a parking space for the visitors who come to the marriage hall. The shrine, the katte, the marriage hall and the open market create opportunities for social interaction at various levels.

The marking of village territory
The history of Mavalli goes back to the time when it was one of the villages outside the historic fort settlement of Bangalore established by the rulers of the Kempegowda dynasty. The village has two parts to it, the Dodda Mavalli (Dodda means big) and the Chikka Mavalli (Chikka means small). The village of Mavalli was guarded by four goddesses at its outer periphery. As explained earlier, in a village, sometimes the boundary stones were themselves

Figure 7. Plan of the process of territorialization.
embodiments of the deity. Although the village has now become a part of the city, the shrines housing the four goddesses continue to exist and to be worshipped. There is the Dodda Mavalli Mariamma temple, the Satyamma temple, the Bisilu Maramma temple and the Upparalli Maramma temple. In the Uru Habba or village festival that continues to be celebrated here once every three years, the goddesses from the four temples are taken out together in a procession around the periphery of the neighbourhood (Figure 8). The processions move along Papaiah Street, Susheela Road, Lalbagh Fort Road and Krumbiegel Road that define the extent of the earlier Mavalli village, which is now the urban neighbourhood of Mavalli merging with the rest of the city.

On the one hand, the overlaying of a rural settlement structure onto an evolving urban fabric can be seen; the boundary that was a delimiting element in a village, here, embedded within the urban fabric seems to work more as a permeable entity. On the other hand, the katte as a marker of a village boundary seems to continue to create a ‘sense of community’ as people come here in the belief that they belong together today as they had in the past, although the neighbourhood boundaries have expanded and merged with the rest of the city. As Suttles (1968) points out, it is the sense of ‘turf’ or bounded neighbourhood which residents identify with that creates social cohesion.

The governance structure influencing the katte
Previously, the katte had existed as an informal urban space around the Mariamma shrine. Today, the complex of temple shrine, katte and open market is a formally governed, physically bounded space that belongs to the temple trust — the Mariamma Grama Seva Sangha, that was set up approximately 50 years ago. There is a President of the temple trust and several Directors who are the decision makers and who oversee the day-to-day functioning of the public space. The trustees of the Sangha are residents of the Mavalli neighbourhood, mostly belonging to families that have lived here for several generations. The President of the temple

Figure 8. The path of the Uru Habba or village festival at Dodda Mavalli.
trust is also the local Corporator (BBMP) for the Mavalli neighbourhood. The Bruhat Bengaluru Mahanagara Palike (BBMP) is the administrative body responsible for the civic and infrastructural assets of the Greater Bangalore metropolitan area. It represents the third level of government (the Central government and State Government being the first two levels). The BBMP is run by a city council. The city council comprises elected representatives, known as ‘corporators’, one from each of the wards (localities) of the city.

The governance structure is briefly explained here in order to further understand the power relation that exists between the community (residents of the neighbourhood) and the government. The territorial production of the urban space is found to be strengthened due to the key role played by one individual who is the ‘head of the temple trust’ as well as the ‘local corporator’. It allows for territorialization both through personal control (territorial tactics) as well as impersonal control (territorial strategy) within the classification that Kärrholm (2005) suggests of the different forms of territorial production. Karrholm further explains that territorial strategies are usually planned at a distance in time and/or space from the territory produced, whilst territorial tactics may help claim a space as part of ongoing everyday activity.

The process of deterritorialization

In the process of deterritorialization, the stages may include: the elimination of a few serpent stones; a reduction in the extent of the platform around the tree or katte; the acquisition by the government or a private developer of a portion of the land surrounding the katte and the temple and, sometimes, the demolition of the tree and the katte. Although there are lesser known instances where the katte has been completely eliminated, there are times when this has happened.8 The acquisition of land by the government is mostly for road widening projects and by private developers for building large-scale gated communities. Mumford (1949) has argued that urban planning mechanisms such as zoning and highways reduce the city’s capacity to perform its primary function of human exchange.

In Bangalore, it has been the infrastructure development that has resulted in a large number of trees being felled at one time. In the last four to five years, more than 50,000 trees have been cut in Bangalore.9 Sometimes, it is in a large residential development project where a substantial number of trees are cut at the same time. In September 2014, a complaint was posted on the Online Complaint Forum of the Tree Cell of the Bangalore Municipal Corporation (BBMP) that over 100 fully grown trees were about to be cut by a private developer without seeking permission from the government authorities.10 There are no data available on how many of the trees being felled in the city in the last few years due to large land acquisitions could have been Peepul trees. In interviews with residents and members of citizen groups, it was found that they did not know of cases in the recent past of a Peepul tree that had been cut. Although deterritorialization of a katte does occur, it has been found that the government has been unable to encroach upon or completely eliminate as many kattes as they might have if they had not had religious significance and community support.
Discussion and implications

In the 1980s, the urban design movement known as New Urbanism or ‘neotraditional planning’ emerged in the US as an alternative to patterns of land development that were dominated by the automobile. It emphasized the need for social interaction where such human activity nodes and their interconnections were seen as being important (Ellis 2002). This approach emerged as a response to low-density urban sprawl which had increased the dependency on the automobile. However, in metropolitan Indian cities such as Bangalore, the urban development largely focuses on providing infrastructure facilities such as wide roads and flyovers. This emulation of an urban landscape of the Western countries is done in the strive to be a global city with an insufficient understanding of local community life and its spatial needs. The principles of New Urbanism such as neighbourhoods with identifiable centres and edges, interconnected streets, better environmental benefits etc. therefore become relevant in this context. Simultaneously, the continuity of kattes in the urban fabric could counteract the negative environmental impact of an urban growth that seems to increasingly serve the automobile. Talen (1999) points out that the essence of New Urbanism is the creation of a sense of community by improving social interaction through spatial organization.

In this research, an attempt is made to study the process of territorialization by the local community and how this shapes the urban space over time. Carmona and Wunderlich (2013) have argued that in order to understand urban design in its entirety, it is necessary to look at the design, development and political processes that it emerges from. They suggest that urban spaces must be studied in terms of how they are used and by whom, how they are managed and why, etc. Further, Carmona (2014, 5) emphasizes the need to focus on the ‘process’ in order to determine how places are shaped and for us to arrive at the “irreducible core for the study and practice of urban design”.

In the sub-sections that follow, the urban design process that occurs within the territorial production of an urban space such as the katte (as a combination of the physical layer and the social layer) is explained in detail.

The physical layer

The research finds that as people frequent kattes to and from other spaces in the neighbourhood, an imaginary urban web (Figure 9) is generated. There is a physical layer made up of ‘connecting paths’ that represent the movement of people to other human activity nodes within the neighbourhood, such as residential spaces, school spaces, work spaces, green open spaces as well as other kattes. In the diagram, the grey shapes are the neighbourhood kattes and the white squares are alternative human activity nodes such as residential open spaces or a school playing ground, etc. Although the activities in such human activity nodes may be gender-based or age-based, it has been found that the katte and the other nodes have common users since both women and schoolchildren are seen to frequent them.

In the context of the katte next to the Mariamma shrine at Dodda Mavalli, once every three years at the time of the Uru Habba or village festival, as the procession moves along its predetermined path it contributes to the marking of the village territory (that Mavalli once was). It also establishes a movement pattern that reflects its own social and religious meaning for the neighbourhood and differs from the everyday physical movement of people.
to and from the katte. Because of the historical nature of the festival, people who have lived in this neighbourhood in the past come back to participate in the festivities and in the process interact with the locals once again.

Salingaros suggests that the processes that create the urban web are based on the three principles of nodes, connections and hierarchy. Here, the movement patterns that make the physical layer are both spatial and temporal in nature (like the Uru Habba), and reflect the third principle—a hierarchy of connections which helps to self-organize the web and adds complexity to the urban fabric. The boundary of the village territory continues to be the processional path of the village festival in contemporary times and is also the organizing principle of an urban web that belongs to the expanding neighbourhood of Mavalli.

**The social layer**

The social layer is a set of movement patterns which arises not from conscious design efforts of the planning authorities but is organically generated by the community through continually evolving religious beliefs and social relationships. To understand the social layer, the research draws upon the work of Mattias Karrholm (2007) and his understanding of territory as being an ‘actant’ that can bring about a certain effect in a certain situation or place (the network). The term ‘actant’ comes from the actantial model in narrative theory. This model defines the structural roles typically performed in storytelling, such as hero, villain (opponent of hero), object (of quest) etc. Each of these roles fulfils an integral component of the story.
Therefore, an actant is not simply a character in a story, but an integral structural element upon which the narrative revolves (Greimas 1966). In the context of this research, the Peepul tree is seen as an ‘actant’ and the social and religious interactions are seen as the ‘network’.

The Peepul tree as an actant creates the possibility for interactions to happen between the people of the neighbourhood. Haberman (2013) points out that for Hindus, divinity assumes a variety of physical forms and one of the most accessible types of these is a neighbourhood tree. They come here either on a weekday or during religious festivals. Every ritual attracts visitors who may be either the present residents of the neighbourhood or its previous residents. As people come together, they talk about their daily lives or seek and give advice on various topics that are also non-religious in nature. In short, by being an actant, the Peepul tree gives rise to more interaction amongst people and therefore generates social capital for these people (Putnam 1995).

**Summary**

On the basis of the empirical data on territorial production of urban space in the context of tree worship, this section begins with an explanation about how the physical layer and the social layer act together (Figure 10).

Figure 10 shows that the spatial practices are represented by the movement in the physical realm and the ritual practices are represented by movement in the social realm. The physical layer comprises a process that links the spatial practices at the katte to the wider urban web linking both neighbourhood kattes and connecting paths. The social layer comprises a process that connects the ritual practices at the katte emerging from the Peepul tree to the social and religious interactions between people or the network of relations that are built during the on-going territorialization of the katte. The overall process over a period of time comprises the two layers overlapping or intermingling with each other. Karrholm (2007) affirms that territorial regulations can affect our behaviour and movements in urban space and that these regulations are often supported by material forms and designs. Thus, the Peepul tree as an ‘actant influencing a certain place or situation’ generates interactions that contribute to the social layer in the design process, and when combined with the physical layer of the katte as ‘human activity nodes’ can together to become an ordering principle in urban design.

![Figure 10. Physical and social layers of the urban space.](image-url)
Salingaros (1999) suggested that urban space is a complex human experience that depends on an interaction with the visual, acoustical, thermal and tactile information fields. Similarly, the interactions at the katte facilitate the creation and development of such information fields. While Salingaros discusses information fields generated from interacting architectural elements and surfaces, this study hopes to add to this literature by saying that these information fields can also be generated from rituals that are linked to religion and ecology. For example, the everyday rituals and the seasonal rituals conducted at the katte can be a source of these information fields.

With every additional set of interactions, the information field becomes denser. These interactions and the information fields resulting from it also help create collective memory (Figure 11).

At the Mariamma temple at Dodda Mavalli, the temple space, the katte space, the open market as selling space and the marriage celebration open space, each with its different user group and interaction cycles, would lead to a dense information field. The greater the density of the information field, the higher the intensity of the collective memory for the people of the neighbourhood. The history of interactions between people who come to the katte also helps them strengthen their social capital over time. The collective memory that arises out of social capital accruing over generations has helped communities claim urban space as their own. Thus, the more the collective memory a katte holds, the more difficult it is for the government to deterritorialize it, i.e. for a private developer to dislodge the community space from the urban fabric.

In addition, Karrholm (2005) has suggested that movement could be one of the activities defining the territory. In the context of this research, the everyday movement of people within the public space (territory of the katte) and the once-in-three-years movement of people on the processional path along the earlier village boundaries (territory of the village) seem to emphasize a territorial production by the community, both at the level of the urban space and the neighbourhood. This on-going circulation establishes both the marking and defending of territory by the local residents, not allowing the deterritorialization to occur in spite of the government-driven infrastructure development that is changing the urban fabric in several parts of the city. Thus, if an urban design can inculcate within it a social layer, then an urban space can become more embedded in the public life of the city.

Further research on why some kattes are more embedded in collective memory than others and if the extent of the katte and its urban space have a direct influence on collective memory could perhaps help evolve yet another determining factor for the generation and resilience of an urban web.
Notes

1. www.censusindia.gov.in
2. The idea for this research came from participating in Neralu, a citizen-led tree festival (www.neralu.in) that was held in Bangalore in February 2014.
3. Interview with Trustee of the Mariamma Grama Seva Sangha, the Temple trust at Dodda Mavalli katte.
4. In August 2014, a design workshop on ‘The Katte and the City’ was held at the Srishti School of Art, Design & Technology in Bangalore that the author co-taught with Deepak Srinivasan. Some of the artistic explorations and discussions during this workshop have also contributed to the ideas in this paper.
5. In 2010, an Urban Tree festival (http://katte-beingathome.blogspot.in/2010/06/around-tree-urban-tree-festival.html) led by the Art and Media Collectives – 1, Shanthi Road and Maraa had first initiated community dialogue around the role of trees in the contemporary lives of the city’s inhabitants.
6. Interview with Trustee of the Mariamma Grama Seva Sangha, the Temple trust at Dodda Mavalli katte (Source: Author).
7. A resting place where room and food are provided by a charitable institution for a nominal price.
8. It was reported in The Hindu, 13 Jan 2014, that, “A portion of the Kodandarama temple on Airport Road was demolished in January 2014 to facilitate widening of the national highway. According to Deputy Commissioner of Bangalore Urban District G.C. Prakash, the ‘gopura’, the compound wall and the ‘ashwath katte’ were removed” (http://www.thehindu.com/todays-paper/tp-national/tp-karnataka/portion-of-temple-demolished/article5572030.ece).

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