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Guest editors

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presently leading the entire team for preparation of comprehensive physical development master plan of the Kathmandu valley. He is the recipient of numerous gold medals (all three classes of Mahendra Vidhya Bhushan) and prizes for his excellent academic performance. He has contributed many dozens of papers, published in various forms: book chapter, international and local journals, editor of conference proceedings and local magazines including in local newspapers. He is also an editorial member of International editing board of 'Urbani Izzivi' Journal and also reviews articles for publication in numerous international journals such as Cities, Urban design International and so on. His field of expertise includes urban design, built environment management, risk sensitive land use planning, disaster management, conservation of historic settlements, local level planning and capacity building of municipalities.

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Editorial

The Department of Architecture of Acme Engineering College under Purbanchal University in Kathmandu, Nepal require to conduct urban design and conservation studio for the student of B. Arch, 4th year students. The objectives of this course are twofold: capacitating the students to analyze the built form from planning and urban design perspective as well as to prepare for the final thesis work. After this course, the student joins one full semester as a practicum in various architectural and planning consulting firms before appearing for the final thesis work. Unlike in previous semester, this course focus on settlement level. Instead of taking one single site with limited issues, the whole class was divided into six different groups. Each group consists of 4-5 students. They were given six different types of sites: one group of student was given revitalization of Bagmati riverfront whereas second group was allocated redevelopment of Mahabaudha commercial areas. Two more groups were assigned revitalization of the historic settlements of Khokana and Harsiddhi, both located in Lalitpur metropolitan city. The remaining two groups were given critical review of land pooled sites where they are supposed to propose an alternate master layout plan along with detailing. The intention of making group is to explore in detail not only in collection of information but also in processing of data and finding the relevant issues before addressing them in the planning and design solutions. Moreover, different sites and context means students can learn from each other during various stages of the assignment through presentation and discussion. Finally, publication of student works encourages them as well as the junior students to work in a practical and meaningful way.

Dr. Bijaya K. Shrestha and Babita Thapa

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An Urban Oasis: Revitalization of Bagmati Riverfront at Teku – Thapathali section

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1.1 Contextual background and project objectives

Kathmandu valley, the capital region of Nepal ranks as among the most congested cities in the world, bringing with it a slew of other environmental problems like air pollution, visual pollution, water pollution, solid waste, etc. The rapid urbanization of the city has adversely affected the river with various forms of encroachment in the flood plain, becoming a major issue for the city authority. This phenomenon has led to the detachment of the city from the river and gave rise to the urban flooding. The use of river has been totally altered, narrowed and polluted. The change in nature of the river and river edges has created the gap of interaction between the river and people. The accessibility to the river is very rare due to the vehicular corridor road and fencing. This paper provides a review of the prevailing concerns and difficulties along the Bagmati river corridors and discusses the challenges associated with implementing alternative urban design concepts. It is to provide a framework that enhances the relationship between water bodies, settlements and green open spaces that is properly able to cater the threshold

population of that particular area. This report involves of identifying growth areas, building transport network both pedestrian and vehicular, embracing the nature and balancing flexibility in employment sector while protecting the traditional one.

The specific objectives of this study are as follows:

(a) to explore and analyze the existing condition of the riverfront of the study area;

(b) to analyze numerous issues, problems and potentials associated with revitalization of the areas; and

(c) to draw a conclusion and propose some key recommendations.

1.2 Study area

This study is covers the Teku-Thapathali segment of Bagmati riverfront covering about 1.7km of area (Fig. 1.1). The northern part of the river lies under Kathmandu metropolitan city and the southern part belongs to Lalitpur metropolitan city. The river edge on both sides have diverse characters. Some parts have 9 me wide corridor roads whereas other parts are greenery and open spaces. Again, some part of the water edges is occupied by squatter settlements. Temple complex along with crimination area are also located within the study area. Though Bagmati river is considered as a sacred river associated with the civilization of the Kathmandu valley, it has been highly polluted at present due to haphazard urban growth, connection of city's sewer lines directly into river and encroachment of the water's edges in different forms. This part of the study area also comes under inundation during rainy season.

The study area, Teku region is the confluence of Bagmati and Bishnumati rivers. It is believed that then King Gunakam Dev (724 AD) established the Kathmandu city in the shape of a sword (khadga) with Teku Dhovan as its southern border. This location was popular among the traders that utilized the spaces for resting, bathing, playing, performing rituals in the memory of the deceased and also as a purification before entering into the city. The significance of this stretch is also dates back to the Lichchavi era during which the Pachali Bhaira was established.

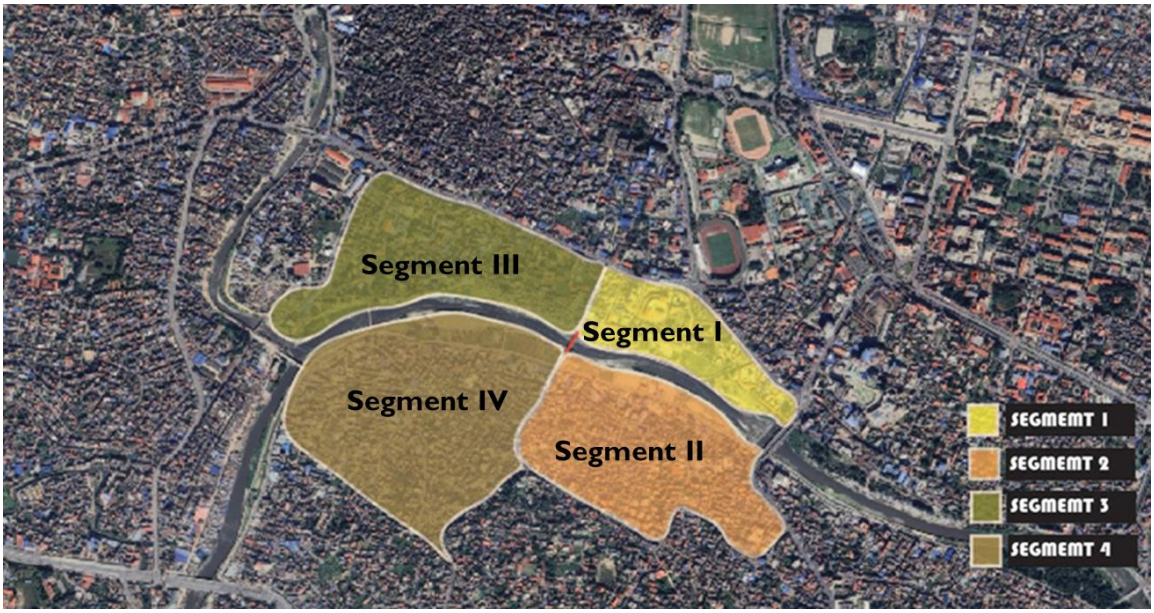


Fig. 1.1 Study area for riverfront revitalization study

1.3 Study methodology

The study combines both qualitative and quantitative methods of information collection. Numerous literature associated with the riverfronts, site specific projects and international best practices of riverfront revitalization were critically reviewed. In addition to that, the study area along with its surrounding areas were visited many times not only to understand the existing conditions and to map them

but also to talk with local people through a semi-structured questionnaire survey. The land use patterns, street patterns and land use zoning were done manually by the team members along with the assistance of digital maps and satellite imageries including topographic maps, aerial photographs, geological maps, land use maps and other relevant thematic maps of the study area. In order to get a better insight into the experience of the people within the particular environment, semi-structured interviews were conducted to the locals living along the riverfronts.

1.4 Existing conditions of riverfront along Teku - Thapathali segment

The segment I located at Kathmandu Metropolitan City (KMC) side consists of crimination area (ghat), traditional sunken stone spout (dhungedhara) and riverfront public spaces in the form of a park (Fig. 1.2a and Fig. 1.3a). Some riverfront spaces are being used by Vishwa Niketan School (public school) as a playground. Small portion of this segment especially near the 'Sankata bridge' is being squatted with 3-4 families. The crimination area is not frequently used whereas the sunken stone spout is still used by local community for bathing as well as washing cloths and utensils. The park is also mainly used by local community for evening walking. Direct access to the river is possible through crimination ground only. The rest of the river edges have stone embankment walls. There was presence of riverfront trails of width 2-3m with concrete block pavement with access points from different locations.

This segment is dominated by religious structures such as temples and community buildings along with many government institutions. There is mixed use of residential and commercial activities along the

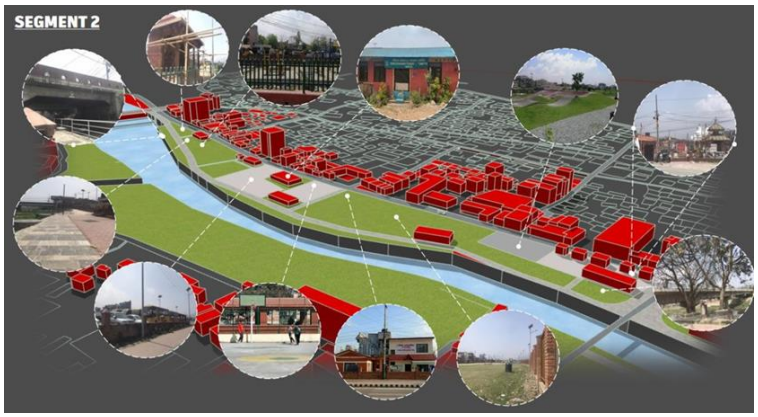
main roads whereas significant residential houses are there between the main road and the riverfront. Kalmochan mahadev temple, Tripureswor mahadev temple, Department of Passport, Vishwa Niketan Chool (public school) and Guthi Sansthan office including Nepal Eye Hospital also operating in this area.

Water bodies (river) is not easily visible from this segment due to construction of high rise structures along the main road network.

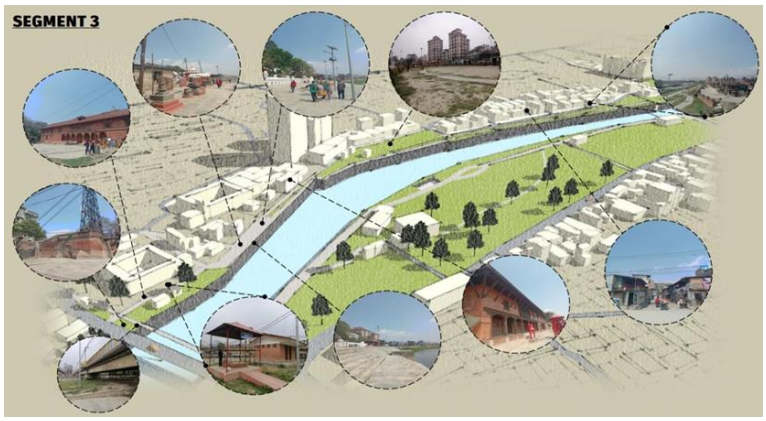
The segment II located on Lalitpur Metropolitan City (LMC) side also has crimination area, sport facilities and government offices (Fig. 1.2b and Fig. 1.3b). The crimination ground is occasionally used. Part of the riverfront is occupied by ward no 1 office of LMC and Women Environment Preservative Committee. The Gusingal basketball court, pump track Nepal and Kupondol ground are often used for sports. Recently, part of the riverfront was used for construction of Chardham temple, Jal Binayak genesh temple, Gusingal Vishnu temple and Shree 64 Lingeshwor mahadev (statues).

Land use in this section is mixed: with domination of industrial and institutional along the riverfront and residential and commercial buildings further away from the river. Gurudwara gurunanak temple, Nepal insurance authority, Nightingale school and college including Nwajeevan AG church also exist in this area. Riverfront is clearly visible from different locations of this segment. This is due to topography, existence of low rise structure on the blocks adjacent to the riverfront.

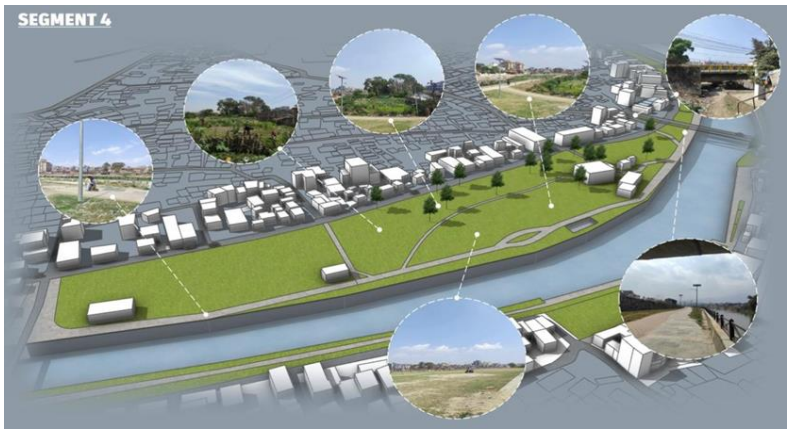
(a) Segment I of the study area



(b) Segment II of the study area



(c) Segment III of the study area



(d) Segment IV of the study area

Fig. 1.2 Four different segments of the study area

Fig. 1.3a Various activities in the segment I of the study area

Fig. 1.3b Various activities in the segment II of the study area

Segment III is mostly active as a crimination ground and funeral site (Fig. 1.2c and Fig. 1.3c). It comprises of many crimination grounds for various 'caste' groups: Ranjitkar ghat, Tandukar ghat, Karranjit ghat, Maharjan ghat, Chame ghat, Pode ghate and common ghats. There is also one electric crimination place but it is not under use at present. Besides, crimination ground, this segment also houses one 'Kriyaputri' house, used for funeral rituals. There are also many religious complexes. There is open space along the riverbanks and part of it has been developed as a park known as 'Chintamani park' which is used by local people and riverbank communities. The land use of this segment is dominated by religious complexes. Some commercial and institutional uses are also found along the road sides. Blue lotus hospital, Signature apartment, Sukraraj tropical and infectious disease hospital, Shree Pachali bhairav temple, Laxminshwor mahdeve temple, Tin deval mahadev temp and so on are also located in this area. Visual access to water bodies is also poor from this segment mainly due to informal settlement along the

waterfront. The streets and pedestrian paths are not connected to the river edges.

The segment IV in the study area is comparatively inactive (Fig. 1.2d and Fig. 1.3d) There are some temples in this segment. The crimination ground is hardly functional and the park is often seen empty. Instead, they are used for practicing bike riding and local people sunbathing in winter. This segment has more greenery spaces. Grass and weed growth can also be seen in the river area due to the residual sediments after monsoon. Large portion of river banks are being used for agriculture production. This section of the study area is dominated by residential use with some industrial activities long the collector road. Some office buildings also exist here. There are numerous academic institutions: Nightingale college, Sagarmatha engineering college, Phoneix academy and Radian readers' academy.

Fig. 1.3c Various activities in the segment III of the study area

Fig. 1.3d Various activities in the segment IV of the study area

1.5 Issues, problems and potentials

Different urban block with different land use and building structure

The study area comprises of different types of urban blocks. Most of them are of irregular shape, as they were developed and extended over time on piecemeal basis. In many cases, internal roads within the urban blocks have incomplete network connectivity and many of them are of pedestrian lanes only with irregular shape and width. Some of those urban blocks are small in size, others are too big. They are oriented at various directions. Such characters of urban blocks have numerous negative consequences on mobility, urban density and skyline character including visual access to the river edges. In the same urban block, one can find mix of bulky and high rise structures (along the main vehicular road network) as well as low rise and small

buildings, especially along the pedestrian paths. In addition to these, the study area has numerous types of structures ranging from crimination ground and temple complexes to office, commercial and residential houses (and squatter settlement) including some greenery parks along the river edges.

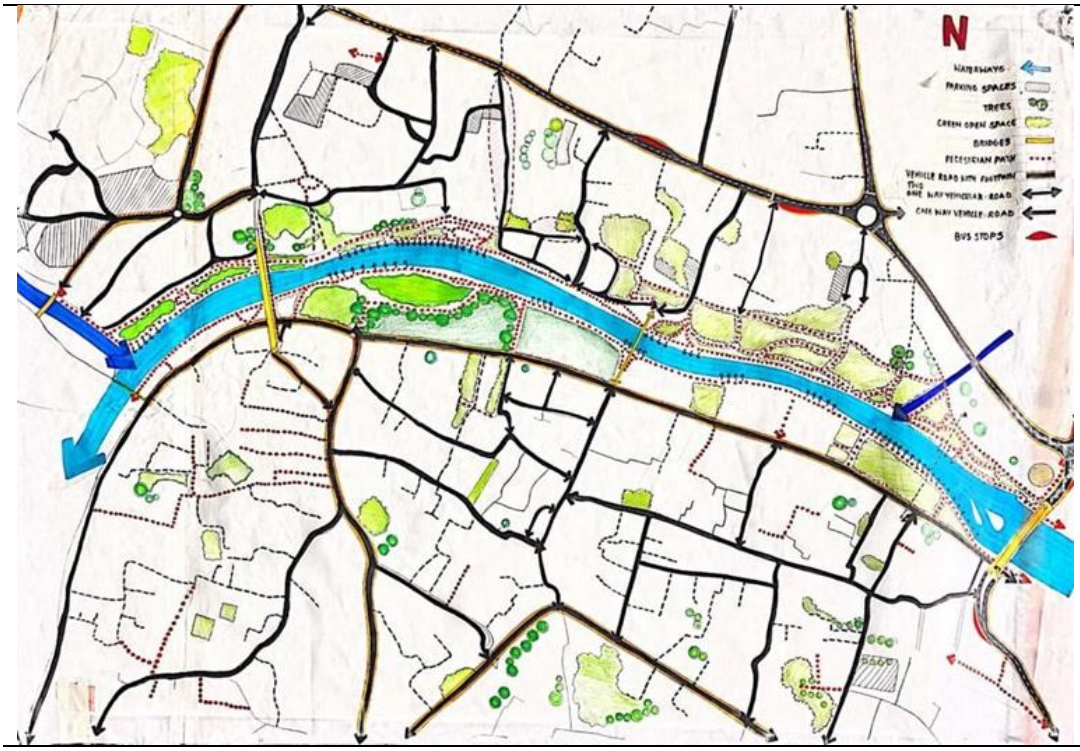


Fig. 1.4 Urban blocks of different characters

Separation of water body, greenery edges and settlements through river corridor road network

The Kathmandu valley development authority (KVDA) developed road construction on both sides of the river as 'road corridor' to ease the traffic jam and to smoothen vehicular movement. As the vehicular road network is inadequate, all the mobility pressure come to the limited road network. Also, the High powered committee for integrated development of Bagmati civilization (HPCIDBC) under Ministry of Urban Development build stone gable walls, park

development with furniture and jogging lanes along both sides of the river. A brick wall constructed between the river corridor road and greenery with limited access has constrained the use of such riverfront spaces. These public activities have though reduced traffic jam to some extent but they have also created new set of urban problems. It has physically separated the settlement from water and greenery through vehicular road network. As those road network are at lower elevation, most of them are under flood during rainy seasons (Fig. 1.5). Numerous existing road segments linking to these river corridors have road junctions, which are unscientific in terms of turning and width. As a result, those junctions often act as 'bottlenecks.'

Except few main road segments, the rest of the road network is developed on ad-hoc basis. As a result, their widths are not uniform and the pedestrian footpath is not continued. In some cases, the existing road network was widened by dismantling the building on both sides of the road. The road junctions are acute angle in many cases thereby making vehicular movement difficult. On the top of them, vehicles are park on the road sides making the movement difficult and at the same time increasing the risk of road accident.

Fig. 1.5 Riverfront flooding in the study area

Potential of redevelopment of the area

Despite poor condition of the area, it has a great potential for redevelopment for better linkages of water, greenery and settlement, effective land use and building density and above all utilization of diverse public open spaces for multiple activities. Public access to the water's edge can be improved in many locations. Moreover, the huge stretch of riverfront area can be planned for various activities both hard landscaping as well as soft landscaping and targeting various age groups. Finally, the adjacent buildings especially the ground floor can be used for services targeting visitors. Resettlement of the existing squatter settlement, motor garages and other riverfront spaces provide a huge opportunity for the planned development in a holistic way. Better linkages and integration of functional activities on both sides of the Bagmati river (i.e., KMC and LMC linkage) can be achieved through planning land use, transportation network and pedestrian paths and building uses.

1.6 Proposed redevelopment plan with detailing

The redevelopment master plan of the areas intends to restore linkages between water and greenery with the adjacent settlements through regulating land use, density and improvement of road network and pedestrian network in the area. A mixed land use of different activities commercial, institution and residential uses with religious function is proposed with well-defined greenery on both sides of the river (Fig. 1.6).

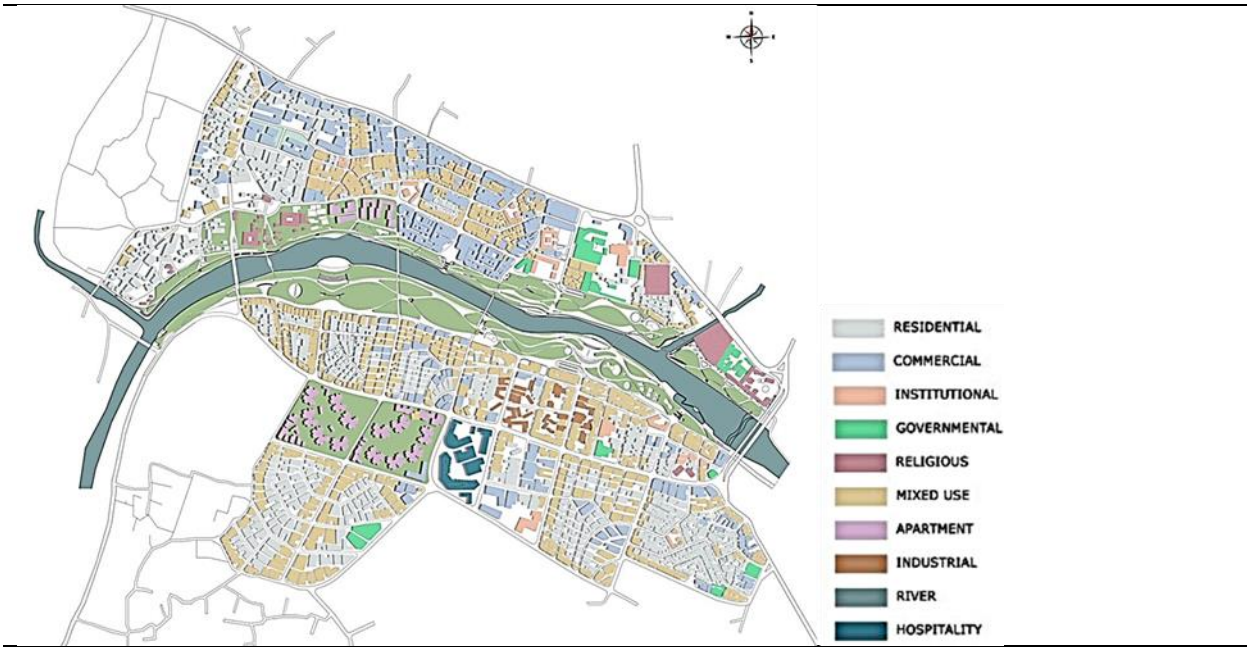
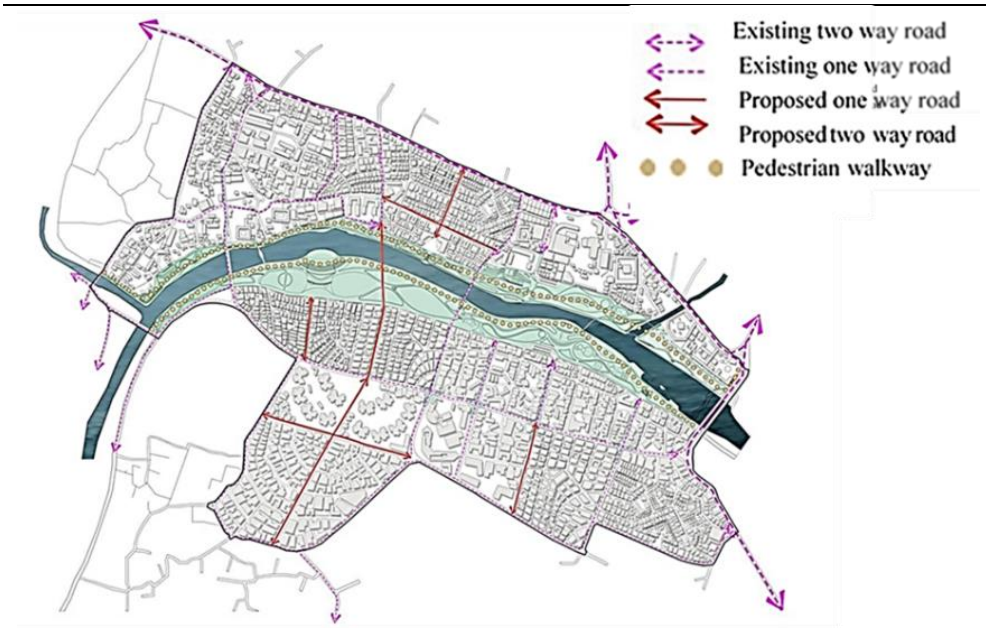


Fig. 1.6 Proposed master plan along with land use proposal

To reinforce the proposed land use, the existing road network should be improved. New roads are proposed not only to link various urban blocks but also for a better network of transportation with the existing road system (Fig. 1.7). The existing two-way and one-way road network is also considered for smooth mobility. The newly proposed road network improved the accessibility to the riverfront from the surrounding settlements. New pedestrian as well as vehicular bridges are also proposed for better connectivity of both sides of the rivers (KMC and LMC). The network of the road connections is designed in the form of interconnected winding roads that allow easy pedestrian access throughout the entire promenade creating variety of opportunities for the users to reconnect with the natural ecology. The idea was to create direct visual accessibility to the riverfront through creation of visual corridors and extended green ways that help direct people towards the river.



(a) Proposed road network

(b) Well-defined urban blocks with direct access to water's edges

Fig. 1.7 Proposed road network in the study area

The greenery areas on both sides of the Bagmati river is developed for multiple but public related activities (Fig. 1.8). Urban spaces are a wide area with opportunities to cater a large group of users belonging from a diverse group. The idea here is the creation of diverse spaces that are very different from one another while complementing each other. Here, diverse also in a sense of height variations. The height variations help in segregation of spaces while maintaining the visual privacy between different spaces. To maintain the connection between the river and the people, without creating a blockage

between them, a dedicated pedestrian river trail runs throughout the curves of the river which is below the normal ground which can be later closed in case of flood prone seasons. Also separate bicycle and running trails are provided with rubber treated pavements.

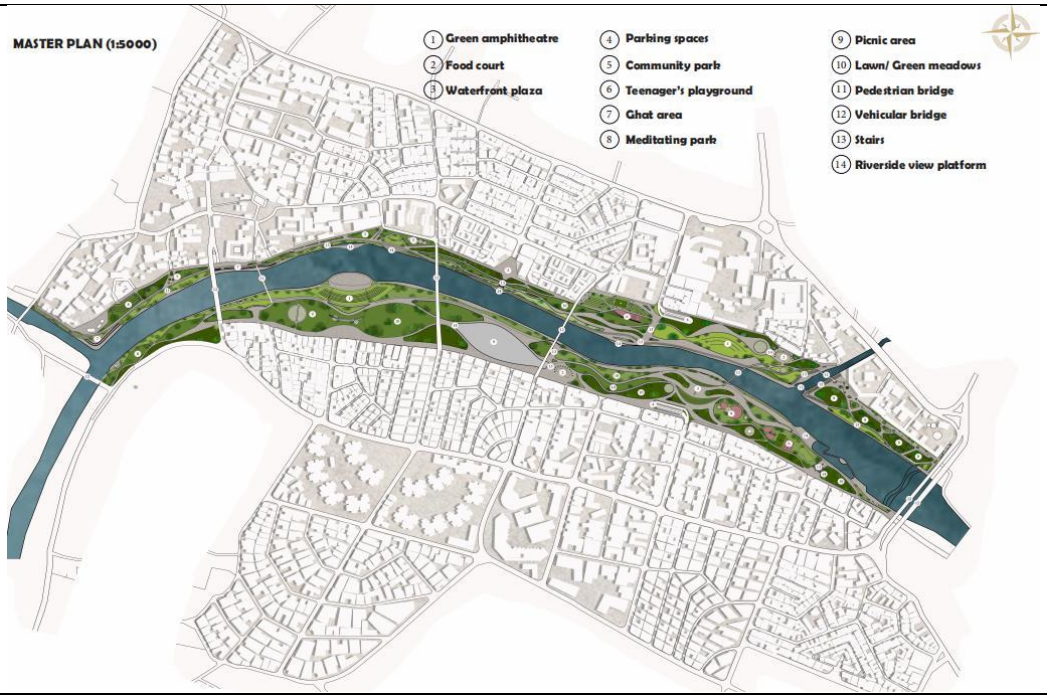


Fig. 1.8 Diverse use of riverfront public spaces on both sides of Bagmati river

For better utilization of riverfront spaces, privacy and visibility, the public open spaces on both sides of the river are designed at different levels (Fig. 1.9).

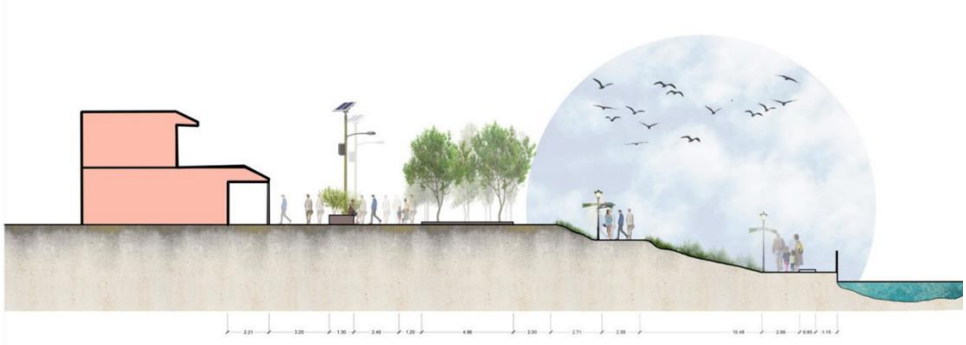
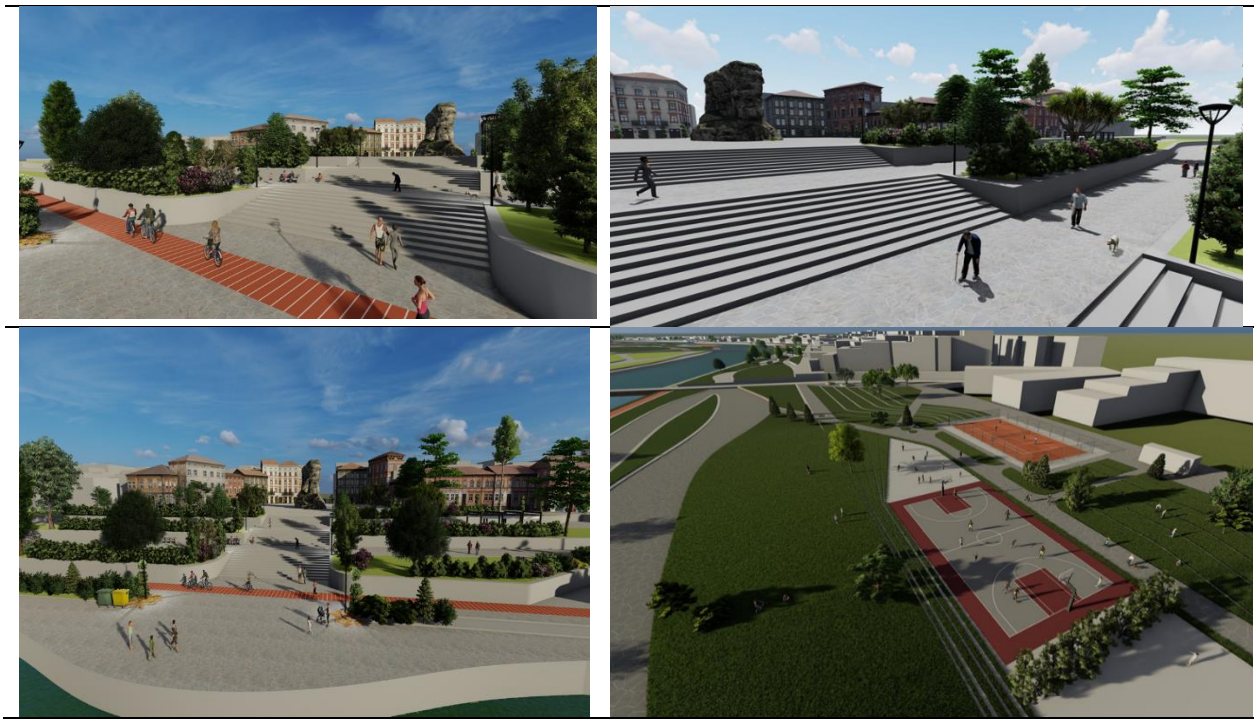


Fig.1.9 Creating differnet level of public spaces along the riverfront

For the purpose of recreation, different spaces are allocated according to the adjacent land use (Fig. 1.10). Different spaces like football grounds, basketball court, tennis courts, skate parks, children play area, teenagers playground and also picnic areas are separated as riverfront can be a space of utilization for sports and recreational activities.



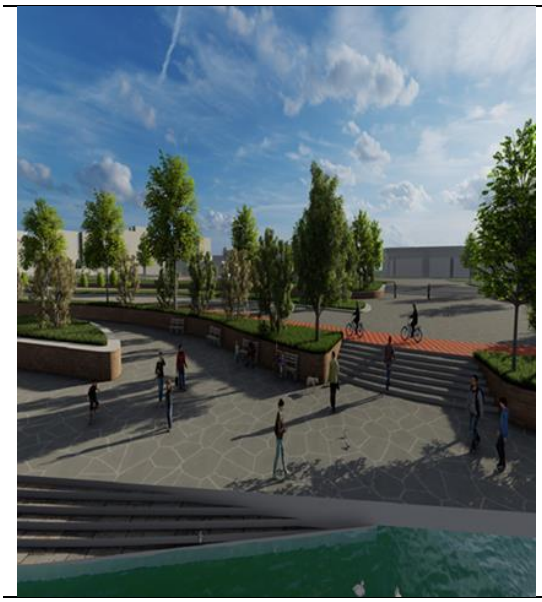


Fig. 1.10 Various recreational and sport activities along riverfronts

A space created with multiple opportunities that behold the essence of every age group, every race and culture. Heritage promotion strategy will also help the riverside areas to enhance the historical character and promote the heritage value of Kathmandu valley throughout the riverfront. Both the physical and visual connection between the riverfront helps to engage in their character and create a new generational development to uplift the lifestyle of the people. Also, integration of the bio swales and catchment areas will aid in rainwater harvesting which in larger scale can benefit to the society as well (Fig. 1.11).

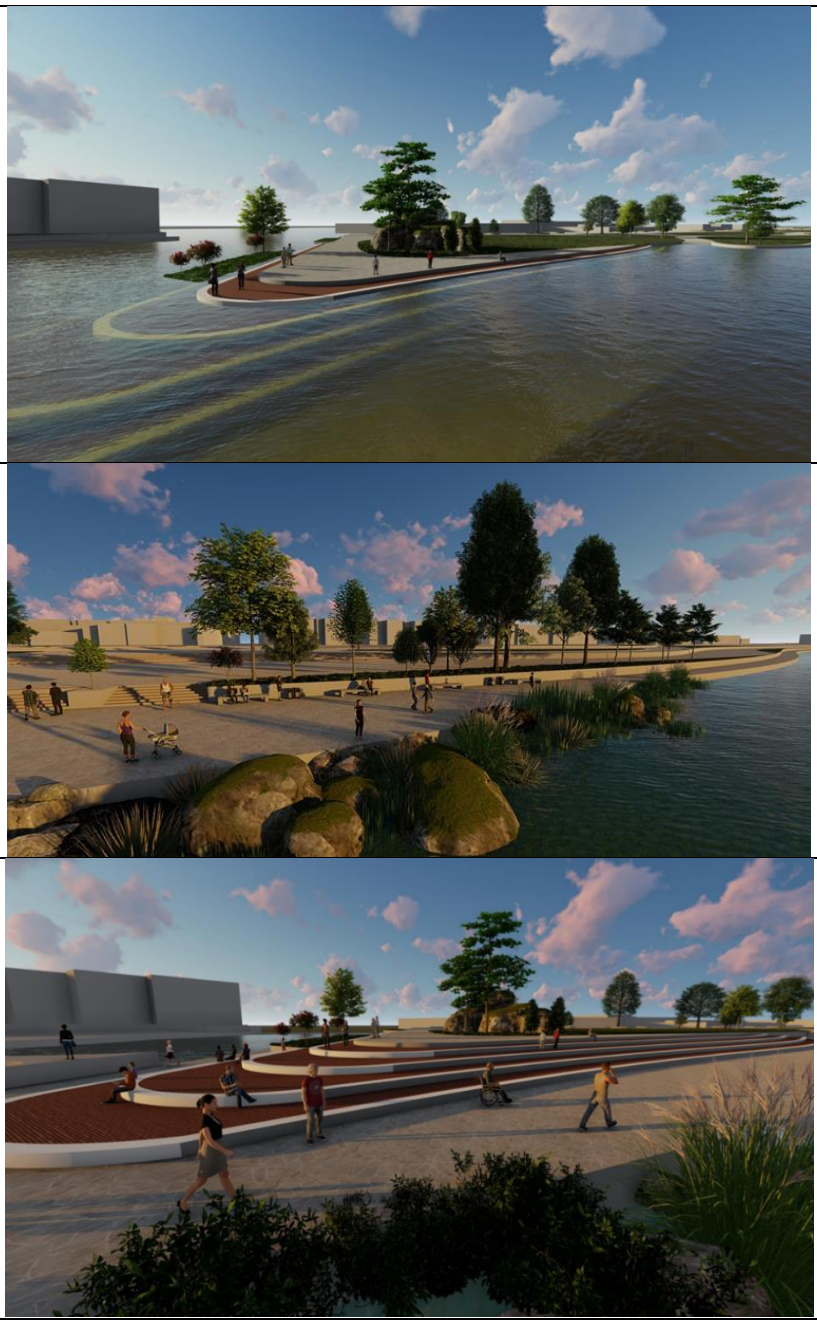


Fig. 1.11 Water edges designed with diverse public spaces for attraction of people

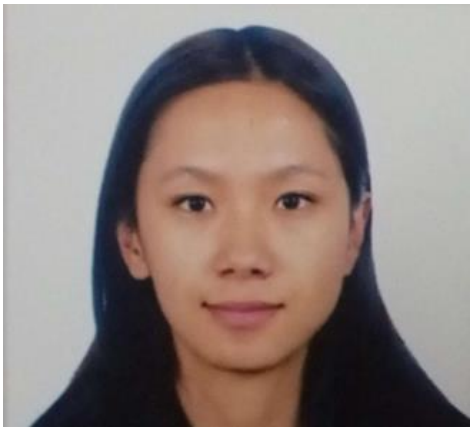
1.7 Conclusion

The proposal aims to bring positive changes to this urban scenario that not only has civic values but also cultural values which indeed is necessary to preserve. The Teku-Thapathali river stretch

redevelopment is a project that made us aware that an urban space should be able to cater all the functions and requirements of a convivial space. The planning here includes both the riverfront revitalization along with the redefining of the urban blocks adjacent to the riverfront. The riverfront spaces are designed so as to create a controlled urban space that increases both the legibility and imageability of the city form. Also aiding in creating a safe and sound place by applying crime prevention through environmental design (CPTED) measures as the spaces are clearly visible and no areas are kept unreachable. The new green planters are also introduced, either as decorative elements or as functional separators. Overall, the design not only changes the current urban structure nut rather transforms the space by adding diverse functions, improving circulation system and adding various urban land use patterns. The expansive undulating parks serves as a relaxing space as well as recreational zone for people of different.

Priya Bhagat ***is an Architecture student currently at Acme Engineering College, Kathmandu. Priya has developed a strong foundation on architectural principles focusing on creating sustainable and innovative design. Beyond the classroom she is deeply engage in extra curriculum activities that cultivate a well-rounded approach to architecture. With a love for arts and model making she spends a free time exploring new architectural style.***

Sabina Khadgi ***is an architecture student at Acme Engineering College, where she is passionate about the field of architecture and the art of creating innovative building designs. In addition to her academic interests, Sabina enjoys reading books and finds joy in dancing, which allows her to express her creativity in different forms.***



Salima Maharjan ***is a dedicated architecture student at Acme Engineering College. With a strong passion for architectural design, she is committed to exploring the creative and technical aspects of the field. In addition to her love for architecture, she enjoys expressing herself through painting, particularly in abstract styles and diverse subjects, which allows her to blend her artistic talents with her architectural vision.***

Samikshya Khadka ***is an architecture student at Acme Engineering College, where she is deeply passionate about designing buildings that are both innovative and functional. Her love for architecture drives her to constantly seek new ideas and inspiration in the field. Samikshya enjoys traveling, which allows her to experience diverse cultures and architectural styles firsthand. She also has a great appreciation for trying different cuisines, making her explorations as much about food as they are about design.***

Shresha Munikar ***is a dedicated architecture student at Acme Engineering College. Alongside her academic pursuits, Shresha is passionate about photography, capturing the world through her lens. She is also musically inclined, playing various instruments in her free time. Her creativity extends to crafting and drawing, and she enjoys staying active by playing basketball. An avid explorer, she loves visiting new places, adding to her diverse range of interests and experiences***

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Redevelopment of Mahabaudha commercial areas in Kathmandu metropolitan city

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2.1 Contextual background

Redevelopment means re-using and improving real estate in a neighborhood or city by adding or rehabilitating buildings, making more marketable properties. Redevelopment is not just constructing buildings; it ensures that residents of a community are empowered to improve their quality of life and environment as a result of sound planning practices. Redevelopment is typically perceived as the physical placement and regulation of land uses and structures.

Mahabaudha commercial complexes are situated in the dense and busy location of ward 27 of Kathmandu metropolitan city. It comprises of whole sale market of different items, ranging from electrical goods to cloths and garments including restaurant and eating places. In fact, these residential neighborhoods were converted into whole sale market by combining many small courtyards and converting the residential houses into shops through development of connecting corridors. The upper floors are being used

for storage of goods. The whole area is congested due to huge flow of people and narrow road network. Parking as well as loading and unloading of goods are problematic. Moreover, the whole complex is vulnerable to earthquake and fire hazards. However, due to its strategic location and famous for business activities, the area is still flourishing and there is a huge potential for management of the whole area. Acknowledging all these facts, this paper intends to explore the possibility of redevelopment of these vulnerable commercial spaces.

2.2 Aims and objectives

The main aim of this paper is to explore the possibility of redevelopment of the area. The specific objectives are:

(a) to study the present situation of the area especially in terms of space allocation and type of business activities;

(b) to find out key problems, issues and potentials from redevelopment perspective; and

(c) to propose redevelopment plan along with detailing.

2.3 Study methodology

Both primary and secondary data were collected through different techniques. Primary information was gathered through frequent visiting the site and mapping the areas in terms of shop type, vehicular and pedestrian movement and parking location. Also semi-structured questionnaire survey was carried out with different shop owners. Numerous literatures published in different forms were critically review to explore its trend of development and issues associated with the area. Thematic maps were created using satellite images.

2.4 Existing situation of the commercial complexes at Mahabaudha

The existing commercial complexes of Mahabaudha is surrounded by road from three sides with east side the Bir hospital. At present there are numerous houses around various courtyards and they are all linked with pedestrian paths only, in most cases through under building. There are at least ten number of courtyards of different size within the study area. The ground floor houses many shops selling diverse items: accessories, lighting and watches, shoes, toy and cloths, besides restaurants (Fig. 2.1). There are residents and storage spaces on the upper floors. All the courtyards and shops are connected through narrow pedestrian paths only (Fig. 2.2)

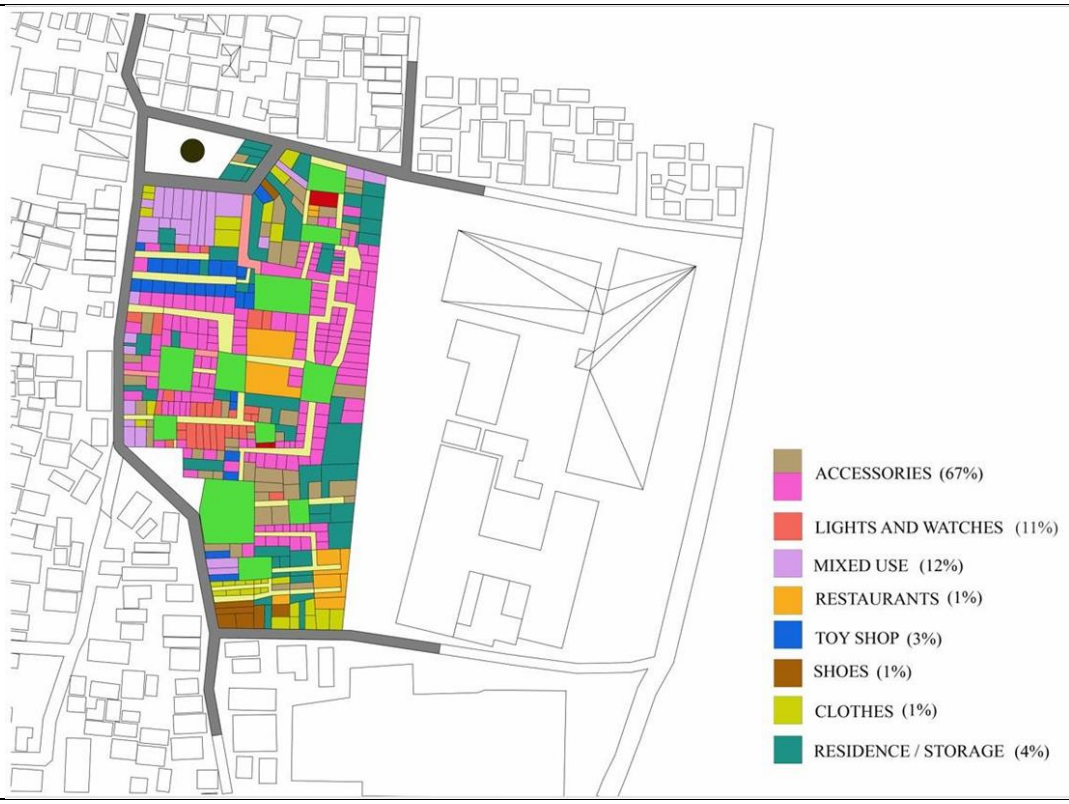
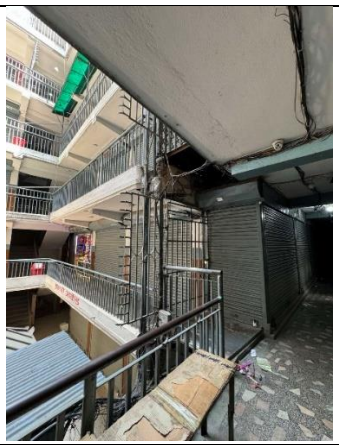
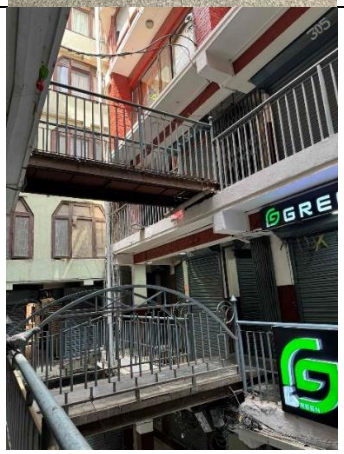


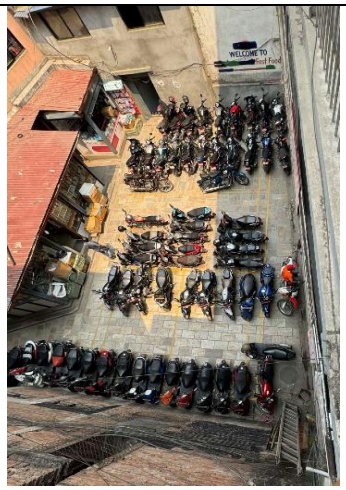
Fig. 2.1 Various shops at the commercial complexes at Mahabaudha, KMC











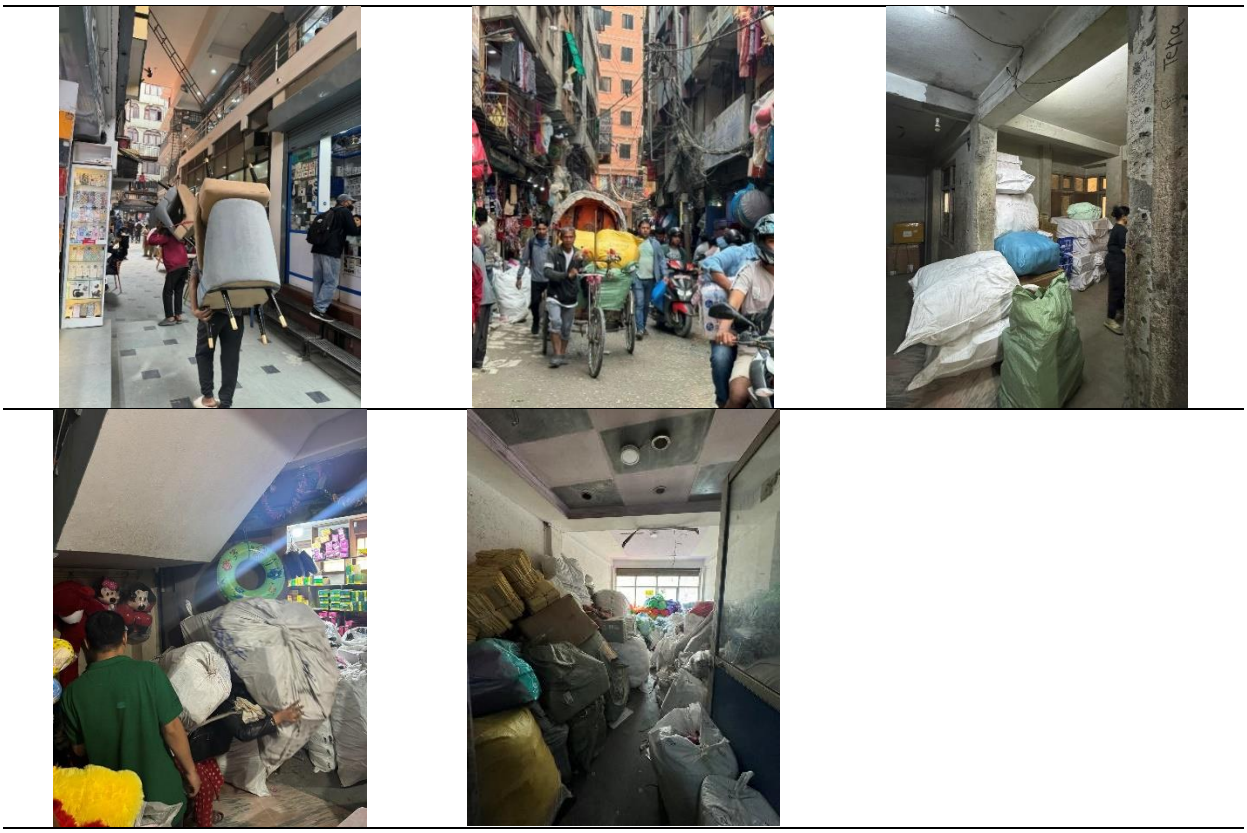
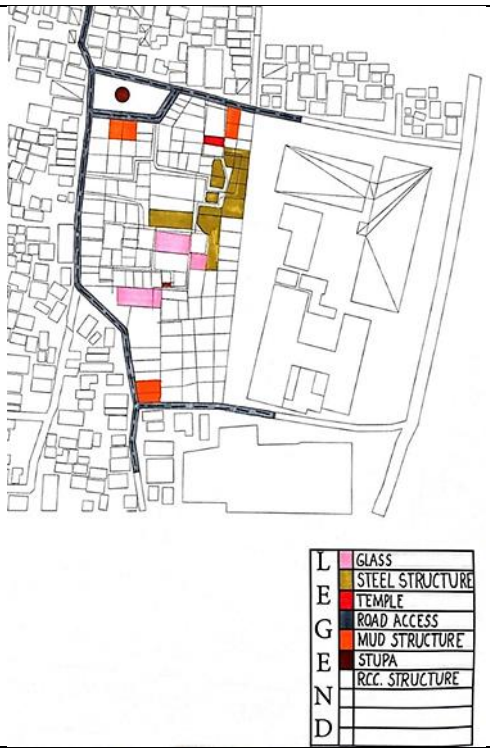


Fig. 2.2 Various activities within the complex

As there is no four-wheel vehicular parking within the complexes, all loading and unloading activities take place at two sides on the road itself. Though there are eight different access within the complexes from outside road, all of them are of pedestrian path only and almost all of them are through under building (Fig. 2.3a). Out of them, one two access leading to two different courtyards are used by motorbike users for parking their bikes. In addition to these two courtyards, there are additional eight different but small courtyards with the complexes. The buildings within the complexes are dominated by reinforced cement concrete (RCC) structures but there also exist some buildings of steel structure and mud joined buildings (Fig. 2.3b).

Parking and pedestrian access



Building typology as per building materials

Fig. 2.3 Parking provisions and building typology of the study area

2.5 Issues, problems and potentials

Space misuse and inconvenient for shop owners and customers

As the area was developed on a piecemeal basis over a long time by converting residential neighborhoods into whole sale market, the whole place is very chaotic and confusing for visitors. The vehicular access is available for peripheral shops only from three sides, the rest of the shop owners have found it difficult for loading and unloading the goods. There are different types of shops inside the same neighborhoods. The circulation space among various shops and blocks are so confusing.

Fire and earthquake vulnerability

This area is highly vulnerable to fire and earthquake. The fire can occur at any time due to electric shock. There is also a famous restaurant inside the complex. Many people visit this area on daily basis. In case of earthquake, it will be very difficult to escape form this area due to narrow and confusing access. Moreover, the existing various courtyards have become wells due to high rise building constructions around them. Also, fire hazard can occur at any shop located inside the complex due to short circuit. In such a case, it will be very difficult to extinguish the fire due to its location and access. Also, only few residential families are living in this place at now. Most of the upper floors are also occupied by either shops or storage spaces.

Potential for redevelopment

This area has high potential for redevelopment not only due to its strategic location in the city core area but also it has gained a fame. This whole sale market is visited by many middle class people from the valley as well as outside visitors. Due to expansion on ad-hoc basis over time, there is wastage of commercial spaces, besides high vulnerability of earthquake and fire. Visitors find difficult in parking their vehicles. The surrounding roads are not only busy but they are also narrow and difficult for ambulance and fire brigade in case of a disaster or big accident. The Kathmandu metropolitan city has recently changed its building regulations. Accordingly, this area can not have FAR of 3.5 or 8 story high building against 5 story height restriction (45 feet) in the earlier building byelaws.

2.6 Proposal for redevelopment and detailing

The redevelopment plan has divided the whole site into eleven different blocks with vehicular and pedestrian access to each of them (Fig. 2.4). This plan will be executed through demolition of all the existing buildings in the site. The commercial retail shops are proposed on the ground floor whereas restaurants and office spaces were created on the upper floors.

Fig. 2.4 Proposed redevelopment plan with allocation of different shops on different blocks

The surrounding areas used to be residential areas till recent past and most of the houses in from of the existing main façade have building with retail shops on the ground and residential uses on the upper floors.

Hence, the scale of the proposed building blocks should be compatible and fits into the local context (Fig. 2.5). Moreover, the outdoor spaces are detailed out for pedestrian friendly with street furniture.

Fig. 2.5 Proposed various building blocks of the complex along with outdoor spaces

After completion of construction of all blocks, the earlier congested areas will become more open to the surrounding existing areas with many building blocks for various activities. Each building block will have mixed uses of retail and commercial on the ground, restaurant and offices on the middle and residential units on the top floor (Fig. 2.6).

Fig. 2.6 Front and back elevations of the proposed building blocks

Ms. Kanchan Yadav ***is a passionate architecture student currently in her 5th year, 9th semester at Acme Engineering College, Kathmandu. She has been known for her creative vision and dedication to safety and aesthetics in all of her building design for past 4 years. Her design emphasizes maximum utilization of space and decrease energy consumption. Her intellectual contributions include publishing a journal article on the vernacular architecture of mountain region of Sinja village.***

Ms. Shreeja Shrestha ***is an architecture student currently in her 5th year, 9th semester at Acme Engineering College, Kathmandu. As an architecture student with a passion for art and painting, likely bring a unique perspective to the design work. She values collaboration and inclusivity, ensuring that everyone's voice is heard and that the team works together harmoniously. Her art work was selected for display in exhibition. Her dual interests could lead to explore the intersection of architecture with other fields like fine arts, digital media.***

Ms. Praggi Shrestha ***is a student of architecture currently in her 5th year, 9th semester at Acme Engineering College, Kathmandu. Ms. Praggi is a passionate student of architecture with great interest in culture and its aesthetics in design. Passionate interest in visual media has been her greatest inspiration in combining culture and aesthetics with functionality in design. Her intellectual contributions include a report on hospital preparedness and another on earth shelter housing.***

Mr. Bibek K. Mahato ***is a Bachelor's in Architecture student of Acme Engineering College, Kathmandu, Nepal. He has a strong interest in design and research, which has driven her to excel in her field. He is also rewarded in the college for different activities. Through these efforts, he has not only enriched his own knowledge but has also contributed to the intellectual and cultural growth of his community.***

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Revitalization of the historic settlement of Khokana, Lalitpur metropolitan city

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3.1 Introduction

Khokana, one of the fifty-two traditional settlements of the Kathmandu valley, is a tiny Newari settlement situation about 7-8 km south of Kathmandu. It lies at the altitude of 1320-1358 m and covers an area of 2.72 sq.km with the historic core covering around 0.20 sq. km only. Majority of the local inhabitants are of 'maharjan' community with relying on agriculture as their main occupation. It has huge chuck of land around the historic core as agriculture land. Other profession includes the oil pressing, spinning, knitting straw mat, cotton cloths and woolen carpets as subsidiary activities. The traditional morphology of Khokana represents a hierarchy of public, semi-public and private open spaces, which is typical of a Newari settlement. They are defined by built forms of different types and linked together by a hierarchy of network of streets. With increasing population and urbanization, the earlier unique features of the town along with profession of its inhabitants are gradually changing. The social system of living joint family is also transforming to nucleus

family. The earthquake of April 2015 destroyed 812 houses and additional 355 partially damaged in Khokana. In total, approximately 80% of the houses are no longer fit for human habitation. Even after nearly one decade of the earthquake, many individual private houses are yet to be rebuild. Those newly completed houses are quite different from the traditional houses in many aspects. Local people are migrating from the town for job and other economic opportunities. Development pressure in Bhaisepati and surrounding areas are further exerting pressure in this historic town. Its heritage value is gradually deteriorating in many ways. Against such a backdrop, this paper intends to explore its revitalization of the town not only to conserve its heritage values but also to strengthen its local economy. It has three specific objectives of understanding its history and cultural heritage values and finding the reasons of diminishing its cultural heritage; of exploring potential of pedestranization and walkability in the core area of the town and finally of proposing redevelopment of main spaces within the town.

3.2 History and cultural heritage of Khokana

Historically, it was located on one of the trade routes to the South (through the Bagmati Gorge). The word 'Khokana' is derived from the Newari word 'Khona' which means "tell by weeping". In 15th Century A.D., King Amar Malla named this village as "Jitapur"(Sanskrit word). Khokana has basic geometric form of Swastika (map of cosmic representation) with intersecting lines and squares representing the four quarters of a universe (Fig. 3.1). Rudrayanit timple was established at the centre and oil pressing mills at four conrners. The history shows this it was more systemized by king Amar Malla, who also established the Rudrayani temple. The cult figure of the main

deity Rudrayani was placed in the center of the two major streets crossing each other. It placement is of significance in the religious hierarchy and the place in the town as a whole. Khokana has a dense and compact settlement pattern with a distinct arrangement of courtyards. Khokana was listed on the World Heritage Tentative List in 1996 as 'Khokana, the vernacular village and its mustard oil seed industrial heritage' under criteria (i), (iii), (iv) and (v).

Fig. 3.1 Swastika shape of Khokana with Rudrayani temple at the centre and Oil mills at four corners

In Khokana, majority of the population have adopted agriculture as their primary occupation, oil pressing, spinning, knitting straw mat, cotton cloths and woolen carpets as subsidiary activities (Fig. 3.2). In fact, it used to an industrial-service town of the valley and was famous

for its mustard oil production in a cooperative model, serving to the whole valley and beyond.

Fig. 3.2 Traditional occupations of the inhabitants of Khokana

It also reveals an excellent example of the unique clustered Newari settlement, which is still able to retain its traditional image to some extent. It exhibits outstanding built and open spaces which is typical form of traditional settlement of Malla period (Fig. 3.3). The number of lavishly decorated brick houses with magnificently carved windows of typical Newar craftsmanship, the street paving, urban spaces in the form of squares, courtyards and efficient water collection system, drainage systems are signs of a prosperous past.

Streets and open spaces of irregular shape and size following local topography (constitute around 20-25% of total historic settlement areas) are not only 'path' for movement of pedestrians and goods, but they are more like a 'shared community spaces' having symbolic, ceremonial, social and political roles. As such spaces are equipped with community amenities (well, public tap, etc.) and religious structures (temple, square platform, public rest place, etc.), they have become the stages for interacting different age groups at different period of time and seasons: worshipping place for old people in the early morning; grain drying and cloths washing venue for housewives in the afternoon; playing area for children and watching and conversation place for adults in the evening.

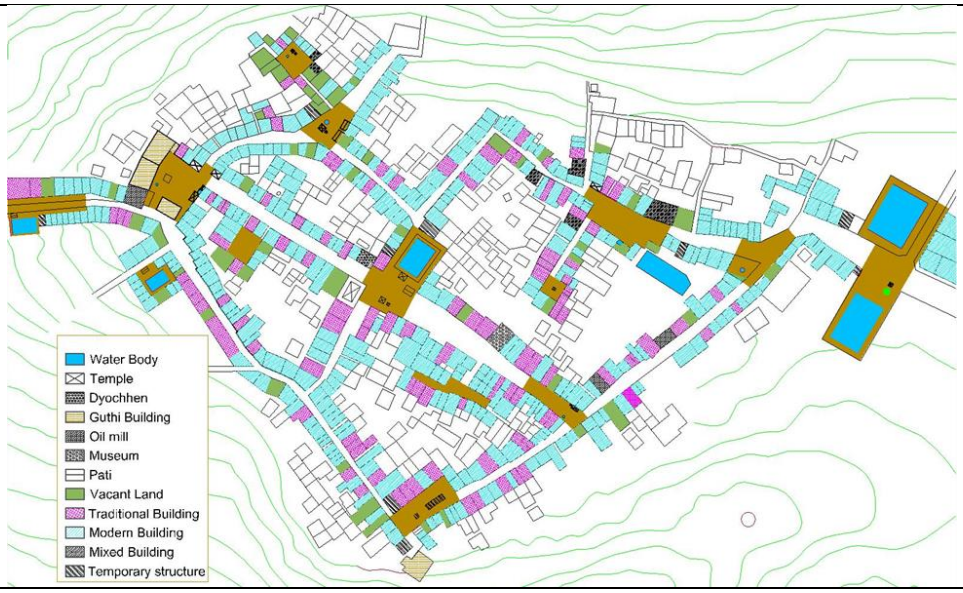


Fig. 3.3 Major public open spaces and traditional houses vs modern buildings

Before the earthquake, the built form and open spaces were vibrant and lively. The front spaces of houses were being used for various activities: washing, cleaning and sun bathing including watching procession and religious dramas. They were also drying places for agriculture products. The residential buildings on both sides of the streets have unifying elements: brick exposed façade, wooden door and windows and sloped roofs (Fig. 3.4). There was not so much variation in roof lines or building height thereby resulting in the street spaces as 'enclosed outdoor spaces.

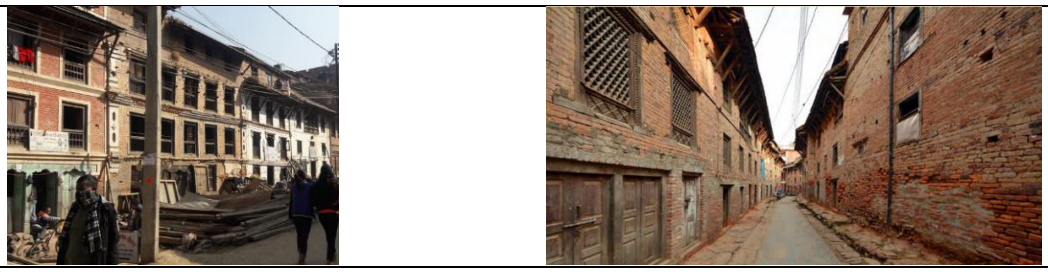


Fig. 3.4 Traditional architectural character of buildings in Khokana

The residents of this ancient settlement of Khokana have still retained the most of the festivals and ceremonies, rituals that have been extinct from many 'Newar' communities in the Kathmandu valley. They celebrate for every occasion and every changing season and some of them associated with dedication to nature and environment. Among thirty-two various festivals and rituals Shikali Jatra, Rudrayani Jatra, Kartik Jatra, Gaijatra, Gunpunhi, Khayasalahu, Bhimshen Puja, Paha-charhey, Sithi Nakha are the major festivals. In addition to that Khokana people also celebrate other festivals on various months (Fig. 3.5 and Table 3.1). They are the major attraction not only for domestic and international tourists, travelers, but also for historians and anthropologists.

Fig. 3.5 Intangible heritage of Khokana in the celebration of various festivals and performance of rituals

Table 3.1 Celebration of various festival on different months in Khokana

Historic towns	*Festival*	*Time of celebration*
Khokana	**Gathan muga**	**Mid July – Mid August**
	Jhasu nakha	**July - August**
	Gun Punhi	**Full moon of the month of Shrawan**
	Dhan Jya nakha	**1st day of waning moon in Sjhrawan**
	Babu ko much herne (Father's day)	**August**
	Gunla paru Bhoay	**Bhadra sukla pratipada**
	Jugah charhey	**August**
	Chatha nakha	**August**
	Yenyapunchi	**September**
	Shikali jatra	**Ashwin sukla pratipada to Nawami (1st day to the 9th day of the period of the waxing moon in Ashwin)**
	Chibah punhi	**October (Kartik Purnima)**
	Jatha punchi	**November (Kartik sukla Purnima)**
	De puja	**Januray(Paush Krishna paksha ausi)**
	Sree panchami	**Magh sukla pakshya panchami**
	Sila chare	**March (Falgun)**

Khaisalhu	1st Baishakh (April)
Bhindyo puja	2nd Bashakh

Water bodies available in different forms are not only community infrastructure but they are also part and partial of cultural heritage. They have both physical and symbolic meanings. Khokana still consists of many pons: Kha pukhu, Pal pukhu, Ga: pukhu, De: pukhu, Kutu pukhu and Dhokasi pukhu. Kutu pukhu is a pond to wash cloths of the goddess Rudrayanee, the main deity of Khokana after the Shikali jatra (festival). This pond is also used for purifying rites after performance of dealth. Culturally, De pukhu is the most important pond in Khokana. The famous goat festival is performed during Gaijatra festival. The festival is held with a swimming competition amongst the youths. Similarly, different 'Dafas' (the Newari orchestra bands) chants the hymns in their respective rest houses (patis).

However, the 25th April 2015 earthquake destroyed most of the houses in Khokana (Fig.3.6). The street and pedestrian lanes in most cases were blocked due to debris of the collapsed houses. One can see the debris consisting of mud, brick and woods around the town. Some houses were completely collapsed and other were partially with lower floors standing. One can see the earthquake victims collecting their household goods. They were in the state of confusion, as they did not know where to go.

Fig. 3.6 Destruction of Khokana in 2015 April earthquake

Many issues and problems have emerged after destruction of traditional houses in Khokana. Haphazard construction of houses in the peripheral agricultural land combined with confusion on rebuilding traditional houses in the historic core area is posing high risk on its cultural heritage values. Such urban sprawl will not only consume agriculture lands but the infrastructure cost will also be high in the scattered settlement. The earthquake victims are selling their agricultural lands in order to rebuild their houses. Some of them are also thinking to sell their houses. As local community is directly linked with the intangible heritages, displacement of those households will definitely affect in continuing festivals, rituals and other religious and cultural activities.

3.3 Potential of pedestranization and walkability

There are different meanings attached with pedestranization. The simple meaning is 'the removal of vehicular traffic from city streets.' It is to restrict vehicle access to a street or area for exclusive use of pedestrian. Walkability is the quality of waling conditions and the degree to which the built environment encourages walking by providing pedestrians a safe, comfortable, convenient and appealing travel corridor. It builds understanding of oneself, of others, and of the encompassing environment. It constructs; it adds; it allows one to take in bits of information and interactions from the environment

around and compose a more complete picture of what the world is, what the world contains, and what your place is within the context of that world. It can be conceptualized as pilgrimage, as a daily routine, as contemplation, as regeneration, and even as a state of well-being ad it serves a multiplicity of purposes in how human beings process and engage the world around them. Walking is a healthy means of transportation. It does not only contribute to social life by increasing opportunities for social interaction and learning about urban life, but it also helps to create healthy and livable communities. Walkability is the foundation for the sustainable city; without it, meaningful resource conservation will not be possible. Like bicycling, walking is a 'green' mode of transport that not only reduces congestion, but also has low environmental impact, conserving energy without air and noise pollution. Pedestrian environment on the streets can be improved through four concepts: living streets, pedestrian precincts, shared zones and sharing the main streets. The concept of living street is to balance the needs of residents, businesses, pedestrian and cyclists with cars for better quality of life and a greater range of community and street activities.

Khokana is qualified for pedestranization and walkability by many ways for tourism promotion and hence enhancing local economy as well as for conservation of its cultural heritages. Street in Khokana are of different width and hierarchy (Fig. 3.7). They range from 2 m to 7m wide. At present, vehicular movement is seen on 6m and 7m wide streets and passing through the core area of Khokana via Rudrayani temple. There is a bus park on the eastern periphery of the historic town. Most of these streets are stone paved and some of them especially a narrow one are of brick pavement.

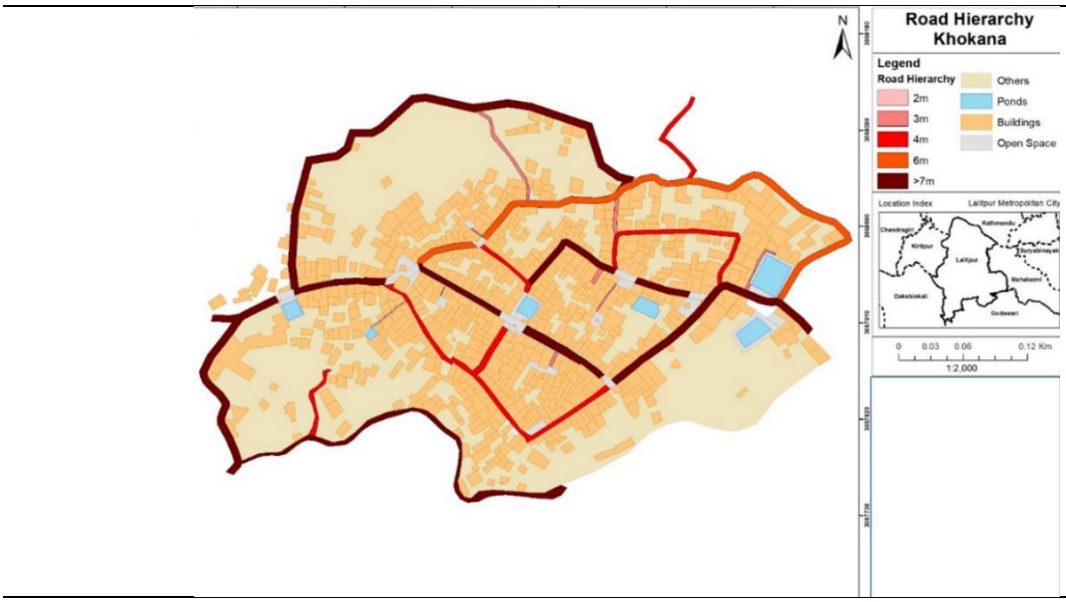


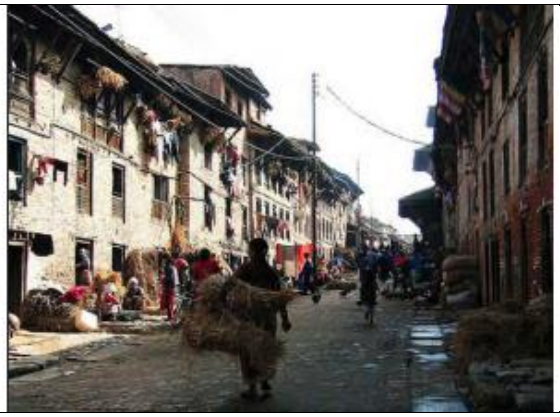
Fig. 3.7 Street hierarchy in Khokana

The main street is wide with provision of footpath on both sides. Other streets are also not narrow compared to other historic towns of the valley. Street width to building ratio within range of 1:2 to 1:3, unifying elements on building architecture – brick exposed façade, vertical oriented wooden windows and sloped roof with little variation on rooflines – have contributed to the formation of 'sense of enclosure' and 'human scale' for pedestrians. Visitors feel mystery, surprise, excitement and anticipation due to sequential spatial event and singular composition. These types of streets are the most suitable for pedestranization and walkability (Fig. 3.8).

Fig. 3.8 Street types suitable for pedestranization and walkability

One can find minimum changes on building facades before the April 2015 earthquake. Some of the newly built houses do fit into the surrounding houses in terms of plinth level, building façade and detailing including building height (Fig. 3.9).

Views toward Rudrayani temple in 1990s



View towards Rudrayani temple in 2005

View from Rudrayanit temple in 2007 in Khokana

View from Rudrayanti temple in 2014

Fig. 3.9 Minimum changes on building facades before the earthquake of April 2015

However, newly built houses after the earthquake have caused numerous negative consequences. On the site of the earlier single house, two or three tiny houses were built due to property division among sons. This together with the vertical division of buildings and addition of floor, renovation or new construction on part of the divided houses all have destroyed the earlier unifying characters, scale and proportion and volumetric definition of the streets and open spaces. Division of properties and multiple house construction has significantly reduced the habitable space but increased circulation spaces. As a result, each household has gone vertical extension even against the prevailing building regulations.

Most of the vehicles are parked on the footpath and road side, as there is no dedicated parking space. Significant number of shop owners in these settlements do come from outside. As they only rent the commercial spaces and not for vehicle parking, they are forced to leave their rides on the road side.

The economy of Khokana used to base on agriculture, as more than 95% of the total population were engaged in agriculture in the past. They also used to keep poultry but not chicken and eggs because of their typical cultural belief. Animal husbandry is limited to sheep, goat, cow, buffalo, pigs and ducks. Some members have business or shop such as small restaurants, teach shop, retail shop, cloth, cosmetic shop, meat shop etc. However, this trend is changing faster especially after the earthquake. Many of them have shifted to new business, leaving agriculture. Some of them have even rented their ground floor for other. There is a potential of development of cottage

industries and traditional profession for attraction of tourist and visitors in Khokana.

3.4 Revitalization plan with detailing

The proposed revitalization plan comprises of three key elements (Fig. 3.10). First, all the streets and pedestrian lanes are pedestrianized with allowing loading and unloading either at night or in the early morning. The local parking areas are proposed at three different peripheral areas before entering into the historic core area. Moreover, the existing vehicular route passing through the centre of the Khokana is proposed to use the northern side by-pass road which is to be widened and improved for vehicular movement. All the inner courtyards along with linkages are suggested to improve through pavement of stone and bricks so that the visitors and tourist can go around to explore not only the major temple and monument but also the residential neighbourhoods and the daily activities of inhabitants over there. Second, to attract the visitors, those pedestrian streets and courtyards are made liveliness through proposing various traditional activities, which will also enhance the local economy. For instance, straw mat weaving, wool weaving and carpet weaving activities are proposed on the ground floor on houses along the streets and courtyards. Third numerous public open spaces and water bodies are renovated and revitalized considering the vernacular architectural features of Khokana. In addition to protecting public spaces, the detailing of such spaces will also have street furniture, dust bin and above all solar lit lighting with mobile charging facilities to attract the youth and visitors.

Legend	
1	Bus top with ponds
2	Traditional work place (straw mat weaving)
3	Wool weaving place
4	Carpet weaving place
5	Guthi (social institution) area
6	De pukhu with Rudrayani temple

Fig. 3. 10 Proposed redevelopment plan with numerous features for Khokana

Kha pukhu (pond) anad Pala pukhu revitalization plans

Kha Pukhu, also known as the 'main pond, is a significant cultural and historical feature of Khokana. The pond plays a crucial role in the social, cultural, and environmental aspects of the community. Kha Pukhu serves as a central gathering place for the residents of Khokana. The proposed design idea consists of cleaning of pond water, creating community spaces around the ponds and linking them to the ground floor of the surrounding private buildings (Fig. 3.11a). The ground floor of those houses are suggested to dedicate for visitors' amenities such as restaurants and coffee shops, souvenir shops and so on.

Pala Pukhu (lotus pond) is another significant water body in Khokana, playing an important role in the town's cultural, social, and environmental life. At present, this pond is hardly used by local people and visitors. The proposed design solution includes landscaping around the pond, creating public spaces and street furniture (Fig. 3.11b). Lightening provision is also proposed so that it can be used during night too. Development of stepping not only creates spaces for sitting but it also acts as a smooth transition space between the water

body and surrounding public spaces. It also ensures full view of water bodies.

(a) Redvitalization of Kha pukhu near bus stop in Khokana

(b) Redevelopment of Pala pukhu in Khokana

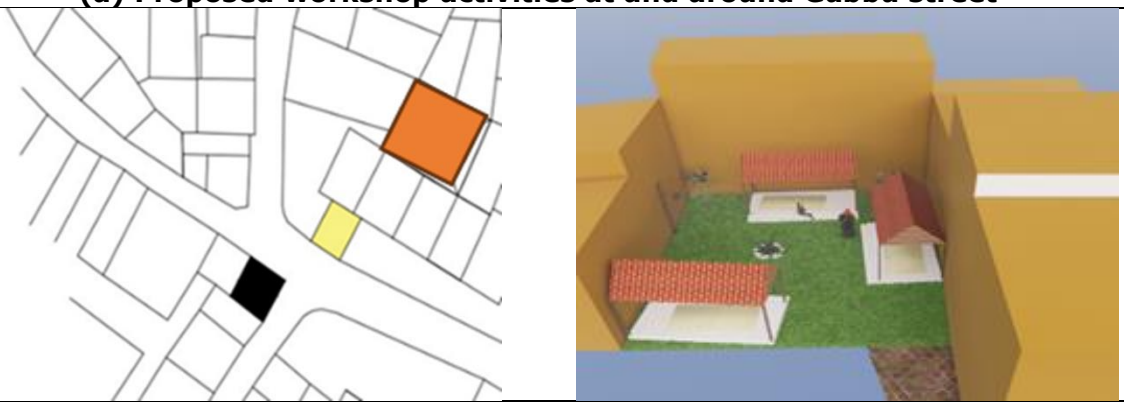
Fig. 3.11 Proposed pond redevelopment plans

Workshop locations

Still some local people have been engaged in traditional professions. Among them, some household especially women living around the 'Gabbu' streets, the main streets of Khokana are being engaged in wool weaving activities. They work at their homes, where a part of the living space is dedicated for weaving. Such activities carried out at old houses without adequate light and ventilation is not productive. Hence, weaving activities are proposed along and round Gabbu streets by remodeling the façade of the existing houses and rebuilding the earthquake damaged buildings (Fig. 3.12a).

Even ground floor of the buildings around the courtyard is encouraged for workshop of wool weaving either by remodeling the building or through new construction of damaged houses (Fig. 3.12b). The courtyard will be improved with street furniture and pavement so that the local residents and visitors can take rest and watch the wool weaving activities.

(a) Proposed workshop activities at and around Gabbu street



(b) Proposed weaving activities on the ground floor of houses around the courtyard

(c) Proposed mat (sukul) weaving activities along and around Ta:shya street

(d) Carpet weaving facility along and around 'Nhyabu tancha' street

Fig. 3.12 Weaving activities along different streets and around them in Khokana

'Ta:shya' is second main street of traditional workplace which is famous for the mat (sukul) weaving. Most of the building on both sides of 'Ta:shya' street are mixed use with ground floor dedicated for shops and upper floor for residential uses. One of the building which serves as mat weaving activity before the April 2015 earthquake is still in dilapidated condition. It is proposed to have mat weaving workshop on the building along and around this street. Mat weaving activities are proposed on houses along and around Ta:shy street (Fig. 3.12c). Carpet weaving facilities are proposed on houses along and around 'Nhyabu tancha' street (Fig. 3.12d). Most of the houses along

this street are of modern type with reinforced cement concrete (RCC) frame structure.

Kwela-chche courtyard redevelopment

Kwelachche is one of the important courtyards in Khokana. At present, there are some modern houses around the courtyard, which do not fit with traditional architectural character. Also, the pavement of the courtyard and access path is not uniform. It has been proposed to pave the access street with brick and the whole courtyard with stone (Fig. 3.13). Moreover, the modern houses around the courtyard will be remodeled especially the façade one. The building on the ground floor of these houses will have new public related activities such as art gallery. Also, the courtyard space is proposed for public activities associated with present day needs such as weekly or monthly local vegetable market, cultural performance, social gathering on awareness program and so on.

Fig. 3.13 Proposed redevelopment of Kwelachche courtyard

Rudrayani area remodeling

The famous Rudrayani temple and public rest house (pati) in front of the temple were renovated and rebuilt recently, as both of them were damaged by April 2015 earthquake. However, public spaces around them and surrounding private houses are yet to be remodeled. Hence, it is proposed to have stone pavement along with treatment of the facades of the private houses to make them compatible with the local context as well as traditional architectural character of Khokana (Fig, 3.14).

Fig. 3.14 Remodeling of Rudrayani temple area

Nayojho street redevelopment plan

Nayojho street in Khokana is the most important ceremonial street as it connects the Rudrayani temple to the key public square with community buildings. Numerous religious and ritual take place on this square during different festivals. At present, some buildings on both sides of the streets were already rebuilt with incompatible form and detailing. Those buildings especially the façade treatment needs remodeling; the street needs stone pavement with pedestrian footpath on both sides (Fig. 3.15). New solar lighting is also proposed. The ground floor of houses on both sides should be active and for commercial or public uses so that the visitors and passerby can enjoy while walking on the streets. Urban design and architectural guidelines and appropriate level of incentive packages have become urgent for ensuring new construction, following the traditional norms and characters.

(a) Existing Nayojho street and proposed change in building façade and ground floor use

(b) Existing façade elevation

(c) Proposed façade treatment

Fig. 3.15 Nayojho street redevelopment plan

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Revitalization of historic settlement of Harisiddhi, Lalitpur metropolitan city

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4.1 Background of the study area: Harsiddhi

Harsiddhi is one of the oldest Newari settlements, southeast about 8km far from the capital city Kathmandu, on the way to Godawari forest. It is located on wards 28 and 29 of Lalitpur metropolitan city. The town is believed to be named after the goddess Harsiddhi, whose four-tiered temple is located in the village's center. It was once believed that two giants went to Kailash Parbat (the location where Lord Shiva lived) and injured the gate-man, 'Nandi.' Lord Shiva was aware of the incident and recalled the Goddess, 'Chandika.' The Goddess appeared immediately and killed the two giants as Lord Shiva had predicted, and she is now worshiped as Harsiddhi. The term Harsiddhi has been misused. Actually, it should have been Hara (Shiva) and Siddhi (Parvati) or Harasiddhi, which means that half of the body is Shiva and the other half is Parvati; the Lord Shiva and Parvati's attributes. The town is also called `Jala' in Newari term is famous for its ancient cultural and historical monuments.

Harisiddhi touches Siddhipur in the east, Dhapakhel in the west, Lalitpur in the north and Thaiba and Badegaun in the south. The study

area covers approximately 5.39 ha of land (Fig. 4.1). The town is inhabited by mainly 'maharjan' caste from the Newari community. However, this town is gradually losing its heritage value and economic activities thereby encouraging local people to leave their traditional professions as well as leaving the places for better job. Such activities have further impacted on celebration of religious and ritual activities during different festivals.

Fig. 4.1 Harsiddhi historic town and study area

Against this backdrop, this paper aims to revive its local economy through revitalization by intervening on land use and protection and promotion of cultural heritages. The main objectives are threefold: study of settlement patterns and monuments of the town, identification of the main problems in urban transformation process and proposal of revitalization plan along with detailing.

4.2 Settlement patterns and monuments

The settlement pattern of Harsiddhi is of typical Newari settlement. The main street from north-south is crisscrossed by three different

streets from east to west. In all the three junctions, there were public square with important public monuments such as temples, sunken stone spouts and public rest house or community building (Fig. 4.2). In addition to that there are four different gate at four cardinal direction indicating or symbolizing the historic core area.

Fig. 4.2 Four gates at four cardinal directions with three squares housing various public monuments

Harsiddhi comprises of different types of public open spaces (Table 4.1). They are used for various activities. For instance, large courtyards known as 'nani chowks' are basically used for social interaction and children play area whereas the main courtyard or squares (laachi) are the centre for celebration of festivals and rituals. Streets are not only movement of people and goods but they do have symbolic meaning. They are also venue for procession route for chairots during different festivals.

Table 4.1 Type of open spaces in Harsiddhi

S. N.	*Type of open spaces*	*Functions*
1	Nani chowks	Social interaction, play area for children
2	Main chowk (Laachi)	Jatras (festivals, procession), ritual, social interaction
3	Streets	For daily activities, drying grains (during harvesting season), used for commercial activities, procession routes for chairots during festivals and connectivity of different neighborhoods
4	Gates	Demarcation of settlement and outside
5	Ghats	Cremation area, pith (worshipping god)

Various monuments are located at specific places with their functions in Harsiddhi (Table 4.2 and Fig. 4.3). Rest places such as 'pati' or 'sattal' (covered place) are located along the streets or corner of the courtyards, which are often used as public shelter at night, social interaction, religious pray and so on. Sunken stone spouts (hitis) are also located along the streets or in the large squares. Depending on the location and purpose of construction, some of them have religious meaning. Others are used for fetching water. Ponds and wells are also found along the streets or in the courtyards, which are basically used for household purpose of washing utensils.

Table 4.2 Public amenities and infrastructure in different forms with their locations and functions

S. N.	*Elements of open spaces*	*Location*	*Functions*
1	Patis/sattal (covered areas)	Along the streets and in courtyards	Communal space, public shelter, gossip, religious pray and resting spaces
2	Sunken stone spouts (hitis)	Along the streets, in courtyards and large square	For fetching water and religious meaning
3	Pond, well	Along the streets and in smaller squares	For household purpose, fetching water, washing utensils

4	Enclosed shrine	In large or small squares, along the streets	Daily worshipping,

Fig. 4.3 Public amenities in Harsiddhi town

The arrangement of the houses, temples, streets and open spaces have maintained a remarkable balance within the settlement. Houses are clustered along the streets or around the courtyards. All the squares are equipped with public amenities: sunken stone spouts (hitis), well, ponds, small enclosed shrines etc. Public open spaces as symbol of social bonding comprises of supportive spaces (elements).

4.3 Urban transformation of Harsiddhi

In the past one decade, the historic core of Harsiddhi has undergone rapid transformation through extension of the settlement over peripheral agricultural land (beyond the gates) and densification of the historic core area through renovation, addition and extension of spaces of the existing building structure (Fig. 4.4). One can observe rapid development along the major road in 2023 after widening of the highway.

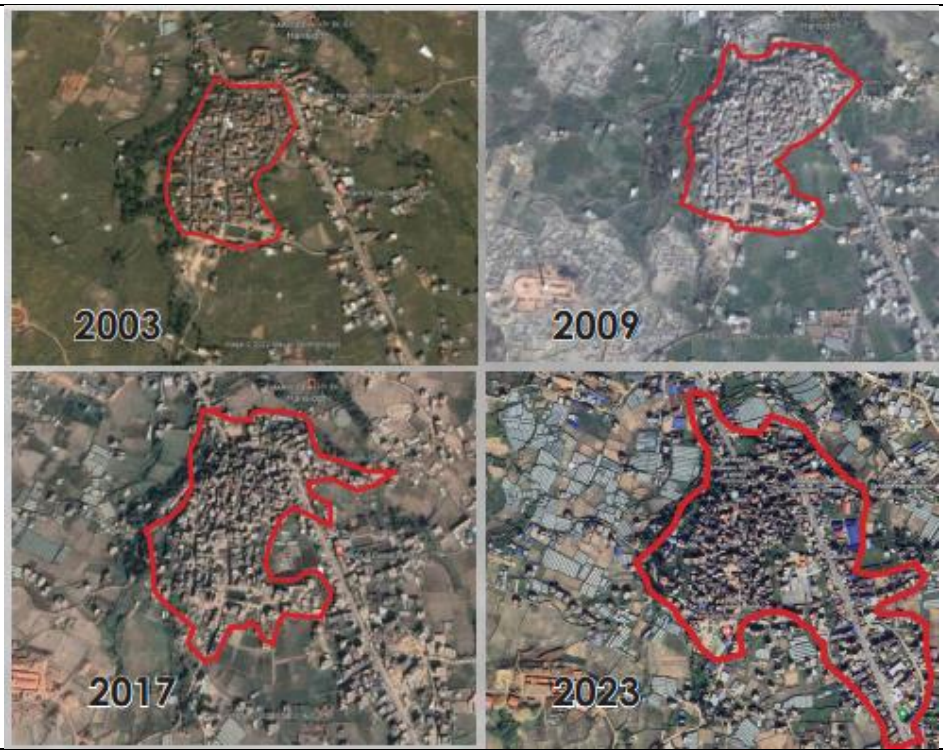


Fig. 4.4 Transformation of the historic core of Harsiddhi (2003 – 2023)

Most of the houses within the core of Harsiddhi are dominated by residential use; however, some buildings especially along the street sides have mixed used: commercial or retail shop on the ground floor and residential use on the upper stories (Fig. 4.5a). Still it has large amount of public or community spaces in the form of courtyards, squares and water bodies.

One can find different styles of the buildings in the area. Traditional houses built with brick in mud mortar have brick faced vertical façade with wooden door and windows. There are cornices or lines separating each floors. The sloped roof with supported by wooden struts is a dominating elements in traditional architectural style (Fig. 4.5b). However, many houses recently built especially after the earthquake do not follow these traditional elements and construction technology. They are all of reinforced cement concrete frame structure with cement plastered facades. There is a floor slab

projection for protection of windows from the sun and rain. In all cases, the roofs are flat with parapet wall around them. Some of the newly constructed houses attempted to incorporate some features of the traditional houses like brick exposed, wooden door and window. However, the windows are horizontally elongated, the cornices are dominating and above all the scale and proportion of the façade along with construction detailing do not match with the scale of the traditional houses.

The total number of traditional houses is 145 occupying 27% of total existing buildings. Most of the traditional houses were built in 'Malla style' while few were of the Rana style. Material used were wood and brick designed in Newari traditional style. The total number of modern buildings is 359 occupying the 70% of total existing buildings. Most of the modern house are built after the earthquake and are developed at the periphery of the main core settlement. The total number of modern houses with traditional features is 8 occupying the 3% of total existing buildings.

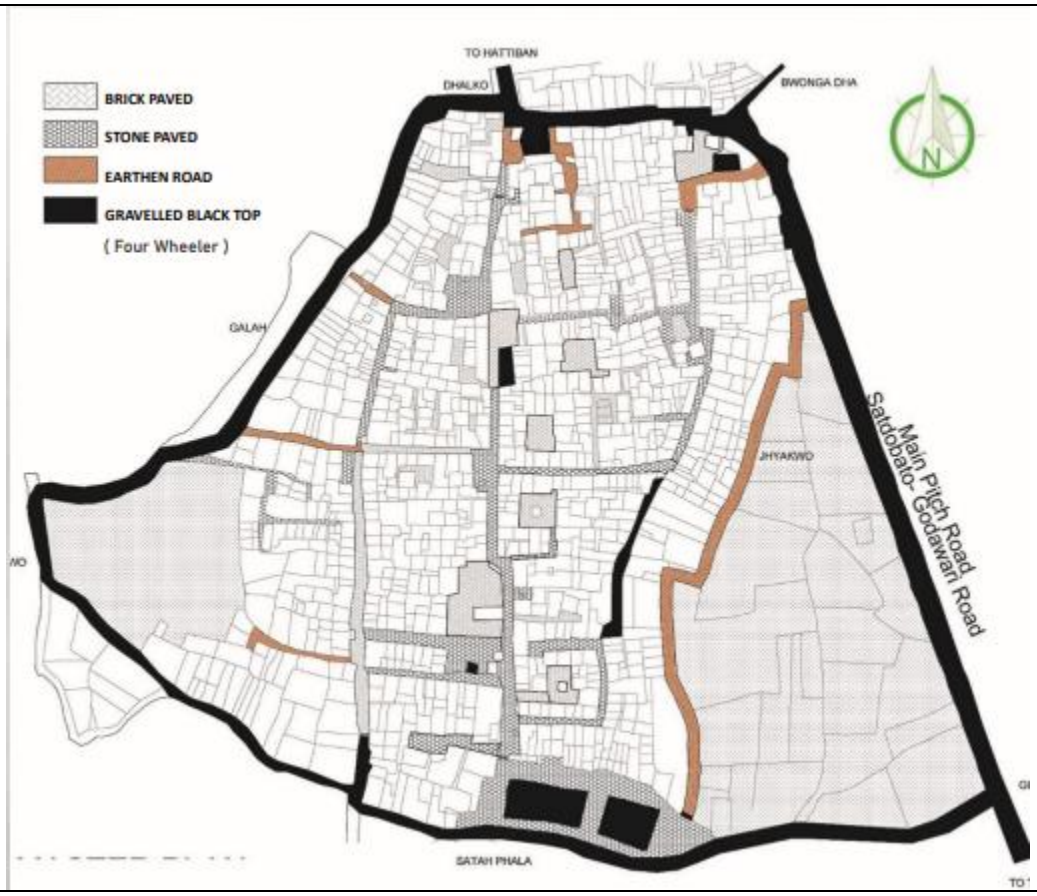
(a) Existing building use **(b) Different building styles**

Fig. 4.5 Transformation of building stocks in terms of use, form and architectural style

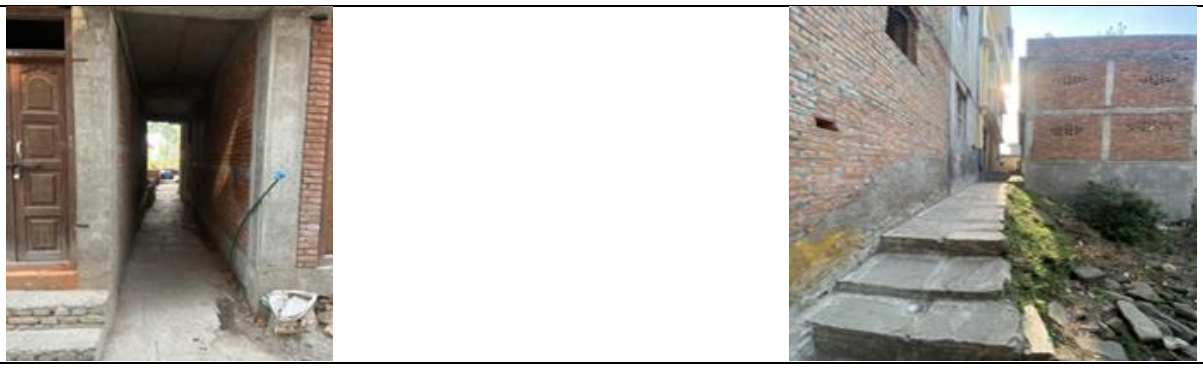
Though the whole town along with its streets and lanes were planned for pedestranization and walkability, changes in the lifestyle and profession of the occupancy, shifting economic base from agriculture to trade and service and need of connectivity with other settlements all have encouraged use of vehicles thereby converting the squares and lanes for parking.

The 'Satdobato – Godawari' road passing through the north-east boundary of Harsiddhi acts as a primary road connecting the town with other cities within the valley. This road was recently widened. The local road links to Harsiddhi from this primary road has been developed on incremental basis. Only the major streets within the core area are accessible for vehicles and the rest of the connectivity to individual houses are mainly through pedestrian lanes only.

The peripheral roads of the settlements are blacked topped and use for vehicular movement. Some of the streets are still of earthen type. Major streets and courtyards are paved with stone whereas the remaining pedestrian lanes and small courtyards are paved with brick (Fig. 4.6).



(a) Existing street and open space pavement in Harsiddhi



(b) Street typology

Fig. 4.6 Typology of street pavement and their patterns

Fig. 4.7 Intangible cultural heritage in Harsiddhi

Like other Newari settlements, the community of Harsiddhi also celebrate numerous festivals (Fig. 4.7). Major social, religious and ritual activities take place either inside the temple or in front of the temple on squares. Harisiddhi dance and 'Salcha pyakha' (horse dance) are famous in this town, which takes place at the main square (laachi). Indra jatra, gaijatra, dashain and 12 year jatras are celebrated here going around a fixed procession routes. The Harsiddhi Youth Club also coordinate various religious and cultural events particularly during festival times.

The town has been facing numerous problems. Numerous houses built after the April 2015 earthquake are totally different from its traditional architectural character. The differences are not only in architectural style and building detailing but also in building envelop and bulk. Most of them have high plinth level and higher floor height. Many squares and even the residential courtyards are being used for parking of vehicles; in other cases, they are used for commercial purposes by the shop owners. Many youths and local people are migrating in other places for job and better income. Those households engaging in agriculture in the past find difficult in switching into other jobs due to lack of skills and trainings. The overall result is gradually losing the unique identity and character of Harsiddhi and degradation of socio-cultural activities.

4.4 Revitalization plan for Harsiddhi

The revitalization plan comprises of three interventions. First, all the squares, courtyards and pedestrian paths are proposed for pavement with different types of materials so that they are visually well connected. Visitors and tourist can easily have access in different residential neighborhoods.

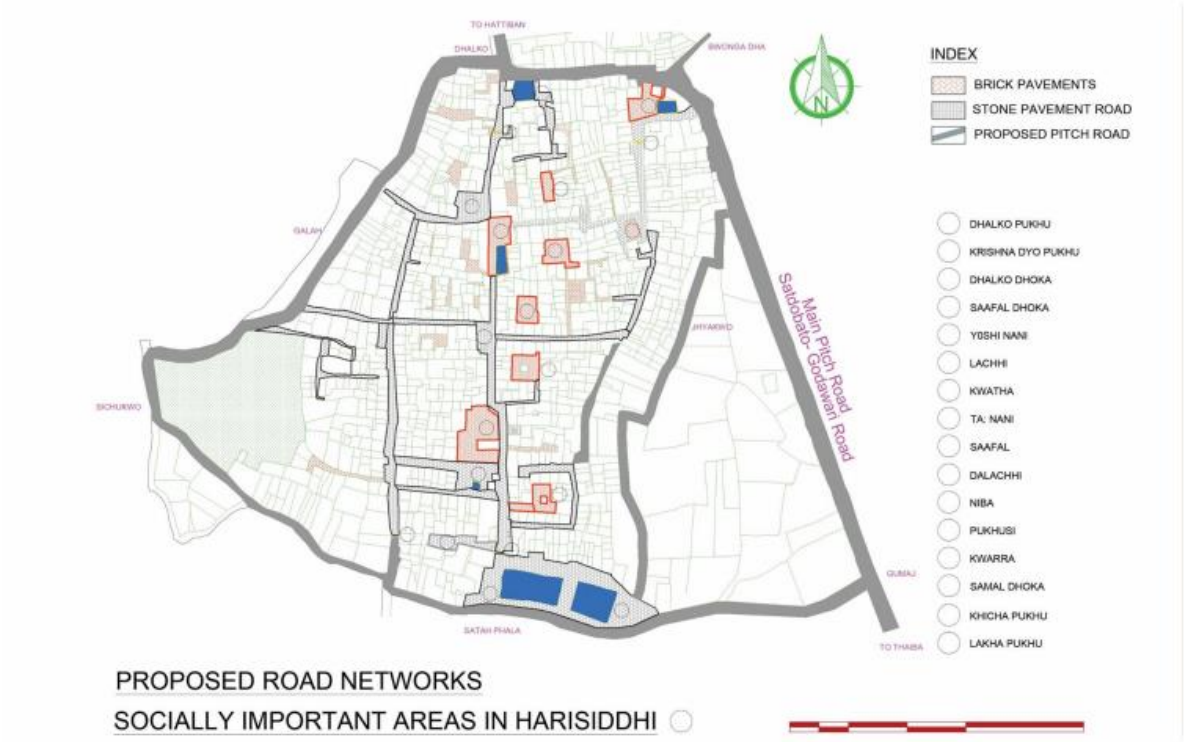


Fig. 4.8 Proposed pavement of streets

All the small courtyards (encircled by residential houses) and two main squares along the north-south streets are proposed for brick pavement and the rest of the squares along with pedestrian paths are proposed for stone pavement (Fig. 4.8). The public spaces around the ponds are also to be paved with stone. Both stone and brick pavement will have different patter, depending on the street type and importance of each courtyard. During emergency period, vehicular movement is also possible in the main streets. Parking on the streets and open spaces will be removed gradually after consultation with the local retail shop owners and households owning vehicles.

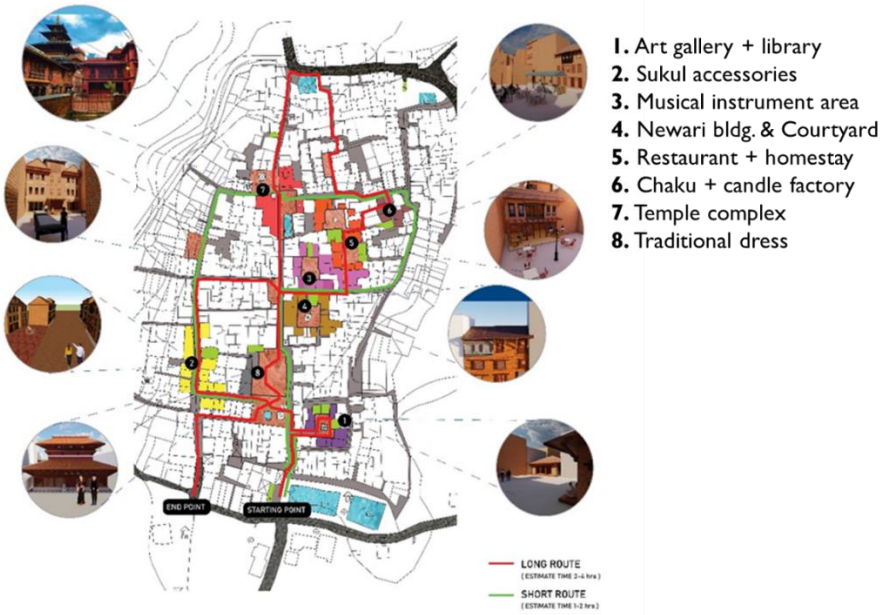


Fig. 4.9 Proposed activities associated with local economy and heritage conservation

Numerous activities associated with traditional professions as well as present day needs are proposed at various locations (Fig. 4.9). Such activities will encourage tourist and visitors go around different lanes and courtyards to watch the workshop and community working. It will also enhance their income, as it will increase stay of tourist and visitors in the area. Workshop or shops associated with traditional dresses, weaving (matt, woolen and carpet) are proposed around different lanes and courtyards. Also, restaurants and coffee shops are proposed at various street corners. Musical instrument repair and shops are also proposed. In addition to these, the traditional food called 'chaku' and candle workshop and shop are also proposed. Provisions of home stay around different courtyards especially in a quiet location are suggest. Also, modern day needs such as art gallery, community building and public library area also suggested.

Finally, the existing façade elevation of buildings along the main street was studied. Many of those houses have violated the prevailing building regulations in terms of height and detailing. Those built according the regulations fulfill the provisions but do not match with traditional architectural characters and detailing. Hence, renovation and remodeling of facades of those houses are proposed with new façade elevations (Fig. 4.10). Formulation of architectural design guidelines and linking them to incentive mechanism are also suggested for implementation of façade remodeling.

(a) Main streets of Harsiddhi

(b) Existing street façade elevation

(c) Proposed street façade elevation

Fig.4.10 Proposed street façade elevation improvement

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Urban development at Dibyashwori land pooled area: An urban design approach

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5.1 Introduction

Land pooling is a potential self-sustainable land development practice to solve the urban problems. It assembles irregular cadastral parcels into a well-planned regular parcel formatting the ownership of land for infrastructure according to land area invested from the initial plot by certain percentage called contribution ratios. Thus, the basic notion of land pooling is adequate, planned and spacious layout of plots for long-term development by redrawing the site boundary with precise parcel placement, addition of various services and infrastructure. Here the government and the landowners share the development cost. Eventually, the land price increases according to market demand and the owners gets the benefit. The sites of land pooling are usually urban fringes as a proper and steady method of urban expansion.

Land pooling has been practiced in the Kathmandu valley from 1988. Since then, more than two dozen of land pooling projects have been implemented either by Kathmandu valley development authority (KVDA) or municipalities in the valley. However, they have been carried out in the same fashion, irrespective of local context and present day needs. Moreover, they are limited to small scale, developing only residential neighbourhood through reconfiguring the irregular plots into regular one with vehicular access to each plot. In other words, they are limited to land development along with provisions of minimum infrastructure only. The use of building along with density and other parameters are determined by prevailing building byelaws. Against such a background, this study intends to explore an urban design approach for master layout plan of the planned land pooling area called Dibyashwori land pooling project. It has three specific objectives. First, it studies urban design parameters for land development and layout plan preparation. Second, it critically analyze the site context of Dibyashwori land pooling area and proposed land pooling layout plan by KVDA. Third and last, it proposes an alternative layout plan for the same site.

5.2 Urban design parameters for land pooling technique

The layout plan should allow mixing of different activities (except polluting uses) so that each of them complements others and makes the whole are lively and safer. A mixed-use building or blocks with flexibility between land uses may spread the risk of emptiness in design. It is a common practice to have convenience shops on ground floor and residents and non-residents on floor above. These blocks should be placed in the center or the focal points of the land pooling area; especially at the street corner to highlight a sense of arrival and

significance. They could complement open spaces that are connected through reasonable pedestrian network. Not only semi-commercials and commercials, but if possible schools and institutional areas should also be allotted a place in the mixed-use block. This should be done to maintain the spill out area during rush hour. Despite of the vibrancy of these places within the development, their scale and activity must be limited concerning with sensitivity of the adjoining decent residential area. In this way of incorporating different uses into an area while reducing the potential for negative or bad neighbor effects. Land use can be done by creating commercial or non-residential activities on periphery of the neighborhood intermediate zoning in the middle residential on second half and open space in the core giving social interaction of the resident throughout.

Urban grain is essentially a description of the pattern of plots in an urban block. It can be either fine grain or coarse grain (Fig. 5.1). Fine grain is used to describe an urban environment where the elements are typically smaller and highly varied in size. Fine grained urbanism is preferable because it implies diverse ownership. It provides many opportunities to go from one place and another, besides taking less money to build a shop or house in the small plots. Coarse grain urban fabric allows large scale development. It attracts people from other areas too thereby requiring large area for parking. Moreover, most of the activities in such a large scale building take place inside the structure with parking lots on the peripheral areas.

(a) Fine grain (b) Coarse grain

Fig. 5.1 Urban grain in master layout plan

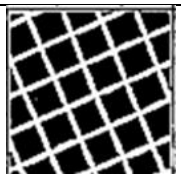
Streets are the portion of the urban space that develops accessibility between urban blocks. They are used for networking purpose. In street design, permeability is an important character. Permeability means the freedom of selection of routes through and within the environment. This choice of freedom gives an opportunity of movement. Visual permeability means the capability to see the routes through surroundings, while physical permeability means capability to move through the environment thereby improving the people's awareness of the available spaces. In fewer cases only one form of permeability exists. A smaller block offers selection of routes and generally creates a more permeability than that one with larger blocks.

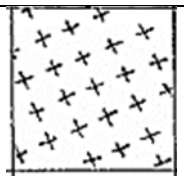
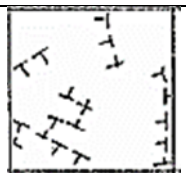
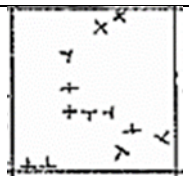
Hierarchy of the streets and its functions and control over intersections are important in master layout planning in the land pooled areas. Streets within residential neighborhood are also to be seen from place making perspective. It is associated with local culture, identity, linkage of traditional organic roads pattern, legibility, permeability, human scale, street enclosure, and designed street patterns. It also looks forward to site responsiveness, energy efficiency, street orientation, walkable community with high quality

public spaces as focal points, space requirements and built forms, and the adjacent mental behavior of people regarding land use.

Yet, to come to common grounds with both the styles and blend one is still unsatisfying. Street design has suffered this consequence from a very long time as one sometimes gets in the way of the other. For example, creating a wider designed road may withdraw more amount of land in terms of contribution ratio. If some roads are pedestrianized only for urban design approach, then the land value may fluctuate from the plots having wider vehicular streets, which may take time to convince the landowners in context of Nepal. People are emotionally attached with their land so sometimes placement of the plot is interchanged or moved or completely removed in design approach and other factors and creating tension between the project-developing agency and the local resident causing delay in land developing process. Street pattern can have different forms: grid iron pattern, curvilinear pattern or combination of both. Street patterns not only defines the local character and regulates the movement but it also has implications of area consumed by the streets. Residential street grids in the USA over the past century have lost the connectivity and walkability with transformation of street layout pattern (Table 5.1).

Table 5.1 Residential street girds in the USA losing connectivity and walkability over the past century

Particulars	*Grid iron (C 1900)*	*Fragmented parallel (c 1950)*	*Warped parallel (c 1960)*	*Loops and lollipops (c 1970)*	*Lollipops on a stick (c 1980)*
Streets					

Intersections					
Lineal feet of streets	20,800	19,000	16,500	15,300	15,600
No. of blocks	28	19	14	12	8
No. of intersections	26	22	14	12	8
No. of access points	19	10	7	6	4
No. of loops and cul-de-sacs	0	1	2	8	24

Source: Michael Southworth and Peter Owens

For streets with mixed-use blocks, it must be wider with pavement on both sides. They should focus on linkage between the front elevation and the street but discourage shop front parking and use of sidewalks for their commercial activities such as settings kiosk, signage and exaggerated landscapes. Parklets can be added to address this misuse. Special consideration should be given to disabled people. Residential Street have low traffic with vehicle, bike lane and pedestrian can be shared. Children can be seen playing in such roads thus; cul-de-sac can be designed here with 25 dwellings where there is one point of access and up to 50 dwellings where there are two access points. The road should be wide enough to aid in case of any emergency. The minimum national demarcation of width roads differs from countries to countries and are guided by the Byelaws of the required country. The area available for circulation, in a good proportion is 30 to 40 percent of the total neighborhood area which road plus all the urban amenities. If this percentage reduced below 30%, the resident chose additional routes and if it increased above 40%, the area seemed unnecessary. According to Urban Street Guidelines Pune, 2016 the recommended width for the residential

mixed-use road would be 6m wide for carriage way with adequate footpath and plantation on both sides (Fig. 5.2).

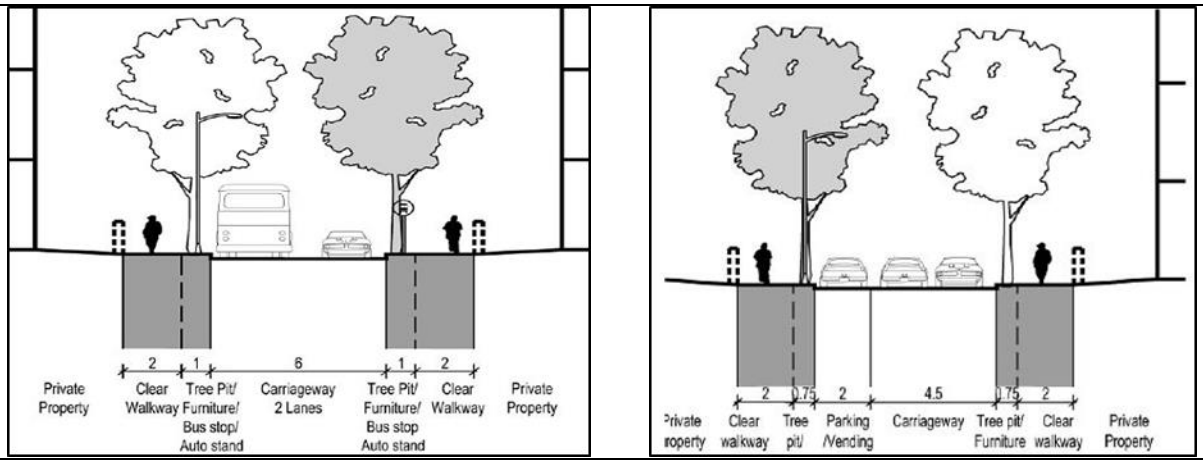


Fig. 5.2 Street design with different combination for carriage way, footpath and plantation

Source: Urban street design, Pune, 2016

A building height (aligning on both sides of the street) to street width ratio of 1:4 or above make sky more visible than buildings thereby losing the sense of enclosure for pedestrians (Fig. 5.3). Height-to-width ratio between 1:2 and 1:2.5 means the portion of sky and buildings visible are about equal leading to a reasonable sense of enclosure. A height-to-width ratio of 1:1 or below means it is not possible to have a comprehensive view of the buildings without looking up. This reduces natural lighting and it can induce feelings of claustrophobia. A ratio of 1:1 is often considered the minimum for comfortable urban street.

(a) H:W = 1:1 (b) H:W = 1:2 (c) H:W = 1:3 (d) H:W = 1:4

Fig. 5.3 Various street building height to street width and their implications

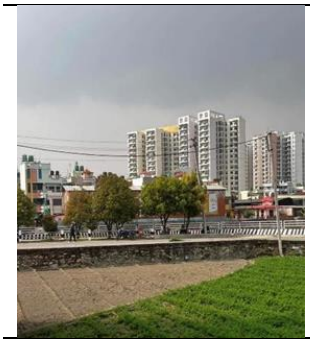
Public open space in an essentially undisturbed natural state or enhanced for the purpose of resource preservation, conservation, or recreation uses and shall be protected from any future re-development. Land designated as open space may include any or a combination of the characteristics: ridges, hillside slopes, streams, natural shorelines, wetlands, scenic buffer areas, agricultural land, developed parks, linear connection and areas conducive to passive and recreational use. Public open spaces are integral components of urban design, contributing to the quality of life, social interaction and environmental sustainability within the communities. Open space should be easily accessible and connected; there should be variety and diversity, functionality and flexibility, safety and security, comfort and amenities, identity and characters, besides the sustainability and resilience and community engagement. The primary purpose of a public open space is to provide a meeting area for the public, fostering social interaction through touch, shielding them from careless traffic, and relieving them of the stress of navigating the intricate network of streets. It symbolizes a psychological parking space within the community. The open space's ability to serve both functional and psychological purposes is independent of its dimensions. The geometry of the open space may not be rigid as many neighborhoods planning has a square and rectangle shape matching the grid pattern and few have organic. However, it is desired for an open space to be at maximum of 400-meter radius reach of 90% of the resident.

5.3 Dibyashwori land pooling site analysis and earlier master layout plan

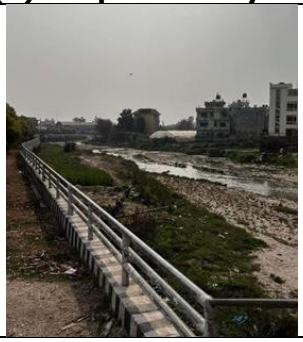
Dibyashwori land pooling site is located in Madhyapur Thimi municipality in Bhaktapur. It has a total site area of 26.7 ha. It is around 7.2 km from

Bhaktapiur durbar square and 6km away from Tribhuvan International Airport. It is surrounded by Sinamangal land pooling and Manohara river on the north-west side, Sano Thimi and Barka hill on the east, 'Magar gaun' on the north and Bhaktapur road on the south (Fig. 5.4).

(a) Proposed Dibyashowri land pooled site

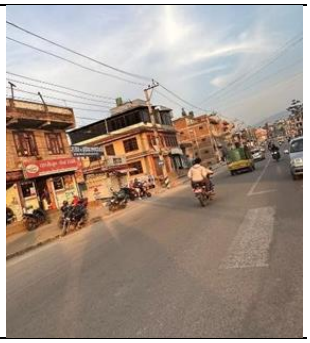


(b) Sinamangal land pooled site



(b) Manohara river

(c) Farm land in the land pooled area



(d) Bhaktapur road on the south side

Fig. 5.4 Site context and surrounding of Dibyashowri land pooled site

This land pooling was implemented by Kathmandu valley development authority. It took 10 years for implementation. The total developed plots were 588 numbers and the contribution ratio from the land owners varied from minimum of 6.00% to maximum of 44.50%. The

road layout consumed around 21.98% of total area whereas areas allocated for open space and green belt were 3.73% and 3.20% respectively (Fig. 5.5 and Table 5.2). about 7.62% was allocated for the sales plots. The layout plan has three different types of road network: 11m wide road along the riverbanks on the north-west, 8m and 6m.

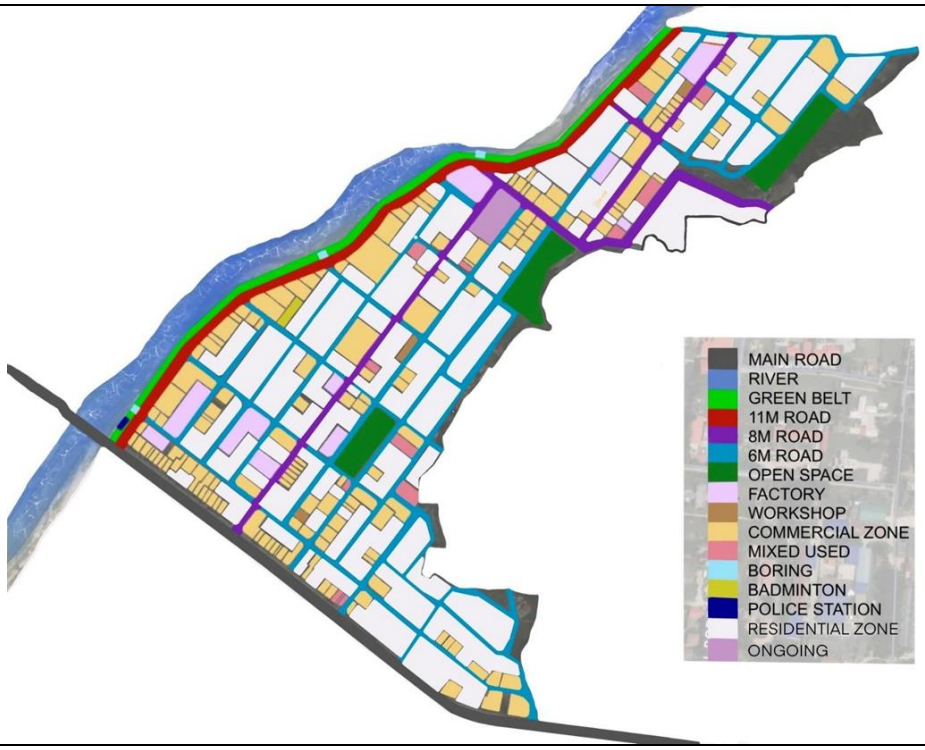


Fig. 5.5 Proposed master layout plan for Dibyashowri land pooling site

Table 5.2 Land use area distribution and road network in Dibyashowri land pooling project

S. N.	*Particular*	*Area*		*%*
		Ropani	*Sqm.*	
Land area distribution				
1	**Developed plots**	**324-11-2-0**	**165197.18**	**61.78%**
2	**Road**	**115-9-0-2**	**58794.04**	**21.98%**
3	**Green belt**	**16-13-0-1**	**8555.17**	**3.20%**
4	**Open area**	**19-9-3-3**	**9983.42**	**3.73%**
5	**Government land**	**8-14-0-3**	**4521.57**	**1.69%**
6	**Sales plots**	**40-0-3-0**	**20372.96**	**7.62%**
7	**Total project area**	**525-10-2-1**	**267424.35**	**100.0%**

Road network (right of way)				
1	11m	19-8-2-0	9938.83	903.53 m
2	8 m	20-10-0-3	10499.44	1312.43 m
3	6 m	75-6-1-1	38355.77	6392.62 m

Source: KVDA, no date

There are some buildings already built in the planned land pooled site (Fig. 5.6). Numerous buildings and physical infrastructure within the land pooled area and surrounding areas demonstrated that the area is gradually developing with coming up of new houses.

Fig. 5.6 Existing elements within the site and surroudning areas

5.4 Proposed urban design approach for master layout plan for Dibyashwori land pooled site

The alternate layout plan is proposed for the same site of Dibyashwori land pooled area (Fig. 5.7). The proposed layout plan is radial pattern with the combination with rectilinear form. It helps easy navigation. Recreational facilities are proposed along the riverfront with 20 m of setback. There will be combination of commercial uses, institutional and industrial uses along with mixed use buildings (retail or commercial on the ground and lower floors with residential use on upper floors in a single building), besides residential use, which dominates the whole use.

Fig. 5.7 Proposed layout plan for the Dibyashowri land pooled site

Four different hierarch of streets are proposed. The main road 'R1' will have 15 m of right of way and is proposed for commercial uses whereas R2 (ROW -12.6 m) and R3 (ROW - 10 m) are suggested in the location with mixed use building (Fig. 5.8). The R4 with ROW of 7m basically leads to the residential areas. Except for 7 m road, the rest of three types will have also adequate footpath on both sides.

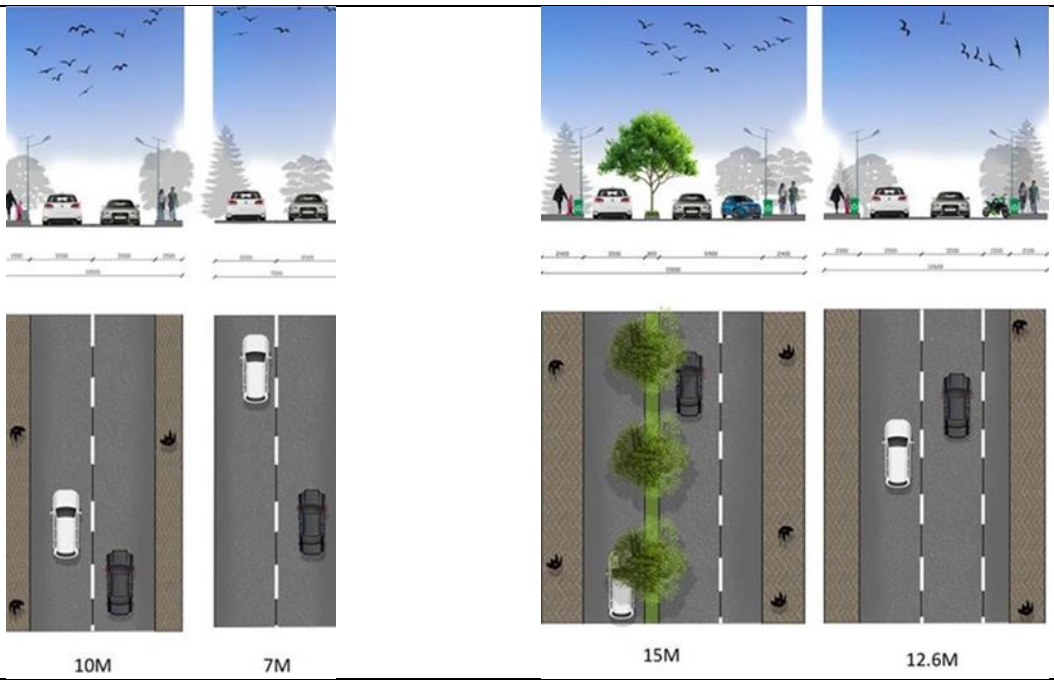


Fig. 5.8 Proposed street typology with detailing

Cross section (longitudinal and traverse) along with views of various buildings in different locations are also proposed (Fig, 5.9 and Fig. 5.10). While proposing the buildings, street enclosure and other detailing are also considered so that pedestrians can feel safe and the streets itself act as a community spaces.


A
B
B'


SECTION AT A-A'
SECTION AT B-B'

Fig. 5.9 Proposed cross sections with different views

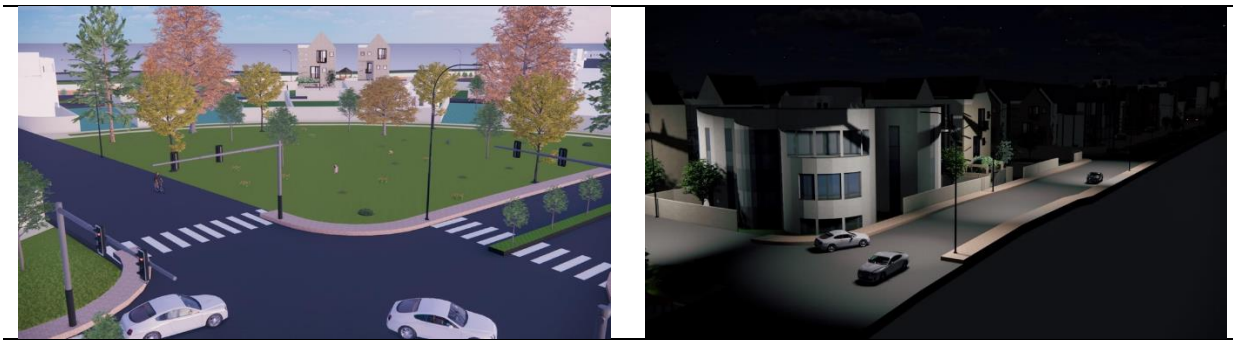


Fig.5.10 Proposed layout with landscaping

Ms. Nhujah Maharjan ***is a passionate architecture student currently in her 5th year, 9th semester at Acme Engineering College, Kathmandu. She is interested in design and research activities. She has been recognized through the prestigious Mansa Memorial Award. Beyond her academic achievements, Ms. Maharjan was an active member of the SQC, where she honed her collaborative and leadership skills. She aspires to contribute to society and her country through her work in architecture, aiming to create designs that are both innovative and socially impactful.***

Ms. Lisa Shrestha ***is interested in reading books, writing poems, and conducting research. By participating in the Turkish Olympia, she demonstrated her dedication to cultural and academic pursuits, showcasing her talents on an international stage. Her writings and research often delve into important societal issues, helping to raise awareness and inspire others.***

Ms. Upasana Dhakal ***is a Bachelor's in Architecture student of Acme Engineering College, Kathmandu, Nepal. She is passionate about the intersection of design, technology, and sustainability. She has been actively engaged on various activities: Acme architectural student association, society of Nepalese architect's seminar and exhibition and writing articles. She explores innovative solutions to contemporary issues like climate change and resource scarcity. She aims to integrate sustainable and innovative design principles into her architectural practice to enhance the quality of life for individuals and communities.***

Muskan Khanal ***is architecture undergraduate student at Acme Engineering College, Kathmandu. With a keen interest in blending creativity with environmental responsibility, Muskan strives to explore innovative solutions that harmonize with nature while meeting the needs of modern society. Embracing the principles of sustainable architecture, she aims to contribute meaningfully to the built environment, advocating for designs that prioritize both aesthetic appeal and ecological integrity. She has been actively engaged in various exhibitions and conferences, besides serving to Acme Architecture student association.***

Ms. Hashi Gurung ***is a Bachelor's in Architecture student of Acme Engineering College, Kathmandu, Nepal. Her field of interest includes ecofriendly design and vernacular architecture. Her contribution includes publishing a journal article on the Lo Manthang Conservation Challenges and report on earth sheltered architecture. She also volunteered at the SONA Seminar.***

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Alternate planning of Ichangu Narayan land pooled area

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6.1 Study background

Land pooling is an approach that can contribute to making cities more inclusive, safe, resilient, and sustainable. It was first adopted to build a road in Pokhara in 1976 A.D. After this experience, land pooling was implemented in Kathmandu to develop a residential area in the then urban periphery. It is regarded as one of the best land development techniques for planned provision of infrastructure and supply of land without external investment. Compared to site and services and guided land development, land pooling technique has been accepted by general public as the land owners do not need to be displace. Moreover, even the area of the returned but serviced land area is small compare to the original one, the cost of the plot is many times higher than before the land development. However, land pooling projects in the Kathmandu valley have been implemented in the absence of mater plan and without a valley wide holistic vision.

This study aims to propose an alternate planning for the Ichangu Narayan land pooled site. The project implemented by Kathmandu

valley development authority (KVDA) took 8 years for completion (2006 – 2014). The main objectives of this paper are threefold. First, it studies the land pooling techniques from urban design perspective. Second, it critically carries out the Ichangu Narayan land pooled site and the KVDA implemented master layout plan. Third and last, it proposes an alternate layout plan for the same site.

6.2 Urban design framework for land pooling

Land-Pooling also known as land readjustment, land reform, town planning scheme, is an urban land development technique that involves acquiring fragmented plots belonging to many different landholders, consolidating the various plots into one area, subdividing this area in an orderly and planned manner, providing infrastructure, and redistributing serviced plots back to the original owners. A portion of the land is typically set aside for hard infrastructure but can also be allocated for social infrastructure (schools, government buildings, etc.) and public amenities such as parks and other open spaces.

An urban design approach carries with it fundamental principles and responses to human behaviors, provides a process and conceptual framework for implementing those principles, and allows more expansive use of the tools that urban design brings to a physical planning challenge. For places to be well used and well-loved, they must be safe, comfortable, varied and attractive. They also need to be distinctive, and offer variety, choice and fun. Vibrant places offer opportunities for meeting people, playing in the street and watching the world go by. New development should enrich the qualities of existing urban places. This means encouraging a distinctive response that arises from and complements its setting. This applies at every

scale the region, the city, the town, the neighborhood, and the street. Places need to be easy to get to and be integrated physically and visually with their surroundings. This requires attention to how to get around by foot, bicycle, public transport and the car and in that order. Places that strike a balance between the natural and man-made environment and utilize each site's intrinsic resources the climate, landform, landscape and ecology to maximize energy conservation and amenity. Stimulating, enjoyable and convenient places meet a variety of demands from the widest possible range of users, amenities and social groups. They also weave together different building forms, uses, tenures and densities. New development needs to be flexible enough to respond to future changes in use, lifestyle and demography. This means designing for energy and resource efficiency; creating flexibility in the use of property, public spaces and the service infrastructure and introducing new approaches to transportation, traffic management and parking.

6.3 Ichangu Narayan site analysis and layout prepared by KVDA

The Ichangu Narayan land pooling site is located at ward 1 of Nagarjun municipality. The site is in close proximity to Ghong river and Nagarjun forest. However, it is poorly connected with the Ring Road. The site is nearby to naturally conserved and protected Nagarjun forest and there are many hiking routes around it. It covers around 30.94 ha of land with total number of 956 plots. Implemented by Kathmandu valley town development committee (now KVDA) the road network covers around 20.03% with open space allocation of 2.93% only with additional 6.07% of sales plots (Table 6.1).

Table 6.1 Project detailing of Ichangu Narayan land pooling

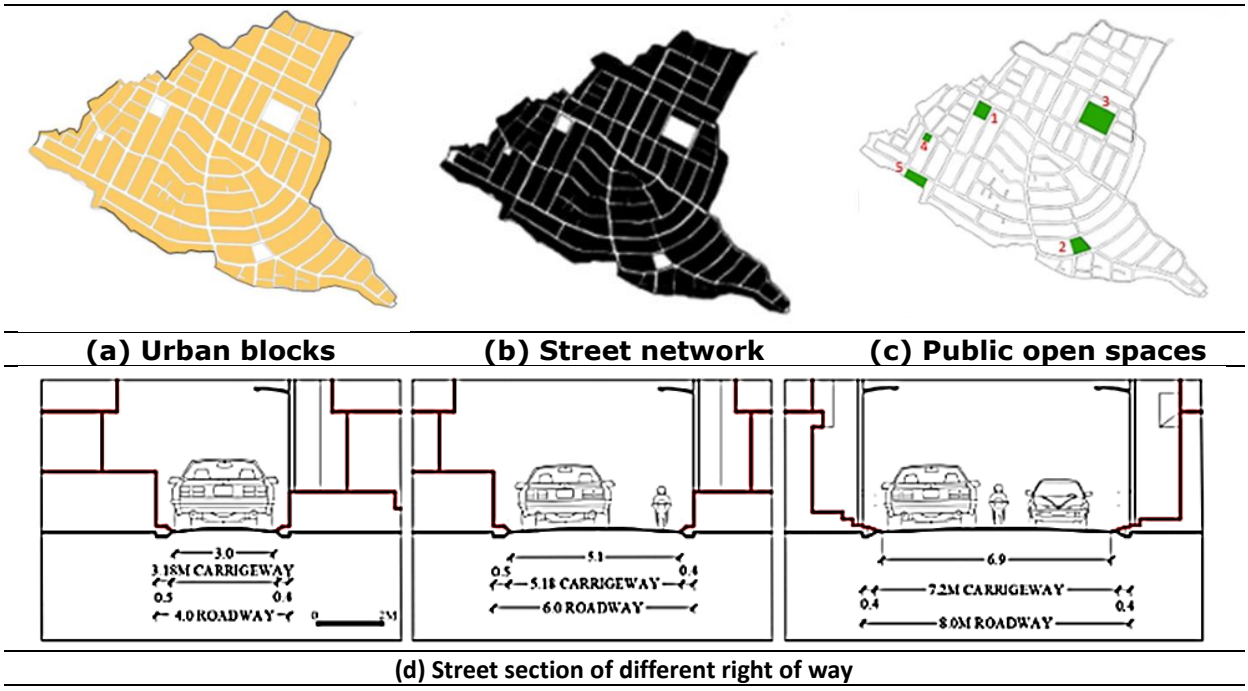
Project area	**30.94 ha**	**Estimated project cost**	**NRs472,000,000**
Starting time	**2003**	**Actual project cost**	
Status	**?**	**Developed plots**	**70.97%**
Total no of plots	**956**	**Road**	**20.03%**
Land owners/ tenants	**956**	**Open space**	**2.93%**
Implementing agency	**KVDA and Nagarjun municipality**	**Sales plot**	**6.07%**
Minimum size of plot	**80 sqm**		

Thought the project was commenced in 2003, it was delayed two years due to court cases, as some of the land owners were against the project implementation. Out of 956 plots, 494 plots belong to residential use and 195 plots have mixed use buildings (Fig. 6.1). Similarly, 22 plots have industry related building and 7 plots have commercial buildings. There are 17 temporary structures made up of CGI sheets. There are three schools including one Montessori, one Hindu temple and one Jamacho gumba is under construction (Fig. 6.2). Still 201 plots are vacant without any construction. In addition to these, two multistory apartments were also built with one community building within the site. The Department of Urban Development and Building Construction (DUDBC) purchased reserve land from the Users Committee at 20% above the market rate (NRs110 million) for construction of multilevel apartment buildings for the nearly 1,000 slum dwellers who had been evicted in 2012 from a settlement along the Bagmati River.

Fig. 6.1 The layout plan for Ichangu Narayan land pooling project

Fig. 6.2 Existing buildings and templs in the land pooled area

There are 85 number of urban blocks and those urban blocks are oriented in various directions (Fig.6.3). Three different types of street are planned. The right of ways are 8m, 6m and 4m. Due to small urban blocks, there are 38 cross junction with 62 T junction. There are five public open spaces scattered around the area. Out of them there are being partially occupied with community building, overhad water tank and temple. One of them is at present used as micro bus stand. Due to poor management, the childrenpark is also closed whereas entry fee is required to enter into one of the big park (Fig. 6.4).



(a) Urban blocks (b) Street network (c) Public open spaces

(d) Street section of different right of way

Fig. 6.3 Various features of the Ichangu Narayan land pooling project

Fig. 6.4 Public open space in the Ichangu Narayan land pooling project

Two apartment block earlier planned for resettlement of squatters remained empty for many years even after completion of the building simply because the beneficiaries did not want to relocate there (Fig. 6.5). The reasons cited for that were far location and lack of job opportunities around them. Moreover, the local land owners of Ichangu Narayan land pooling projects also protested squatter resettlement in their neighbourhood. As a result, those two buildings are now used by public agncy and one social organization.

Fig. 6.5 Apartment built as a squatter resettlement project

As there are not separate design guidelines for the planned area, different types of buildings are coming up at Ichangu Narayan land

pooled area, guided by prevailing building bye-laws of Nagarjun municipality (Fig. 6.6).

Fig. 6.6 Building types in the land pooled area

6.4 Proposed alternative master layout plan for the same site

The master plan is designed for a land pooling project, aiming to optimize land use, improve infrastructure, and create a balanced community environment. The design includes various zones such as residential, commercial, mixed-use, and institutional areas, integrated with public facilities and open spaces (Fig. 6.7).

The plan features a central circular hub, likely serving as a major focal point for the area, possibly hosting key public amenities or a major park. The residential zones are distributed around the central hub and along the main roads, providing easy access to amenities

and minimizing travel distance. The strategic placement of public facilities like health posts, police stations, and community buildings ensures that they are within a reasonable distance for all residents, enhancing the community's overall functionality. The use of different road widths helps in managing traffic flow efficiently, catering to different types of vehicles and pedestrian movement.

This master plan demonstrates a well-thought-out approach to urban planning, focusing on creating a balanced, functional, and sustainable community. The careful distribution of residential zones, integration of public facilities, and efficient traffic management are key elements that contribute to the overall effectiveness of the plan. This master plan showcases a well-balanced approach to urban development. It emphasizes accessibility, diversity, and sustainability by integrating various land uses and public amenities. The thoughtful layout promotes a high quality of life, economic vitality, and environmental health, making it a comprehensive and effective urban planning solution.

Fig. 6.7 Proposed alternate master layout plan with different uses

Residential (Purple): The extensive use of purple suggests a significant portion of the land is allocated for residential purposes. These areas are dedicated to housing, potentially including a variety of housing types such as single-family homes, apartments, and possibly some townhouses. A large residential area suggests a focus on creating a comfortable living environment. The layout should ensure access to essential services such as schools, parks, and shops.

Commercial (Pink): These areas are intended for businesses, shops, and services. They are distributed throughout the map, indicating multiple commercial hubs. These zones are intended for retail shops, offices, restaurants, and other businesses. Placing commercial zones strategically helps reduce travel distances for residents, potentially decreasing traffic congestion. These areas can serve as employment centers, boosting the local economy.

Mixed Use (Red): These zones allow for a combination of residential, commercial, and possibly other uses. They are strategically placed to ensure accessibility to both residential and commercial areas. Allows for a blend of residential, commercial, and possibly even light industrial uses. Mixed-use areas encourage walkability and can create vibrant, dynamic neighborhoods where people live, work, and socialize. This can lead to more sustainable urban growth by reducing the need for extensive commuting.

Open Space (Green Dotted): These are areas set aside for parks, recreational areas, and possibly green belts. They are spread out to ensure residents have access to open space for recreation and leisure. Parks, recreational areas, green belts, and other open spaces. Open spaces are crucial for environmental sustainability, providing areas

for recreation, reducing urban heat islands, and improving air quality. They also enhance the aesthetic appeal of the city.

Low Income (Yellow): These areas are designated for affordable housing. Placing them in different parts of the city ensures socioeconomic diversity and inclusivity. Affordable housing for low-income residents. Integrating low income housing into various parts of the city helps prevent economic segregation and ensures that all residents have access to urban amenities and services. This promotes social equity and diversity.

Community Building (Blue): These are designated for community centers or other public buildings. Community centers, libraries, and other public buildings. Community buildings are important for fostering social cohesion. They provide spaces for community events, learning, and social services, contributing to a sense of community.

School (Brown): Schools are marked and strategically placed to be accessible to various residential areas. Educational institutions ranging from primary schools to possibly higher education. Schools are essential for attracting families to the area and ensuring that children have access to education. Their strategic placement reduces travel time for students and can create safe, walkable neighborhoods.

Bus Station (Dark Red): These areas are designated for public transport hubs, ensuring connectivity. Public transport hubs. Effective public transport reduces traffic congestion and pollution. Well-placed bus stations enhance connectivity and make it easier for residents to access different parts of the city.

Health Post (Light Blue): Health facilities are distributed to ensure accessibility for residents. Clinics, hospitals, and other healthcare facilities. Accessible healthcare facilities are critical for the well-being of residents. They ensure that medical services are available to everyone, reducing health disparities.

Police Station (Dark Blue): Indicates the location of law enforcement facilities for maintaining public order and safety. Law enforcement facilities. The presence of police stations enhances public safety and security. Their distribution throughout the city helps ensure quick response times and fosters a sense of safety among residents.

This zoning plan showcases a balanced approach to urban planning, emphasizing connectivity, mixed-use development, and the provision of public amenities. It aims to create a vibrant, inclusive, and accessible urban environment. This zoning plan reflects a comprehensive approach to urban planning, focusing on creating a balanced, inclusive, and functional urban environment. By strategically placing residential, commercial, mixed-use, and public amenity zones, the plan aims to enhance livability, promote economic growth, and ensure sustainable development. The thoughtful integration of road networks and open spaces further supports these goals, fostering a connected and vibrant community.

The layout of urban blocks ensures a well-connected road network, facilitating easy movement within the urban area. Both north-south and east-west orientations are well-represented, promoting balanced traffic flow. The presence of circular blocks with central open spaces highlights the emphasis on creating communal areas. These spaces can serve as social hubs, recreational areas, and green lungs for the

city. The distribution of blocks suggests efficient land use, balancing residential, commercial, and public spaces. The mixed block orientations provide flexibility in land use planning, accommodating diverse building types and functions. The careful consideration of block orientations can contribute to environmental sustainability. Optimizing sunlight and wind flow reduces reliance on artificial lighting and mechanical ventilation, lowering energy consumption. The angular and circular blocks add variety to the urban landscape, preventing monotony and fostering a unique aesthetic and cultural identity for the area.

This urban block plan represents a thoughtful approach to urban design, integrating various block orientations to enhance functionality, sustainability, and livability. The diverse orientations—north-south, east-west, angular, and circular—each offer distinct advantages and design opportunities. The inclusion of central public spaces in circular blocks underscores a commitment to community building and social interaction. Overall, the plan aims to create a balanced, vibrant, and sustainable urban environment.

This plan focuses on the organization and layout of urban blocks within a land pooling area (Fig. 6.8). The proposed urban blocks are oriented in different directions. There are 35 number of block (54%) orienting towards north-south direction whereas 32 no of blocks (49%) are oriented towards east-west direction. Similarly, two urban blocks (2%) are oriented in angular direction and the remaining 4 blocks (6%) are oriented in circular form.

Fig. 6.8 Proposed urban blocks in alternate master layout plan

North-South Blocks (Orange)

These blocks are oriented in a north-south direction. North-south orientation can optimize sunlight exposure, particularly useful in regions where natural lighting is essential for energy savings and comfort. It can also facilitate better natural ventilation, improving air quality and reducing the need for mechanical cooling systems. This orientation can help in maintaining thermal comfort within buildings by minimizing direct sun exposure on the larger facades, thus reducing heat gain.

East-West Blocks (Pink):

These blocks are oriented in an east-west direction. East-west blocks receive direct sunlight in the morning and evening. This can be beneficial in colder climates where maximizing sunlight is desired. In hotter climates, east- west orientations might lead to higher solar gain, necessitating design features like shading devices to mitigate heat. Proper architectural design, including window

placement and materials, is crucial to manage the solar impact on these blocks.

Angular Blocks (Red):

These blocks are oriented at an angle, not strictly north-south or east-west. Angular blocks offer unique opportunities for creative architectural designs and distinctive urban character. The impact of sunlight and wind can be more complex to manage in angular blocks, requiring thoughtful design to balance these factors.

Circular Blocks (Yellow):

These blocks are oriented around a circular layout, typically centered on a public space. Circular blocks often feature a central public space, such as a park or plaza, which serves as a focal point for community activities. This layout encourages social interaction and community engagement, enhancing the livability of the area. Circular design can improve accessibility, ensuring that amenities and public spaces are within easy reach for residents.

Three types of road network are proposed (Fig. 6.9): 15 m, 12.5 m and 8m.

16.5m Road (Thick Orange): These are major arterial roads designed for high traffic volumes, likely connecting different zones and facilitating major traffic flow. Major arterial roads designed to handle high traffic volumes and connect key areas of the city. These roads are crucial for efficient traffic flow and connecting different zones. They might also support public transport routes and major commercial activities.

12.5mRoad (Thick Gray): These are secondary roads that connect neighborhoods and feed into the main roads. Secondary roads that support the main arterial roads. These roads facilitate access to residential and commercial areas, helping to distribute traffic more evenly and reducing congestion on major roads.

8m Road (Thin Gray): These are smaller, local streets intended for residential access. Local streets primarily serving residential areas. Local streets provide direct access to homes and small businesses. They should be designed to ensure pedestrian safety and support local traffic.

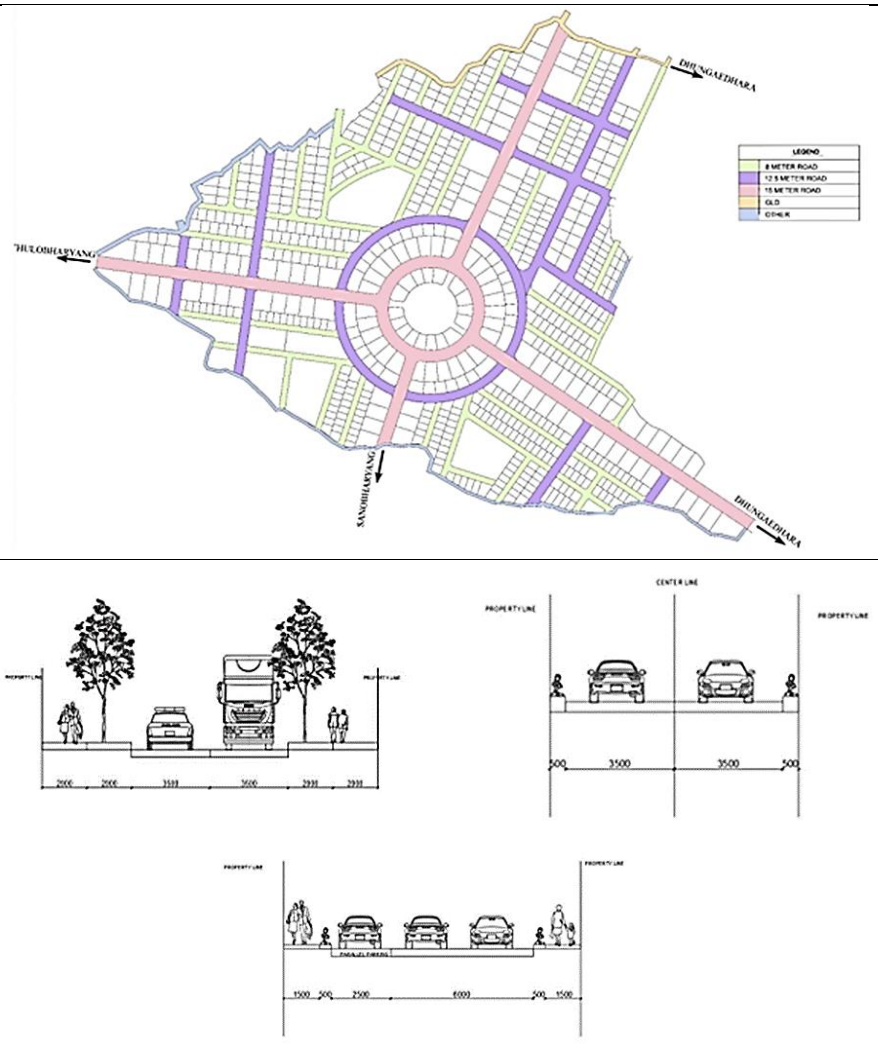


Fig. 6.9 Proposed road network with cross sections

Different types of public open spaces are proposed catering different age groups (Fig. 6.10). They include community park, children park and so on. Open spaces in residential areas are integral to fostering a healthy, active, and vibrant community. They serve as hubs for social interaction, physical activity, and relaxation. Incorporating features such as inclusive walking tracks and playgrounds for children, surrounded by green environments, colorful mandalas, and vibrant colors, can significantly enhance the appeal and functionality of these spaces.

Fig. 6.10 Proposed diverse type of public open spaces

Inclusive Walking Tracks: Walking tracks in residential areas should be designed to cater to all age groups and fitness levels. These tracks provide a safe and accessible path for walking, jogging, and running, encouraging residents to engage in regular physical activity. Features

such as smooth surfaces, adequate width, gentle slopes, and resting areas with benches ensure that everyone, from young children to the elderly, can use the tracks comfortably. Additionally, shaded sections and proper lighting make the tracks usable throughout the day and evening, promoting consistent use.

Playgrounds for Children: Playgrounds are crucial for the physical, social, and cognitive development of children. They provide a space where children can play, explore, and interact with their peers, fostering essential skills such as cooperation, problem-solving, and creativity. Modern playgrounds are designed with safety in mind, incorporating soft surfaces, age-appropriate equipment, and clear visibility for caregivers.

Green Surroundings: Green surroundings in residential open spaces contribute to a serene and refreshing environment. Trees, shrubs, and grass areas not only enhance aesthetic appeal but also improve air quality, reduce urban heat, and provide habitats for wildlife. Green spaces are known to have positive effects on mental health, reducing stress and promoting a sense of well-being among residents.

Colorful Mandalas and Vibrant Colors: The inclusion of colorful mandalas and vibrant colors in playgrounds and parks can have a profound impact on the overall atmosphere and the psychology of children. Mandalas, with their intricate and symmetrical designs, are not only visually appealing but also known to have calming effects. They can help in focusing the mind and reducing anxiety, making the playground a more relaxing and enjoyable place for children. Vibrant colors, especially oranges, play a significant role in child psychology. Orange is associated with enthusiasm, creativity, and warmth. It stimulates mental activity and encourages social interaction. Using

orange and other bright colors in playgrounds can create an inviting and stimulating environment that promotes playfulness and creativity. These colors can also enhance mood and energy levels, making children feel happier and more engaged.

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Letter from the Chairman's Desk

By Sunil Bhatia PhD

A friend of my age was talking to me while standing in the market and suddenly he experienced his body turning imbalanced and about to fall. He informed me that I was feeling dizzy and could fall at any moment. I tried to hold him but his condition was worsening. I advised him to sit on the ground " Do not resist what your body is demanding otherwise your imbalanced body will experience uncontrollable force that will prove your fall inevitable." He was a little reluctant but I insisted and he sat. After a few moments, he was found under control and stood. I escorted him to his house and informed his family members about his health. They rushed to the hospital for his treatment.

While coming from his house I realized I was living alone and something had gone wrong with my body who would look after me? I realized what I believe has no role in our lives for maintaining active healthy and normal humans. The role of balance is supported in every step of life and we learn from our parents when they hold us and allow us to take steps for learning walking. Even they bought a walker toy that supports walking by learning balance.

I thought about the balance that is a driver in product guide the users and the first one that struck in mind was the weighing machine where stages of the bar guide the measuring weight. How come the idea of balance was struck to them by such a minimalist and simple design of

scale? It is needed for designing of weighing scale, two pans hanging with a rope tied with a wooden bar. When potters made clay pots they found making a round shape possible on a rotating potter's wheel. They designed pitchers but filled water to generate imbalance. To control the imbalance of pitchers due to the motion of filled water forced them to design for stability by creating balance. They placed a pitcher on a round shape at the bottom. So initially thought of giving external support by keeping certain objects around that heavy imbalance force should not displaced and remain in the balance stage. Later they placed a rounded base pitcher filled with water on a square wooden shape fixed with nails. It was the perfect idea of achieving balance by applying external design objects. The potters use small threads for separating the casted pot in such a way that it leaves a flat base for balance

It is the art of learning balance that revolutionized humans from walking from four legs to two legs and we call it human evolution. I have noticed in some houses where they domesticated monkeys and trained to as their child walk comfortably on two legs compared to monkeys living in a forest where they walk on four legs. It is the training of the master that trained to balance while walking on two feet.

Gymnasts are trained not to lose balance and perform their skills to get perfect marks. It is the balance that is a prime factor for achieving perfect marks. I found a game of dice that was a perfectly balanced cube that had each side a number of a different number of dot marks that directed the user to move that step after throwing the dice indicated on the upper side of the dots. I thought if it is unbiased that will change the nature of the game and an equal level of ground will be missing and it will be kind of cheating.

I was a member of the technical committee for purchasing chairs that should have wheels at the base. Sometimes an employee needs help from sitting beside the employee and being pushed by his legs while sitting on a chair. I thought about a perfect balance chair because it is human nature to stretch his body as he experiences tiredness. That behavior forced me to buy those chairs that have the best balance mechanism in odd situations and the user should not fall because of its defective design. I recommended five arms at the base for a stable design with the wheel attached for wishful small movement. The design of the chair is improved because of instability that was because of the imbalance of character in it. Designers attempted to design a stable product in all possible odd situations by eliminating imbalance. They might have thought of one leg to two legs to three legs but ultimately settled on four legs. The user's activity of relaxing their body by stretching made them design a leg base for proper balance. Earlier back of the chair was fixed vertically but later made slightly slanted to accommodate the shape of a human back while resting. This design of the chair was designed for sitting for a short time. A new breed of workers emerged not traditional workers functioning with physical strength and needing long hours of sitting on table chairs. A new situation demands long hours of sitting of users resting and pushing hard for proper stretching of their body for relaxation. They designed the base of the chair with five legs fixed with a wheel for little movement for reaching out to by college for some little help in working time.

A normal chair without a wheel at the base has a perfect design with four legs for balance and stability. Balance has different characters when it is static or in dynamic situations. Most difficult when it is flying. It was the crucial problem of the Wright

brothers to design an airplane that should have balanced but had a mechanism to move forward in the air. Lifting objects for flying in the air in a balanced state needs different forces and once it is in the air for flying in a balanced state needs a different state.

Achieving balance in a robust state is known as stability.

In a financial statement, the balance in revenue and expenditure is guides for the break-even point and imbalance guides the user with profits and losses for taking measuring corrective steps.

It is an ancient game for entertainment by walking by balancing on a tightrope. Sometimes performer holds a long stick that helps in balancing while performing various acts. It is the balance that guides the performer to act accordingly to be in that state and to fall in imbalance.

A street sweeper was with his broom that was attached to a long stick had one side that was touching the ground and had the shape of a slanted cone-like base. I thought it was due to use in one direction to achieve its large surface area in one stroke of the broom. I just questioned him 'Why do you keep sweeping from one side? . If you keep rotating after a few strikes the broom sticks will not exhaust from one side.' He said we deliberately fix the various broomsticks of different sizes where the long one at the upper side and the short one at the lower side. First, it helps in using short ones and does not go to waste, and most importantly it keeps balancing in this shape that needs low physical power every time we broom on the road. It is the imbalance in the broom that balances it. The users do not exert extra force to control the rotation of the broom stick while cleaning. With low effort, we sweep the large area.

A fetching of water from a distance from a well or river or pond the rural woman keeps the water-filled pitch on their head. They ensure it is stable by placing over clothes shaped round kept over the head for maintaining balance while walking. Those women are not perfect in this art of walking by carrying water-filled pitchers on their heads that resting on the side of the waist and holding their mouth by their hands around it.

Children's toys are designed to maintain the figure's center of mass by placing some heavy objects in a hidden place and as the child hits it falls but the next moment bounces back to the same position. The child keeps hitting and every time experiences in balanced state. The street human living sculpture without showing any sign of movement uses tricks for balancing in sitting in the air for long hours. Visitors do charity for his livelihood by seeing his art of sitting as a static sculpture. People are surprised sitting in the air without any support and that entertains them.

Ancient people carry large heavy prey by tying on a wooden bar to hold on their shoulders. It is the balance that distributes the weight of animals among people holding from front and rear. If an imbalance in holding then people are carrying experience faster tiredness from one side people compared to people from the other. It is an imbalance that keeps guiding for adjusting the distance of holding the bar till everyone is satisfied.

An old man was trying to lift a heavy item that was beyond his physical strength. He asked me to help in carrying the load over his head. I supported him in keeping over his head and he walked away. I realized it was his balance that was guiding him not to lift

otherwise you would lose balance and the consequences would be harsh.

Before the design and application of electronic parts people were relying on mechanical design and for switching from one stage after the confirmation of this they used balance concepts. In the mechanical vending machine, they used extensively the concept of balance or imbalance for designing the desired control path for achieving the desired objective. The drivers were natural energy for shifting from one stage to another for achieving desired objectives. In modern times role of natural energy as a driver for shifting from one stage to another is done by electrical energy as a driving force.

The reason for motion in magnet is possible by creating flux by rotating. That external force disturbed the position of the magnet and its natural character tried to regain the lost position and that imbalance created frequency.

I am thankful to Dr. Bijaya K. Shrestha for showcasing the true talent of students of Nepal and it really comes out international standard of papers.

Lambert Academic publication for celebration of the 150th special issue by publishing a book by compiling editorials "Design For All, Drivers of Design" in two sets Drivers of Design Drivers of Design Volume-II was translated into eight different languages from ENGLISH to French, German, Italian, Russian, Dutch, and Portuguese. Kindly click the following link for the book. "Morebooks", one of the largest online bookstores. Here's the link to it:

https://www.morebooks.de/store/gb/book/design-forall/isbn/978-613-9-83306-1

Second Volume:

http://www.morebooks.shop/bookprice_offer_74414a1df61c3d2ea8bf46ae7e3c0cf31769f261?locale=gb¤cy=EUR

Enjoy reading, be happy, and work for the betterment of society.

With Regards

Dr. Sunil Bhatia

Design For All Institute of India

www.designforall.in

dr_subha@yahoo.com

Tel 91-11-27853470®

ISSN: 2582-8304

Forthcoming Issues

November 2024 Vol-19 No-11

Dr Sandeep Sankat, ***Associate Professor, Head Department of Architecture, School of Planning and Architecture, Bhopal.***

Dr. Sandeep Sankat Associate Professor, School of Planning and Architecture, Bhopal (PhD, M. Ekistics, B.Arch.) Dr. Sandeep Sankat is an Associate Professor in the Department of Architecture, School of Planning and Architecture, Bhopal (M.P.) India. Before this, he was a senior lecturer in F/O Architecture and Ekistics, Jamia Millia Islamia, New Delhi. Beginning his career in the mid-nineties he practiced as an Architect at his own office "Design Innovations" in Indore, Madhya Pradesh, India. His specializations are in Architecture, Ekistics,

Human Centric Design, Universal Design, Inclusive Design, Enabling Environments and Elderly and Built-Environment. He did his PhD in the area of Elderly and Built-Environment on the topic "Creating Inclusive Living Environments in Urban Residences for Indian Elderly", from the School of Planning and Architecture, Bhopal, Masters in Ekistics from Faculty of Architecture and Ekistics, Jamia Millia Islamia, New Delhi and Bachelors of Architecture from Madhav Institute of Technology and Science, Gwalior, (M.P.).

For his proposal for the concerns towards the success of "Sugamya Bharat Abhiyaan" through Universal Design Education, he received Erasmus + Global mobility funding in 2016 and is an Erasmus Fellow. He has been awarded the prestigious National "NCPEDP MPHASIS Award 2016" for his work in accessibility and disability studies and Universal Design. Recently he has been awarded with the national "Design Educators Award 2023" for teaching Universal Design. He has been awarded at various platforms for his concerns and work in the area of Universal Design and Accessibility. He has published research papers in journals and conference proceedings focused on accessibility and disability studies. He has secured first position and distinction in the Bachelors and Masters Courses. He has been a recipient of Gold Medal for the Masters Course of Ekistics from F/O of Architecture and Ekistics, Jamia Millia Islamia, New Delhi. Awarded, for the design of accessible toilet (designed following Universal Design Principles) in the category "The Urban Individual Toilet" in the San- Sadhan Hackathon organized by the Department of Empowerment of Persons with Disabilities (Divyangjan) and Ministry of Jal Shakti in association with Atal Innovation Mission, Niti Aayog, Bill & Melinda Gates Foundation.

He has also represented SPA, Bhopal on various administrative posts, including, Dean Academics, Dean Student Affairs, Controller of Examinations etc. And at present he is Head of the Department at the Department

Vishakha Verma

Assistant Professor, School of Planning and Architecture, Bhopal

Vishakha Verma is an Assistant Professor in the Department of Architecture at the School of Planning and Architecture, Bhopal, MP. She began her career with hands-on experience in architectural and landscape projects across pan India including her hometown, Dewas, Madhya Pradesh, before moving into academia. She previously held a faculty position at the National Institute of Technology, Hamirpur, Himachal Pradesh, for two years.

She holds a Master of Architecture with a specialization in sustainable architecture. Her Post graduation thesis was titled as Restorative Environment and Well Being in a Hospital through Landscape Design- A case of M.Y Hospital, Indore MP. Vishakha's research interests include User Centric Design, Built Environment and Human Behavior, Biophilic Architecture, Architecture and Well-Being, Climate Responsive Architecture, Inclusive Environment, Neuroarchitecture, Healing Architecture, aiming to enhance user experience and create

healthier, more livable environments. She is equipped with materials like mud and bamboo and strives to explore such more sustainable materials.

She supports the idea that the resources we have are not inherited from our forefathers but borrowed from future generations. Therefore, it is our responsibility to use them wisely and, as a designer, to create built environments that foster inclusion for diverse user groups.

December 2024 Vol-19 No-12

Yuka Takahashi

Designer, specialized in industrial design and applied art.

ISSN: 2582-8304

Year 2025 declared as Women's Designer

Feburary2025 Vol-20 No-2

Dr Natasha Poggia

Natacha Poggio is a design educator, Fulbright Scholar, TEDx speaker, Climate Reality Leader, and passionate advocate of design for social and environmental change. She is an Associate Professor of Design at the University of Houston-Downtown. Prior to that position, she taught at Lamar University and the Hartford Art School, University of Hartford, in the United States, and at the Universidad de Buenos Aires, in Argentina.

March 2025 Vol-20 No-3

Dr Dolly Daou

24 years of global leadership experience initiating and developing industry-research strategies, research centres, and projects for medium-large organisations and for higher education programs in:

Australasia, Europe, and the Middle East. I am Citizen of the Year 2024 received at the Kingston Community Awards. Also, I was a finalist for Kingston Women of the Year Award for the category of STEM education. I deliver workshops to organisations and institutes combining industry and academic bespoke design methodology to develop system and mission-driven strategies and transform research into actionable outcomes. I have also been the Chair of Food Think Tank Working Group at Cumulus Association since 20019. Based in Melbourne, I led the Head of Master of Design: Art and Technology at NACAA (the first joint Sino-French School of Design in China) and I have established and led the Interior Architecture Program at Swinburne University of Technology and implemented its transition. My career path led me to France, where I expanded my area of expertise leading the Food Design Lab working with the industry and policymakers on mission-driven strategies that comply with current government, academic and business outcomes. visit my website for further details: https://dollydaou.org/

April 2025 Vol-20 No-4

Valerie Fletcher ***has been executive director since 1998 of the Institute for Human Centered Design (IHCD). Fletcher writes, lectures, and works internationally. She generates opportunities for IHCD and has broad oversight of all consulting and design services.***

She created the IHCD User/Expert Lab which has over 400 people engaged in the evaluation of places, products, and services. Her current research focus is generating data to inform inclusive designing for the Black, Indigenous, People of Color (BIPoC) and for people with a spectrum of brain-based conditions.

Fletcher's career has been divided between design and public mental health and she is the former deputy commissioner of the Massachusetts Department of Mental Health where she oversaw the largest participatory planning process ever undertaken in a state mental health system. She was Principal of Fletcher Studio Design from 1978-1985.

She is councilor for the International Association for Universal Design (IAUD) in Japan. She has created an international universal design benchmarking project for the government of Singapore. She serves as Trustee of the Boston Architectural College. Fletcher has a master's degree in ethics and public policy from Harvard University. The Boston Society of Architects awarded her the Women in Design award in 2005. The Helen Hamlyn Research Centre at the Royal College of Art in London named her Inclusive Design Champion 2022.

May 2025 Vol-20 No-5

Debra Ruh*:*

Advocate for Inclusion and Technology for Good

Debra Ruh is a globally recognized market influencer and advocate for the inclusion of people with disabilities. With over 500,000 followers on social media, she is among the top 2% of voices on LinkedIn, making her a powerful voice in the spheres of technology for all (Tech4All), technology for good (Tech4Good), and AI for good (AI4Good).

Debra has spoken at numerous multinational corporations, the United Nations, and the World Bank, emphasizing the importance of accessible technology and inclusive practices. She has authored three impactful books on disability inclusion and the role of technology in creating a more equitable world. She also a speaker for US State Department.

As the founder of Ruh Global IMPACT, a think tank focused on disability inclusion, Debra has driven forward-thinking initiatives and fostered global dialogues on these critical issues. Additionally, she co-founded Billion Strong, the world's first grassroots identity organization for people with disabilities. Billion Strong aims to unite the global disability community, enhancing their visibility and support network.

Debra's efforts are rooted in her belief that technology can and should be a force for good, creating opportunities and breaking down barriers for all. Her work continues to inspire and lead the way toward a more inclusive and accessible world.

June 2025 Vol-20 No-6

Maria Kaplan

Mara Kaplan is a national expert and trailblazer in the realm of creating inclusive spaces for people of all abilities and ages to truly belong. As the lead consultant for PlayPower on inclusion, Kaplan pioneers initiatives shaping the future of playground equipment and play spaces nationwide. Her journey began as a parent advocating for her son with disabilities, leading her to establish an indoor inclusive play haven and serve as the executive director of the Center for Creative Play for over a decade. Kaplan's impact extends through her consultancy "Let Kids Play," where she conducts dynamic workshops, collaborates with landscape architects, and works with community groups on designing playgrounds while also developing online training on inclusion and child development. Through her unwavering dedication, Kaplan continues to transform communities and champion inclusivity across the country.

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New Books

https://www.morebooks.shop/shop-ui/shop/book-launch-offer/74414a1df61c3d2ea8bf46ae7e3c0cf31769f261

it is available on www.morebooks.de one of the largest online bookstores. Here's the link to it: https://www.morebooks.de/store/gb/book/design-for-all/isbn/978-613-9-83306-1

The Ultimate Resource for Aging in Place With Dignity and Grace!

Are you looking for housing options that are safer and more accommodating for independently aging in place? Do you want to enjoy comfort, accessibility, safety and peace of mind – despite your disabilities, limitations and health challenges? The help you need is available in the Universal Design Toolkit: Time-saving ideas, resources, solutions, and guidance for making homes accessible.

This is the ultimate resource for individuals and professionals who want to save time, money and energy when designing, building, remodeling or downsizing a home. The Universal Design Toolkit will help you take the steps to design homes for your clients or yourself while eliminating the costly trial and error challenges you'd inevitably encounter if faced with this learning curve on your own.

Rosemarie Rossetti, Ph.D., teamed with her husband Mark Leder in creating this unique Toolkit. They bring ten years of research, design and building expertise by serving as the general contractors for their home, the Universal Design Living Laboratory– which is the highest rated universal design home in North America.

Within the Toolkit's 200 richly illustrated pages, you'll find: Insights that distinguish *essential* products, services and resources from the *unnecessary*.

Proven, realistic tips for finding the right home.

Home features you need to look for. Nothing is assumed or left out.

Handy home checklists and assessments.

Interview questions to help you hire industry professionals with knowledge and experience. Photographs that provide a frame of reference to inspire, clarify and illuminate features and benefits.

Valuable resources to save you time, money and energy.

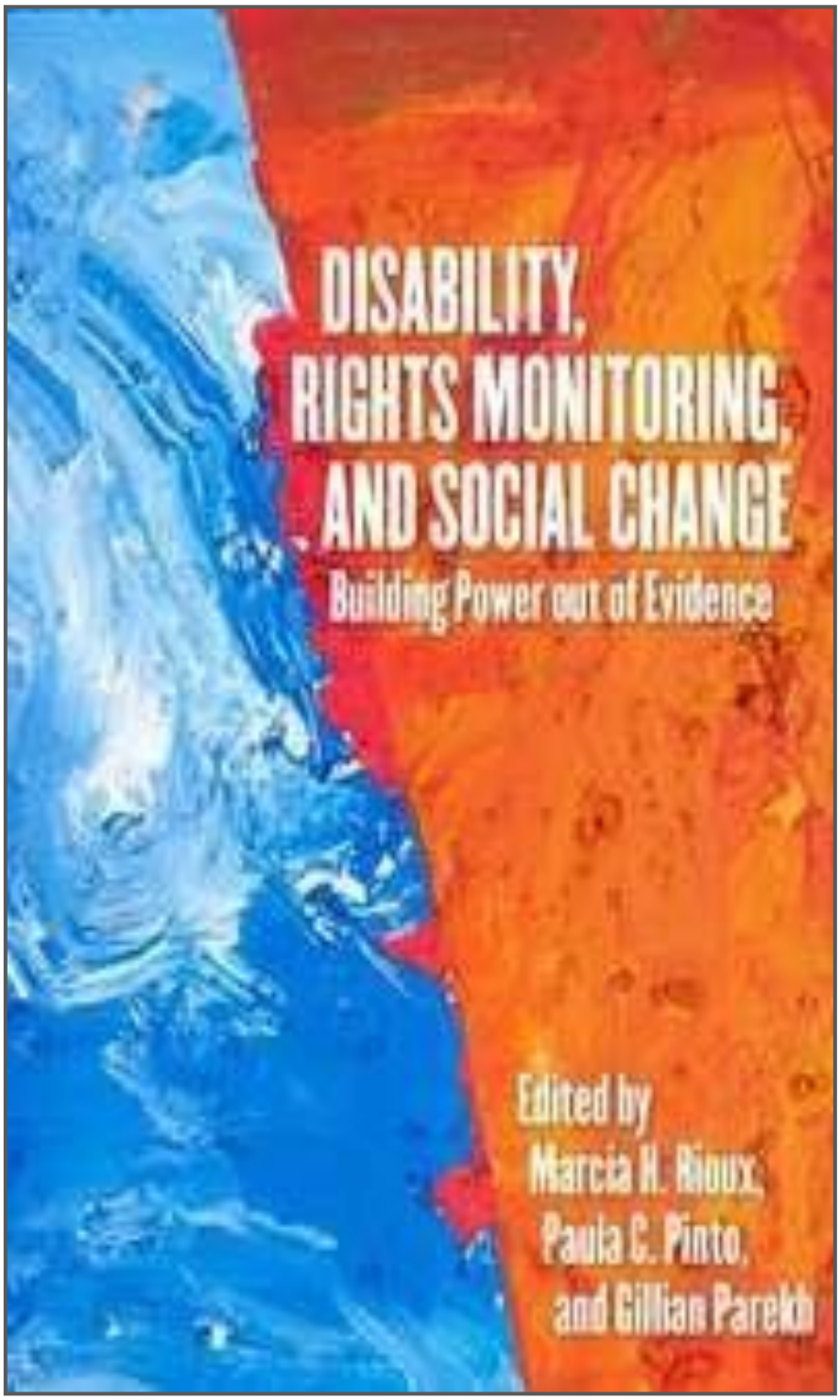
Helpful sources of funding.

Space planning dimensions for access using assistive devices such as wheelchairs and walkers.

And so much more!

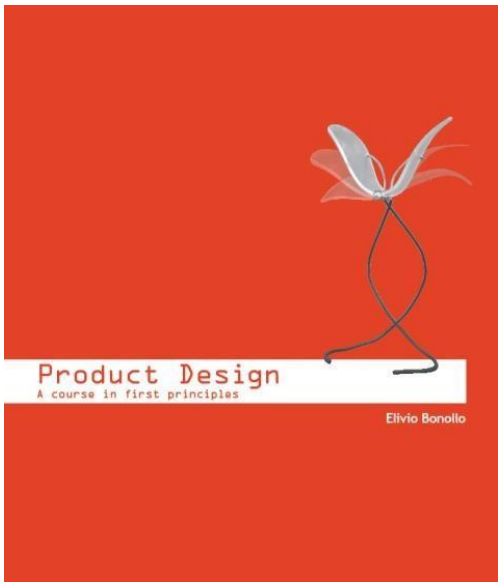
If you want useful, dependable advice and easy to implement ideas from respected experts who know the ropes, you'll love Rossetti and Leder's perspective. As a speaker, author and consultant who uses a wheelchair, Rossetti has helped hundreds of people design their ideal homes. Now her comprehensive Toolkit is available to help and support you! Get the Universal Design Toolkit now to start your project!

Disability, Rights Monitoring and Social Change:



New Update: ELIVIO BONOLLO (2015/16) PRODUCT DESIGN: A COURSE IN

FIRST PRINCIPLES



Available as a paperback (320 pages), in black and white and full colour versions (book reviewed in Design and Technology Education: An International Journal 17.3, and on amazon.com).
The 2018, eBook edition is available in mobi (Kindle) and ePub (iBook) file versions on the amazonand other worldwide networks; includingon the following websites:
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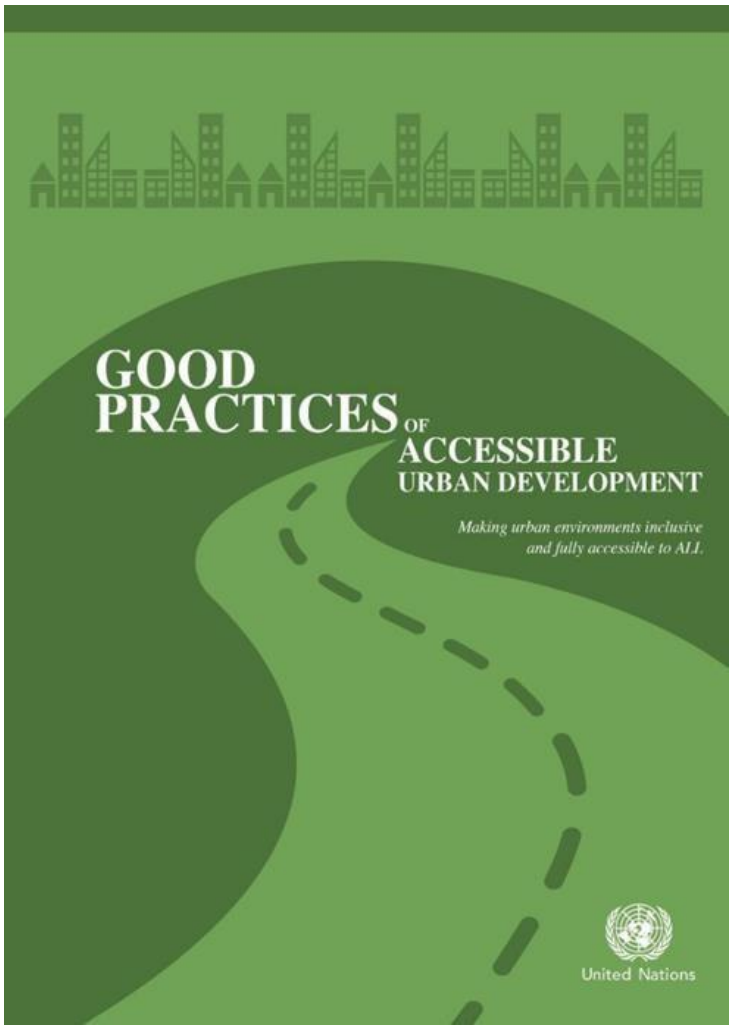
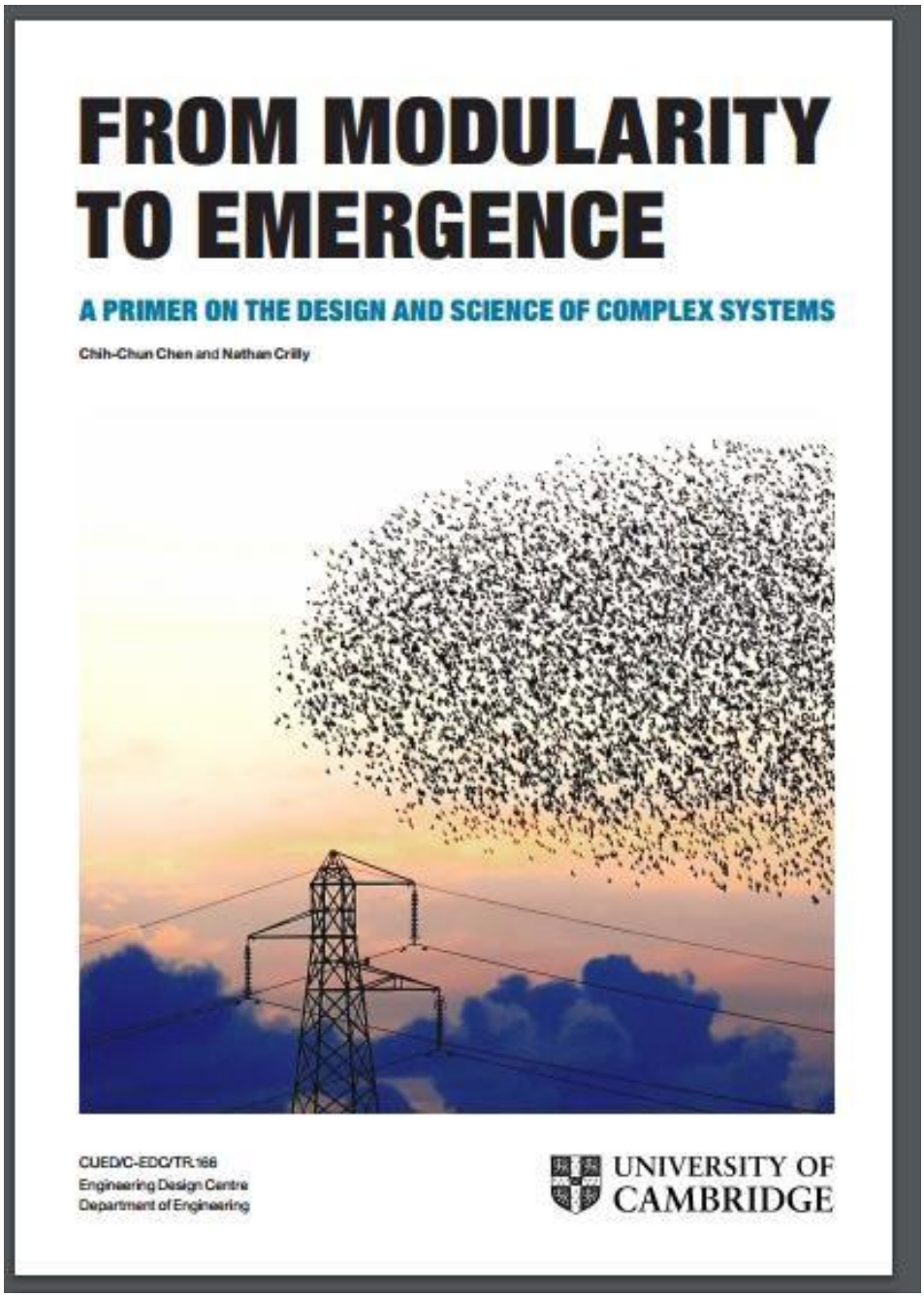


In light of the forthcoming United Nations Conference on Housing and Sustainable Urban Development (HABITAT III) and the imminent launch of the New Urban Agenda, DESA in collaboration with the Essl Foundation (Zero Project) and others have prepared a new publication entitled: "Good practices of accessible urban development".

The publication provides case studies of innovative practices and policies in housing and built environments, as well as transportation, public spaces and public services, including information and communication technology (ICT) based services.

The publication concludes with strategies and innovations for promoting accessible urban development. The advance unedited text is available at:http://www.un.org/disabilities/documents/desa/good_practices_urban_dev.pdf



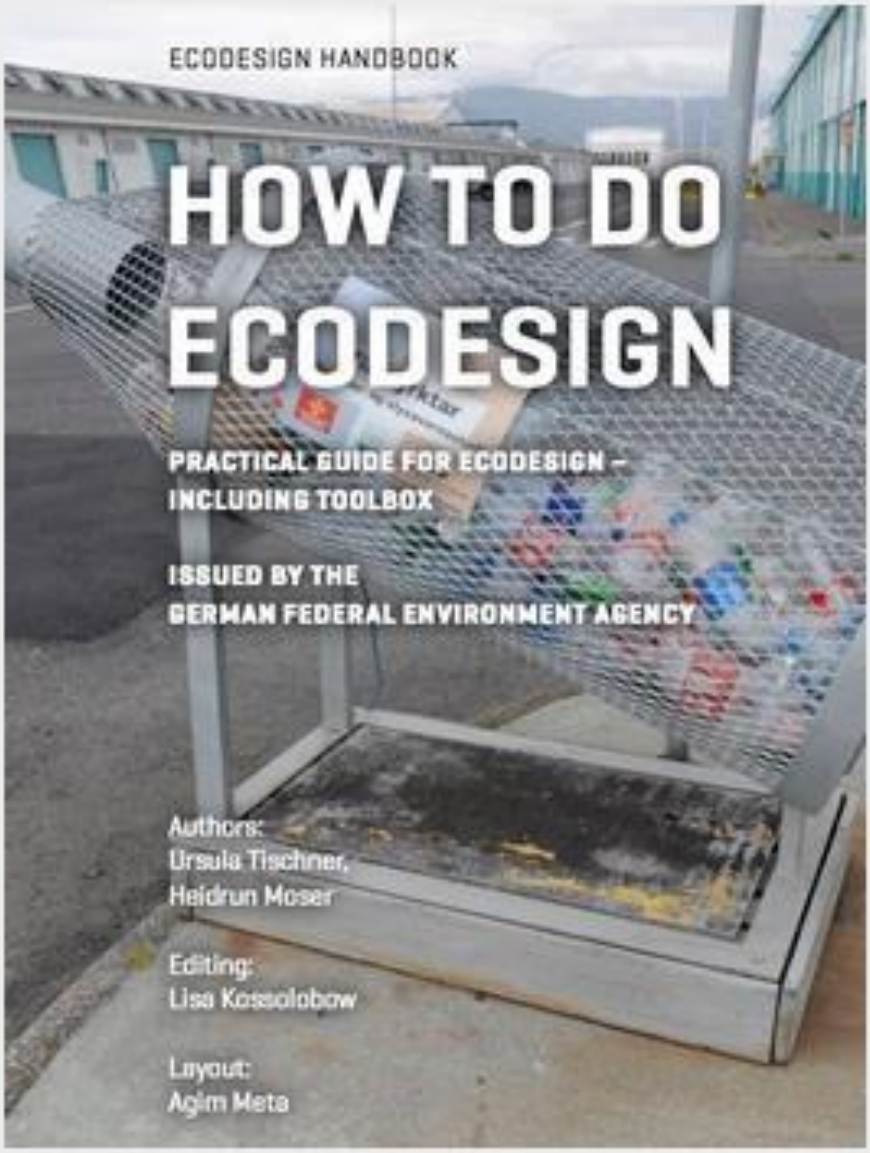
Dr Chih-Chun Chen and Dr Nathan Crilly of the Cambridge University Engineering Design Centre Design Practice Group have released a free, downloadable book, _A Primer on the Design and Science of Complex Systems_.

This project is funded by the UK Engineering and Physical Sciences Research Council (EP/K008196/1).

The book is available at URL: http://complexityprimer.eng.cam.ac.uk

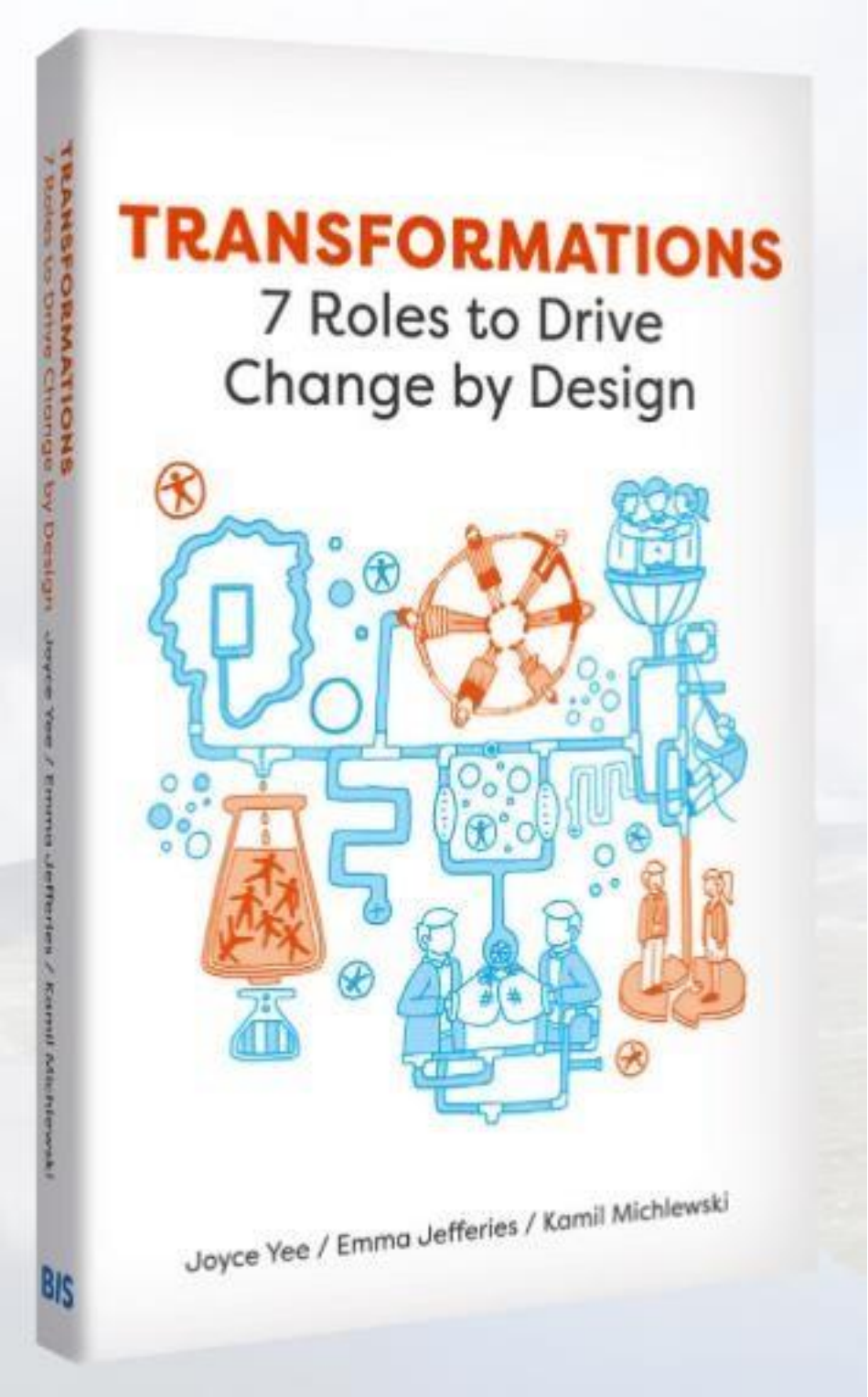
Changing Paradigms: Designing for a Sustainable Future

New iBook / ebook:
HOW TO DO ECODESIGN



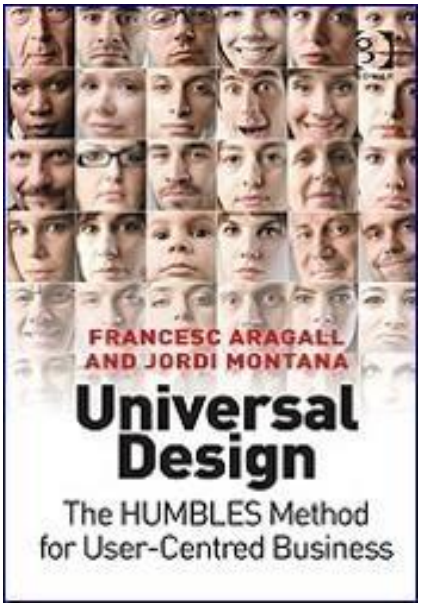
Practical Guide for Ecodesign – Including a Toolbox
Author: Ursula Tischner

ISSN: 2582-8304




Arnar Árnason and Sigurjón Baldur Hafsteinsson
DEATH AND GOVERNMENTALITY
Neo-liberalism, grief and the nation form

Universal Design: The HUMBLES Method for User-Centred Business



"Universal Design: The HUMBLES Method for User-Centred Business", written by FrancescAragall and Jordi Montaña and published by Gower, provides an innovative method to support businesses wishing to increase the number of satisfied users and clients and enhance their reputation by adapting their products and services to the diversity of their actual and potential customers, taking into account their needs, wishes and expectations.

The HUMBLES method (© Aragall) consists of a progressive, seven-phase approach for implementing Design for All within a business. By incorporating the user's point of view, it enables companies to evaluate their business strategies in order to improve provide an improved, more customer-oriented experience, and there by gain a competitive advantage in the marketplace. As well as a comprehensive guide to the method, the book provides case studies of multinational business which have successfully incorporated Design for All into their working practices.

According to Sandro Rossell, President of FC Barcelona, who in company with other leading business professionals endorsed the publication, it is "required reading for those who wish to understand how universal design is the only way to connect a brand to the widest possible public, increasing client loyalty and enhancing company prestige". To purchase the book, visit either the Design for All Foundation website

Nina Foundation's latest E Book has been Published on following online platforms. Now you have more options to download and read
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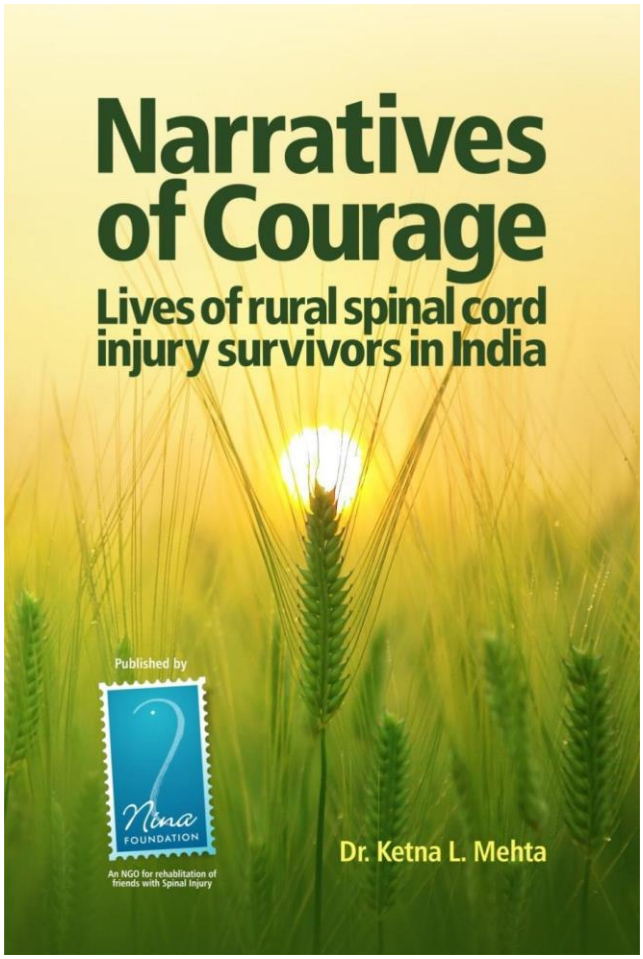

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NOW AVAILABLE
Case Studies in Applied Behavior Analysis for Individuals with Disabilities (Second Edition)
Keith Storey, Ph.D., BCBA-D
Linda Haymes, Ph.D., BCBA-D
This book responds to a critical need for highly qualified personnel who will become exemplary professionals because of their advanced knowledge, skills, and experiences in working with students and adults that have varying disabilities, including Autism Spectrum Disorders (ASD). Since Board Certification for behavior analysts was introduced, there has been an expansion of training programs in Applied Behavior Analysis to meet the demands from school districts, health insurers, and families. In spite of these developments, a case studies book has not been available that uses the Behavior Analyst Certification Board Task List, Fifth Edition (BACB) guidelines for educating individuals receiving their BCBA, or for those in the field such as teachers, and service providers. The goal of this book is to fill that need. In this newly revised second edition, eighteen case studies are provided—case studies with complete analysis, case studies with partial analysis, and case studies without analysis. The format, readability, and detailed description of instructional methodology makes this text a valued resource for instructors and behavior analysts responsible for improving the skills of people with disabilities.
Charles C Thomas, Publishing is proud to announce the release of this second edition.
For more information, or to order your copy, scan the QR code below!
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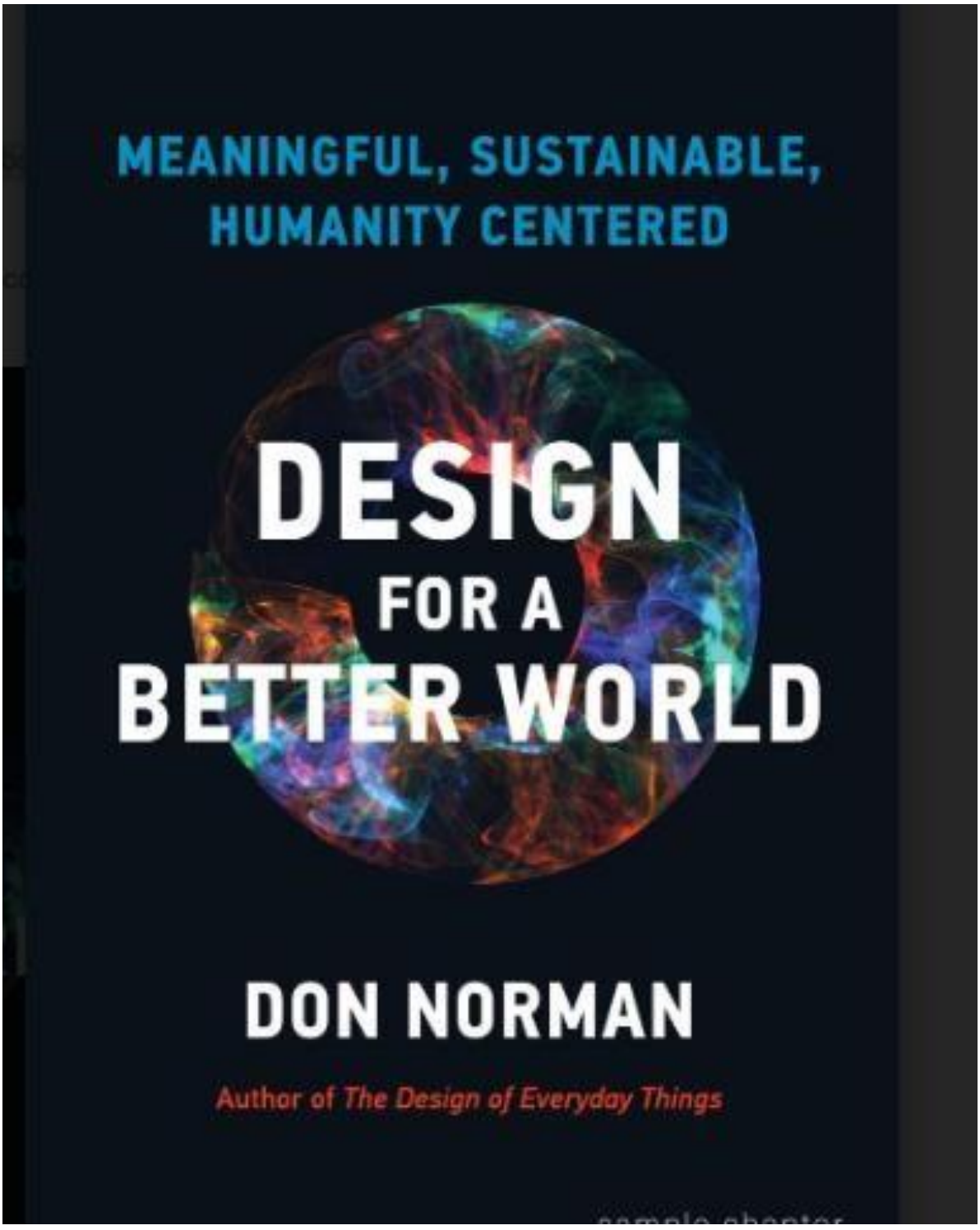
Case Studies in Applied


MEANINGFUL, SUSTAINABLE,
HUMANITY CENTERED
DESIGN
FOR A
BETTER WORLD
DON NORMAN
Author of The Design of Everyday Things

ISSN: 2582-8304

News

1

How do we make more accessible learning content for children with disabilities?

Accessible Digital Textbooks Initiative can be a powerful tool for engaging all learners through different formats.

Irene Sánchez

UNICEF/Bhutan/2024/ISanchez

Paro, September 2024. This is the crucial question for participants of the Accessible Digital Textbooks Initiative. The training was joined by national curriculum experts, SEN teachers, STEM officials and teachers, policy makers and UNICEF officials to discuss and propose ways to produce effective and user-friendly content when adapting

digital textbooks, ensuring all children learn, including children with disabilities.

Coordinated by the Ministry of Education and Skills Development and supported by UNICEF, the workshop was held in Paro and facilitated by international experts who had experience of supporting over 10 countries around the world. The main objectives were to share and consolidate knowledge on producing content for children with visual, hearing, intellectual, developmental, and learning disabilities.

"When I first came to Wangsel, studying was difficult because tools like these (ADT) did not exist. ADT will be able to support students with disabilities. Looking at the materials, I can see how it will increase the interest of students with disabilities to study," said Namgay Wangchuk, an instructor with disability at Wangsel Institute for the Deaf.

How do we make more learning content more accessible for all children? The Technology Adviser and Designer Consultant, Elias Constantopedos, from the Learning Innovation Hub in Finland, explained:

"We blend universal design for learning principles with accessibility standards and inclusive testing. We test with all children, including children with disabilities and teachers."

For the curricula experts and technology team at the Ministry of Education, this is a significant challenge. It involves developing the distribution platform, reaching various audiences with the content, handling hosting, and training teachers. However, both experts are

fully committed to overcoming these difficulties to ensure providing reassurances all students will be reached.

"This workshop helped us to understand better the design principles that can be incorporated based on the need of the child... Overall, we are optimistic" Tashi Zangpo from the Centre of School Curriculum Development in the Ministry or Education and Skills Development, said.

UNICEF experiences in Jamaica, Kenya, Nicaragua, Paraguay, Rwanda, Uganda, and Uruguay, among other countries have provided evidence that ADTs can be a powerful tool for engaging all learners through different formats. In other words, besides providing equal access to content, they can also become attractive tools for children and adolescents with and without disabilities to support learning together and in diverse ways.

"The Accessible Digital Textbook Initiative (ADT) is timely for Bhutan. We are here to support the national initiative to produce accessible digital content using their local ecosystem and local resources so that all children in school can learn alongside their peers with the same content", Senior Advisor and Global Lead of the UNICEF ADT Initiative Julie de Barbeyrac said.

ADT may contribute "incentivizing out of school children to join schools in Bhutan", Julie de Barbeyrac emphasized. This initiative, while supporting student learning, will also address the teaching methods and strengthen universal design for learning principles within the education system and with teaching strategies.

According to the report "Seen, Counted, Included: Using data to shed light on the well-being of children with disabilities" (UNICEF, New York, 2021), 64,431 children with disabilities aged 0 to 17 years live in South Asia. Thanks to the support of ELEVA foundation (UNICEF UK Natcom), the UNICEF Learning Innovation Hub is providing technical and technological assistance to two countries in the South Asia region, including Bhutan.

(Courtesy: UNICEF for every child, Bhutan)

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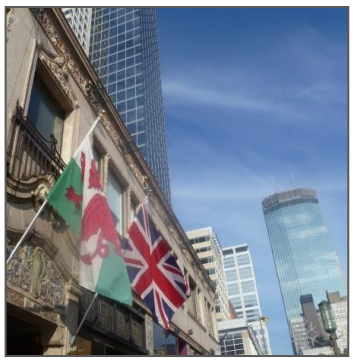

Programme and Events

The submission deadline for the 2025 edition is September 30, 2024, with a late deadline of February 28, 2025. The judging period will take place from April 1st to April 15th, 2025, with the winners announced on May 1st, 2025.

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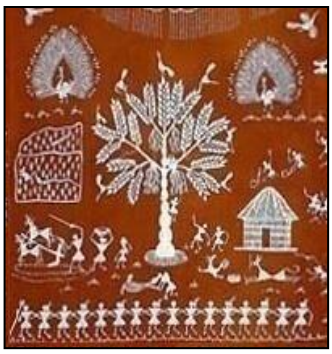

Job Openings

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