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Content March 2020 Vol-15 No-3

1.	Guest Editorial :
2.	A Housing Morphology: For the case of proposed Panchkhal
	Smart City:6
3.	Transforming Ancient settlement next to Kathmandu Preserved
	Monument Zone struggling for its identity:22
4.	Stackholder-Based Analysis for Successful, Municipal Solid
	Waste Management in Bhaktarpur, Nepal:48
5.	Swayambhu as a Strategic View:72
6.	Post Earthquake Reconstruction: An analysis on the case of
	Techo:

Other regular features

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Editorial

It is my pleasure to be the Guest Editor of March 2020 edition, Vol. 15. I would like to thank to Dr. Sunil Bhatia for providing me this opportunity and I would like to express my gratitude to all the women authors. This newsletter is a platform for the researchers to explore their knowledge, experience and findings. This March 2020 issue mainly consists of 5 articles which covers the research works carried out by brilliant women in Architecture of Nepal. This adds more joy to me. The research works are part of a field based research carried out as a practioner or as a part of post graduate dissertation.

The first article focuses research on energy efficient houses for the proposed smart city in Panchkhal, Kavre, Nepal. The second paper is the study about transformation of traditional settlement in proximity to Kathmandu Monument Zone demarcated by UNESCO that are in verge to be conserved which are being affected by so called urbanization. The third paper is about the role and behavior of stakeholders towards waste generation and management to analyze their influence in Municipal Solid Waste Management (MSWM) of Bhaktapur. The fourth research provides an understanding on the protection and preservation of the historic landmark Swayambhu of Kathmandu Valley (as Strategic views are also the prominent symbolic landmark) and analyzing the impact of development on the strategic view for the protection of the emblematic view of Swayambhu. Where as the last article is about the post reconstruction scenario in Thecho, Lalitpr, Nepal after Gorkha Earthquake of 2015 and role of Lumanti to help rebuild the shelter of people in this Newari settlement.

Last but not least, I would like to thank all the authors for providing valuable and research based papers. All these paper address the issues of development, planning and architecture in Kathmandu valley and Kavre district.

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A Housing Morphology: For the case of proposed Panchkhal Smart City

Ar Anjana Shrestha Vaidya

ABSTRACT

In context to Nepal, the rapid urbanisation is leading to challenges for housing and infrastructure. Due to the high density in Kathmandu, the concept of smart city has been developing and this requires an understanding of the present situation of urban development. This research focuses on studying the housing sector of the proposed smart city at Panchkhal, Kavre, Nepal focusing on energy efficiency.

The research studies energy efficient housing for Panchkhal through exploratory research. A bioclimatic chart for Panchkhal has been developed, which shows the thermal comfort range of 19°C to 28°C. Four scenarios of a typical single family detached housing are analysed qualitatively and quantitatively in terms of indoor temperature and heating cooling load. Base case scenario I, a typical contemporary housing is improvised into scenario II with passive solar design in terms of orientation of rooms, building form and natural ventilation; scenario III with passive solar design also having thermal insulating materials; and scenario IV with an addition of solar home system. It is analysed that the indoor temperature of the coldest day increases up to 0.68°C by passive solar design without thermal insulating materials and up to 7.5°C by passive solar design with thermal insulating materials while the indoor temperature of hottest day decreases up to 2.5°C by passive solar design without thermal insulating materials and up to 7°C by passive solar design

with thermal insulating materials. The annual heating cooling load for scenario I is 1299.28 kWh/yr which decreases to 1116 kWh/year in scenario II and further decreases to 353.62 kWh/yr in scenario III and IV. Cost effectiveness is analysed in terms of NPV of cost and annual saving for energy. It is analysed that the NPV of cost of scenario I is more than scenario II by 1.75%, more than scenario III by 2.62% and more than scenario IV by 4.32%.

The analysis justifies that energy efficient housing would harmonize with the proposed Panchkhal smart city to act smart, through energy efficiency and cost effectiveness.

Keywords: *Smart city, Panchkhal, Energy efficient housing, Heating cooling load, Net Present Value*

I. INTRODUCTION

A. Background

In Nepal, with new municipalities added in 2014 and 2015, the urban population now accounts for 40% [1]. However, the rural migrants in Kathmandu valley are creating intensified demands of energy consuming services like housing. In this context, the concept of smart city is being developed. Focusing on housing sector, the proposed smart cities of Nepal should be able to plan and design residential sectors that would be disaster resilient, eco-friendly and energy efficient [2]. Energy efficient homes includes homes that are designed to reduce the overall environmental impact during and after construction in such a way that we can meet the needs of the present without compromising the ability of future generations to meet their own needs. This can be accomplished by efficiently using resources like energy and providing energy savings. Moreover, the household sector in Nepal consumes 87% of total energy [3] as shown in Figure 1 which has been addressed in this study.



Figure 1: Energy Consumption Situation by fuel type in Nepal 2011/2012 (Source: WECS, 2014)

B. The Study Area

The Civil Group of Companies has introduced the concept of smart city at Panchkhal Municipality of Kavrepalanchowk district, as one of the most feasible city especially because of nearer proximity to Kathmandu (44.6 km). It has proposed housing complexes for the proposed Panchkhal smart city.

C. Objective of Study

General Objective

• To study housing sector for the proposed Panchkhal smart city in terms of energy efficiency and cost effectiveness.

Specific Objectives

- To study and analyze energy efficient housing for the proposed Panchkhal smart city, in terms of indoor temperature and heating/cooling load.
- To study cost effectiveness of the energy efficient housing in terms of Net Present Value (NPV) of cost and annual saving.

D. Limitation of Study

This research based on housing morphology for the proposed Panchkhal smart city is only limited to the housing sector of the proposed Panchkhal smart city and doesn't focus on ICT, infrastructure and services. The research is limited to the residential sector, focusing only on single family detached house and doesn't include multifamily housings. The economic analysis is done only in terms energy consumption and for only the detached single family housing, forecasting to the year 2027.

II. Literature Review

A range of renewable energy in cities can lead to smart city. Both solar thermal energy and photovoltaic (PV) are modular technologies that can be integrated in residential buildings [4]. Five design principles have been developed by UN Habitat Nepal in their project – "Promoting Sustainable Housing in Nepal" in 2014 which includes green building materials, passive solar design, energy efficiency, water conservation and waste management [5]. Since Panchkhal has a warm and humid climate, the design principles are studied in the context of warm and humid climate.

The general principles of passive design for warm and humid climate are minimization of the high day temperature, avoidance of direct exposure of facades to solar radiations, reduction in the humidity levels and continuous air circulation to reduce heat. Obaidin (2014) developed a very clear framework for the strategies of passive cooling, which generally fall into three categories: i. Solar and Heat Protection ii. Heat Modulation or Amortization Technique iii. Heat Dissipation Technique. Energy efficiency can be improved with smart management and operation like actuators, thermostat and sensors. [6]

Status quo of Cities in warm and humid climate have been studied like Auroville Town Planning of India, Anupama Kundu Residence at Auroville, India and Solar Settlement at Schlierberg, Freiburg, Germany. Similarly, energy efficient houses of Kathmandu like Mato Ghar at Budhanilkantha and residence of Architect Ujjwal M. Shakya at Maharajgunj were studied.

III. Methodology

This research on the housing morphology for the case of proposed Panchkhal smart city is based on an exploratory research methodology. Through intensive literature reviews, it is known that a smart city includes smart buildings which are generally focused on energy efficiency and cost effectiveness. The case Panchkhal is studied on the basis of the existing scenario of houses and climatic context. After that, a survey is conducted to validate the research through the user's preference towards energy efficient house in Nepal. After achieving the validity through the survey, study of design of such houses for proposed Panchkhal smart city was conducted on the basis of literature reviews which was later simulated in Autodesk Ecotect software for quantitative justifications on energy efficiency and cost effectiveness.



Figure 2: Conceptual Framework of Study

A. Method for analysis of indoor temperature, heating and cooling load

Four scenarios for a typical single family house is developed placing them in their respective neighbourhood context as shown in Figure 3. Base case scenario I, a typical contemporary housing is improvised into scenario II with passive solar design in terms of orientation of rooms, building form and openings; scenario III with passive solar design also having thermal insulating materials; and scenario IV with an addition of solar home system. The scenarios are initially developed qualitatively on the basis of literature reviews and case studies, and are later quantitatively simulated in Autodesk Ecotect in terms of indoor temperature and the relative heating cooling load required.



Figure 3: Scenarios for Analysis

B. Method for economic analysis of the housing morphology

Economic analysis has been conducted for the above mentioned scenarios in terms of NPV of cost and annual savings using the following procedures.

• Calculation of energy consumption for heating and cooling using Ecotect software.

• Calculation of energy consumption on cooking, appliances, lighting using primary data.

• Secondary data collection for inflation rate of electricity, appliances, solar home system, electronic goods, and discount rates and so on.

• Calculation of energy consumption and cost is done for the life span of house for each scenario i.e. 40 years which includes,

- Initial Capital Cost (NRs) including construction, design and initial equipment cost.

- Annual energy consumption (kWh) and Annual Cost (NRs)

Future Cost calculated by projecting the annual cost to base year
2027 using inflation rates and to the 40 years life span of building.

• NPV of Cost for 40 years is calculated as the sum of the initial and the future cost.

• Annual saving in a scenario calculated by deducting the NPV of one scenario to the NPV of another scenario.

C. Data Collection

Climatic data of Panchkhal for temperature, humidity and rainfall are collected from DHM, Nagpokhari. Primary data collection was done where field survey was conducted at Panchkhal. Majhdihi of Ward No. 2 lies in the area allocated for low density housing in the proposed smart city. So, the particular location was selected for sampling and field survey.



Figure 4: Temperature Data of Panchkhal (2005-2015)(Source:DHM,2015)



Figure 5: Building material used for outer wall at Panchkhal



Jan Feb Mar April May June July Aug Sept Oct Nov Dec

Figure 6: Humidity Data of Panchkhal (2005-2015)(Source:DHM,2015)

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For the economic analysis of the housing morphology, secondary data is collected on various aspects of energy sector.

• NRB discount rate of 10% referred by taking an average of ten years from 2006 to 2016.

• Replacement cost of equipment calculated by taking the annual 5% increase in dollar value taking the data from 2005 as Rs 70/- to 2015 as Rs 109/- (currency, 2016)

• Inflation rate of SHS in yearly decrement rate of 6.5% per year[8].

• Inflation rate of construction materials considered to be 6.3% per year calculated from the annual percentage change of 2008 to 2015 [9].

• Per unit rate of Electricity taken as Rs 12/- per unit, considering the amount of electrical units consumption and ampere [10].

• Yearly increment rate of electricity has been calculated as 3.5% per year [10].

IV. Analysis, Findings and Results

A. Development of Psychometric Chart

During the study, the psychometric chart for Panchkhal has been developed as shown in Figure 7. Through the chart, it is known that most of the months are warm and humid. Thermal comfort in winter is between 19°C to 24 °C and thermal comfort in summer is in between 24°C to 28°C. Most of the months except January and February require air movement. Almost all months of winter can have passive solar heating. HMNV is suitable from April to September.

B.Scenario Analysis

The analysis of the housing morphology for the proposed Panchkhal Smart city has been done on the basis of different scenarios placing them in their respective neighbourhood context as shown in Figure 8 and 9.



Figure 9: Portion of climate responsive masterplan of Scenario II/III/IV



Figure 8: Portion of the typical master plan of base case scenario I

a. Comparison of Indoor Temperature

The heating and cooling load has been calculated for the three scenarios as per indoor temperature from Autodesk Ecotect. Besides, orientation, layout and openings, the scenarios have been interpreted on the u-value of building materials used as shown in Table 2. Finally, comparison of indoor temperature for the rooms has been analyzed. Living room, master bedroom, bedroom, kitchen and dining have been placed in thermal comfort space for indoor temperature analysis.



Figure 7: Psychometric Chart developed for Panchkha

Building	Scenario I		Scenario II/III/IV	
Compone nt	Building Material	U-Value (W/m2 K)	Building Material	U-Value (W/m2 K)
Exterior Wall	Burnt Brick (230x110x55) mm in concrete mortar & 12 mm cement plaster	1.98 W/m2 K	DoubleCSEB254X127X76) mm with50mm air cavity and 12mm lime plaster	1.09 W/ m2 K
Interior Wall	Half burnt brick (110x230x55), in concrete mortar & cement plaster	2.25 W/m2 K	127 mm thk CSEB wall with 12 mm lime plaster on both sides	1.87 W/m2 K
Floor	110 mm concrete slab	4.89 W/m2K	110 mm concrete slab with timber floor suspended on wooden joists with air cavity	0.56 W/m2K
Roof	110 mm conc slab with cement tile	3.033 W/m2K	Green Roof Double roof with cavity	0.32 W/m2K
Window	Single Glazed window	5 W/m2K	Double glazed window	3.06 W/m2K

Table 2: U-value of building materials used for the scenarios



Figure 10: Indoor temperature of Master Bedroom in coldest day

The analysis of all rooms shows that the average winter temperature on January 15 increases up to 0.68°C in scenario II i.e. passive solar design without using thermal insulating materials and increases up to 7.5°C in scenario III i.e. passive solar design with thermal insulating materials. Similarly, the average summer temperature on June 21 decreases up to 2.5°C in scenario II i.e. passive solar design without using thermal insulating materials and decreases up to 7°C in scenario III i.e. passive solar design with thermal insulating materials.



Figure 11: Indoor temperature of Master Bedroom in hottest day



Figure 12: Indoor temperature of Living room in coldest day



Figure 13: Indoor temperature of Living room in hottest day

b. Comparison of Heating Cooling Load

The heating and cooling load has been calculated for the three scenarios as per the indoor temperature derived for all rooms from Autodesk Ecotect.



Figure 14: Comparison of heating and cooling load (kWh/yr)

c. Comparison of Cost Effectiveness

The Figure 16 shows that the NPV is lowest in scenario IV because of the use of solar PV which is in yearly decrement rate of 6.5% [8] and less annual electricity bill which is in yearly increment rate of 3.5% per year [10].



Figure 15: Comparison of NPV of Cost (2027-2067)

The analysis shown in Figure 16 on annual saving shows that a passive house with active solar energy technology for electricity can provide more annual saving than a passive house without active solar technology from 23.9% to 41.9%.



Figure 16: Comparison of Annual Saving (NRs)

C. Implementation in Master Plan

The finding of the study shows that it is preferable to orient the longitudinal sides of the residential plots towards North-South in the master plan of the proposed Panchkhal smart city.

a. Formulation of Bye-Laws

The new bye-laws of the proposed Panchkhal smart city shall be formulated as per the results of this analysis. Bye-laws that shall be formulated for the detached house of residential sector are,

- Longitudinal sides of house should face North and South.
- There should be a setback of at least 2.5 m towards South.
- Each house should install at least 1 kW of solar home system and sell the extra electricity to smart metering system.
- Each house should have a central inner courtyard for wind stack effect with void.

V. Conclusion and Recommendation

A. Conclusion

Through the climatic analysis, was known that Panchkhal has a warm and humid climate with a thermal comfort range of 19°C to

24°C in winter and 24°C to 28°C in summer. Average winter temperature can increase up to 0.68°C in passive solar design without using thermal insulating materials and up to 7.5°C in passive solar design with thermal insulating materials. Average summer temperature can decrease from 2.5°C in passive solar design without thermal insulating materials and up to 7°C in passive solar design with thermal insulating materials. Heating and Cooling Load in contemporary house can decrease to 7.76% in passive solar design and further decreases to 58% in passive solar design with thermal insulating materials. NPV of cost of a typical contemporary house is more than passive house without thermal insulating materials by 1.75%, more than passive house with thermal insulating materials by 2.62% and more than thermally insulated passive house with active solar home system by 4.32%. In this manner, scenario III/IV proves to be the best in terms of energy efficiency and scenario IV proves to be the best in terms of cost effectiveness. With qualitative and quantitative analysis based on indoor temperature, heating cooling load and cost effectiveness of energy use, this research justifies that an energy efficient house would harmonize with the proposed Panchkhal smart city to act smart.

B. Recommendation

Few recommendations from the study are

• The chart developed for Panchkhal shall guide planners and architects to make general decisions to develop climate responsive and energy efficient building designs.

• The scenarios presented in this research can be applied to different locations and climate. efficiency and cost effectiveness.

• Any new idea if implemented in a mass scale in the form of housing would be more effective to implement and shall gain more trust from the entire community.

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Transforming Ancient settlement next to Kathmandu Preserved Monument Zone struggling for its identity

Bidita Shakya

Introduction and Background

In Kathmandu Metropolis, the older city core dates back to 8th century which is surrounded by the later development around 12th to 13th century, both combining to form the present day city core. This city cores are the hub of historic heritages and settlements, large market places, commercial activities, small scale businesses and many cultural activities. The city core of Kathmandu has been attracting large influx of country's population for various reasons, economy generation being one major cause. This process of urbanization, though slow in some cases, transformation is remarkable in both, the rapid transforming settlements and the slow transforming ones.

In Kathmandu Valley World Heritage Site demarcated by UNESCO, traditional historic settlements surrounding the seven monument zones are the physical context which contributes to the identity of the city. These settlements adequately encompass the intangible linkages and bears testimony to the living tradition of the valley. However, in the process of globalization and modernization, physical, socio economic, political, legal and institutional structure, technological and cultural changes are gradually occurring, transforming the settlements to lose their character. To tackle with this problem, the boundaries of conservation must not just be limited to preservation of few buildings and monuments but, should be broadened to include collective, contextual and cultural outlook of an area and built environment. This research paper is focussed on one such transforming settlement as neighboring context of Protected Monument Zone (PMZ).

Study Area

The studied area is located in the central historic part of Kathmandu valley which lies in the Central development region of Nepal. It touches Chikanmugal, Jaisedewal, Kwohiti Tole, Bhimsenthan settlement area in proximity to Kathmandu Monument Zone demarcated by UNESCO. However, it lies outside the buffer of the demarcation at the south western section of settlement touching wards 20, 21 & 23 of Kathmandu Metropolitan City. It is one such densely populated traditional settlement area within historic city core of the Kathmandu Metropolitan and is undergoing gradual transformation challenging the livable environment¹ and originality of the past.

¹Livable environment- fulfilling basic needs for survival such as light, ventilation, infrastructure facilities, services, water supply, sanitation etc.



Major significant historic past related to the study area are as follows.

- Ancient trade route passed down the Bhimsenthan area touching the site.
- The site is the starting point of the ancient Lichachhavi town.
- It possesses historic evidences from pre-Lichachhavi, Lichachhavi and Malla Periods.
- Myth like Gopur, one of the old city gates lies buried in Kwohiti.
- Historic heritages like Kwohiti, Lakhe Nani, Jaisidewal, Bhimsen Temple exists within the site boundary.
- It is a vibrant ceremonial center with routes of important festivals like Indra Jatra (Dagin procession, Upaku Route), Pachali Bhairab

Jatra of Jyapu (farmers in Newari) community, Seto Machhindranath Rath Jatra.

Research Methodology

This research was based on both primary data and secondary data collected. Various sources like journals, books and internet surfing were referred to conceptualize theories. Previous reports on other similar topics, reports published by authorized concerned bodies, official documents, maps, statistical records, websites and any other relevant materials were also collected as secondary data for research. Collected secondary data were verified through site visits and cross checking. Various authorized government institutions like Kathmandu Valley Town Development Committee (KVTDC), Land Revenue Office (Malpot Karyalaya), Land Survey Office (Napi Bibhag), Department of Urban Design and Building Construction (DUDBC), Central Bureau of Statics, Kathmandu Municipal Corporation (KMC) and ward offices of the site and related areas were visited as per necessity throughout the research period.

Household survey was carried out for the buildings on three streets and one alley, and adjoining residential quarters or Toles were also included for the analysis of current site conditions. Household survey included occupancy information within study boundary. Also, interviews were taken with knowledgeable people of the study area and related subject matters. Both, qualitative and quantitative methods were applied. Physical, environmental date collection, mapping, detail field observation and photographs were taken during survey. The study was conducted limiting to the following framework.

Questionnaire Survey was done for data collection dividing the study area into 4 parts.

- Lane 1 LANE (LA/LB) Guna Kamdev Marga- Chikanmugal to Jaishidewal Street (ward 20, 23 and 21) -Total number of surveyed private residences in this lane is 66.
- Lane 2 LANE (LC-LD) –Paropakar Marga and Tabwa Marga-Bhimsenthan to Kwahiti street (ward 20)-Total number of surveyed private residences in this lane was 60.
- Secondary lane- LANE (AA-AB)- Kwohiti Pakha- Joshidewal to Kwohiti (ward.20) - Total number of surveyed private residences in this lane was 41.
- Alley 1- ALLEY (AC-AD) Chikanmuga Galli-Bhimsenthan to Chikanmugal -Total number of surveyed private residences in this alley was 35.



Transformation of the study area:

Social Structure

Major problems seen in social structure of every traditional Newar society which used to be a well structured homogeneous community is turning into heterogeneous community. There used to be strong cultural bonding between different castes of Newars which got affected due to in migration of people outside the valley and out migration of those within it. The survey revealed that the population of rented people in the studied area is nearly equal to that of the original owners. Also, although the population of Newars remains balanced within the survey area, the original dwellers found to have migrated to new areas. The locals have migrated out due to various reasons such as scarcity of habitable space, the increase in family size and the property division problems which resulted in fragmented nature of the individual property, changing the otherwise proportionate and well planned urban form.

Commercialization is one reason for people to rent the area. Easy availability of rental space, lower rent than the major commercial areas like Ason and Newroad, proximity to major commercial hubs and easy access to means of transport and market centers are few reasons for tenants to rent in this area. This in turn has resulted in major change of socio- economic cultural dimension of original Newar residents because migrants either do not accept or are not accepted in the Newar culture prevailing centuries ago. Due to this reason migrants are creating their own physical and cultural niches in the existing homogeneous traditional culture.

The spatial configurations which were originally created to cater homogeneous community and fixed population are forced to adapt new social layers of various socio-economic groups. Population densification and commercial pressure have increased the demand of available space transforming the existing urban spaces in improper ways. The old structures are meeting the space demand either by vertical addition of storey or on the footprints of the old ones. New structures are being constructed in concrete framed style higher than and different in character from the original urban fabric, slowly erasing the past history. Most of old houses and public spaces of traditional settlement though preserved in the study area, the quality of space and physical environment is depleted because existing old infrastructure is over pressurized by population densification, private heritages are ignored with low maintenance and repair and public properties are also being neglected. This is mainly because social integration between the locals is disturbed by intervention of heterogeneous society and culture.

Findings from the study showed that Owner group is shifting from the area due to various push factors like, family size expansion, property division, uncomfortable living condition, disaster vulnerability and others factors. While the tendency of tenants preferring the area and in migration is due to pull factors like trade and commerce opportunity, better opportunity than rural areas, more affordable rent than in commercial hubs, easy accessibility to newly developed commercial centers and city center, easy accessibility to education facilities etc.

Physical Structure

When the satellite images of Kathmandu valley namely from the years 1977 A.D, 1992 A.D. and 2017 A.D. were compared, it was seen that this part of Kathmandu valley has been densely populated

already in 1977 A.D. with built forms laid out with streets and harmonious voids. The built up spaces are found to have increased when the images are compared but, encroachment of public open spaces are not clearly visible. Similarly, from the satellite photographs, the physical transformation undertaken in the urban fabric of the studied part of settlement was unclear and thus needed detail study of the urban fabric.



From the comparison of satellite images, it was clear that the study area forms the major part of historic Newar settlement and this densely populated traditional settlement area has not changed much as part of whole historic urban settlement. However, closer look to the site revealed that the urban form was gradually transforming in faster pace in the recent years than in the past and if this continues at the same rate there is no doubt that it will completely turn into a new settlement losing its identity. So, it was necessary to go through history of the settlement. Through literatures, it was proved to be a significant part of traditional town and showing its existence since Lichhavi period (400-750 C.E.) or even prior to that, as a central part of Kathmandu city. The root cause of transformation of urban form of this settlement is another important aspect to be understood. Hence, a data survey of the existing social pattern, physical, functional and cultural conditions of the physical forms were carried out to understand the changing pattern of the settlement as compared to the past. For the analysis of urban elements, the urban fabric was subdivided into Private Buildings, Public structures and Streets and alleys and studied.

Private Buildings Transformation:

Private buildings form an integral part of urban fabric. So, to preserve identity of a historic settlement, private buildings in the study area also need adequate attention. In this attempt to study the private buildings, their transformations in various aspects were analyzed. It was seen that the buildings constructed within recent 20 years interval have more height violation as well as more concrete plastered façade with RCC framed structure with drastic differences. This indicated extreme density increment and violation of building regulations. People take RCC framed structure and its construction system as more durable than load bearing structures from the past so the increasing use of RCC framed structure is seen more in reconstructed residential private structures in the study Though no such research has yet been conducted till date area. comparing the durability of RCC framed building and load bearing buildings, people have a concept that RCC framed buildings being more reliable during disasters. There are many examples of traditional buildings in load bearing system surviving more than a hundred year and with only minor cracks in devastating earthquakes and also examples of RCC framed buildings completely collapse during recent Gorkha Earthquake of 2015. Other reasons found for shifting from load bearing system to framed structure are, cost effectiveness, easily availability of materials and workmanship, easiness in vertical floor extension, less wall thickness increasing usable and rentable space. With the change in construction system of buildings from load bearing to RCC framed structure, the local techniques, materials and workmanship is disappearing which can be seen as a negative effect of development in preservation of the area. Most of the RCC buildings are found to have illegal height above permitted. This means mostly those buildings which are reconstructed are found to violate the regulations. So, in the past there used to be stronger regulation control than present day.

Property division was another of the problems which has caused transformation of private buildings in many cases. There are a total of 26 such cases identified to have undergone property divisions along the studied area. Those houses which have undergone property division have dominance of nuclear family living in them. This indicates that reasons for property division were lack of space and difficulty in adjustment in larger joint family. Of the total 24 cases of property division (i.e. 52 houses), majority of houses were occupied by tenants only. None of the houses which were tenant resided were RCC framed structured using modern materials while all the houses which are turned into concrete structures were all owner resided. This indicated that owners who intend to live in the area were seeking better, more comfortable living environment and did not want to continue living in the previous/old structure unless it gave them back some economic benefits.

When overall functional analysis of the study area was done it was seen that purely residential buildings are actually mixed use ones with commercial nature having rented tenants. Not only in the major lanes but even in the alley the commercialization is seen showing
that the area as a whole is being commercialized either by turning them into any other commercial use or into rented residences.

In the past a typical building façade character were seen in jatra route. Private buildigs in the jatra lanes had front one bay commercialized, with terrace above it for observing street activities and as setback. This character in private building was seen during study, in some of the buildings along Maru-Chikanmugal area which was next to the preserved monument zone. However, the private buildings in Chikanmugal- Jaisidewal lane (Lane LA-LB) and Bhimsensthan- Kwohiti lane (Lane LC-LD) which also is an active jatra route with similar buildings have lost the particular character. So, through study it was seen that transformation is a process in which change in one aspect effects change in another. This can be better understood through following examples.

Change in lifestyle and socio-economy caused change in function of private built forms and that in turn changes other spaces connected to private built forms and vice versa. For instance, chowks and ground floor are being used for parking vehicles because vehicle has become one of the basic needs of residents and parking space for vehicle is a problem for residents living in historic core. This also is one secondary cause for owners leaving the core.

Similarly, reasons for functional transformation of chowks losing their liveliness are related to transformation of buildings surrounding them and change in user group and their lifestyle. Previously, most of newari typical houses have sloped roof with Jhingati tiles. It was not possible to access roof. So, people use to wash clothes, bath and dry clothes in chowk. Chowks were warm with sunlight. But, in recent time houses have accessible flat roofs so activities like drying clothes and washing can take place in their own private spaces in terrace hence, chowks are no longer used for such purposes. Similarly, houses have own taps, toilets and bathrooms. So, bathing and consuming water from well are no longer done in chowks thus, reducing their uses. Also, possibility of increasing building height due to frame structure, more demand of space due to increasing density of population in core have resulted in height violation. In case of open spaces like chowks, bahals and alleys, increase in height by one structure cut off sunlight, air and ventilation to neighboring traditional buildings which would have remained lower in case it had access to those. In absence of alternate option, such neighboring structures ultimately look forward to increase their height if they go for reconstruction.

Public Structure Transformation

Public structures such as pati, dhara, sattal, dabali, temples, shrines etc. are characters of traditional Newar settlements. However, in course of time, transformation has led to loss of spatial relation, linkages and accessibility that used to exist between these urban elements, monuments, buildings and spaces. Hence, the original diversity of urban fabric and activities is gradually disappearing. The study also attempted to undergo such changes in public urban elements so, a total of 9 pati,5 dabali,6 sattal,2 stone water spouts, 2 temples, 1 node and 2 chowks existing in the study area were studied.

Pati: Pati is smallest and most widely distributed rest house. It acted as a shelter for travelers and served as a meeting place, place for games and social and religious gathering of every closely interwoven Newari society, living in its neighborhood. Out of the nine pati studied each of the pati has undergone either physical or functional changes.

Dabali: Dabali also known as *Dabu* in Newari, is performance platform for cultural masked dances and other cultural activities. It is a raised platform usually built near temples in squares or inside royal palace and used as open air stages for religious dance, dramas, display of images of gods and royal functions. According to historian Satya Mohan Joshi, theatrical traditions in Nepal started with the dabali. Till today, many dramatic dances, rituals are performed in dabali during festivals (Pokharel 2008). Out of 5 dabali studied most are intact and are used by street vendors and locals while some are used as storage area by nearby houses and one is partly encroached.

Sattal: Sattal includes broad verity of building types but with common features and generally comprises of a number of storey above the basic plan of Pati, Mandapa or other types. It is use as rest house for public as pati. A total of five sattal structures were identified in the study area out of which three are already encroached and privatized and also undergone complete transformation in their forms. Only two of the sattals are still public but that too is under certain community protection and is in the path of negative transformation.

Hiti (Stone water spouts): Stone water conduits are such an architectural marvel which relegates to the background, the uniqueness of the pits as an urban utility and their ancientness making it a heritage of Nepal as grand as the temples. (Tiwari, 2009). In the study area there were two stone water conduits namely, Kwohiti and Bhindyo Hiti. When studied these hiti areas were still preserved and functioning though not as functional as in ancient time due to municipal water supply in individual households. However, the water flow was reduced but, was still in use by tenants to fulfill inadequate municipal water supply.

Temples: The impressive architecture of the temples and their punctuation of the skyline of traditional settlement often push other exhilarating elements to the background to the memory of an out looker. Besides the wide range of temple architecture distributed around the valley, *tallakara* variety also known as tiered temples with multiple overhanging roofs defines Newari town and architecture because of their frequency and location in the core as well as nodal spaces of madeval settlements (Tiwari, 2009). In the study area too there were number of such tiered temples among which two most dominating temple structures were studied which are the landmark of their locations, in terms of historic importance, physical, social and cultural transformation they have faced in course of time.

1. Jaisidewal Temple which had been a well preserved temple fulfilling its function as a landmark element of a nodal point until it was completely destroyed by Gorkha earthquake of 12th april 2015 A.D.

2. **Bhimsensthan Temple** was found to be functional with all cultural and religious rituals carrying on from centuries although remarkable changes in materials of built form are seen after its renovations in the past.

Jaisidewal node as Urban Node: Urban nodes are religious markers, the site of temples, power places that can be traced to particular periods. A temple or some religious landmark is always

present in a node. The points of intersection of these segments are usually developed into small squares and mostly related to functional festivals and seasonal godly passages. When god is circulated in Khat or chariots, they stops at all or if not many of these nodes. The squares thus, become alive with the gods and their temples (Tiwari, 2009). Jaisidewal node in the study area like other nodes in the valley such as Maru and Ason also has a lot of monuments and urban elements distributed around. However, though it is a market square is less crowded when compared to Ason and Maru. This may be because of later transformations and modern developments. This area as per Professor Dr. Tiwari belonged to lower class society during Malla period. Still today the nodal elements like the landmark temple, dabali, pati, shrine, statues, chaityas, kalasa etc. exists in this node however, they have gone physical transformation while functional transformation are taking place gradually with rapid social and cultural changes. Some Cultures are in the verge of disappearance. For example Idol of goddess Indrayani worshiped and displayed by certain community as a part of Indra Jatra festivals under shadowed now because the people of the community have shifted from the area and are no longer interested in it.

Chowks: Chowks are open to sky open public spaces provided as a paved courtyard in the central portion of residential quarters. They might have cultural significance or can just be a daily activity space. In the study area two chowks Devi Naach Chowk and Kami Nani Chowk were studied. The first one is of cultural significance while the later is a residential chowk. By the study of first one it was noticed that with social transformation of the chowk, details need to be considered and worked out while designing building regulations if cultural preservation is intended otherwise they adversely affect the culture. For instance, the present system of passing through the underpass from chowk to dabali and vice versa may be obstructed in case the houses are sold to new community. From the study of second chowk it was clear that the social transformation in the surrounding buildings can change the identity of the chowk and also the loss of certain culture can affect the built forms and their uses.

Streets and alley Transformation:

From the study of streets and alley it was found that change in physical aspect and material were for adjusting the vehicular access. Previously, they were used for pedestrian traffic and occasionally as chariot routes and jatra route. These were Cultural activity lanes. Previously trade route passed through Bhimsensthan area so, people use to walk along the route and rest houses were built on the sides of the streets. Today these are used as short cut from Core to Kalimati both vehicular and pedestrian. Introduction of Prithavi Highway and Bus Park at Ratna Park has transformed the walking pattern and vehicular access has changed the culture of walking. The traditional pedestrian route has turned into shortcut vehicular routes. Nodes Bhimsensthan and Jaisidewal which used to be a landmark point of surprise and activity center enjoyed by walkers are now the major junctions of congestion. Rest houses used by pedestrians became functionless / transforming their function, as the distances shortened and walkers reduced. Even the alley are transformed into vehicular accessible thus the alleys have also moved towards commercialization.

Cultural Aspect

A purely Newar settlement from the past bearing a glorious history, the study area is a hub and route of many historic festivals. Festivals or Jatras are activities associated with urban spaces of Newari settlements hence, study of transformation of a Newar settlement is incomplete without the study of culture especially the Jatras which are greatly linked with urban spaces and elements. Of the 10 national Jatras and 11 local Jatras celebrated in the study area identified, two local festivals celebrated in the area were studied. One is *Kumar Jatra* celebrated during month of June and another is Mala Ja Nakigu celebrated on the month of April. Both are local festivals, the first one was studied because of its transforming nature and second one because it was an example of one such festival in which urban elements like street, open space, monument, community and buildings are closely linked. Besides that, both the festivals fell within the study period so they were studied such that, it would be easier to collect visual as well as social data.

In case of Kumar Jatra changes seen were, khat jatra (carried and taken around the area) was conducted previously but, since 40 yrs it has stopped because of unavailability of people/jyapus who are ready to carry the khat around the area. The Kumar Guthi had 6 members of Shrestha family in the past who had been responsible for conducting it but out of 6 only 4 are associated with it today. The Pati related to the jatra is now rented as a shop by the Guthi members for certain income for maintenance. The form of pati has been changed with change in height, slight change in style and construction system. The second Jatra Malaja Nakigu is celebrated as in previous days with public and community participation and was seen not much affected by the heterogeneous community or by renting tendency of the society because of the strong community bonding and not much changed socio economic structure of the lane in which it takes place.

It was found that more than 50% of the owners group still participates in festivals of the area in each lane and alley. However, it was also observed that those lanes which are very active Jatra/ festival lanes, have more than 20% owners (of houses in each lane), not participating in festivals at all. the reason being lost of interest and lack of time for participation. Similarly, there are certain percentages of owners who just participate in few festivals and certain who just observe them. Thus, trend of non-active participant has already started to rise and has nearly reached 50%. If this trend increases this would definitely affect the continuation of festivals.

It was also found that, from the tenant category more than 80% of the tenants do not participate in guthi or any community organization. This is because the guthi systems have strict rules and are bonded with certain caste groups so do not allow access to other community groups. Besides this, the tenant group has their own culture to follow and is not at all interested to take the responsibility of new community they joined. There are no rules as such to bind them with the community they are living and guide them to take responsibilities of tangible and intangible heritages of the area. Similarly, it was also seen that from tenant group participation is also very less in festivals. Even those who just observe them are as less as 11-19 %. The reason when explored was found to be not belonging to the culture, being from another area, having no time and lack of interest. However, there is also an unseen reason like prohibition from participation. This indicated that, the surveyed lanes which were also an active jatra route with good participation of people in festivals in the past are now with nearly 50 % of the tenant's population replacing the original population. With this very less participation of tenant's in festivals, it will be difficult for their continuation. The effect is already seen in festivals like Kumar Jatra of Jaisidewal Chowk and Ganesh Jatra at Bhimsensthan.

Weakness of existing by law:

The prevailing bylaw within Kathmandu Valley, designed by KVTDC, Anamnagar in 2064B.S. has separated section for the cultural heritage zone of Kathmandu. When studied carefully the concept of preserving the historical area has not been strictly implemented in the study area. Many monuments including the temples, satals, dabali, pati, dhara have been listed in the inventory list since 2038 B.S. as needed to be preserved. However, many of them are encroached and changed forms and functions after 2038 B.S. This proved that nothing has been done so far regarding conservation of those monuments and everything done till now are merely limited to texts. Also, the private buildings which are part of heritage with fine architectural displays have not been listed for preservation and renovation hence; lots of them are changing their appearance such that they no longer bear their original character. This trend has increased rapidity after EQ 2015. The whole area does not come under the priority of the Department of Archaeology as well as the KMC because it lies outside the PMZ. Kathmandu Metropolitan City constrained by technical, financial and managerial capabilities is ineffective even to enforce the few clauses of the bylaws. When looked into details, bylaw in use has loop holes like the height restriction criteria states height cannot be more that 45'-0" and 7'-

6" for stair cover in one hand while on the other hand it states it can go 5 floors, but does not specify the individual floor height. So, if floor height exceeds 9'-0" (which is in practice in RCC buildings) it is automatically going to exceed 45'-0" if goes 5 storey. This is one reason of change in skyline besides other height violation which has been due to negligence by KMC. Negligence of Institutional body in proper implementation of By law resulted in violations like cantilever projections above streets and public pedestrian alley, Violation by dismantle of building with architectural element destroying the element itself, cantilever projection above public open spaces Chowks, storage of highly inflammable substances like LPG gas and kerosene in the historic monument area itself.

Conclusion

The study identified that in this ancient settlement, social structure and community participation were the major force responsible for intangible heritage transformation while tangible heritage were found affected by commercial pressures, out migration of residents, change in socio-cultural structure, physical and infrastructure decay, and even the inefficient and ineffectiveness of legal and institutional framework. This study area which has always been an inseparable part of the historical core area, though lies outside the buffer zone of the Protected Monument Zone (PMZ), still has cultural association with the PMZ. Along with the tangible heritage and intangible heritage, cultural identity of the area is seen threatened due to replacement of the original inhabitants. The study area bearing the historic evidences even before the Malla period i.e., pre Lichhavi and Lichhavi period in both tangible and intangible forms is in rapid transforming stage. Hence, if these are not conserved now, it would be a great loss to the nation because an ancient Newar settlement where the initial township started will be lost forever without any reversible chances.



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Among the circle of professionals Indu is known as a hard working, obedient, sincere and an ambitious lady ready to commit and responsible to her duties. Her sincerity helps her to connect with people and make an impact on them to believe her. She was awarded with NUFFIC scholarship for master's degree and completed her masters in Urban Environmental Management at Wageningen University in Wageningen Netherlands. Currently she is also involved as a researcher in Solid Waste Management Committee founded by Bhaktapur Municipality. You can reach her at eendu.duwal@gmail.com or on Facebook at indu_duwal

STAKEHOLDER-BASED ANALYSIS FOR SUCCESSFUL MUNICIPAL SOLID WASTE MANAGEMENT IN BHAKTAPUR, NEPAL

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Abstract

Solid Waste Management (SWM) is a major challenge in urban areas throughout the world but especially in the urban areas of developing world. The increasing population and urbanization have increased problems related with waste generation and disposal in these countries. These problems opt for waste separation as an integrated approach as a key towards successful and sustainable SWM. The main objective of the research is to identify different stakeholders involved in SWM and their perception towards waste separation. Furthermore, the research objective is to determine the role of stakeholders' action and behavior towards waste generation and management to analyze their influence in Municipal Solid Waste Management (MSWM). The study is conducted in Bhaktapur Municipality as a case of an urban area of a developing country. 170 questionnaires, 14 interviews and various observation frames using maps of Bhaktapur Municipality were collected from the municipality as primary data sources to identify the stakeholders and their behavior towards SWM. The comprehensive list of stakeholders along with their involvement in MSWM and their level of interest and influence in waste separation are the major outcomes of the research. Thus obtained list was then analyzed to prepare stakeholder matrix that identified hierarchy of stakeholders to be considered during policy making process for MSWM and waste separation. The results further have revealed that attitude and behavior of the citizens and lack of infrastructures are major two reasons behind problems related with implementation waste separation.

Keywords: Integrated Solid Waste Management, Stakeholder Analysis, Waste Separation

Introduction

1.1 Background

Management of solid waste remains a major challenge in urban areas throughout the world especially in the urban areas of the developing world (Seik, 1997). With the increasing population and urbanization, many cities in developing countries of Asia are facing challenges related with ultimate disposal of the solid wastes (Idris, et al., 2004). Municipalities of these countries spend about 20-40% of municipal revenues to manage solid waste (Alam, et al., 2008). Though such remarkable amount of investment, people living in these cities face serious problems regarding environmental hazards and public health due to unmanaged dumping of domestic wastes on streets and open areas (Zurbrugg, 2003). Storage and collection systems are becoming more sophisticated and costly with the increase in diversified waste composition and decrease in the chances of availability of disposal sites closer to the collection area (Idris, et al., 2004). This results in a transition from landfill-based waste management system to an integrated approach as a key towards successful Municipal Solid Waste Management (MSWM) systems (Hu, et al., 1998). Waste Separation is an important component of a successful integrated waste management (McDougall, et al., 2008) that increases guality of produced compost and recyclables and reduce pressure in landfill (Zhang, et al., 2010). In urban centers in Nepal especially in the Kathmandu valley, major concerns of different municipalities are proper collection systems and landfill sites in order to avoid riverside dumping as well as reduce environmental and public health impact. Similarly selection and development of a sanitary landfill site for solid waste disposal is the major challenge for the Nepali Government (Pokhrel and Viraraghavan, 2005). The Solid Waste Management Act of 2011 states municipalities are responsible for MSWM and mandates the local bodies to take necessary step to promote 3R's (Reduce, remove and Reuse) by including segregation of municipal solid waste at source (ADB, 2013). Even though the national government emphasizes on waste separation, public is unaware about the SWM polices and are not accustomed with the waste separation at source. With the reduction in availability of land for dumping, in order that solid waste management is sustainable, spatial aspects are to be considered in MSWM.

This research thus has aim to determine the various stakeholders that have an interest and influence in municipal solid waste management system. The research aspects the identification of stakeholders that would facilitate in formulation of plan and polices in various strategic level of the municipality of the study are.

1.2. Description of the study Area:

Bhaktapur is one of the ancient cities of Kathmandu Valley which includes Kathmandu, Lalitpur and Bhaktapur district. It is located 15 km east of the capital Kathmandu (graphical representation is shown in figure 1). It is located at 27°36' to 27°44' northern latitude and 85°21'to 85°32' eastern longitude and is smallest district of the country (Bhaktapuronline.com, 2012).



Fig 1: Location of Bhaktapur Municipality in Kathmandu Valley

The city is culturally most preserved city in Nepal and is also regarded to be the "City of Devotees" (Gautam, 2014). It is a historic and touristic city renowned for its tangible and intangible historical socio-cultural setting representing a medieval characteristic and was founded in the 12th century by King Anand Dev. It is thus listed as the UNESCO World Heritage site for its historic cultural setting where the major inhabitants are Newars as a major ethnic group and agriculture as a main occupation (Bhaktapuronline, 2012). The present average per capita household waste generation of the city is 0.3 kg/capita/day with average household size of 5.47 thus producing household waste of 25 tons/day in which 75% is organic waste (Nepal, 2008). The municipality has the maximum collection efficiency of 86.5% in the country compared to other municipalities (ADB, 2013). Since most of the residents in the city are farmers, the content of organic waste increases during harvesting season due to increase in amount of agricultural waste (Tuladhar and Shrestha, 2004).

2. Theoretical Framework

Integrated Sustainable Waste Management (ISWM) was developed in mid-1980s by the Dutch NGO WASTE (IJgosse, et al., 2004). ISWM identifies three important scopes in waste management: (1) stakeholders, (2) waste system elements and (3) sustainability aspects. The waste management hierarchy, policy guideline policies is also regarded as foundation of the ISWM approach. According to (van de Klundert and ANSCHÜTZ, 2000) in order to be sustainable, ISWM must be:

- 1. Socially acceptable: the SWM system should be operated in such a way that it is acceptable by the majority of people in a community by involving community to inform and educate, develop trust and gain support.
- 2. Environmentally effective: the SWM systems must minimize the environmental burdens related to various emissions and effluent discharges.
- 3. Economically affordable: the SWM systems should operate within the cost limit of the community including all level of stakeholders.

In this approach number of stakeholders are identified depending on specific local case where authorities responsible for legitimacy are highlighted, user group of the system and private organizations involved to collect and recycle waste are identified (Ombis, 2012). Furthermore the conceptual framework of ISWM includes three principle dimensions of waste management corresponding to the questions:

- What; refers to the scope of the physical components of a waste management such as strategic planning, public participation, financial management etc.
- Who; are the actors or stakeholders in waste system.
- How; refers to strategic objectives and issues to be addressed (Wilson, et al., 2013).

Thus, sustainability in a system is only possible when the three dimensions of the ISWM model- stakeholders, system elements and aspects are taken into consideration (Schübeler, et al. 1996).

2.2. The Stakeholder Approach for ISWM

The stakeholder approach was first introduced by Freeman (2010) and he defined stakeholders as individual or group who can affect or is affected by the aim and achievement of the organisation's objective. The definition was extended afterwards to include the actions, decisions, policies, practices and goal of the organisation (Carroll and Buchholtz, 1996; Heidrich, et al., 2009). Contreras et al., (2008) also defines that stakeholders are the people or organizations who has/have an interest in solid waste management activity and are participating in activities related with the mangement. Similary analysis of stakeholder objectifies to evaluate and recognise different stakeholders from the perspective of an organisation. It also aims to define their relevance to a project or

The determination of position, interest, policy. influnece, interrelations, networks and other characteristics of stakeholders of past and presesnt involvement and future potential are identified in this analysis (Brugha and Varvasovszky, 2000). While implementing major stragetic issue, the effect on a number of stakeholders should be identified that helps to take into account the concerns of many groups (Freeman, 2010). Freeman (2010) also states that "the use of the stakeholder concept is an intelligence gathering mechanism to predict environmnetal oppotunities and threats more accuratley." Thus the "affect criterion" helps to define whether stakeholders can be affected by or may affect the activity (Freeman, 2010, Heidrich et al., 2009). The position and function of stakeholders and their direct involvement in the system identifies them as primary and secondary stakeholder. However the influence of time is a potentially crucial dimension and have to accounted for some failure to agree on whether the stakeholders are/were primary or secondary in course of time (Heidrich, et al., 2009).

3. Methodology

This research is a single case based study with basic principle of exploratory which guides to determine the effect of behaviors of different stakeholder regarding waste separation in MSWM system. This exploratory research is an example of community study, investigating and analyzing behavior of individual or households or organizations based on SWM (Yin, 2013). Based on these ideas, case study research is considered as a prime research strategy to study existing situation of MSWM of Bhaktapur as a case of urban cities in developing country.

Questionnaires, observation framework, formal and informal interviews were conducted as the source for primary data collection.

17 wards of Bhaktapur Municipality was considered as 17 different clusters in the municipality. In these clusters by applying nonprobability purposive sampling method, 10 questionnaires in each wards were distributed to collect information regarding perception of individual to MSWM and waste separation. Various observation frameworks were carried out by using different maps of Bhaktapur Municipality. In these maps users' solid waste management behaviors and types of waste found in various space of the municipality were identified. About 14 interviews were conducted where different hierarchy of municipal and ward staff were interviewed formally and farmers, potters, informal waste collector etc were informally interviewed.

4. Stakeholders and their Municipal Solid Waste Handling Activities

4.1. Identification and role of the stakeholders

The identification of the relevant stakeholders was carried out based on 'affect criterion'. List of stakeholders were prepared according to different literatures based on SWM of the city and their involvement in different level of SWM in Bhaktapur and in Nepal. From thus prepared list, major stakeholders in the city were interviewed and other stakeholders' role was then identified through the literatures. The overall stakeholders can be divided into mainly four types; waste generators, informal waste operators, formal waste operators and policy makers. Different stakeholders involved in SWM of the city are as follows:

a)Citizens:

Approx. 83658 number of residents in Bhaktapur municipality produces around 0.3 kg/d/p and total municipal waste generation is

28 ton/day (Municipality, 2014). Citizens are the basic and largest waste generators of household waste in the municipality and their behavior based on waste management can lead to create great impact on composition, quantity and quality of waste volume. They should be main target group for any kind of initiative and awareness program related with SWM.

b)Commercial Bodies:

Commercial bodies here represent the shops, small street markets and restaurants that are located in the municipality. As per the data from the municipality, they are second largest waste generator who dump their waste on road or open areas in huge amount at the end of the day. If, these stakeholders can manage their waste in individual level and do not throw their waste in irregular times then roads and open areas would be cleaner. This will also reduce the work pressure for tipan tapan (formal waste picker). These stakeholders should be also considered while accounting about awareness program and policies.

c) Tourist:

Bhaktapur is a touristic city where there is a large flow of tourist every year. In 2013 only about 264,542 tourist visited the city (eKantipur, 2014). With comparison to number of inhabitants (83658) it can be considered that the tourists are also other major waste generators. Results from the interview with the tourists showed that, in order to control their waste dumping behavior in streets and open areas it would be better to locate waste collection bin waste bins in the city.

d)Farmers:

Agriculture is the main occupation in the city and hence farmers are the waste generator as well as informal waste operator of the city. Most of the organic waste produced by the farmers in their house and farm are processed by themselves in traditional way to produce compost for their farmland. Municipality also had distributed compost bins in subsidized price to the farmers for production of compost in order to reduce the volume of organic waste. According to the authorities from municipality farmers can be the major stakeholder who can manage the organic waste in the city.

e) Ministry of Urban Development (MoUD):

Ministry of Urban Development is the national policy maker who regulates policies and decision in national level related with waste management (Shakya and Tuladhar, 2014). Since urban areas of Nepal are facing problems related with SW; they are keenly interested in solving the problem and have supreme power to influence the activities related with solid waste.

f) Solid Waste Management Technical Support Center (SWMTSC):

Solid Waste Management Resource Mobilization Center is a central organization, who provides technical support to local bodies like municipalities related with waste management. This organization deals with problems related with landfill, technical assistance (Shakya and Tuladhar, 2014). Thus they have significant influence in SWM.

g)Municipality:

Municipality can be characterized as local policy maker and formal waste operator who manages the municipal waste locally based on Local Self Governance Act (Shakya and Tuladhar 2014). They have highest power in the city to influence the public regarding waste behavior since municipality monitors activities of citizens and have authority to punish them. The vision of the municipality stating promotion of the city through better SWM; depicts that the municipality has high level of interest in this field (Municipality 2014).

h)Compost Plant:

Compost plant operated by the municipality is the formal operator who helps to reduce the volume of organic waste in total waste composition. Currently the plant is producing compost based on the organic waste collected from the sample areas with waste separation policy. If, the municipality becomes able to collect organic waste separately then the compost plant can be one of the major key player to reduce the volume of municipal waste and solve the problem of waste dumping.

i) Media:

Media today are covering awareness programs and news related with the SWM. For example minimization in use of plastic, controlled waste dumping, waste separation, and recycle and reuse of waste etc. Thus media can play crucial role in SWM. Media can make public aware about polices and improve progressive behavior of citizens regarding SWM.

j) Nepal Workers Peasants Party (NWPP):

The local political party known as 'Nepal Workers Peasants Party', has a significant power and influence in the city. The party has been ruling the city since 1981. The leaders of the party have significant influence to sway the behavior of the public. Since most of the population of the city belongs to Peasant group the party supported and supports this group since the establishment. The citizen of Bhaktapur have great faith in the party (Hachhethu, 1977). Thus the party has great influence to change the attitude of the public in the city.

k)Ward Office:

Ward Office is an important organization of the local administrative structure. Ward office are regarded as responsible institute for identifying ward communities needs by discussing requirements of the locality with the community member. Ward office plays important role in facilitating community commitments in projects and is a statute body (Waste, 1996).

I) Surrounding Municipalities:

Surrounding municipalities are the waste operators for urban areas located at boundary of the municipality. They do not play any role in the management of the municipal waste of the Bhaktapur Municipality but there is tension between these municipalities regarding management of the solid waste at the boundary areas. There is a complaint from the municipality that the surrounding municipalities dump their waste in boundaries which create difficulties in managing the waste in those areas.

m) Potter:

In Bhaktapur the caste group responsible for producing earthenware are commonly known as "Kumma" and there are almost 305 households who belongs to this caste (Shrestha, 2007). They are one of the major caste groups who are mainly residing in areas around Pottery Square and Dattatraya Square of Bhaktapur. These squares are one of the most famous tourist destinations in the city. In these areas they produce large amount of earthen wares and related waste like raw mud and ashes which are reused to produce new earthen ware and broken pieces of baked mud vessels are dumped in municipal collection point. The ash dusts settled in roads are to be cleaned by street sweepers. They can thus be regarded as spatial based waste generator.

n)Pore:

Pore (the lower caste group) are the informal waste operator of the city who were solely responsible for the waste management (Nepali, 1988). In some of the rituals they are responsible to take away the waste from the households for example in death rituals and also collects waste from river that are thrown during and after celebration of festivals. They reside mainly near river and are more prone group that are being affected by the river pollution due to solid and liquid waste (Tuladhar and Bania, 1997). At present the scenario has changed. Even though they are appointed as formal waste picker and sweeper in the municipality the interest of this group in SWM is decreasing due to other income opportunities. They are one of the lower most castes and their number in municipalities are replacing by other group so they have less influence in the system.

o)Academic Institutions:

Academic institutions are the informal waste operators who are trying to change the behavior of the students regarding waste production. Nowadays these academic institutions mainly focus on promoting homemade lunch. They are trying to demotivate the use of packaged food. These concerns show their some level of interest in solid waste and can be influential to larger extent.

p)CBOs:

Community Based Organizations (CBOs) are informal waste operators who are less interested in the field of SWM. The results of the survey showed that CBOs have limited their interest in distribution of bins provided by municipality for waste separation. They are also planning to conduct awareness programs related with solid waste. Since these organizations are directly linked with local community, these organizations might be the key player to influence the behavior of public regarding SWM.

q)Recycling Plant:

It is estimated that 20% by weight of household waste and commercial waste is recycled by the municipality (ADB, 2013). Similarly municipality has its own paper recycling plant at Kamalbinayak. The recycling plant collects the paper waste from the municipality and its sister organizations and recycled paper are delivered back to these organizations. The industry has limited interest in all types of solid waste but can influence the SWM system to greater extent.

r) NGOs:

At present, NGOs have no significant role in the SWM system of the city. Even though NGOs are interested to work in this sector, they are not involved even though national policy encourages the collaboration. One of the NGO, namely Pratyanta Nepal organized exhibition of crafts made from waste materials in 2004 to support waste recycling (Tuladhar and Shrestha, 2004) but apart from that there is no any involvement of NGOS in SWM in the city.

s) INGOs:

INGOs are waste operators who aids municipality to finance and provide technical support in SWM. JICA and GTZ had conducted several programs, provided financial aid and technical assistance to the municipality to construct compost plant and landfill site in Taikabu (JICA, 2006). But there is no any involvement of any INGOs at present context (Suwal, 2014).

t) Informal Sector:

Informal sectors are the informal waste operators who are the middle dealers and door-to-door recyclables buyers. These recyclers collect wastes at unofficial collection points as well as from dumping site (ADB, 2013). They play a vital role in recycling waste as they separate wastes at source, collects waste from households and retrieves recyclable wastes from dumps and municipal collection points. They are facilitating as a waste separator and waste collector and recycler and are helping to reduce the amount of solid waste. They have no interest in policies and are only interested in collection of recyclable waste (Gupta, 2014).

4.2. Stakeholder Analysis

The stakeholder analysis was conducted based on the position of stakeholder in stakeholder matrix. All the stakeholders were graded from scale 1 to 5. The grading is based on five criteria. The criteria were identified based on the explanation of Brugha and Varvasovszky (2000). The Affect Criterion (Freeman, 2010) is used as first criteria to determine the effect of stakeholder in the system.

Table 1. Rubric for assessment of position of stakeholder in the matrix

Grade	1	2	3	4	5
Criteria					
Affect	Waste generated by the stakeholder is negligible or can't change the system.	Waste generated by the stakeholder is less or based on the area or the stakeholder's behavior can bring change in the system.	Waste generated by the stakeholder is based on occupation with significant amount of generation or can guide to change the behavior	Remarkable amount of waste is generated by the stakeholders or can bring significant change in the system locally.	Stakeholder is the main waste generator or the organizations that can bring significant change in the system nationally.
Legal Power	Have no legal power at all.	Have power to change polices in small area of local community.	Local policy maker or can challenge and have power to bring change the national and local system.	Central organization that controls local bodies.	National policy maker.
Position	The attitude of stakeholders is negative towards waste separation.	Attitude is somewhat positive since they are compelled to do so.	Positive attitude towards waste separation since they are benefited by it.	The attitude of the stakeholder is guided by the national polices.	Waste separation is considered as major solution regarding problems of MSWM.
Impact/ Influenc e	Behavior of stakeholders has very less or negligible impact in the system.	The influence is either based on local community, specified space, or specific group of people.	Impact of stakeholder is medium.	Stakeholder is subjected to have higher level of influence but has limited scope.	Highest level of influence in the system either legally or in terms of waste generation and management.
Interest	No interest in waste separation.	Little interest in waste separation.	Waste separation is carried with specific purpose.	Future of these stakeholders is based on waste separation but is interested in limited types of waste.	Highest interest in waste separation.

A second criterion is named as Legal Power of the stakeholder which can bring change in the system. The change here refers to the change in behavior of the waste generator either using legal power or awareness. The other criterion is named as Position where the attitude of different stakeholders towards SWM characterizes their attitude/behavior regarding waste separation. Fourth criteria is stated as the Impact/ Influence where the level of impression of the stakeholder can make upon other stakeholders to the change behavior of the individuals, the system and power to lobby the legal system either that be national or local. The last criterion is Interest of the stakeholder in the SWM which refers to concern of the stakeholder about waste separation. Based on these criteria the grading was summarized and rank of the stakeholder will be determined. The rubric for the evaluation of the stakeholders based on the criteria and grades are presented in table 1.

The example of the calculation based on the rubric for the position of a stakeholder in a matrix is: Bhaktapur Municipality scores 5 point in each criterion as it is the major stakeholder for MSWM which has high interest in waste management and waste separation. Furthermore the policies of the municipality have highest impact and influence in the system. So it scored 25 in the rubric. However potter is a caste group and their influence and effect in the system is negligible. Hence they stands in the last position with score 9.

With the application of above rubric the evaluation of different stakeholders was carried out (Fig. 2). T(he grading of stakeholders was done considering their impact and influence in the municipal level. The criteria described for evaluation are qualitative and it is acknowledged that adding different grades provide quantitative result. However for this research this method is appropriate to justify position of different stakeholders in the matrix. Application of rubric provides transparency in the evaluation and helps to justify the position of stakeholder in the matrix.

The X-axis represents the interest of stakeholder in MSWM and the Y-axis represents the power or ability of stakeholder to influence in MSWM. From the analysis based on the rubric, the stakeholders are placed in the matrix (figure 1). The matrix is divided into 16 parts. The corner with least interest and least influence is ranked as 16th position and corner with highest interest and highest influence as 1st position. Each quadrant is further divided into four parts and is grouped as A, B, C and D based on power/level of interest and influence of the stakeholders. For placement of other stakeholder apart from rank 1 and 16 in each guadrant, the position is determined based on level of interest and influence in the specific quadrant. For example in quadrant B 1st position is defined for highest level of influence and highest level of interest and 4th position for lowest interest and lowest influence in the group. 2nd position is then allocated for the stakeholder with highest level of influence/ power in the system but lowest interest because their behavior can bring significant change in the system. 3rd rank is then identified for the stakeholder with least influence or power but highest interest in the system. Similar analysis was carried out to locate the position of stakeholder in the matrix.

Thus grouped stakeholders have specific role and the stakeholder are to be addressed accordingly for effective and sustainable management of solid waste in Bhaktapur. Detail explanations of each group are as follows:

Group A: Meet their need

The group of stakeholders in this section has significant level of influence with least or no interest and can affect the outcome of the project. These stakeholders are the key player of the system and are to be included in the every aspect of the SWM system since these stakeholders may be a source of significant risk and requires careful monitoring and management (DEPI, 2013). This group consists of mainly four different types of stakeholders; public, commercial bodies, tourist and farmers.

Group B: Key Player

These are the stakeholders who have high level of interest and high degree of influence in SWM. They are the one who have high importance for the success of the project. Stakeholders in this group need to construct good working relationships in order to ensure an effective coalition of support for the project (DEPI, 2013). Thus, these are the stakeholders who can create significant progressive change in the SWM system. There are mainly six stakeholders in this group; MoUD, SWMTSC, Municipality, Compost Plant, Media, Local Political party.



Figure 2: Stakeholder Matrix

Group C: Least Important

Stakeholders in this group have less or no influence with less or no interest in the field of SWM. These are the groups who requires limited monitoring or evaluation with least priority (DEPI, 2013). This group consists of Surrounding VDCs, Potter, Pore, academic institutions and CBOs. These stakeholders play minor role in SWM system but play some role in the system. Therefore, they have to get involved and considered in some level while developing the whole system.

Group D: Show Consideration

The stakeholder in this group has higher level of interest but has no significant power or less influence in SWM of the city. These stakeholders requires special initiatives to protect their interests These are the groups who requires limited monitoring or evaluation with least priority (DEPI, 2013). Recycling Industry, NGOs, INGOs and Informal sector are the stakeholders who are located in this group. These stakeholders can be the potential supporters and are to be keeping informed and may be consult them while initiating plan and policies.

5. Conclusion

The vision of the municipality regarding the promotion of the city through better solid waste management have helped and pressurized the organization to maintain and improve the SWM of the municipality. Bhaktapur Municipality has been successful in collection of solid waste with compare to other cities of developing countries as its collection efficiency is more than 90%. However waste disposal is a major problem in the SWM system similar to other cases of urban cities of developing countries. The increasing percentage of inorganic waste and decreasing percentage of organic waste due to change in lifestyle of population portrays the effect of urbanization and globalization in the city. Waste generation rate of the city is increasing with increase in population growth rate of the city.

The involvement of local people as street sweeper in the SWM system facilitates public participation in the system and share the responsibility. This has helped in the effective management of solid waste. However limitation of this stakeholder to take action against the illegal waste behavior of local has marginalized their scope. Citizens are the major waste generators but their lack of interest in the system and waste separation are main causes behind the problem of waste dumping. The involvement of farmers, compost plant, recycling plant and informal sectors are the stakeholders whose activities determine the future of implementation waste separation policy. However the increasing population and waste volume demands for higher expertise and more involvement of personnel in the SWM system. In this case, the opinion of the municipality regarding involvement of other stakeholder systems might be an obstacle for effective and sustainable waste management. At present there is high top down approach with little no public participation in the system. Public or other or are dependent on the municipal organizations actions for implementation of any policies and plan which might be one of the reasons behind the negligence of the public regarding the SWM. This might limit the accountability and transparency in the system. If public are equally supported and involved in the system then the responsibility will shared between the municipality and the public might be a crucial turning point in the governance of the city. The stakeholder matrix thus presented above can be used as decision making tool while developing new policies regarding waste separation in the city.

The opportunities and challenges of incorporating different debate about collaboration organizations have sparked of municipality along with different stakeholders in management of solid waste in the city. This debate extends to quality of service provided by the municipality. The municipality is only positive about collaboration with CBOs regarding distribution of bins and awareness programs for waste separation The organization have signed contracts with local groups for street sweeping and waste collections. This results in greater accountability to the local communities since the staffs are the local residents and are informed about the working areas of municipality. This might be a sustainable approach for appointment of staffs since 1) they are from the local communities and 2) less chances of protest if the responsibility is handed to one organization. INGOs and NGOs are interested to work for municipality to improve the SWM system but the lack of policies in municipality and the opinion of NWPP and the municipality towards these organizations limit their involvement. The strong negative opinion regarding the involvement of other organizations in the municipality has marginalized the scope of expertise, finance and area of service in the city. However public suggest that the opinion of the municipality needs to be changed since most of the citizen are in favor of collaboration of municipality with INGOs and NGOs.

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SWAYAMBHU AS A STRATEGIC VIEW

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Abstract

Strategic views are the prominent symbolic landmark, special and unique which reminds the history, culture and the environment of the city. These visual urban elements set up the common image in the citizens or who visit that place, and plays an important role on the formation of the impression of the city. The concept of protecting the views of these prominent landmarks is the tool to guide the development of the city and has been adopted by many countries by making guidelines and by-laws to preserve the identity of the place and the cultural values of the landmark. Kathmandu with impressive architecture and outstanding scenery has a number of strategic of historic, cultural, archaeological or views architectural importance. However rapid urbanization of Kathmandu Valley has overshadowed the prominent landmarks by blocking their images and presence from the sight of the valley residents. For this reason, the study provides an insight on the protection and preservation of the historic landmark Swayambhu of Kathmandu Valley, based on the hypothesis, prominent landmarks should not be dominated by the new developments close to it. This study takes a step-in view management by analyzing the impact of development on the strategic view for the protection of the emblematic view of Swayambhu. The study suggests the public places to view the strategic view by designating a series of view corridors through photographic documentation which will support to upgrade the social, economic and local development.

Strategic View

Strategic views are the prominent visual features of the city which are very noticeable and renowned. They are striking landmarks and are easily recognized; and make significant impact in the townscape of the city. They are the prominent symbolic landscape which becomes the identity of the place, reminds the history, culture and the environment of the city. Lynch describes landmarks as 'major three dimensional objects within civic space', which emphasizes their quality of being prominent in urban space. These are the external points of orientation, usually an easily identifiable physical object in the urban landscape that is unique or memorable in the context (Lynch, 1960). They are in fact the most dominant Such Strategic Views have a striking effect on the passerby and they are easily noticed. Strategic views set up the common image in the citizens or who visits that place. Such image demands preservation and its preservation is the preservation of history of the place which also contributes to the aesthetics of the place.

London View Management Framework defines Strategic View as Strategically Important Landmarks in the views that make a very significant contribution to the image of the city at the strategic level or provide a significant cultural orientation point. It states Strategic views and their landmark elements should not be harmed by new developments. It also emphasizes that the new developments wherever possible should make a positive contribution to the characteristics and composition of the strategic views and their landmark elements. New developments should be able to preserve or enhance viewers' ability to recognize and to appreciate Strategically Important Landmarks. (LVMF, 2010)

View Management of Strategic Views

View management is the concept of protecting the views of important historic buildings, monuments, conservation sites, world heritage sites, strategic views by limiting development that would reduce their visual integrity and to ensure that development does not block observation of a view from delineated public viewing places. London View Management Framework (LVMF) states Strategic View management as an important element of Urban Design and it should be given importance while planning a city. It says Strategic Views should be evaluated in a logical and consistent way as it is the sensitive issue to be considered in relation to developments affecting views. (LVMF, 2007). Medway says great care should be taken to protect the strategically important views and the landmarks along with the built environment and the unique landscape of the area. A prime objective of the new developments should be to enhance the distinctiveness and sense of place without hindering the importance of the Strategic Views. To achieve this higher buildings should be planned and located with great sensitivity and should be based on the highest quality of architecture and urban design. (Medway Govt, 2006)

View protection management is a very old concept of protecting the Strategic views, adopted by the cities to protect the views of their national treasures for current and future generations. Many countries have applied this technique of view protection by designating the views, viewing points and view corridors. The main purpose this View protection management is to maintain the skyline of the city with a variety of reasons. Some height restrictions limit the height of new buildings so as not to block views of historic buildings, landmarks, strategic view and scenic views decreed to be an important landmark by the government while other height restrictions may be for practical purpose such as around airports to prevent any danger to flight safety. In London city buildings could not be taller than St. Paul's Cathedral within the specified view corridors. Likewise, in the central area of Rome, no building can exceed the height of the dome of St. Peter's Basilica (136 meters). In Athens, to protect the view of Parthenon, the buildings are not allowed to surpass twelve floors. Some examples of the view protection management adopted by different cities are discussed below.



Oxford View Cones in Local Plan 2001-2016 with the Carfax circle at the center and 10 view cones originating from 10 viewpoints at periphery ((Oxford Preservation Trust, 2014)



View of Historic Skyline of Oxford City from Raleigh Park in the 1960s (Oxford Preservation Trust, 2014)



Zoomed view of Historic Skyline of Oxford City from Raleigh Park in 2010 (Oxford Preservation Trust, 2014)

Fig. 1 Oxford View Cones

The ten Oxford View Cones are one of the first examples of view protection within a legislative context which was established in 1962. The main objective of this view cones is to enjoy the view of the city's domes, towers and spires from the green valley or hillsides from countryside setting. It is valued by its residents and visitors as a rich inheritance that should be carefully managed for future generations to enjoy. The intention of this planning policy is to ensure that local, strategic views are appreciated. View cones are drawn from the ten points identified by the study to the center part of Oxford each based on the extent of the range of historic high buildings considered to form skyline of significance and the areas within the view cones were unsuitable for tall buildings (*Fig. 1*).

Vancouver's view protection has 27 view corridors to protect the views of Northern Mountains, the downtown skyline and the ocean views. The main objective of providing view corridors is to maintain

the connection with nature while expanding the city. Due to topography, the city center has inadequate land available for development so the main concern of "Vancouver Views" was to reduce urban sprawl by providing higher buildings without impacting the protected view corridors (*Fig. 2*). In Kashihara City of Japan, three view corridors were designated in order to protect the history, culture and the landscape of the Fujiwara city, the First planned city of Japan. The city lies almost at the center of three hills known as mounds of Yamato. From the central location of this Fujiwara palace court, three view corridors are designated towards these three hills. This view corridor covers about an area of 100ha of the central city zone (Pant, 2008) (*Fig. 3*).



Fig. 2. View Cone 9.1: Cambie St. to North
Shore Mountains (former. Vancouver.
ca/commsvcs /views/viewcones/91.htm)Fig. 3. Vantage Point and View
Corridor: Height control zones to
preserve the Strategic Views of
three Yamato Hills, Japan (Pant,
2008)

The Austin ordinance was designed in 1984 in Austin, Texas, USA to protect the views of the State Capitol building from various vantage points around the town. Its objective was to serve aesthetic, educational, civic, and economic goals by protecting and preserving public views of the State Capitol from selected points such as parks, bridges and major roadways. Sixty important view corridors were identified and classified into four categories. The study analyzed each view from the specific identified point and considered current land uses within the corridor. The overall economic impact of the proposal was analyzed along with the economic impact within each corridor. Ultimately, this extensive work established a solid framework in support of the ordinance as well as supporting the adoption of individual view corridors that were deemed worthy of high priority protection. In the final analysis, nine of the 60 identified view corridors were designated for protection in 1984. The effort proved so successful that local officials adopted 17 more, increasing the number of protected view corridors to 26. (of the original 60 studied) as of 1998 (Fig. 4). In Capitol View Protection Ordinance, Sacramento, California, the State Capitol building and the surrounding grounds of Capitol Park provide the City with a unique cultural and open space resource. This ordinance establishes building height limits, setback requirements, and parking alternatives within a portion of the central business district surrounding Capitol Park. Height and setback requirements are based on distances from the Capitol building. (Fig. 5)



Fig. 4. Plan showing viewpoints and view corridor adopted in Austin Ordinance (www. preservationaustin.org)

Fig. 4. Aerial View of Texas Capitol in Austin (www.Preservationa ustin .org)

Fig. 5. Aerial view of California State Capitol and surrounding Capitol Park grounds protected under Capitol View Protection Ordinance (cityofsacramento.org)

To preserve the existing views of the famous St. Paul's Cathedral from different parts of the city a unique policy was established in 1938 known as St Paul's Heights. In this policy, to preserve the views of the St Paul's Cathedral from the vantage points, total eight view corridors were designated. The area within the view corridor has different rules to limit building heights and development. These view corridors also extend laterally beyond the Cathedral to ensure that tall buildings do not crowd its setting on the skyline (Fig.6). This policy has been able to preserve and enhance the view of St. Paul for more than seventy years. Violation of building height policy was also made for the infringed buildings that the height must be within policy rules when they are redeveloped. An example of a new prominent building that had to follow to the policy of St Paul's Heights planning is the Leaden hall Building on Leaden hall Street which has a sloping wall not to obscure the view of St Paul's Cathedral's dome. This 225-meter-high skyscraper office building designed by Richard Rogers in 2014 A.D. it is tapered on one side to protect the view of St Paul Cathedral form Leaden hall Street (Fairs, 2013). "The main constraint on Leaden hall was the view to St Paul's Cathedral. London is unique in being partly controlled by views; you have to leave certain views open to St Paul's and we were on one of those views. So, we made use of this and we cut it back at an angle and that gave us that prominent section and profile, (which can be seen) from all over London."- Richard Roger (Fig.7).



The study of view protection ordinance enacted in different countries shows that there are variety of techniques for preserving views, all with the intention of protecting a view to a Strategic view, to a certain point or feature within a city or a panoramic vista. The basic concept and the process of all the case studies are same, though the terminologies and the procedures are different. The study shows that the need to protect the views and experience of the national treasures of the cities for current and future generations is a responsibility of the cities and the municipal governments.

In Nepal though there are no measures adopted of the protection of the views however, in Malla period, there was a tradition that houses should not be taller than Taleju temple (Amatya, 2007). It was also said that houses should not be higher than the pinnacle of the nearest religious structure – whether that was a temple or a monastery or a deochhen (Amatya, 2007). This height restriction measure was adopted as a respect to the deity. Whatever was the cause, but the tradition had helped to form an impressive skyline of the valley. That impressive skyline was witnessed and expressed by Krikpatrick in his book as the presence of striking wooden temples on Valley's skyline at the north-east side in 1793. But with the passing of time such values are being forgotten and such striking views are overshadowed by the concrete jungles of today. Swayambhu which was visible from the roof of every 3-4 storied houses 2–3 decades ago from almost every part of Kathmandu city is not visible now. So this study, tries to establish the importance of Protecting Swayambhu - the stragetic View from the effects of haphazard development which allows a community to preserve its unique charm, build civic pride and attract positive growth to the area. Designating the view corridors around Swayambhu will respect the symbolic feature of the city, preserves typical image, shape and quality of Swayambhu; and preserves connection within the sequential changes of built environment.

Swayambhu – A Strategic View

Swayambhu Stupa, the majestic white dome with glittering golden pinnacle is an internationally recognized symbol of Kathmandu valley. This image of Swayambhu perched on a hillock in its green scenery forms the focus of the view of Kathmandu valley. It lies about 4km north- west of Kathmandu Valley at about 300 feet above the valley floor and is the highest level inside Kathmandu Valley except the surrounding hills. The dome of Swayambhu Stupa reaches a height of 29'6" and over the dome the pinnacle reaches 71'6", making overall height of 101' with the diameter of the dome 82'6". Swayambhu rising above the lower level roofscape of the city creates the iconic view of the city skyline. Swayambhu Stupa situated at the eastern ridge of Gopuccha hill is filled with many Chaityas, Temples, painted images of deities and numerous other religious objects, bahils, Tibetan Monasteries and Bhuddhacharaya houses. The hill top is like a unique Living Museum endowed with different kinds of monuments of archaeological, cultural and artistic importance of Nepalese Buddhism. So, on viewing Swayambhu hill from Valley floor besides Swayambhu Stupa other elevated temples and buildings are manifestly seen (Fig.8).

Swayambhu the distinguishable object in the skyline of the valley is not the strategic view only due to the placement on peak and the protuberant shape and scale but also due to the values and culture associated with it. The local residents of the Valley hold the image and preference towards Swayambhu that are embedded in their own beliefs, customs and value. Swayambhu as a heritage site has a number of different values ascribed to it. It has spiritual and religious value as a place of worship; it has historical value as it exists from the ancient period; it has aesthetic value and is an example of fine work of architecture; the Gopuccha hill with forest is pleasing scenic view; it has economic value as a World Heritage site and tourist site; it has social value as socializing place for nonreligious gatherings and visiting for pleasure; it has environmental value as a greener public place which enhance human health and so on.



Plate VII) SWAYAMBHU HILL (P



Historical View of Swayambhu from Denial Wright's History of Nepal (Wright, 1877)

View of Swayambhu Stupa and Gopuccha Hill from Eastern part of Valley (upload. wikimedia.org)

Fig. 8. Historical View and Recent View of Swayambhu Stupa from Valley Floor The stupa with its oldest history; religious importance as world's most precious destination for Buddhist pilgrimage; world heritage site recognized as having outstanding universal value dignifies the significance of Swayambhu. Also some of the research works show that it's very important to preserve the ancient concept of facing the main facade of important buildings and temples towards Swayambhu to protect the history and culture of the Valley by designating the protected views around this strategically important landmark which lies on the highest elevation in the valley plain.

View Management of Swayambhu - a Strategic View

Swayambhu's magnificent architecture combined with the Natural landscape of Gopuccha hill confers a strong sense of community pride, cultural identity, orientation and sense of place among the citizens of valley. Until Few decades ago, Swayambhu being on elevated hill was visible from every part of Kathmandu Valley. Everyone who looked towards west from the valley floor experienced the uniquely special view of Swayambhu. But later, due to the process of unplanned development the view of Swayambhu has been obstructed from many places. So, the View Management of Swayambhu will help to recollect its identification, protection, and management by designating the Strategic view corridors.

To begin with, the public places were identified from where Swayambhu was visible such as the sections of roads, parks, temples, bridge etc. To determine the location of public viewing place two geographic boundaries were established around Swayambhu. The first boundary extended at the radius of 1.5km of Swayambhu and second 5km radius of Swayambhu. Initially the map of Kathmandu Valley was studied to find out the public places from where Swayambhu could be viewed. During the field study it was found that the streets were the major public spaces and from few temples Swayambhu was seen and the area lacked other forms of public places as parks or urban open spaces. The viewpoints identified were mainly concentrated within the radius of 1.5km of Swayambhu and also the views seen from these places had visual clarity. So, the immediate neighborhood of Swayambhu at the radius of 1.5km was demarcated as the first geographic boundary.

After 1.5km radius the viewpoints started to spread and scatter. Thus, within the valley floor Swayambhu was visible only from 10 places. It might be due to the low land of valley floor and the taller buildings immediately behind the viewpoints. The farthest point from where Swayambhu was visible was from Ram Mandir at Battisputali at the distance of 5km from Swayambhu. So, the second boundary was demarcated at the distance of 5km as it was the farthest identified viewpoint and it covered the central city core area up to Pashupati and Gujeshwari. Beyond the ring road Swayambhu was visible from Bhag Bhairav Temple of Kirtipur. So, one viewpoint was taken from Bagh Bhairav Temple premises.

Numerically 47 public viewpoints were identified from 28 locations. Among which 36 public viewpoints from 19 locations were within 1.5km radius and 11 viewpoints from 9 locations were within 5km radius of Swayambhu. Once the viewpoints were identified, then on next step photographs were taken from each public viewpoint in order to document the current view frame to convey its overall character and quality. Depending on the variables as the width of view, clarity of view, obstructions, whether a view could be enjoyed throughout a year due to vegetation on the hill, a variety of compositions were photographed and the best was compiled for study.

The next step was to record and catalog the physical characteristics of the identified public places. To classify the overall quality of the view, basic nine elements were spotted - the location of the view point, type of view, its view quality, viewers, view frame, view seen, land use type of viewing place, the quality and condition of the viewing place and the impact of new development on the Strategic view. Once all the places were identified with photographs and details, the identified viewpoints were plotted in the Aerial Maps and AutoCAD. Then AutoCAD was used to simplify the images into a sketch form. Again, with the help of aerial map of that area of (1967A.D.) the images were sketched how it looked back 50 years ago. The images were also sketched to view how the new developments will impact on the views from each viewpoint based on the present building regulations for each area. Further the crosssectional elevation from each viewpoint to the Strategic View was plotted to determine the visibility of Swayambhu and the angle of elevation from each point.

The photographic documentation was prepared for all the 47 identified viewpoints. The photographic documentation above (Fig.9) describes the visible features that are observable from each view location, and the view cone maps (Fig.10,11) provide a mechanical representation of a viewpoint location, view corridors distance from the strategic view, view corridor's width established from a static reference point of a public view location.



Fig. 9. Sample of Photographic Documentation

Based on the methodological framework discussed above, the study enumerated a total 47 public viewpoints from 28 locations, 42 originating from valley floor and 5 from the hilltops with views of various valley features. Geographically, greater numbers of viewpoints 24 were found in eastern part of Swayambhu concentrated near the Bishnumati river corridor, 9 in the western part, and 7 each in Northern and Southern part. The majority of eastern public views are concentrated near the Bishnumati river corridor.

The analysis of the identified viewpoint shows that, the chaotic urban space created by the rapid unplanned development which has blocked the views of Swayambhu can be mitigated by designating view corridors and planning new buildings with care and sensibility to its surroundings and the strategic view. The views from a series of identified public viewpoints, will help to treasure, understand and appreciate the image of the strategic view on the skyline of city. There are many social and economic benefits that would be gained by protecting the beauty and integrity of these public views. Identified viewpoints can be developed as a better urban space where people can gather and enjoy the views of strategic view. Such identified views can be used for local development, for conservation and for the urban design of the area. They can be selected as a guide to design a development in that area. For example, two planned residential areas lie in the study area Khusibun aawash chetra and Dallu Aawash Chetra, while planning these areas, if the view of Swayambhu was considered and if some open spaces as parks were left facing towards Swayambhu, then residents would be fortunate with the benefits as good view, increased land value. Some identified viewpoints can be developed as the place to enjoy the open space and appreciate the strategic views as the greenery area on the Bishnumati river corridor by providing site amenities such as benches, sidewalks and viewing platforms etc. Views from Ring roads as Vanasthali to Thulovaryang road can be developed as a scenic motor road, to enable people to enjoy the scenic beauty of Swayambhu hill from their vehicle and the safe viewing perspectives for motorists.



Fig. 10. 47 Viewpoints and View Corridors identified from 28 locations of Kathmandu Valley within a distance of 5km



The 11 viewpoints with high protection priority will be unblocked by the future developments as most of them lies on the axial roads and main streets and is a panoramic view. All these eleven high priority viewpoints demonstrate a wonderful view and are unblocked by the future development if constructed based on the present by-laws so, less effort is needed to preserve these views from these viewpoints. So, A small initiation for the protection of these 11 viewpoints can protect the admirable views of Swayambhu which will help to gain the social and economic benefit, and can be chosen as a guide for the development in that area.



Impact of Present By-laws on the Identified Viewpoints

The study of the existing acts for the conservation of the Swayambhu world heritage site shows no measures adopted of the protection of the views. The present bylaw supports the preservation of world heritage area through building height regulations which is 35' for core area and 45' for buffer zone but this height regulation is not for the protection of the view. Examining the impact of future physical development of the city to the strategic view shows that among 47views, 18 views are under the threat of obstruction due to the future development. The lack of proper ordinance and weakness in the implementation of the present rules has created the disorganized cities of the Valley. However, the experience of other countries can be achieved for creating a beautiful city for the future generations. The view protection management adopted by different countries shows its importance to protect the view of significant structures or scenic views by protecting the skyline of the city. These laws restrict height of the buildings within the specific areas or view corridors. Austin ordinance has been successful for shaping the skyline of the city by achieving aesthetic, educational, civic, and economic goals by protecting and preserving the views of the State Capitol from selected public points. Likewise, the Denver municipal code with 14 view protection laws for protection of the views of the mountains has been granted as one of the thriving projects for the development of the city.

As many countries have therefore begun to revise their legal instruments with a view to make them more relevant to present day situations to preserve their cities through view protection,

Nepal should also revise the existing legal instruments for the development of the city by implementing the statutory view protection and management laws within development planning and control. It should be adopted as an official document that describes the procedure of implementing the height restrictions for the Strategic Views.

Conclusion

'City in any culture and any age always has its landmark, tall and towering, which highlight the city image' Spiro Kostof. The city we live also has landmarks, the irreplaceable heritages which are ignored under the pressure of urbanization. Among the fascinating landmarks, one of the most important elements is Swayambhu, the heritage site as the symbolic center of the city. This famous strategic view which adorns the aesthetic character of Kathmandu Valley should be preserved without blocking by the concrete structures and providing the clear distinct views. The residents of the valley appreciate Swayambhu due to its location, beauty, age, scale and its history. People value Swayambhu as the religious site and worship Swayambhu from their houses.

The rapid urbanization and haphazard urban development have created the chaotic urban spaces and tall buildings have blocked the emblematic views of Swayambhu. Though it is not possible to destroy the existing development certain measures as designating a series of view corridors can help to uplift the degraded state of the historic landmarks. The designated public views will assist to recognize the value of the strategic view and such views can be used for social, economic and local development. Out of the 47 views, the high priority ranked views should be preserved as they are the best views which mostly lie on the axial roads and main streets, and they will not be blocked by the future developments. The eleven high priority ranked views will shapeup the townscape of the valley and not much effort should be implemented for designating these view corridors. The medium and low priority ranked views can also be enhanced by taking the simple steps as cleaning the river, developing riverside parks and roads, prioritizing the footpaths on

the roads and lessening the air pollution that happened due to the road widening projects as most of the viewing point lies on the roads and the river corridor. The main thing which was realized during the study was the absence of public places in the city where people can socialize such as the parks and open spaces within and at the periphery of city. Though the study emphasizes on the protection of view of Swayambhu, the study is not against tall buildings. Tall buildings are better to stop urban sprawl and manage large vacant land for the future generation. In future the residents of the valley will not have access to green, unless something is done about it at present. So, planning the view corridors and the tall buildings on the suitable sites will ensure the better character of the surroundings, enhance the skyline and provides a high-quality public realm. The existing rules and regulations of the Valley have no consideration for the view protection. Due to the lack of height restriction ordinance, the valley is destroying the visual integrity of the landmarks, role of topography, and is ignoring and dominating the strategic views and natural surroundings that give the city a sense of place. Thus, an ordinance establishing the rights of views should be created and preserving the important strategic views should be a priority of the city.

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POST EARTHQUAKE RECONSTRUCTION: AN ANALYSIS ON THE CASE OF THECHO

Yatra Sharma, Architect/ Urban Planner

Thecho: A Town In Transition

Out of 2352 (CBS , 2017) households in Thecho, 544 (NRA, 2016) households were completely collapsed and 410 (NRA, 2016) were partially damaged rendering many families homeless by the Gorkha earthquake of 2015.

Thecho is a small, compact, old town situated 7 km uphill towards south of Patan, lying between Sunakoti and Chapagaun of Lalitpur District. The settlement is one of the many satellite Newari towns in the Kathmandu valley that was established in 16th century BC (Lumanti, 2013). Prior to the earthquake, most of the houses in Thecho were constructed in traditional Newari techniques with brick in mud mortar. In 2014 Thecho converted from a Village Development Committee to become a part of Bajrabarahi Municipality. However in March 2017, Bajrabarahi municipality converged into Godawari municipality. Majority of surrounding land is still used for agriculture but is gradually giving away to pressures of housing developments. Jobs are gradually shifting from agriculture and agricultural products to business and services. More and more people commute to metropolitan area daily for jobs. Drainage, water supply, solid waste management, health care and road quality are lagging behind and need for better facilities is a popular conversation among the residents. Kanti Highway- that links Kathmandu Valley to the Makwanpur District runs right across the heart of the old town, which has created several economic opportunities but at the risk of losing cultural heritage. And in the midst of all this transition of Thecho from being a solemn village to a bustling municipal town the earthquake happened.

Initiating Reconstruction

When April 25th earthquake shook the entire nation, early recovery phase began with humanitarian support from international, national and community level. In Thecho, Lumanti supported in relief distribution, recovery and temporary shelter rehabilitation through its partner organization called Thecho Women Saving and Credit Cooperative Limited [1]. With support from Lumanti and various other organizations, they provided temporary shelters to more than 137 most vulnerable families in the community.



Relief distribution to earthquake victims of Thecho by Thecho Mahila Jagaran Saccos in 2015

As months passed by, living in temporary shelter became difficult in harsh winter of Kathmandu. Need for repair and reconstruction of houses began echoing everywhere in the community. Lumanti then formulated a reconstruction project entitled "Community Managed Post Earthquake Reconstruction in Urban Poor Communities in Nepal" which incorporated components of reconstruction, repair and infrastructure development by means of community empowerment, mobilization and policy advocacy.

Data Collection through Community Mapping

The first step in implementing a reconstruction project was collecting data to understand the context. Our team of urban planner, architects, engineers and social mobilisers implemented community mapping , which is an effective tool for gathering information which can provide cross cutting information in clear visual format. "A map for is like an x-ray for a doctor" (Asian Coalition for Housing Right (ACHR), January 2011).

Out of myriad things a mapping can do, we designed this particular mapping specifically to assess the damage scale, understand land and housing scenario and aspirations for rebuilding in the community so that it would form a basis to categorise earthquake victims and ease the process of selecting beneficiaries.

Our pilot mapping was conducted in a small neighbourhood on issues of landownership, homeownership, land areas, damage grade, construction technologies, building bylaws and policies. At the end of the day we expected people to identify their households on the map, specify their issues and mark them as per our colour coding system. But the process converted into a feud. Locals worried because when they put information in such a public piece of paper, they would automatically be cross checked by one's neighbor. So they would have to put in the truth. And the truth would be in conflict to existing policies. That was the reason why the residents didn't want to participate in the mapping in the first place and wanted to push us out. But we stayed, we listened, we debated, we consoled, we justified that we would use the data to lobby policy changes in their favor and not use it against them.

Finally after three days of continuous effort we succeeded in persuading the entire neighborhood to complete mapping. Ultimately the mapping showed us that:

-not as many houses were completely damaged as government survey had declared

- 99% of the houses did not have standard land parcels (min. requirement being 2ana 2 paisa) which would make them eligible to build as per building bylaws.

-and 43% residents did not have land titles making them ineligible to receive reconstruction grants



the debate with community on first attempt at mapping

To sum up, the mapping showed that almost 95% houses were not eligible to attain municipal approval for construction and that meant they were not eligible to receive complete reconstruction grant of 3 lakhs.

We then organized a workshop where community leaders themselves presented this data before NRA representatives and requested for easing red tapes on land regulations and housing bylaws to facilitate the process of reconstruction.



Figure 2 Community leaders from Thecho presenting data gathered through community maps to NRA representatives and local government bodies on land and housing issues that were refraining them from starting to reconstruct – April 2016, Entrance Café, Lalitpur

After this breakthrough of successful mapping at one ward, it was easier for Lumanti to gain trust from rest of the neighbourhoods until mapping was covered over entire core area of Thecho. The final compiled data showed huge compliance gap with government reconstruction policies. Our team was taken back upon realising how big the land issue was- far bigger than the NRA policies had perceived or addressed.



MappingofdamageMappingoflandtitleMappingoflandparcelcategoriesstatus

Reconstruction

By analyzing the data obtained through mapping we were able to identify households in need for immediate reconstruction support. Out of the 544 households listed by government, we had initially proposed to choose 150. But grant support of 2 lakhs was increased to 3 lakhs and we had to reduce the number of households. Ward office, local political bodies and community leaders were consulted to set up a selection criteria based on which households were summoned and enrolled as Lumanti's beneficiaries.

We divided our beneficiaries into 9 different user committees and started series of consultations not just on design and construction but also the process of municipal approval and grant distribution. We particularly emphasized on the necessity to build structurally earthquake resistant homes based on the Nepal National Building Codes by means of IEC materials dissemination to community and refresher orientations to local masons. Although we consulted in groups, it was not possible to imply prototype design or group housing schemes because every individual land holding had varying shape, size, orientation and family size. Not a single design could be replicated. So there was one-on-one consultation with each beneficiary, providing them free building design, site supervision and documentation support for municipal approval.

Initially in January 2017 when we first began rebuilding houses, many local masons were unsure and hesitant to fully comply with earthquake resistant building codes and continued business as usual. But we had to consult and motivate the mason to redo some of the works even at the cost of extra expenses to be incurred by beneficiaries. We also summoned for support from NRA engineers to explain about the need for safer constructions and probable consequences to the beneficiaries. By the end of the project in late 2018, the masons would boast about the quality of their works and knowledge on earthquake resistant construction.

Meanwhile through the process we also provided 3 lakhs grants in instalment basis upon approval of the government. However the most strenuous part of reconstruction was to get this approval which is discussed below.

Complexities Of Urban Land-Obstruction For Reconstruction

Our mapping had hinted us that land issues were wide and deep but little did we know these were stubborn as well. They would not leave. Mostly because they could not be solved on community level or even by policies reformed at local level. Although land related problems have ultimately been addressed in policies lobbied by NRA itself but specific strategies to implement in local level is not clear enough. Only when Reconstruction Authorities and national level Land Departments work hand in hand with full cooperation it is possible to enact the expected "fast track" passage to rebuilding post any disaster. But the reality in Nepal and in most countries worldwide is that land issues take the longest time to resolve.

The biggest land problem was that earthquake victims who did not have "lalpurja" (land titles) were not eligible for municipal approval of drawings[1] and consequently not eligible for receiving reconstruction grants. Sadly, almost half of Thecho residents that are genuine settlers of core area did not have legal ownership document but only a formal document termed field book. This is because obtaining a land title is expensive, time consuming and tedious. The cost of land title for some households is close to the grant amount itself [2]. This is due to the years of piled tax (there is prevalent culture of not formalizing land titles to avoid tax payments- this is gradually changing after conversion to Municipality) and other hidden costs that have to be incurred in the process of formalizing.





So our team had to spend a major part of our project on advocacy for easing curbs on legal land ownership documents and validation for field book. This successfully worked up to the level of providing first installment grant. After several meetings and workshops at all national and local levels with all concerned stakeholders, Godawari Municipality with back up from NRA finally took a stand in September 2017 to enroll all beneficiaries without land tiles but with field books through a process termed "sarjamin" (community verification on guarantee of local ward office). This way all the selected beneficiaries of our project were able to receive the first 50,000 NRs. although they did not own a "lalpurja". But because field book alone is not sufficient for municipal approval of drawings, beneficiaries are still not eligible for second and third installments.

Furthermore, even those that have land titles face yet other land issues such as:

- Land swap (informal swapping of land use on verbal understanding among relatives and neighbors)

- Difference of land area in land title paper and site (usually residents have smaller land area in paper to exempt high tax amount)

- Unclear land boundaries (difference in trace maps and site)

- Difference of land shape or orientation in trace maps and site

- Multiple ownership (bigger problem with death of owner or if owner is reported lost)

Family feuds over property division

- Neighborhood feud over usage of common courtyards and "lachhili" (alleys under house)

- Neighborhood feud over plinth line and height

All these again imply that proposed drawings of households based on real site conditions cannot be approved by municipal engineers
because the basis for verification is absent. There have been times when some of the cases have been solved by re-surveying by government surveyors. But most cases are not simply physical boundary issues but social-cultural feuds that have taken longer time to resolve.

Based on expert discourses[1], the only solution to this stalemate condition is giving recognition to formal land ownership as equivalent to legal ownership through "avilekhikaran" (as-built recording system) and providing grants based on construction quality not on land status. Currently even NRA supports and emphasizes the implementation of "avilekhikaran", and some municipalities have initiated the process of printing forms for such recording system as of early 2018. But it is an extremely tedious and time consuming process that till date no earthquake victim of Nepal has received 2nd and 3rd installment based on this system.

Based on our experience at Thecho, land issue is the sole biggest reason why reconstruction is moving at a snail pace in earthquake struck cities of Nepal.

Power of Local Governance

When there is so much gap between reality and policy, it is the local government and local leaders that we need to turn to.

Currently there are many newly formed municipalities in the country that are low in resources to instantly research on and establish relevant local policies. Ironic enough earthquake has occurred in the same time period when our country is undergoing major political transformation. This has only added to the challenge. So, in order to support the municipality in terms of relevant bylaws for heritage settlements, UN Habitat lobbied to Ministry of Urban Development (MOUD) for drafting a unique set of regulations suitable for all 49 heritage towns along with Bungamati which was finally put into action by MOUD in January 2017. Lumanti also fiercely lobbied for new heritage settlement building bylaw released by MOUD as soon as the elected committee of Godawari Municipality got established in May 2017. Because the elected body was local, they understood the immensity of this need. The municipality helped organize several series of talks with various socio- political groups as well as local engineer groups. Due to geo-political issues of boundary of the core area and impracticability of strict codes of conservation stated in the newly formed bylaw the entire set of bylaw document could not be implemented. Regardless municipality decided to ease the existing law and there were some decisions made by municipal board members that opened the path for municipal approval of buildings in core area. No more size of access roads or ground coverage ratios or plot sizes were issues.



Meetings with Municipal Leaders regarding land issues

Meeting regarding changes in bylaws Similarly, community verification (sarjamin) of land was formally accepted by the municipality and households that did not have land titles but only had field book were now eligible for first installment grants. Likewise, houses that were damaged could be rebuilt on the same ground as they had stood before and still be eligible for grants now. Perhaps this would not have been possible if local government had not taken the courage to act on time.

Local bodies have the power to bring change, but they are hesitant, they are unsure if the intention is right, they are fearful of criticism. It takes a bold leader to listen, understand, analyze and take steps in new direction and take those steps quick despite all the controversy that surrounds. Reconstruction at Thecho was fortunate to get a quick head start with support from a strong local leader when urban issues were being neglected at National level.

Financing Reconstruction

The average cost of construction for a typical 3 story house in an area of 400 square feet at Thecho was 30 lakhs NRs. Our grant support was only 10 % of the cost. Earthquake victims had to manage finance costs on their own. Initially NRA was speculating possibilities for loans of upto 25 lakhs at 2% interest rates for urban reconstruction. But this was not feasible for banks and was therefore offered in limited quantity. Also the approval process was quite tedious because of which not many victims could access the loans. Moreover the low interest rate was valid only for a year.

The unlucky ones who could not or did not know how to access low interest loans from banks had to either opt for high interest loans from banks, microfinance institutes, relatives and friends or simply sell assets. Out of the 123 houses that our project reconstructed at Thecho, 111 houses sold a part or whole of their agricultural land to fund the cost of construction. Rest 12 had enough savings to rebuild with minimal loan amount or borrowings. From such repeated modality of financing for post-earthquake reconstruction, we could draw some typical conclusions at Thecho.

- Low income groups that have little or no savings are more vulnerable to disaster, since they do not have capacity on their own to rebuild
- Most people have no options but to sell their land and assets for rebuilding post disaster
- If families don't own ancestral land and don't have savings they are doomed to remain in temporary shelter
- Land rates and land speculation increases post disaster.
- With most of the agricultural land sold, Thecho residents that were agriculture based now have lost a large part of their economic source as well as cultural identity.
- If disaster strikes again, many households don't have any more land to sell and therefore have become more vulnerable
- Loans in lower interest could have eased financial burden on disaster victims rather than grant support, because loans would enable people to gain funds for reconstruction without having to sell their lands. Sadly this could never come into enforcement.





Empowering Community

Despite all the issues of land, housing policies and financial constraints our project met all the target for housing rightful people and giving them grants. This was only possible because of mobilization of community by empowering them through various integrated activities in coordination with our partner organization Thecho women's cooperative.

Having cooperative members alongside who knew all the nooks and corners of space, nitty-gritty of affairs, shouts and whispers of faces was more than just bonus. They had already implemented several small infrastructure projects at Thecho and catered to thousands of women in capacity building and livelihood activities. Right after the earthquake, this cooperative was the most active and appreciated institution in Thecho that supported relief distribution and temporary shelter construction. So it was not very difficult to win the confidence of residents of Thecho as we started. The cooperative mobilized their community women to support the project through four basic activities:

1. Capacity building

Many earthquake victims were unclear of the government procedures for enrollment, building permit systems, construction codes and grant receiving systems. So women's group gathered user committee members and with administrative and technical support from Lumanti they disseminated all the necessary information. Our partnership also provided on-the-job masons trainings, social mobilization trainings, loan management training, health and hygiene trainings, solid waste management trainings and disaster risk reduction trainings to facilitate the community in understanding the basics of the process for building back safer.

2. Community information, consultation and conflict solving

Land conflicts and family feuds persisted in every single household at Thecho. Designing a building was not easy when land to build was not clear. So constant design changes and conflict solving was an everyday activity. Considering the number of houses and degree of problems per house, it was only possible to find mutual solutions through continuous dialogues with beneficiaries which was facilitated by women's groups again. There were several changes even in the list of beneficiaries when problems could not be solved followed by paper works for coordination with government and bank activities. All of this was accomplished through active community women themselves.

3. Community infrastructure

As a part of our agreement with NRA for integrated settlement planning, we also worked on development of infrastructure at Thecho. We coordinated with ward office to list out the possible projects and selected those projects that would impact a larger population. Also we made sure that the community members or local government would partly finance so that they retain the feeling of ownership to the project. We worked on drainage management, pavements, open spaces revitalization and disaster risk reduction.

These projects were executed through user committees that were responsible not just for management of construction works but also for maintenance post- construction. In order to execute the projects, community members had to seek for resources (manpower, material and money) which lead to increase in capacity of decision making, collective consultations, dispute solving, networking and coordination with resource persons and with local government and financial management. Since the residents had put in their money, time and effort into these projects, there was a lot of grown camaraderie and unity among the people along with feeling of ownership and belonging to the community.

Reconstruction of private residents had been more of an individualistic affair but reconstruction of public structures and public open spaces brought community together and also empowered them.

4. Documentations

Several supporting documents such as land papers, tax papers, citizenship documents, earthquake victims' documents, trace maps, blue prints, municipal drawings, municipal approval forms, inspection request forms and many more had to be filled by the beneficiaries throughout the process. It was extremely difficult for an agriculture based Newari speaking community to understand the technical Nepali documents and take out time to deal with government bodies regularly. Through trained social mobilisers we were able to collect and submit all necessary compliance documents. Community groups if empowered and mobilized the right way, they become the heart of empathy, source of community knowledge and powerhouse of change.

Conclusion

Development and disasters are closely related. (McEntire & Manandhar, 2014). The earthquake of 2015 brought about a lot of devastation, but also opportunity to develop. When we initial started out this project we assumed that there would be more focus on building design, consultation, supervision and so forth, but the reality was filled with many social, economic and policy issues that technical support ultimately became a minor part of the project. Coordination with all national, local and community level stakeholders kept the project moving despite several hurdles. We missed some opportunities due to complicacies of existing policies like those of conserving heritage or providing loans so affected victims don't have to lose their land, but nonetheless with support from local government, local women's group and local community leaders the community of Thecho is now more prepared to face a future disaster if any.



Letter from the Chairman's Desk By Sunil Bhatia PhD

I was struggling hard in absence of my remote control that I forgot where I have kept and there is problem with remote it lost very easily in the room because it moves one hand to another family members, for operating TV with buttons provided for manual operation on panel. I was surprise to note that buttons were hiding and not visible because of no highlight surface and of same color of panel in which it was fixed for display without raise and I felt it was deliberate attempt for concealing as something that was not needed and spoiling the beauty of TV. 'Display or exhibitionist nature is gradually losing its charm and not encouraged in present time and consider as obsolete beauty trend of past and ancient practice.' Designing of the buttons in the name of feather touch without any prominence and concealing on panel is believe beautiful unlike as we experienced in past of highly prominence of electric switches for operation on electric panel that needed proper mental as well physical intervention of human for operation .That effort generally avoid the accidental operation and new design switches are prone to accidents and attempt for something else and it moves to something different because it is highly sensitive, sophisticated and needed minor human intervention . Piano or on off switches are past and users enjoy comfort operating the TV with remote from distance and beauty is that it has prominent buttons for operation and clearly

reflect the mindset of the modern designers that raised buttons spoils the beauty of the TV but it has functional value so cannot be ignore but option left with to shift to some other places and best is remote that is handheld and not close to TV. Is it better design or in the name of beauty killing the proper interface what a human can operate but faces difficulty with flat buttons.

What is beauty? A poet will write that it is the beholder eyes or writer will define in words highlighting character or normal person will say that body parts are behaving under control in discipline manner is beauty because person involuntarily urinate or discharge the saliva or running nose is consider ugly and designed diaper or sanitary napkins or handkerchief for management some will say a movement of human has unique energy and that movement enhances latent energy so it is beauty and dance form is clear example where movement of body parts creates such a beautiful pattern of energy that strikes others and feel beauty is around. In my opinion it is not beauty but movements are subordinating beauty. I remember an incidence asking a rich person how you manage of marrying so many women. Why do not earlier wives object for marrying another? His answer was shocking "What I do make mental disable by allowing to rest for restricted movement by proving number of servants for looking after her personal works and eat whatever you feel like and she turns fatty woman in few days and does not feel like to move. She feels discomfort in any movement and irritates if someone ask her to move and gradually her inner voice makes her feel no more beautiful that makes her disinterest in sex and do not object but enjoy disable life." That revelation was shocking because our ancient people were master in domesticating the animals by castrating sex organs and same thing

still prevalent in present time for turning bull into ox. I noticed in pig farm owner has designed the place for standing the pig where pig is allow to eat as much and stand within the placed bars for restricting movement for fast accumulation of fats in body for fetching good profits by commercial transaction.

Everyone has own definition of beauty and uses with convenience for meeting objective and result is what define is based on respective culture. Product designer has to evolve the definition that should be universally acceptable and come to the conclusion after lots of struggles that anything is symmetrical is bound to be beautiful. Is this concept of symmetry not ancient thought? Ancient times their struggle of survival created various concept of beauty unlike modern times of slim and carved body with extensive exercise but it was based on stout body structure that was capable to kill as well defend shear with physical strength and as tools were making their presence in life role of physical strength diminishes and possession of tools got prominence and definition changes with technology. It was no more mere physical strength rather another dimension was added of possession of tools for attack as well safety. It might be possible journey of beauty started with physical structure and central idea was revolving around human build. Everything big and loud was treated as beautiful but evolution of man also evolving the concept of beauty of possession of tools to social presentation in minimalist and etiquettes not disturb the privacy of others.

Idea of miniature was nowhere in their minds. It was natural that definition of beauty was relying on senses and good structure might be good for eyes but it was not only eyes but has other sense organs of smell that was supporting. If fragrance was around that helps in enhancing beauty otherwise odor was bound to create repulsion. That repulsion played role in defining beauty and people thought to hide the source and result was thinking of miniaturizing by tying the long dirty hair by rolling and fixes on back of the head by some means for controlling the odor. Next step was placing the fragrance flower in between the hairs. It might be possible by that time concept of cleaning or use of water was not limited to drinking but for cleaning the body. It has witnessed comeback of long flowing hair with the design of bath and perfumed toiletries. Ancient people were highlighting their organs by coloring to cover as well recreate artificial as beauty spots and in modern time we call make up or body painting. They were highlighting their eyes by applying black eyeliner or red on cheek or on lips. Why did black and red color were use for coloring is mystery but that practice is still prevailing. It might be it was scaring and mysterious color for humans and lots of secrets are buried beneath it that generate curiosity for unfolding ? That concept of makeup of body parts is so dominating in present times and I have seen the height of make up when my doctor friend was examining the young woman and was assisting for diagnostic instrument noted that she has applied red lipstick on her outer vagina not to appear ugly. I can understand the coloring of hair for masking real age of not to appear infertile and still competent in mating or social normal of presenting of lower age or hiding age in modern time for looking young is new normal but coloring or permanent removal of pubic hairs by laser among teenagers is craze for beauty.

One day I was on way for visiting my friend's house without prior information and my presence was first noticed by his wife at his doorstep and found her quickly hiding the scattered items around her room for make it organize and well plan and it struck to me that her concept of beauty is to hide the unwanted elements not in use as she did with broom by placing behind the sofa or are kept kitchen wastage in close basket and hid under cupboard so that foul smell should not spoil the house beauty. That mind set is gift from ancient people of covering the dirty or it helps in protection not to be ugly as we see in pillow cover or bedcover. Even in our time people prefer dress compare to that helps no highlighting of unshaped body parts as witness in tight body dress but prefer coat and pants that streamline the body or wear brasserie not only for proper management but makes breast more prominent and highlight in best possible shape. 'Why do ancient people paints their walls of the house were not attempt of enhancing beauty?' I have noticed in old house that toilets are build out of the house at some distance for not allow the beauty of the house spoiled but as modern family faces space crunch because of economic reason and cannot afford spacious house so toilets make its place within and shifted inside as integral part of the house. This new need of toilets attach to room compelled the designers to make this idea worth and beautiful and not spoil the beauty of the house either by smell or presence of ugly area and we have witnessed great revolution in this area by designers not remain as bathroom but as room. The same mental state is clearly visible to our modern designers who design the products and interface with buttons for functioning are shifted the ugly part on remote control and design the switches of products on dash board matching the color of panel or make it subtle not to be visible clearly for disturbing the beauty of the product. Concept of making the city clean and beautiful administration completely rely on old concept of shift ugly part to out of the city in no man's land

and cover wastage under soil and build the garden cum park or destroy locally the wastage and try to make it recyclable for sustainable growth. Even something once was useful and for long time it was unused or not functional or unserviceable is treated as waste and consider as ugly that thought as spoiling beauty of the house and should be thrown out of the house.

Next level after satisfying the big stout structure of humans and smell for not to averse started cleaning by bathing and was make facial parts bigger than what they have by using eyeliner or lipstick. Why ancient people do thought of big as beauty? Every means was conclude with highlighting and later on added designed ornaments from natural available products by necklace with flowers etc. With the metal knowledge made the silver, gold ornaments thought value enhancing beauty. Concept of 'value' added new dimension in ornaments and it has come to existence when both gender realized difference in body parts and craving for using others added the concept of assets but complement to each other was helping for effort of making everyone beautiful. Concept of comparing with others as well added dimension of value created a new form of the society and a new definition of beauty emerged. First idea of difference in body parts came by observing and helps realize what is uncommon with majority that helps in making common by artificial means of using make up. It was meeting both purpose of shaping in desire common form as well highlighting the parts. Design of ornaments were not expressing result of analytical minds rather prove to be supporting tools of highlighting as we do with underline or bold in writing. That height of madness of highlighting in look of what people desire reflected in use of cosmetic surgery. It was acceptable of masking the odor by applying of extracted perfumed

fragrance of the flower oil make others believe it is natural coming out of the body not by artificial means as in flower garland uses as necklace.

Touch sense played nothing in initial stages of human development in beauty rather it was like a sensor that comes to active actions as our eye sight, smell organs approves. Otherwise it was in dormant stage in defining beauty. Role of hearing and speaking was not felt important in beauty but advent of language comes to role of subordinate the beauty. Melodious voice is sub ingredient of beauty came into existence much later in human development after the design of language.

Journey of beauty begins with idea of survival and initial concept of beauty was big body with strength in acquiring foods by killing animals for foods. With the technology improvement and design of tools for killing the animals reduce the monopoly of strength of big size but concept of beauty was still around strength and idea of tools have lowered that parameter and consider a man was beautiful who has strength but possess tools. Shoes were design with prime focus was safety but uncomfortable wearing was painful so design according to comfort with shape of leg was consider beauty. Later aesthetic beauty was ornamental for enhancing values of the shoes. Gradually it turned out to wear shoes as social norms. Naked leg is not helping beauty and it turned to associated level of ugly. Even proper bearded cut or hair cut or nail cut that was for hygienic was treated as part of beauty. Design of beauty was placing in average form and getting the detail right.

Idea of beauty of symmetry is reflected in our daily life when mother ties the shoe laces in flower shape by creating symmetry of as petals or tie the hair with ribbon by making flower shape. Even mother selects the hair styles that suit her face and makes that closer to symmetrical shape. Even young person who maintains the moustache or bearded makes it symmetry by proper trimming. When I look at the design of clothes it is nothing but creation comes to the existence by beauty as against the common theory is that cloth is extension of knots. I find there is not a single knot in weaving rather it is wave like pattern placed in arranged threads in warp and it is the frictional force that holds weft threads. Our homes are designed in most symmetrical idea but functionality makes us to change the design.

Concept of beauty is universal and it is spread in human minds from in their culture. One day I was travelling and noticed a truck for transporting heavy items was approaching and immediately struck to me that it is common among driver community that interior turned out to be same with due course of time with variety of colorful hanging or pasted products . I inquired in first opportunity as I encountered the driver was resting in eatery place 'why do you use so many items to make the truck interior colorful?' His answer was "I am not educated but driving and transporting items is my job and if gets the opportunity of halt during my journey I purchase whatever something looks beautiful and do not bother about its functional value and place somewhere in truck body by hanging or pasting and due course of time our truck turned to be colorful. It helps in filling something in our lonely but isolated life where we interact in few occasions for a while and again move for journey. Driving needs attention and normally we focus our eyes on road and ears are busy in following any sound that may help or warn for any eventualities. That is the reason we buy the items that has color that makes us lively and producing sound reduces boredom as well some time makes us alert. It just adds something new in our routine life and improves our depressed emotions.

Absurdity or randomness is another has unusual kind of beauty as we witness in forest or mountains. It is not symmetrical but still we love its beauty. Sky has numerous stars looks beautiful. It might be possible that no one has parameter for comparing so absurdity looks beautiful. Jungle has no form so no one can compare or sky has one moon and stars and there is no mechanism of comparing with others so what is available appears beauty.

Every culture has its own beauty concept and sometime spot or mark or size of the body parts and it is the mindset because of influence of specific culture that makes feel another person beautiful. A black mole on chin or over the upper lip is consider beauty spot on the woman in some culture but some people consider thick upper lips beautiful and believes piercing the body parts and ornaments with it makes them beautiful or some take it to body paints by tattoo. Chinese beauty was consider of small feet and hands and for that designed metal shoes and allow it to wear in childhood for controlling the growth of feet as her body grow. One day I noticed a woman stomach was uncover with dress and my friend could not resist watching her and it was embarrassing for me. Monroe piercing on face was imitation of Marilyn Monroe face that was considered beautiful. What consider beauty in one culture is not necessary will be in other but proper maintained body pleases everyone. Every culture are based on same way of basic emotions of laughing and crying and little bit changes in culture makes one culture different from others but it is the tool that connects with world. It is the defective design that hurt and by product is pain and good design it generates pleasure but it is situational base. One day I was trapped in fire accidents and only way was to come down by holding the rope that was fixed by fire personnel for evacuation was very rough but my life was at stack and could not refuse to use and it appeared as beautiful inspite of rough surface of the rope. In normal situation I would have said this material of rope made with jute is harsh and will hurt by slipping down. When I look at design of comb I admire and it is accepted with no resistance from any culture because it has functionality and helps in enhancing the beauty of an individual. Similarly design of mirror or knife because it has functionality and never heard from anyone that it is ugly product even some people use the knife for killing fellow humans . No one blames the product rather blames murderer upbringing for not giving proper values of life.

Is beauty gender bias and what man thinks is different for woman? My father felt need of new bed sheet because old was torn out and was not meeting the requirement , as he believed made deal of the day and spread it for approval of my mother , she objected `why did you buy this color? Have you given thought before buying that it will look beautiful in our house?' I realized father focus was function of the product and mother was on appearance as well function. Woman has deeper mechanism of color distinguish compare to man and has no special character apart from physical strength so definition of both cannot be same. One thing is common and unique both prefer symmetry may be it is influence of nature that prefer balance and discourage imbalance is reason they agree on some point but disagree in majority of occasion because of individual perception. It is the pressure of social fabric woman agrees to majority and given a chance and act what nature needs most of the woman will abandon their respective husband. My question is if gender is not issue will both have similar concept of beauty? I think beauty is thrust on us by nature and cannot be eliminated from our minds because it is link with progress of better evolution of generations that has association for genetic mutation. Beauty will play gender role and we may witness in future this has reduced the gap but cannot eliminate or wipe out from our mind. It is similar to genetic information that every living beings enjoys. A bird knows the art of making nest and hatching by sitting over eggs for chicken to come out or plants produces fruits in season and has mechanisms of slipping into hibernation for protection of life within seed and comes to life as it gets signals of conducive environments for seeds turns into life of the plants . Beauty promotes nature's basic inbuilt ingredients of kindness, generosity and compassionate for others and disturbing and harming is not welcome. Nature works on different parameters of defining beauty and humans has different devised parameters.

'Failure of rationality surfaces a new form of beauty.'

I am grateful to Ar Archana Bade Shrestha , Sr. Lecturer who has done complete justice with international publication and her dedication is admirable for others. She is suffering with leg fracture but fulfilled her promise for submitting publishing material in time.

With Regards Dr. Sunil Bhatia Design For All Institute of India www.designforall.in dr_subha@yahoo.com Tel 91-11-27853470®



Forthcoming Issues

WOMEN DESIGNER YEAR 2020

April 2020 Vol-15 No-4

A Doctorate qualification in the fields of: interior architecture, architecture and urban design Dr Dolly Daou has 18 years experience in: teaching, research, quality assurance, and leadership, specialised in multi-disciplinary design projects. Currently the Director of Design Lab: New Eating Habits at L'École de



design Nantes Atlantique, France. Previously, the Director of the Association of Interior Designers in the MENA region, an external reviewer to many international educational quality assurance agencies and the Program Director of Interior Architecture and Master of Interior Design at Swinburne University of Technology, (Australia and Hong Kong). Also, was the Treasurer of the Board to the Interior Design Educator Association (IDEA) for Australia and New Zealand. Author of co-edited book Unbounded on the Interior and Interiority.

May 2020 Vol-15 No-5

Having been a wheelchair model from an early age, Samanta has always felt frustrated by the lack of luxurious clothing available for disabled people. Working as an advocate for inclusion within the fashion industry, Samanta has decided to join forces with some of the most innovative emerging designers to develop her brand, 'SB' – a unique line of clothing based on the principle that "its not



about being disabled, but about feeling beautiful and comfortable whilst in the siting position".

Born in Brazil, Samanta moved to London 10 years ago and has since dedicated her life to improving the lives of people living with disabilities. She hopes that her collection will open people's minds and hearts. Samanta is a former Brazilian no. 1 wheelchair tennis player winning a doubles silver medal at the ParaPanAm Games in Rio de Janeiro in 2007 & representing Brazil in three World Team Cups.

"We must be seen to exist" – Samanta Bullock

June 2020 Vol-15 No-6

Debra Ruh is a Global Disability Inclusion Strategist, Market Influencer, internationally recognized keynote speaker, published author, branding expert, successful entrepreneur, and an exceptional mother. Debra is host of popular program:



Human Potential at Work (Audience in 84 countries).

Debra Ruh received her call to action when she was told by so-called "experts" that her daughter, Sara, who was born with Down Syndrome (Trisomy 21), would never walk or talk. She refused to accept the prognosis and perception of this condition. Driven by her unshakeable faith in the power of human potential and the love for her daughter, Debra was determined to dedicate her life to create a path to empowerment and the success for all those with disabilities.

Debra had built a multi-million-dollar firm focused on ICT accessibility. Debra was convinced that "the real disability is being unable to see human potential" formed Ruh Global Communications. This new firm focuses on Global Disability Inclusion Strategies, Digital Marketing, and Branding among many other services.

Debra consults with Multi-National and National Corporations and the United Nations. Debra is now internationally renowned global keynote speakers and travel the world inspiring and advocating for governments and corporations to include people with disabilities.

Debra Ruh is an active public figure she was invited to address the United Nations General Assembly at the Conference of State Parties 9th session (COSP9) by the President's office of the UN on May 13, 2016. More recently Debra was selected as the North American representative for the United Nations (UN), International Labor Organization's (ILO), Global Business and Disability Network (GBDN). Additionally, in 2018 the U.S. State Department selected Debra Ruh as a global speaker and ambassador for the United States when visiting foreign nations and speaking on inclusion and disability. Selected as a Global Goodwill Ambassador in 2018. Debra is a recognized global influencer, frequently interviewed by various media outlets and she has gathered a significant presence on many social media platforms, with over 300,000+ followers across all mediums. Co-founder of the award winning #AXSChat the second biggest tweet chat in the world with a reach in the billions. Debra was also named in the "Top 5% of Social Media Influencers" and "Top 0.1% of people talking about Disability Inclusion and Accessibility" by KLOUT. Named #15 in Digital Scouts Top #100 Global Digital Influencers in Sept 2018.

July 2020 Vol-15 No-7

Jani Nayar, Executive director of the SATH (Society for Accessible Travel & Hospitality), a tireless advocate and effective educator on travel & disability.

Special May 2020 Vol-15 No-5.1

Dr. Anjana Bhagyanathan is a landscape architect and academic with an interest in the intersection of nature, culture and design. Her research offers strategies for basing ecological planning on cultural insight and science. Bio centric interventions that have positive impact on the environment for posterity forms the bulk of the research and practice that she engages with

and remains the perspective she imparts to students.





Her research focuses on GIS applications for ecological planning, society and environmental protection, and landscape ecology. The process of arriving at landscape patterns that are robust ecologically, socially and culturally especially in human-dominated landscapes forms the crux of her work. Ecosystem based approaches that are rooted in traditional ecological knowledge informs the research approach. Her teaching and research apply this approach to metropolitan and agricultural landscapes – ranging from continental scale implications of agricultural practices to neighbourhood scale implications of green storm water infrastructure. The efficacy of polycentric and tacit knowledge systems of communities that organically give rise to resilient land use systems fascinate her.

August 2020 Vol-15 No-8

Maria Luisa Rossi, Chair and Professor, MFA Integrated Design Maria Luisa's work at the College for Creative Studies Graduate Studies brings her entrepreneurial, globally-focused, and empathetic cultural approaches to the next generation of designers. She focuses on the seamless capacity to deal with the tangible and intangible aspects of people's experiences. At CCS she is preparing & quot; facilitators & quot; capable of addressing



global-local grand challenges, focusing on social innovation. Her projects are concentrated on research, co-creation and peoplecentered processes. Maria Luisa's professional career has been independent and international. She attended the premiere master's program in industrial design at the Domus Academy in Milano, thanks to a European Scholarship she won from designing the first wearable computer. The project was featured in the prestigious Domus magazine and gave her a lot of visibility around Europe and the design world. The wearable computer project "The Walking Office" can be found in the Henry Ford Museum Permanent Design Collection.

Following her studies, she founded the design consultancy Iavicoli & Rossi, working on various models varying from interior architecture to tableware.

Maria Luisa's interdisciplinary attitude, design strategy knowledge, and business acumen brought her to be hired in the team that launched the new Graduate Program at CCS in Detroit, where she set standards of excellence for MFA Integrated Design.

Her effort to provide meaningful teaching experiences is validated by a successful alumni job placement in corporations and design consultancies. Throughout her career, Maria Luisa has conducted workshops and lectures in Singapore, Los Angeles, Mexico City,

Istanbul, Ankara, São Paulo, Shanghai, Gratz, Brasilia, and Taiwan. Her specialties are Design Strategy, Experience Design, Scenario Design, Service Design, Interdisciplinary approach, with an in-depth knowledge of American, Asian and European culture and markets.

New Books



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unnatured and selfless millions of hernes who have contributed immensely in making our society worth living, their design of comb, kite. Breworks, glass, micro-even thread concept have revolutionized the though process of human minds and prepared blueprint of future. Modern people may take for granted but its beyond imagination the hardships and how these innovative ideas could strike their minds. Discovery of fire was possible because of its presence in nature but management of fire through manmade idesigns was a significant attempt of thinking beyond survival and no doubt this contributed in establishing our supremacy over other living beings. Somewhere in journey of progress we lost the legacy of ancestors in shaping minds of future generations and completely ignored their philosophy and established a society that was beyond their imagination. I pided up such drivers that have commisuted in our progress and continue guiding but we failed to recognize its role and functions. Even tears, confusion in designing products was markelous attempt and design of ladder and many more helped in sustainable, inclusive growth.

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SHERYLE. BURGSTANLER is an affiliate professor in the College of Education at the University of Washington in Seattle, and founder and director of the university's Disabilities, Opportunities, Internetworking, and Technology (DO-IT) and Access Technology Centers.

"Sheryl Burgstahler has assembled a great set of chapters and authors on universal design in higher education. It's a musthave book for all universities, as it covers universal design of instruction, physical spaces, student services, technology, and provides examples of best practices."

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READING HINTS: ePub files can be read with the iBook app on Apple MacBook/iPad devices; ePub files can also be read on Desktops PCs, Laptops and Surface devices using readers such as the Microsoft *freda*ePub reader. The Kindle (mobi file) reader isflexible and suitable for reading the eBook on PCs; Kobo readers can also be used to read ePub files on MacBook and iPad. All formats are very interactive with very good navigation.

DEBRA RUH

INCLUSION

BRANDING

Revealing Secrets to Maximize ROI

Design For All Institute of India



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





Author: Ursula Tischner




Universal Design: The HUMBLES Method for User-Centred Business



"Universal Design: The HUMBLES Method for User-Centred Business", writtenbyFrancescAragall and JordiMontañaandpublishedbyGower, providesaninnovativemethod to supportbusinesseswishing to increase the number of satisfiedusersand clients

andenhancetheirreputationbyadaptingtheirproductsandservices to the diversity of their actual andpotentialcustomers, takingintoaccounttheirneeds, wishesandexpectations.

The HUMBLES method (© Aragall) consists of a progressive, sevenphaseapproach for implementing Design for All within a business. Byincorporating the user'spoint of view, itenablescompanies to evaluate their business strategies in order to improve provide an improved, more customer-oriented experience, and there bygain a competitive advantage in the market place. As well as a comprehensive guide to the method, the book provides cases tudies of

multinationalbusinesswhichhavesuccessfullyincorporated Design for All intotheirworkingpractices.

According to SandroRossell, President of FC Barcelona, who in company withotherleadingbusiness professionals endorsed the publication, it is "requiredreading for thosewhowish to understandhow universal design is the onlyway to connect a brand to the widest possible public, increasing client loyaltyandenhancing company prestige". To purchase the book, visiteither the **Design for All Foundation website**



I have a new book that presents fundamental engineering concepts to industrial designers that might be of interest to you. This is the link:

https://www.amazon.com/Engineering-Industrial-Designers-Inventors-Fundamentals/dp/1491932619/ref=sr_1_1?ie=UTF8&qid=1506958137&sr=8-1&keywords=engineering+for+industrial+designers+and+inventrs



News

1.

Madison de Rozario: "My chair is the least interesting thing about me. It shouldn't be a divider."



At Mamamia, every day is International Women's Day. But this year, we're celebrating March 8 by sharing stories from some of Australia's most influential women, as well as columns from voices spanning 5 generations, on the decadedefining conversations women are having. You can find all our International Women's Day stories on our hub page.

International Women's Day, for me, is about acknowledging and appreciating the women who've paved the way for us so far – but equally, about recognising that our work is by no means done.

We need to take this momentum and continue to push for a universal design.

It's not so much about fighting for space in a pre-existing world. It's about redesigning a structure that doesn't currently work for everyone.

Right now we're fighting for space for women, and it's an opportunity to make sure that whatever we create welcomes everyone from every corner of our community: every gender, every level of ability, every ethnicity.

My definition of what universal design should look like, and I apologise that it's a sporting metaphor, is:

Whatever form we arrive on this planet is the equivalent of turning up to the race. At the start line, we're all equal. The way we execute that race – what we do once we're out there – that's what counts, and that's what should defines us.

Structurally, this is going to take time. But socially, we can make changes now.

If I could urge one message with my platform this IWD, it would be to say: be that person that sees something in someone else.

A majority of the people I know with a disability who have had professional or sporting success can pinpoint the moment that someone saw something in them that they didn't see themselves. That moment is always described as one that changed their own view of themselves.

I want to see that change.

I understand the fight people with disabilities have is different to the fight we're undertaking as women. But the more involved I've been with both, the more I've come to realise it's the exact same fight.

I want to see more of us be the person who chooses to see something in someone when they don't see it themselves. I want more of us to be the person who sees it when the rest of society refuses to.

The part of this that I want to draw attention to is that so often it was just one person.

A huge part of feeling seen is also what we see in the world around us. Visibility versus just representation – there's a big difference. Representation is things like having a famous spokesperson represent that community. Giving society an easy or digestible frame of reference to view a community, via a well-known face.

We wrap this entire person's personality up in that community, while defining the entire community by one individual.

That does a lot for awareness – but a whole community can't be defined by one person.

And we can't expect one person to be a beacon for a whole community either – that's not fair to them and doesn't allow them the space to be their truest or most authentic selves.

The way to truly normalise is through visibility in the everyday – in the campaigns we see, and media we consume, and in what our next generation grows up seeing – so that we all feel seen. And so our peers see us, too.

It took a while for me to get comfortable with being a role model for the community of people with disabilities. I'm so grateful for the platform that sport gives me, allowing me to shed light... but I'm a role model, not a poster child.

(Courtesy: MAMAMIA)

2.

How activist and model Angel Dixon is shaking up disability representation WORDS BY JASMINE WALLIS



Changing the game, one cane at a time.

In the 2016 rom-com, How to Be Single, there's a scene where Dakota Johnson's character, Alice Kepley, struggles to unzip the back of her dress and has to create a contraption to assist her.

Although the scene is making a point about functional clothing as a single woman, it's one that disability activist and model, Angel Dixon, wants everyone to remember.

"It's silly that we make clothing purely for the look, and we don't think about the comfort of its users," she says.

The point is particularly pertinent for Angel, who has a physical impairment that means she requires support from a cane and wheelchair.

She's a strong proponent of universal design; a concept by which an item or environment can be accessed, understood and used by all people, regardless of their age, size or disability. "[It's] about creating things to be usable to all people without the need for specialised adaptation," she explains. "Fashion in particular, or clothing design, is an area where people are forgotten."

It was through her own experiences that Angel began to notice an absence of people with disability in the fashion industry. Beyond accessibility of clothing, she realised there were no models anywhere in the world using a cane on mainstream runways. While a friend of hers was working on a clothing line built on universal design, Angel began submitting photos of herself to modelling agencies. After a few rejections, she finally was cast at Los Angeles Fashion Week to walk for her friend's brand, cane and all.

"Modelling wasn't my first choice, but as soon as I realised that people with disability weren't being represented within these places, I wanted to do something about it," she says.

Since that first runway show, Angel has gone on to be a two- time international Mercedes-Benz Fashion Week model; the first adult disabled model to be featured in a national television commercial in Australia; and in 2019, was named Queensland's Young Person of the Year.

So, why did she choose media and fashion as the vehicle to create awareness around disability?

"We're consuming [media] more than we ever have and they're the things that inform our perceptions and attitudes," she says, "but fashion in particular, or clothing design, is an area where people are forgotten."

In the same way that a good outfit can make you feel empowered, Angel finds herself feeling more in control of her day when she can dress more freely and easily.

"I work in boardrooms with executives and if I had to wear clothes without buttons all the time, or stuff that purely worked to my body type, then I'd be turning up in trackpants and a T-shirt every day," she says, laughing. "And I can't do that, so whenever I find an item that has thought about design slightly differently, I stick to it, because it's freeing and there are so many people that are starting to think about that now."

Universal Design, she says "is about creating things to be usable to all people without the need for specialised adaptation".

Though she understands people's confusion. "You can't capture everyone's requirements in one item. But the whole concept of universal design is that you could capture those needs in several items that look the same." She gives an example of a range that uses the same colours, cut and style, but has multiple ways of fastening each garment.

The young activist is currently working with a few brands to try and get more universal clothing designs into the market. "It's exciting for me because then, not only would marketing be inclusive of disability, but the products would be inclusive, which takes away all of the tokenism that's in our marketing at the moment."

Angel's work in the activism space has seen her help drive an organisation called Starting with Julius, a not-for-pro t organisation that campaigns for more inclusive casting by big fashion brands and retailers. It works with the likes of Target and Kmart, assisting them to include people with disability in their advertising in a more holistic way.

"It's not just about throwing people with disabilities in advertisements. It's about making sure that they are participating equally behind the scenes. Otherwise, it's not sustainable and other people aren't going to be included in the future." After Angel modelled in a national Target campaign, she explains the retailer was "inundated" with positive messages, emails and social media comments. But for Angel, the most positive aspect to emerge from the campaign was that people with disabilities began applying for jobs at Target.

"I think that's important to remember," she says. "If your company or brand represents people with disability, then the expectation is that your company 'gets' it. It has a positive flow-on effect."

Angel notes there's still a long way to go to reach equal representation in the media, but whether she's focusing on fashion, activism or representation, the future that she's helping to create is, in her own words, "a melting pot".

"The future looks like freedom of choice," Angel says to me firmly, "and everyone together."

(Courtesy: FASHION JOURNAL)



Programme and Events





International conference on 'Designing for children' with focus on 'Play and Learn'



Monday, March 2, 2020, 5 p.m. PDT – Mentoring request deadline

Friday, July 24, 2020 - Acceptance decisions for:









FIFTH INTERNATIONAL CONFERENCE ON UNIVERSAL DESIGN

June 15 - 17 2020 at Dipoli, Aalto University, Espoo





16.06 - 19.06.2020

Rome, Italy



CALL FOR PAPERS

The ASSETS conference is the premier forum for presenting research on the design, evaluation, use, and education related to computing for people with disabilities and older adults. We invite high-quality original submissions on topics relevant to computing and accessibility.

Submissions should present significant contributions to design, systems, tools, scientific understanding, methodology, or social issues. Relevant topics include (but are not limited to) new enabling technologies, studies of how technologies are used by people with disabilities, explorations of barriers to access, and evaluations of accessibility education methods. It is expected that, in most cases, a paper's research contributions will be validated through research activities conducted within the target user groups. Papers that include a technical contribution without being validated through research activities with representative users are unlikely to be accepted.



XXVII Compasso d'Oro: the visual project

The selection for the

ADI graphic project invites to present a graphic project proposal for the cycle of publications related to the XXIII Compasso d'Oro ADI: ADI Design Index 2020, ADI Design Index 2021, XXVII Compasso d'Oro.







#UDSTEPFREE CHALLENGE









2020 GOOD DESIGN AWARDS OPEN FOR ENTRY

Good Design Australia is calling for Australian and international entries to the 2020 Good Design Awards. Through the annual Good Design Awards program, we recognise and celebrate excellence in cutting edge design and breakthrough innovation.

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1.Job Opening



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Forthcoming Events and Programs:

Editor@designforall.in

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