

**LANDSCAPE DESIGN FOR CHILDREN'S PLAY:
URBAN PARK IN LUCKNOW**

A DESIGN THESIS

Submitted
*in partial fulfillment of the requirements for the
award of the degree of*

MASTER OF LANDSCAPE ARCHITECTURE

By

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2014MLA010



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MAY 2016

Declaration

I, **Aakanksha Verma**, Scholar No. **2014MLA010** hereby declare that the thesis entitled **Landscape Design for Children's Play: Urban Park in Lucknow**, submitted by me in partial fulfillment for the award of Master of Landscape Architecture, in School of Planning and Architecture Bhopal, India, is a record of bonafide work carried out by me. The matter embodied in this thesis has not been submitted to any other University or Institute for the award of any degree or diploma.

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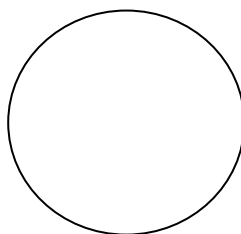
Certificate

This is to certify that the declaration of **Aakanksha Verma** is true to the best of my knowledge and that the student has worked for one semester in preparing this thesis.

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ABSTRACT

As they are the sensitive users of the society, relation between the children with its environment in relation to play is an important aspect. Importance of the play for the child's life is the medium of behavior to develop intellectually and physically. There are many researches done on the child psychology, and importance of play in their life. Winnicott, Piaget, Moore are the some scientist which has done research on the child play. Now-a-days, children are more involved into indoor and video games, etc. because of lack of interactive open spaces, security point of view and lifestyle of people presently. The studies have shown that because of their less interaction with nature, they get deficiencies and less knowledge of nature and their surroundings.

As the landscape plays an important role in the study explores the criteria for selecting the equipment and requirement for child at the particular ages and accordingly play type for them. This study shows the requirement of the child play area where they can explore and develop. This tells about the place/areas of where they can develop and use this type of skill.

The methodology involves the interviewing the users and the people relating to the child and the children's play, studying the literature and observations of the studies which leads to the inferences of the studies. The inferences are according to study of the design in terms of climate, surroundings, vegetation, topography, etc. These inferences are helpful for achieving the required landscape design results with plantation, material and lighting plan with sections and views.

Keywords: Design, Children, Play, outdoor, Nature, Landscape

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CHAPTER 1: INTRODUCTION

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CHAPTER 2: LITERATURE STUDY

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CHAPTER 3: **CASE STUDY**

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CHAPTER 4: **METHODOLOGY**

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CHAPTER 5: **SITE STUDY AND ANALYSIS**

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**CHAPTER 6: DESIGN
PROPOSAL**

1.0 Introduction

Play is essential to children and young people's physical, social and cognitive development. Outdoor play is particularly valuable as it provides unique opportunities to experience the elements and because of the sense of well-being and enjoyment that being outdoors can bring. As a child, we all had climbed trees, rolled down hills, scrambled up rocks, made mud pies, dammed up water, hidden in grass, played house in bushes, dug in sand, played in dirt, planted seed, jumped in leaves, tracked animals, or had fun outside. They need play spaces with no boundaries. Access to the outdoors also gives children more space to move freely and run around.

1.1 Play: Definition

When you think of a child, the first thing that comes to mind is **play**.

There are many 'definitions of play' in the literature.

- According to the **Winnicott** 'to play is to use imagination, the most important thing a person can do...Play is always an experience of creating, also of uniting time and space- so is fundamental to how we live'(Day and Midbjer, 2007).
- **Moore** (1990) states that "play lies at the heart of childhood, limited in its boundaries only by the opportunities afforded by physical settings and by the attitudes and commitment of those whose business it is to manage them" (Jones, 1997).
- According to **Piaget**, play is not a condition of mental, but is a behavior or action and it causes the child makes effort about what to do. According to him, the play is necessary for the development of intelligence (Piaget and Inhelder, 1971).

Play is a form of behavior which has many definition, description and developmental theories.

In another words, *play is that magical place which involves wondrous feats of imagination and creativity among children.*

1.2 Different Types of Play

- Social Play
- Emotional Play
- Physical Play
- Creative Play
- Cognitive Play
- Environmental Layout

1.3 Importance Of Play

- It's a medium through which children learn to understand the whole world around them.
- Playing helps children develop physically.
- Opportunity to exercise in the way they enjoy.
- Develop intellectually.
- Helps children to develop emotionally.

There are two types of play- **indoor and outdoor**.

1.4 Background

Today cities are getting crowded due to the variety of business and social opportunities offered to the people. Due to the increasing population density and intensive construction, open spaces that children can use are decreasing.

Children constitute a significant part of users in urban open spaces. Because children's time, spent in open spaces with play during the development, is extremely important and necessary in terms of physical, social, emotional, and cognitive aspects.

In **real estate** development,

- High rise have little spaces for children, (Private and less)
- Banned from playing cricket and football there.
- Children are forced to swimming and tennis, etc. due to lack of open play area

Psychologist says:

- Lack of playing can be more alarming consequences than skipping a meal.
- Health issues
- Impairment of social skills
- Lack of Vit D.
- High stress levels at younger age.

Benefits of Play

- Children Gains a sense of Freedom
- Child's respect for others
- Creativity increases
- An healthy individuals both mentally and physically
- Development of learning ability

1.5 Aim

Designing the Children Play Area in an Urban Space.

1.6 Objectives

- To study and understand and the need for play in children play area.
- To identify the children play area for their development, security and growth.
- To understand relationship between child and the urban environment w.r.t the outdoor spaces used by the children for playing.
- Studying Importance of texture (including trees), color, material, transparency and spatial quality in open spaces.

- To give a design proposal of a children park in an urban setting.

1.7 Age Group

Play area for Age group of 3-12 years which can be further divided into three age groups i.e. 3-5; 6-8 and 9-12 years.

1.8 Need For Design:

- Lack of open spaces for the play.
- Sensitive issue for the society, which is being neglected.
- They are most sensitive users of the society but neglected
- Affecting the development and psychology of child.
- Safe area for their play.
- According to their needs in terms of materials, textures, colors and other aspects.

1.9 Scope And Limitation:

This thesis will only be dealing with the design proposal of Children's play area in the city (Gomti Nagar, Lucknow, UP), with the help of natural elements and forms of landscape.

The main target users will be children as well as the parents accompanying them.

1.10 Expected Outcome: Design of children play area on site of an urban park.

2. Literature Study:

2.1 Child And Urban Environment:

Changing environmental conditions in urban areas-

- traffic density,
- lack of security

have significant impact on this change.

2.1.1Result

- Less time in open areas,
- More time with individual plays in their homes,
- More encouragement to virtual environments such as computers and television and with technological devices such as mobile phone, portable play station, play station

“Kids don't need play equipments, they need opportunity-RuppelShell(2001)”

Elizabeth Jones (1997), classified specific design elements of spaces under the 9 titles

Including children play activities depending on the design requirements.

These are:

1. Accessible-Inaccessible
2. Active-Passive
3. Challenge/Risk-Repetition/Security
4. Hard-Soft
5. Natural-People/Built
6. Open-Closed
7. Permanence-Change
8. Private-Public
9. Simple-Complex

Child need environment which develops him/her socially, intellectually, socially, cognitively and physically.

According to Piaget, children engage in types of play that reflect their level of cognitive development.

2.2 Types Of Play:

- Functional Play,
- Constructive Play,
- Symbolic/Fantasy Play, And
- Games With Rules

2.3 Outdoor Constructive Play:

It should contain flexible material which could be easily workable.

- Water Play Area
- Sandbox
- Large garden

Children grow through different stages marked by evolving ways of playing as they grow.

Its important to know that all children are different and so their preferences.

“As we grow the games we enjoy also evolve.”

Benefits of Playing In Outdoor Areas:

- **Supports creativity and problem solving.** Studies of children in schoolyards found that children engage in more creative forms of play in the green areas. They also played more cooperatively. Play in nature is especially important for developing capacities for creativity, problem-solving, and intellectual development.
- **Enhances cognitive abilities.** Proximity to, views of, and daily exposure to natural settings increases children’s ability to focus and enhances cognitive abilities.
- **Improves academic performance.** Studies in the US show that schools that use outdoor classrooms and other forms of nature-based experiential education support significant student gains in social studies, science, language arts, and math. Students in outdoor science programs improved their science testing scores by 27% (American Institutes for Research, 2005).
- **Reduces Attention Deficit Disorder (ADD) symptoms.**
- Contact with the natural world can significantly reduce symptoms of attention deficit disorder in children as young as five years old (Kuo and Taylor, 2004).
- **Increases physical activity.** Children who experience school grounds with diverse natural settings are more physically active, more aware of

nutrition, more civil to one another and more creative (Bell and Dymont, 2006).

- **Improves nutrition.** Children who grow their own food are more likely to eat fruits and vegetables (Bell & Dymont, 2008) and to show higher levels of knowledge about nutrition (Waliczek, & Zajicek, 2006). They are also more likely to continue healthy eating habits throughout their lives (Morris & Zidenberg-Cherr, 2002).
- **Improves eyesight.** More time spent outdoors is related to reduce rates of nearsightedness, also known as myopia, in children and adolescents (American Academy of Ophthalmology, 2011).
- **Improves social relations.** Children will be smarter, better able to get along with others, healthier and happier when they have regular opportunities for free and unstructured play in the out-of-doors (Burdette and Whitaker, 2005).
- **Improves self-discipline.** Access to green spaces, and even a view of green settings, enhances peace, self-control and self-discipline within inner city youth, and particularly in girls (Taylor, Kuo and Sullivan, 2001).
- **Reduces stress.** Green plants and vistas reduce stress among highly stressed children. Locations with greater number of plants, greener views, and access to natural play areas show more significant results (Wells and Evans, 2003).

2.4 AGE GROUPING:

2-3 years:

- Learn to control their own movement.
- Play Alone
- Experimentation with touch, sight and sound
- Play in sand, clay, water, swings and slides (with the help of adult)

3-6 years:

- Play in groups (socially)
- Activities representing something else

Eg: Playing with abstract elements, table, benches, as well as swings, slides and movable equipment.

6-8 years:

- Attracted towards activities which involves movement and action.

- Develop both organizational and physical skills.
- Test skillfully- climbing nets, walls and others.

8-10 years and upwards:

- Growing without adult supervision.
- Structured games with objective rules played in groups and teams
- Likes to demonstrate their power and coordination.

2.5 Where to go to play?

2.5.1 Physical activities: jumping, running, cycling, crawling, climbing, or sliding.

- Protection against bumps and falls.
- Form of modular equipment, structures and varied terrain
- Provides a range of possible interactions,

2.5.2 Imaginative and creative:

Modelling, moldings

Sand, grass, water, gravel or clay is used in this type.

Hard to keep still to a child.

2.5.3 Social games:

- Chasing, hiding, role-playing
- Imagination is the primary tool for this activity.
- Effective to provide abstract, suggestive elements which they can provide in their own way.

2.5.4 Sensorial games:

- Senses are involved
- Experimentation is done
- Elements are designed for stimulating the senses.

2.5.5 Playing in Peace:

- Child's choice of play alone, quietly, should therefore be respected.
- Gain a peaceful spot where adults can also enjoy.



Figure 1: Showing social interaction



Figure 2: Social interaction with activity areas.

- Sandbox, tables and benches, and also protected from excess sun exposure.

2.6 Play Area

- Kids enjoy a **variety** in their play area with their equipment and spaces.
- They get **opportunity** to play number of games or do no of activities.
- To avoid boredom, **attractive** places should be design.
- Suitable of each age group.
- Should **encourage social interaction and respect** for the environment.

2.6.1 Topography:

- Irregular and curvilinear forms are more preferable than uniform, rectilinear shapes.
- Anomalies (standard) of terrain,
- Change in levels,
- Soft slopes,
- Different zones at different heights,
- Mud Area,
- Pits,
- Stone wall, etc.

Play benefits: Getting lost, finding bearings, treasure hunt, hide and seek, rise and fall of king, etc. can be played.

2.6.2 Vegetation:

- Highly valuable element for child's environment and fun,
- aesthetics
- Improve air quality
- Serves as protection barrier
- Acoustical
- Natural habitats for birds and other small animals- in the form of clubhouse.
- Give species which don't need sufficient care.
- Shrubs and groundcovers should be protected.
- Plants with flowers that respond to sun and shade. Eg: **sunflower**
- Plants that have built-in adaptations like the compass plant whose leaves are oriented north-south.
- Gray-leafed plants (e.g. Artemisia spp.), or plants with fine white hairs over their leaf surface (e.g. Antennaria spp., Anaphalis spp.) to demonstrate adaptations in reflecting the sun's light to conserve energy.
- Reeds and sedges to explore how the hollow stems store and transport water.
- Plants with palm, nuts and berries, which can be directly taken and eaten.
- Maze, Hide and seek, sensory garden, theme garden, etc can also be introduced.

2.6.3 Water:

Children enjoy water when they are allowed to touch and play.

- Sensations from wet to dry
- Submerged and floating objects
- Learning about properties of water.
- Stepping stones.
- Aquatic ecosystem are valuable source for learning.

Should not be deeper than 35- 40 cm.

Raising bridges and raised walkways.

2.6.4 Paving:

- Stable and Firm
- Able to pad fall
- With texture and colors.
- Not too rough and non-slippery
- Joints should be treated.
- Combination of textures and colors.
- Eg: Synthetic paving, sand, wood chips, etc.

2.7 General Considerations:

- Borders should be well defined naturally or artificially. Eg: Plaited Fences, Highly fragrant plants.
- Heights should be treated and cannot be climbed by kids.
- Play areas can be easily seen from other points.
- Place shelters

- Spaces should not become barriers for old age and handicaps.
- Slopes should be moderated to less than 5%, otherwise 5%-10% and up to 12%.
- Ladders for accessing upper most part of structure, with equidistant steps, made of non-slippery material.
- Set up tricycle and bicycle tracks.
- Min widths should be 90cm.
- Handrails and curbs should be included wherever there are obstacles.
- Resting areas should be provided along with 150cm of wheelchair space.
- Boundaries should have a min. height of 70cm from platform surface, ladder, ramps, etc.
- Different types of swings and slides have to be used, eg tunnel slide in different shapes and sizes.

2.8 Walls, Scale & Edges:

- Walling materials can be logs, bricks, concrete. The top edge should be smooth and suitable for sitting on (by parents) or for building on. The base should be a gravel base (100-150mm) draining to a field drain, a 20-25mm of charcoal (if available) or geotextile material (i.e. Terram 1000 grade) and an open weave of bricks 10mm apart. If timber sides are used they should be secured with coach bolts and screws - never nails. Whatever is used as a container must have chamfered or rounded edges.
- Low enclosure is sufficient to define the play space and young children should be able to see through the fence so they can see what is happening.

- Structure that are much too high in the belief that are greater the height the greater the thrill.
- Fencing, hedges and other elements set up to define shapes and boundaries need be not higher than 800-900.
- 900mm high hedge will create a sense of enclosure on a space approx. 350 cm across but will appear to be fussy frill on a space 10m across.
- Small space at 200 to 400cm for cozy corners such as role play, reading, storytelling, etc.
- Proportional vertical scale for larger open spaces can introduced through shade pavilions, summer house, pergolas and tunnels and



Figure 3: Topography changes in the play area.



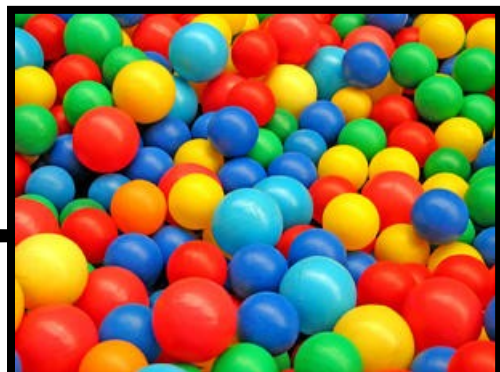
Figure 4: Different uses of topographical feature and green walls.

sculptures.

2.9 COLORS:

- Children aren't impressed by shades of the same color.
- Children **prefer brighter colors**, mostly primary colors.
- Babies have a tendency to stare at **blues, reds, purples and oranges** for longer periods of time than the color brown, indicating that bright colors are preferred.
- Children do not find brown and gray appealing.

Figure 5: Bright Colors attract children than neutral colors.



2.10 TEXTURES:

- Messy play is important for young children, giving them endless ways to develop and learn.
- Senses are used to discover, explore and develop their senses.
- Smooth and soft, sticky, coarse, fine, rough, hard, dry, wet, etc.
- Developed with sand, clay, gravel, plant parts, and other different materials available.
- Opportunities offered by open spaces:
- Direct relation with environment
- Discovering environment
- Becomes social
- Diversity and complexity- animals, insects, plant species.

2.11 Criteria for choosing play equipment

Play equipment should support child learning and development. It must have the following characters:

- Simplicity of design
- Involve child in play
- Versatile in use
- Easily comprehended & manipulated
- Encourage cooperative play
- Material that is warm and pleasant to touch
- Durable
- Work as intended
- Safe in use

- Generous in proportion and quantity
- Price based on durability and design

2.12 Adults:

- Required for supervision
- Areas for their activities nearby with direct line of sight to play area.
- Low heighted walls, fences, etc. which is not harmful for children.

Children and adults see and perceive the world differently (Day and Midbjer, 2007) and use open spaces differently (Moore, 1991).

3. CASE STUDIES

3.1 Case Study: CHILDREN PARK, (NEAR INDIA GATE), NEW DELHI

Reason: Natural elements and mechanical, designed in the heart of the city, catering the city and its community, promotes different features of play.

Designed by: NDMC, New Delhi.

Location: New Delhi (near India Gate).

Area: 10 acres.

Concept: Develop a park which has low maintenance cost, promotes healthy environment and sustainability.

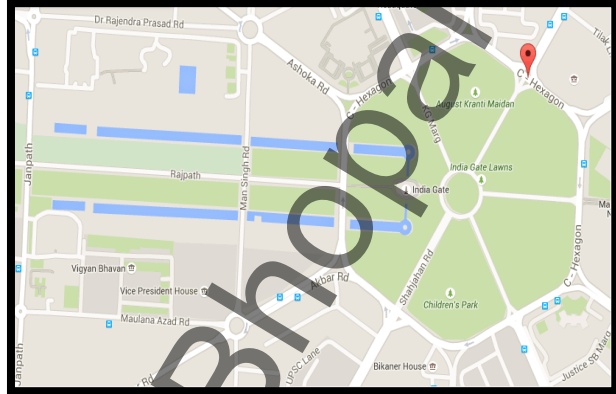


Figure 6: Location of play area near India Gate.

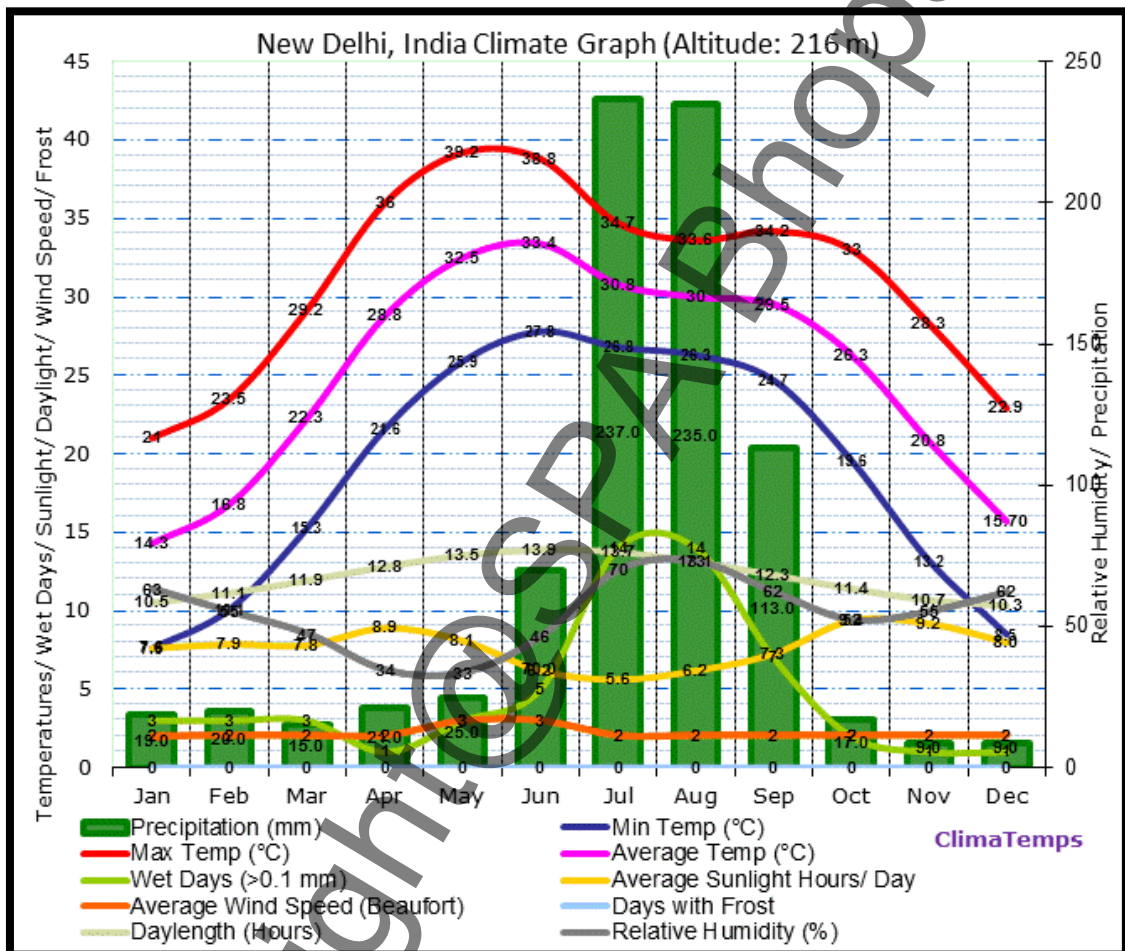
- Park is divided into **three sections**- toddlers, young children and teenagers.
- City's residents, as well as its visitors.
- Opportunity to experience the great outdoors **right within the heart of the city**.
- The **vision for the site** is to combine a traditional park like atmosphere provided by:
 - Pathways,
 - Playgrounds,
 - Fountains
 - Aquarium (Fishes)
 - Herbal Garden
 - Public Library
 - Formal Lawns And
 - Specimen Trees.
- Promote healthy social interaction as well as cognitive and physical development.

CASE STUDY

- Attracts birds, squirrel, parrot, etc.

3.1.1 MODE OF TRANSPORTATION

- Private vehicle- two wheeler; four wheeler
- Auto rickshaw- 0.37 km



- Nearest metro station- 2km

Source: Köppen-Geiger classification

- Bus station- 0.5 km

Figure 7: Climate Data, Delhi of year 2014

3.1.2 CLIMATE

- New Delhi, India is at 28°34'N, 77°12'E,

216 m (709 ft).

- New Delhi has a humid subtropical hot summer climate that is mild with dry winters, hot humid summers and moderate seasonality (Köppen-Geiger classification: Cwa).

CASE STUDY

- According to the Hold ridge life zones system of bioclimatic classification New Delhi is situated in or near the **tropical very dry forest biome**.
- The average annual temperature is 25.1 degrees Celsius (77.2 degrees Fahrenheit).
- Average monthly temperatures vary by 19.1 °C (34.4°F). This indicates that the continentally type is oceanic, subtype semi continental.
- In the winter time records indicate temperatures by day reach 22.5°C (72.4°F) on average falling to 8.7°C (47.7°F) overnight.
- In spring time temperatures climb reaching 34.8°C (94.6°F) generally in the afternoon with overnight lows of 20.9°C (69.7°F).
- During summer average high temperatures are 35.7°C (96.3°F) and average low temperatures are 27°C (80.5°F).
- Come autumn/ fall temperatures decrease achieving average highs of 31.8°C (89.3°F) during the day and lows of 19.2°C (66.5°F) generally shortly after sunrise.
- Total annual **Precipitation** averages 790 mm (31.1 inches) which is e



Figure 8: Plan- NDMC Children Park, New Delhi.

liters/m² (19.38 Gallons/ft²).

- On average there are 2856 hours of sunshine per year. Visit the **sunshine and daylight** section to check monthly details including how high in the sky the sun reaches each month.

Colors & Textures



Figure 9: View showing colors of vegetation in contrast with multi-purpose swing and variation in textures.



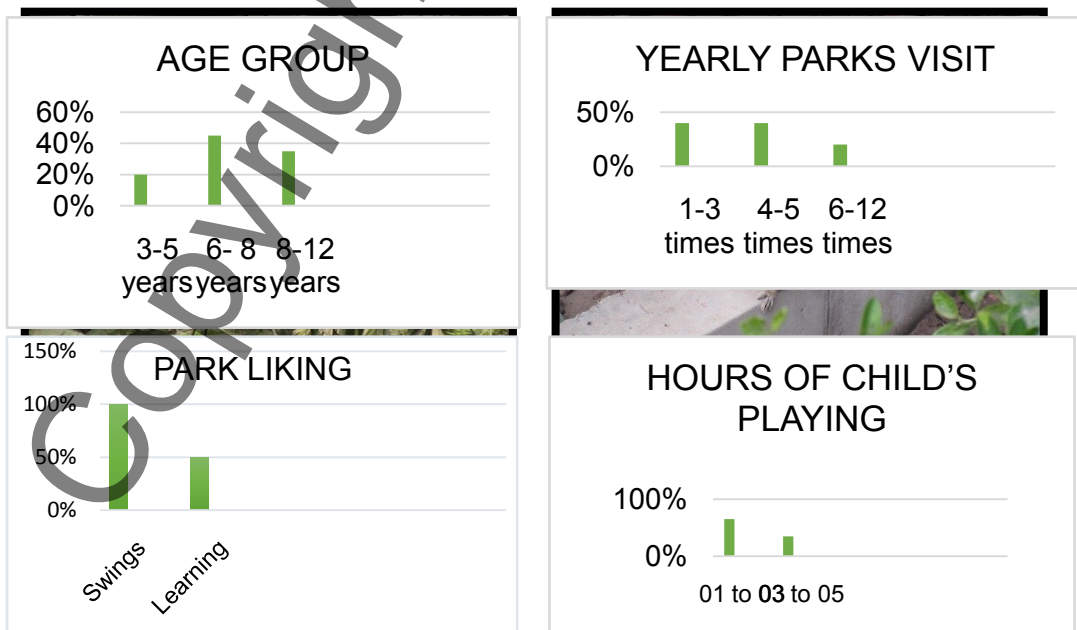
Figure 10: View showing colors of vegetation and variation in textures.

3.1.3 Interview Results

3.1.4 Few Plant Present on Site

Plumeria

Bougainvillea



Chir Pine

Ficus Religiosa

Mimusops Elengi

Ocimum sanctum

Aloe indica

Curcuma domestica

Plantago Ovata

Vinca Rosea

Mentha Spicata

Allium Sativum

Cymbopogon

Rosa Spec

Jasminum Sambac(Mogra)

Datura Metel

Giloy

Adusha

Mehndi

Ajwain,

Lahsun,

Aawla

Adhusha,etc.

3.1.5 Observations:

- As the site is near India Gate, the area is congested and traffic prone, children can't reach alone to the park.
- Exotic trees are planted, with plantation of more trees that one can't see outside the boundary.
- There is no visibility of India Gate from the park,
- There is no activities which interact with nature.
- Flora and fauna are present in the park.

- There is no concept of design which is being followed.
- Grass pavers, sand pit, vegetation is done so that less maintenance could be done.
- Different user group has no interaction, parents can't manage if they have children of different user.
- Less spaces of interaction.
- Only attraction is swing in the park.
- Creates a spaces of privacy.
- No facility of drinking water in the park, toilets are made underground.

3.1.6 Inferences:

- Security is one of the issue to reach there and into the park.
- No inter-linkage between the different age groups areas.
- Less interaction between child and nature.
- No importance of the monument for the park.
- Only curvy path can't create children park.
- Less inter linkages between other attracting amenities and play area, full access to the site is not possible.

3.2 Lit Case Study 1: GARDEN CITY, RICHMOND, BRITISH COLUMBIA, CANADA

Reason: Have natural elements, designed in an urban park, for the community, promotes different features of play.

Architect: Space2place Design

Location: Richmond, B. C.

Area: **20 acres, 1998- 05**(design to construction)

Concept: Sustainability, to retain as much as possible of this landscape, control invasion species, promote introduction of additional native plants.

- Diverse mix of park, arboretum, playground, lake, and wetland.
- City's **181,000 residents**, as well as its visitors,
- Opportunity to experience the great outdoors **right within the heart of the city.**
- The **vision for the site** is to combine a traditional park like atmosphere provided by
 - pathways,
 - playgrounds,
 - formal lawns and
 - specimen trees, with the more “natural” character of the native deciduous,
 - Birch-dominated forest that comprises much of the park area.
- Promote healthy social interaction as well as cognitive and physical development.
- Community residents provided significant input, through to the recent completion of a combined storm detention/recreational pond and wetland system.

The park includes:

- **Large picnic area** —enjoy lunch outdoors with your family and friends
- **Bike Terrain Park** - for all ages and all skill levels
- **Skateboard spot** —practice your latest moves.

- **Basketball and tennis courts** —keep your skills up with a pick-up game
- **Lake** —walk across the large bridge and along the water’s edge
- **Arboretum** —view the botanical garden devoted to trees from around the Pacific Rim

Ecological sensitivity was concerned, detailed description and mapping of environmental resources that were key study results were used to modify the conceptual park plan.

3.2.1 Storm water system:

Consists of a Combination of closed pipe systems, box culverts, open ditches, sloughs, flood boxes, and pump stations. Incorporating the Garden City pond which has a capacity of approximately 25,000 m³ within this drainage system adds another tool to the City’s strategic approach to storm water disposal and flood control.

Water levels of the system can be varied. Design depth in the center of pond is approximately 3.5m. Below existing grade at the pond edges. That will provide a typical water depth there between 2.3 to 3.2 meters.

3.2.2 Scale and proportions:



Figure 14: Wooden Poles of different sizes and proportions so can be played by every child.

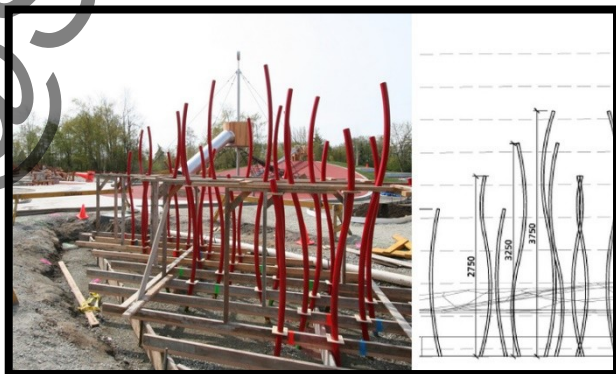


Figure 15: Different sizes of poles



Figure 16: Scale is small of the cemented steps for small footsteps of the child.

3.2.3 Colors: There are lots of colors in the form of nature and equipment, bright colors like Orange, Green, Yellow, etc.

3.2.4 Elements: Combination of Natural and traditional. This includes swings,

slides, tree house, mazes, rocks, water, trees and flowers.

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Figure 17: Different features of Play area



Figure 18: Amphitheatre in the Play area



Figure 19: Plantation: Play Area of the area is forested, primarily birch, pine trees, with

3.2.5 Plantation:

an **understory** of fern, hardhack and salal. Blackberry, blueberry, etc.



Figure 20: View showing arrangement of Poles, Swings, etc.

3.2.6 Textures:

Soft- metallic swings, plantation

Corse- plants, wooden, paving, equipment, sand, etc.

Rough- gravel, birch trees, etc.

3.2.7 Inferences:

- Natural valley is created to collect water at the site, creating a good ecological design.
- Variations in topography is created to make them interesting.
- Use of different materials, colors, texture are given to make the play interesting.
- Different variations in surfaces are merged, making a good design.
- Supervision can be taken from anywhere in the park.
- Rocks, rough textures can be harmful for child's delicate skin.

3.3 Literature Case Study 2: ARTPLAY, MELBOURNE, AUSTRALIA

Reason: Have natural elements, designed in a urban park, for the community, promotes different features of play.

Location: Melbourne, Australia

Area: 1.5 acres approx.

Concept: Creation of imaginative landmark play space to complement the building. Memorable & exciting for city's population specially designed Centre where children, primary school groups and families can be creative alongside professional artists and play in an exciting outdoor space.

- Family focused center and activity space, playful.
- **ArtPlay** is designed for children aged between 5 and 12 years with programs for school groups on weekdays as well as weekend and holiday workshops.
- Opportunity to experience the great outdoors right within the **heart of the city**.
- The **vision for the site** is to combine a traditional park like atmosphere provided by
 - pathways,
 - Floating deck on soft mulch
 - Spiral slides,
 - space net and
 - Skating tracks
 - Promote healthy social interaction as well as cognitive and physical development.
 - Handicaps are also considered.

3.3.1 Textures: Smooth, course, rough, etc.

3.3.2 Colors: Such as, red, blue, orange, yellow, pink, green

3.3.3 Elements: Vegetation, Swings, sand, wood mulch, steel poles, etc.

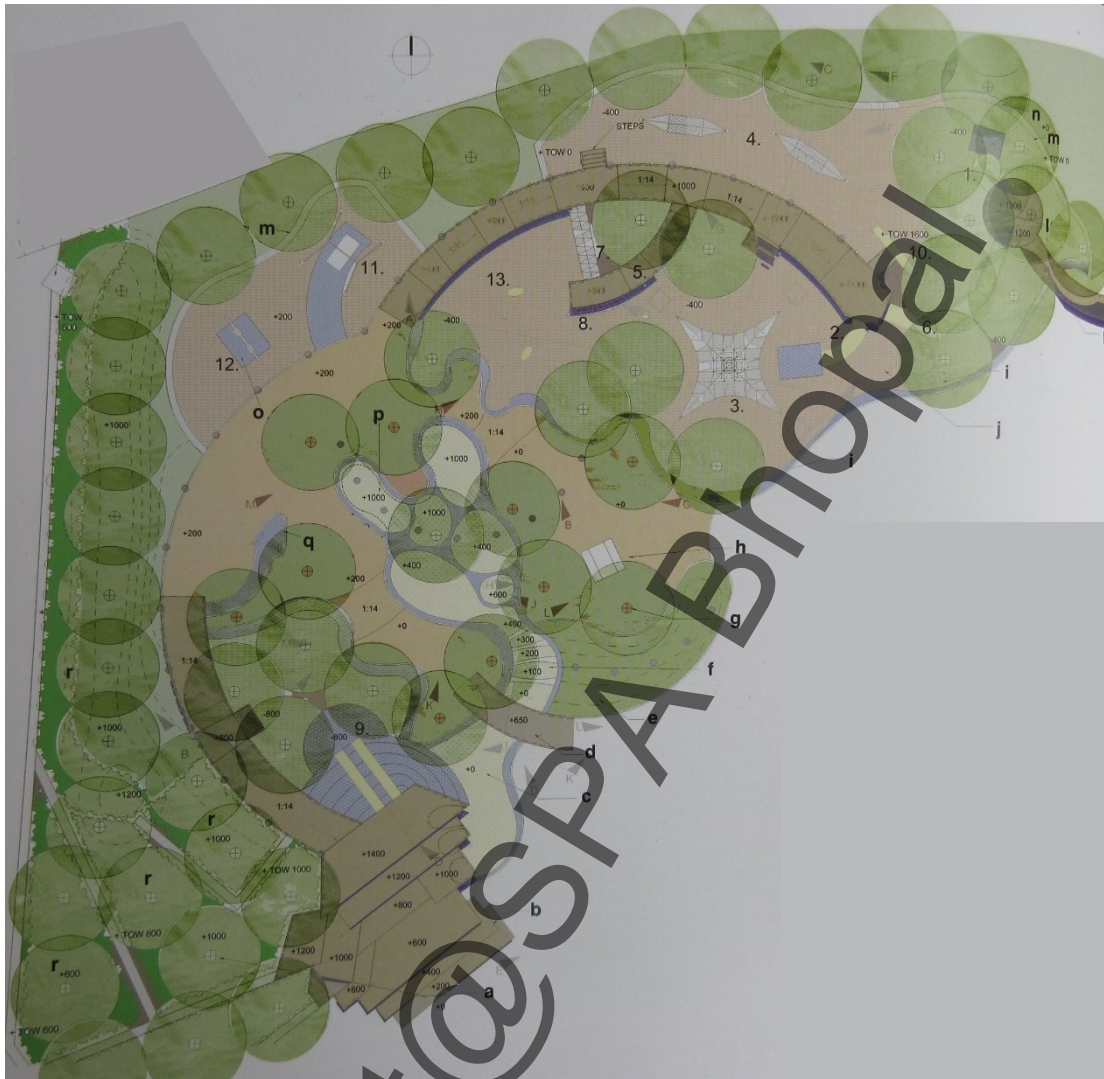


Figure 21: Plan of Art play, Melbourne, Australia

LEGEND:

CASE STUDY

1. 1400mm high spiral slide
2. 1800mm high curve
3. Corocord "spacenet"
4. 2 nos. freestanding hammocks (5m long)
5. Steel Frame timber deck wave bridge
6. Rope net bridge with wooden steps.
7. 3 strand rope bridge
8. 1200mm high spider net climb
9. 2200mm high double slide
10. Scaling wall with resin hand- holds
11. Liberty swing
12. Double swing
13. 2 nos. trick skate

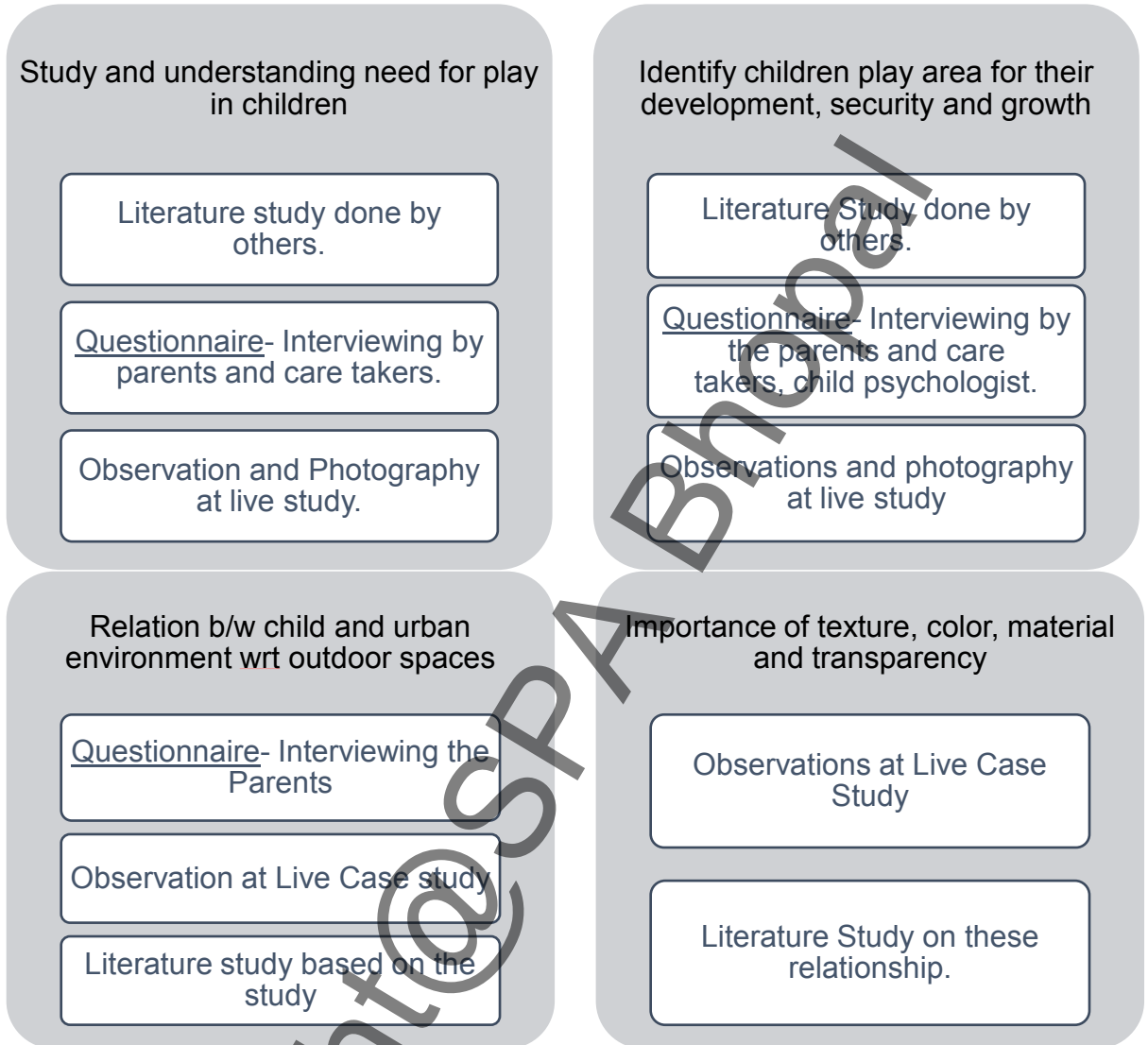
- a. *Corymbia citriodora* (lemon scented gums) used in areas outside of play areas
- b. Rubber surface to extend up surface of tessellated step risers on timber deck steps
- c. Younger children's play area with more passive play areas
- d. Timber foot bridge with sand pit under
- e. Grass mound with sculptural steel poles fanning down the mound
- f. Sand pits split into rock-pool like divides with rubber moulded edges
- g. *Corymbia maculata* (spotted gums) used in areas inside of play areas
- h. Open granitic sand area for gathering with table and bench settings under trees
- i. Rubber surface on twisting slope to create a soft edge and bright colors to play areas. Recycled plastic edging to rubber when adjacent to granitic sand

- Proposed trees: *Corymbia maculata* (spotted gum),
Angophora costata (smooth apple bark)
& *Corymbia citriodora* (lemon scented gum)
- Existing tree to be protected
- Timber decking: Treated plantation hardwood or similar
- Lawn area: Seed mix on 75 mm compacted depth topsoil
- Soft fall mulch: 300 mm depth softfall mulch "moosrock" recycled bark or similar (300 mm compacted depth) on stabilized subgrade
- Sand: 500 mm depth compacted clean imported white washed sand
- Stabilised red granitic sand: 200 mm depth 3% cement stabilized red granitic sand on 75 mm depth crushed rock base on compacted subgrade
- Rubber surface paving: coloured EPDM rubber surface on black recycled rubber surface installed on 50 mm depth class 2 crush rock base course with 3% cement stabilization or insitu concrete base. Refer to fallzone plan for rubber depths
- Basalt wall
- Proposed contour (200 mm intervals)
- Proposed relative finished surface top of wall levels
- Balustrade with perforated steel infill panels
- Signature steel poles

3.3.4 Inferences:

- Topographical variations has to be created, which includes physical play and points for visual access.
- Bright colors should be used which attracts the children.
- Ecological points are also considered.
- Natural and traditional equipments should be used.
- Different elements should be added which creates interest and a new play every time.
- More native plants should be used which fulfills sensory, visual aspects.
- Plantation should have herb and attract fauna which could be learning.
- Scale should be taken care of in terms of children age group.
- It should be designed that care can be taken from any area.
- Security is the important part.

4.1 Methodology



4.2 Description:

This methodology is obtained to gather data for my project, so that I could get the planned schedule and required appropriate and data for my thesis topic. This is the best possible methodology in which qualitative and quantitative analysis could be done.

5. SITE STUDY AND ANALYSIS

5.1 LUCKNOW: INTRODUCTION TO THE CITY

5.1.1 Geographical Setting of Lucknow

Lucknow, the capital of Uttar Pradesh is situated 123 mts above sea level. It is situated on 26.30 & 27.10 North latitude and 80.30 & 81.13 East longitude. Lucknow covers an area of 3,244 sq.km. It is surrounded on the eastern side by District Barabanki, on the western side by district Unnao, on the southern side by Raebareli and on the northern side by Sitapur and Hardoi districts.



Figure 22: Map Highlighting Uttar Pradesh



Figure 23: Showing Lucknow in Uttar Pradesh



Figure 24: Map Showing Lucknow District

5.1.2 Physiographic and Cultural Setting of Lucknow

River Gomti flows through the city. Some of the tributaries of this river are Kukrail, Loni, and Beta etc. Sai river flows from the south of the city and in the east enters district Raebareli. Lucknow is accessible from every part of India through Air, Rail and Road. It is directly connected with New Delhi, Patna, Calcutta, Mumbai, Varanasi and other major cities by Chaudhari Charan Singh airport. Similarly city is linked to north, east, south and west through rail and road links. The population of district Lucknow as per census 2011 is **45,89,838 lacs**.

Lucknow is the capital of Uttar Pradesh, a multicultural city. Historically it is known as the Awadh. Famous for Courtly Manners (Tahzeeb), Beautiful Gardens, Qauwwali, Chikankari Embroidery, Kababs, Poetry, Music, and Fine Cuisine patronized by the Nawabs. Lucknow is popularly known as the The City of Nawabs.

Today, Lucknow is among the top ten fastest growing non-metropolitan cities of India. Lucknow also an emerging hub for producers of goods and services with very promising potential. Lucknow has been a mandi town of mangoes, melons, and grains grown in the surrounding areas. Sugarcane-growing plantations and sugar industries are also in close proximity. This attracted Mohan Meakin Brewery to set up a unit based on molasses in the city. Meakins was incorporated in 1855 and is Asia's first commercial brewery.

5.1.3 Climate:

The capital of Uttar Pradesh is a land locked city. The distance from the sea gives Lucknow an extreme type of continental climate with the prevalence of continental air during major parts of the year. Only during the four months from June to September does the air of oceanic origin penetrate to this region and causes increased humidity, cloudiness and rain.

About 75 % of the total rainfall is realized during these four months. The year can be broadly divided in to four seasons. The cold season starts from December and extends up to end of February. This is followed by the hot weather season which lasts till about first fortnight of June when monsoon arrives over the region. The monsoon continue till September. The two post monsoon months of October and November constitute a transition season from monsoon to winter conditions.

The summers in Lucknow are very hot and winters very cold. The temperature may rise up to about 46 degree Celsius in summers, though the average temperature is around 38-39 degree Celsius. There are about 4-6 days of

heat wave when the maximum temperature of a day rises to 4-6 Celsius above normal values. Though the winters are not bitterly cold on most of the days, the temperature may fall to 3-4 degree Celsius for a few days in winters when the

cold winds from the Himalayan region makes the winters chilly. The winters are also marked by mist and fog in the mornings. However, the Sun is often seen in the afternoons.

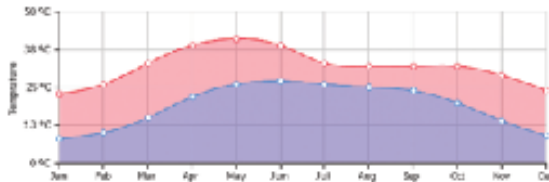


Figure 25: Monthly Normal Maximum & Minimum Temperatures



Figure 26: Mean Precipitation of Lucknow

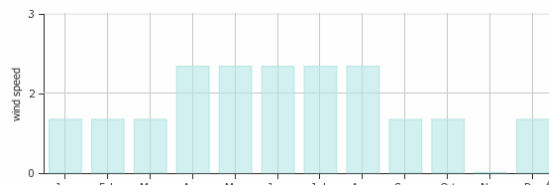


Figure 27: Avg. Wind Speed of Lucknow

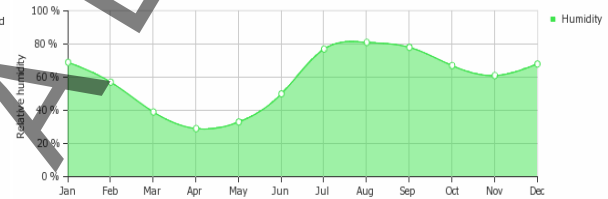


Figure 28: Mean Avg. Humidity

Source: weather-and-climate.com and lmd, Lucknow.

5.2 Site:

5.2.1 Janeshwar Mishra Park

The site of children play is taken in one of the major park in Lucknow, Janeshwar Mishra Park. It was made in history of politician Janeshwar Mishra from Samajwadi Party. The site measures around 376 acres and is located in Gomti Nagar extension, Part-1. It lies between Lucknow and Faizabad Northern Railway line in north-eastern side and rich fertile plains of River Gomti on southern side. The site for the park is bordered by river Gomti and a bund road on the other side. Owing to its location, the site will serve as a recreation area and a green lung to the local population likely to move in the LDA housing. The bund road offers a vantage location to enjoy the fully developed panoramic view of the site

The site has the following characteristics:

- **Geology-** Terrace Alluvium, good for plantation, can be planted anything.
- **Geomorphology-** Situated on older and newer flood plains.
- **Land use-** Agricultural, as it was agro forest previously.

Source: Resource map of Lucknow District (2014)

The site can be accessed from four different directions and therefore four separate entries in North and South-East direction are located at suitable points. The site is also bound by a 45m Row Bund road on the River side with embankment. The site can always be accessed by private modes such as cars and two wheelers but not many public transport options such as buses are available for the members of the public.

The park was modeled with Hyde Park in London as an inspiration. Lucknow Development Authority (LDA) has developed eco-friendly Janeshwar Mishra Park (JMP) in the heart of the city. It has been conceptualized and designed as a multi-functional environmental and recreational green which will not just provide sustainable habitat for various species of birds but also double up as a major entertainment and recreation Centre for all sections of the society. It will enhance and improve the ecological balance and help restore sensitive habitat for numerous species of birds, small animals, fishes, amphibians and even insects. The design direction for the park is centered on the strategy for sustainable development that aims to promote harmony among human beings and between humanity and nature. The pursuit of sustainable development requires a social system that provides for solutions for the tensions arising from disharmonious development. The site has a gentle and general slope towards South to North and greater gradient towards Eastern and Western sides where it will house water bodies. As per Lucknow master Plan, the site falls in green belt and was visualized as a city forest. However, due to manifold reasons the site is now proposed to be developed a park to meet the social and recreational needs of the neighboring population. However, whilst permitting the change from city forest to landscaped park.

Source: <http://janeshwarmishrapark.in>

5.2.2 Children Play Site:

The site for children play is the part of Janeshwar Mishra Park and which is proposed in itself, it has the area of 26.2 acres of land. It is defined by the internal circulation road. A cycling track of 6 meters width is passing through the site.

5.2.3 Surroundings:

The site surroundings has area for terrace plantation in the north, different levels of landform east and west of the site, Ghats with artificial lake in the south of the site, which acts as the positive features of the site, which helped in designing the site.

5.2.4 Plantation Present on the

Site: Tamarindus Indica, Ficus Religiosa



Figure 29: Tamarindus Indica



Figure 30: Ficus Religiosa

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6. Design Proposal:

6.1 Concept: The design proposal for Children Play in Janeshwar Mishra Park, Lucknow is conceptual as the use of nature to evolve play. As the nature has health benefits and ecological sustainability too. It is surprising every time which is the essential thing for any play area to avoid boredom. The design involves has the aspect in mind to keep the view of the whole play area from all the points in the point, so that security of point of view is the main issue. The areas eg, maze, sand pits, sensory garden, water play areas, poles with slides and different colors incorporated in design to make it colorful, appealing and aesthetically suitable for children to play.

6.2 Plantation: The plantation of the area is done so that contrasting colors, trees should have canopy high to the eye level of the average human so that the children could be seen from anywhere in the park. These trees are appealing to the sight, smell and fruiting trees are also includes so that child can climb, which is the physical play, and eat the fruits as well.

6.3 Lighting: Lighting is done so that there should be use of the place at night and effects are given to the area which makes this area lively.

6.4 Material:

Easily available material area use and natural concept is maintaining.

- Grass Pavers
- Natural Stone.
- Fine Sand, etc.

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