



**WATER IN CREATION OF EMOTIONS IN
ARCHITECTURE.
WITH SPECIAL REFERENCE TO ITS EXPRESSIVE
QUALITIES IN ENHANCING THE POETICS OF SPACE**

Final Dissertation
Submitted to the Department of Architecture of the
University of Moratuwa in partial fulfillment of the requirement for the degree of
Master of science
In Architecture-

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Abstract

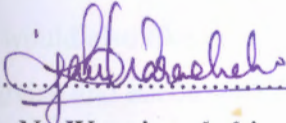
Water is a dialogue between the beholder and the space. The orchestration of shining splendor of water can be used for emotional intensity and symbolic, poetic expression.

Pleasure is a form of happiness which originated as a result of gratification of the senses or self-preservation. Enjoyment occurs as a result of this pleasure. A person who hears music or sees dancing does not perform but experience as though it were in his body. In much the same way one can experience architecture Rhythmically that is by re-creation.

As Architecture primarily is a spatial experience, a person who lives in a space captures the essence of that and re-interpret in a way he likes. Even though space is an intangible element. The active component is important in this concept of space, that is the soul embedded in space. It implied that the Soul was no longer innate in the object observed, but it was a projection from the individual observer. Therefore the correct articulation of space can do wonders in architecture and talk to the most deep routed senses of human beings.

Declaration

I declare that this dissertation represent my own work. Except where due acknowledgment is made and that it has not been previously included in a thesis. dissertation or report submitted to this university or any other institution for degree. diploma or other qualification.



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WATER IN CREATION OF EMOTIONS IN ARCHITECTURE.

with special reference to its expressive qualities in enhancing the
poetics of space

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INTRODUCTION

Water as an element in the vocabulary of architecture can do wonders to the built environment by its correct application. Water as a spatial element embedded in the living entity poses different impacts towards them. Among all aspects, water concerns with certain living dimensions of all human lives. It is the physically inevitable, socially vibrant and psychologically meaningful natural force, which dictate human lives.

“With the relatively small amount of water , all of the world’s water is called to mind and it is water that provides the lifeblood for meaningful architecture”

(Moore C.W. 1990 P.27)

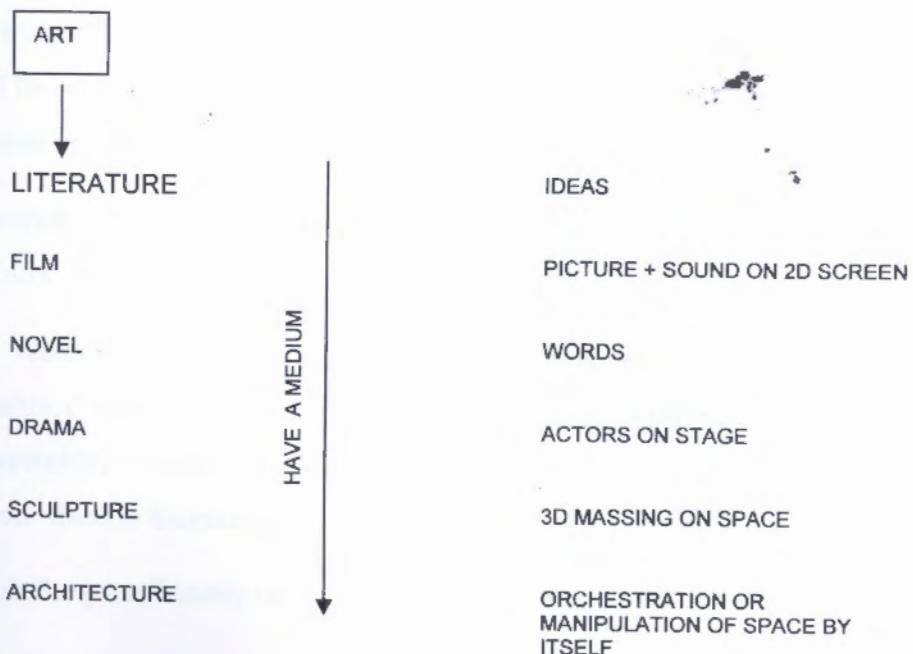
Shelter is one of the fundamental needs of mankind . This is an essential component of the world.

“ Buildings are silent witnesses of the society. ”

(Martin Locock)

But it is not just a heap of buildings which simply lie in space . It plays a vital role in this world. Among them , communication is the most significant function that architecture performs because communication makes buildings to be architecture..

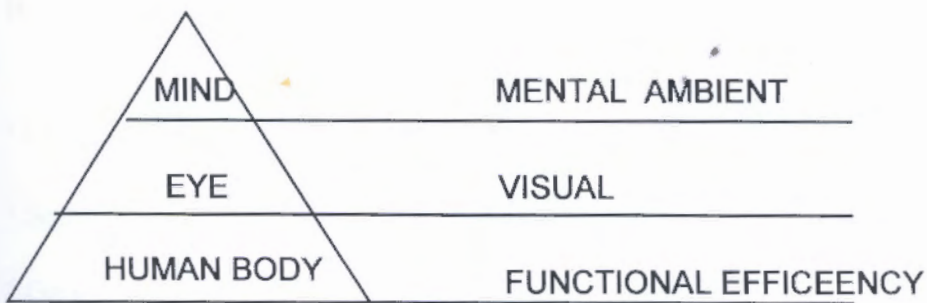
Architecture as an art product will have imbibed meaning.



Architects do their encoding consciously or unconsciously and it decodes by the user and experience it. This encoding is done in several modes like

- Signs
- Symbols
- Physical stimulate

In design applications architects cater for 3 basic levels.



Good architecture caters for the highest point that is the psychological level.

Architectural communication has a unique capability. It is capable to determine human behaviour in the presence of it. As well architecture has **visual mode of communication**, the messages are conveyed using composition of different elements in form and shape.

Therefore architecture as an expressive media, it is an articulation of spaces through a particular rhythm of a human movement. It depends on the different expressions of the spaces. It means, expression is the way of communication between two different physical modes and it is the path for movement.

For this communication, designers use different communicating methods such as materials, colours, elements, water, lighting etc.

Water with shining splendor of its nature and through its enormous expressive qualities concern with certain living dimensions of all human lives. **It is the physically inevitable, socially vibrant and psychologically meaningful natural force, which alter and dictate human lives.**

Through the great history of Sri Lanka, we can find many examples where water

has been used to enhance the quality of the space. It was not only for domestic and agricultural purposes but for landscape gardening as a natural resource. The royal gardens such as **Sigiriya pleasure garden, Mahamega Udyana, Ranmasu Uyana** and **Nandana Uyana** stand out as the exquisite water gardens in history.

In **Kaludiya pokuna** monastic complex at Mihintale is one of the best examples where the still water has been used at the maximum level, where the water has softened the harsh edges of the rock boulders and soothed the human minds.

In Buddhist concepts there are six specific organs which get sensations from nature.

‘ Chakku ’ (Eyes) - to get visual sensations

‘ Sotha ’ (Ears) - for sounds

‘ Gana ’ (Nose) - for fragrance

‘ Jiwha ’ (Tongue) - for taste

‘ Kaya ’ (Body) - for touching & feel

‘ Mana ’ (Mind) - mental ambient

Generally in architecture the elements like lighting, colours, water & material which are used to enhance the quality of the space utilize mostly eyes, ears, body and the mind out of the above stated 6 sensory organs.

Eg. Colours & Lighting basically for visual satisfaction.

Material can be sensed by touching through textures.

But water not like other elements, can be used to satisfy more than one dimension such as visual, sound, touching and mental satisfactions.

From all of them the psychological satisfaction is the most important thing because it calls for higher purposes.

However in present, water is used very superficially. Mostly for visual


satisfactions. Lack of knowledge about the expressive quality of water and incorrect applications may disturb the quality of the space.

It can be mislead the feeling of a user about a space and can be disturb spatial progression of a design.

Most of the designers has not realized the things which can be achieved through the grammatically correct applications of several expressive qualities of water. Therefore some constrains such as economy , technology , materials , rules and regulations has become determinants instant of being modifiers of a design.

Therefore the entire study intends to find how the expressive qualities of water acts as creator of architectural expressions and enhancing the poetic of space.

SCOPE & LIMITATIONS

 The study has been limited and focused only into a selected area of water because it is a vast area to be discussed. Therefore the study concerns only about the expressive qualities of water and how it enhances the poetics of space.

The subject area of the theory limits to the Emotions in Architecture. Several data and facts for some case studies has been limited due to insufficient examples. Therefore some case studies contains more examples while some contains less evidences.

The examples selected from Sri Lankan context was limited to the designs done by only architects in Sri Lanka.

The scope of the study is to identify the visual , psychological and experiential pleasure that a person can perceive through experiencing water and related designs.

METHODOLOGY

As water is vast subject area linked with many fields and professions such as urban planning , designing , architecture , management etc.

In this particular study this has been an approach based on the appreciation of the water element in its architectural context whether as a water space, or by the diversity of expressions associated with water activities, would emphasize the experimental, spatial, static and dynamic qualities of water and how these qualities effects for the poetics of space.

The first two chapters of this study will try to define the theme ; what are the expressive qualities which contains in water, types of architectural emotions and how these types are affected by the expressions of water.

In this study several examples will be selected as evidences where it is possible to examine the **poetics of space enhanced by the applications of several expressive qualities of water.**

Finally when considering the case studies ,it is an attempt to illustrate the relationship in selected evidences and to show what are the potentials of water and how the expressive qualities of water acts as creator of architectural emotions and enhancing the poetic of space.

Here the 'expressive qualities of water ' itself has become a case study and examples are selected to illustrate that relationship. The following expressive qualities of water has been selected as case studies ,

- **Playful and dancing,**
- **Raging and exploding,**
- **Soothing and placid,**
- **Shimmering & Glittering ,**

And the above studies will be studied in both qualitative and quantitative research analysis. Here the study intends to collect data from books and other electronic media due to insufficient local examples. And intends to interview and survey the selected local designs which was done by Sri Lankan architects.

CHAPTER ONE

IMPACT OF SPACE AND EMOTIONS IN ARCHITECTURE

1.1 Poetics Sense Of Space

Poetics comes from a Greek verb that simply means “ to make ”. The making of space , the making of music , the making of architecture . Since many people associate the term with poetry , which is only one form of making – creating with words. Yet there is a lot more to the term poetics than mere semantics.

“ Making of space ” that is correct articulation of space needs some other changeable elements such as lighting effects , sound effects , water elements etc. to enhance its architectural emotions in order to achieve a quality built product. Among them the contribution of water in enhancing the emotions in architecture in poetic manner is further to be discussed in this study.

Space is the essence of architecture; the space in the narrower sense has the privilege of dominating architecture.

“Space is the most difficult aspect of architecture, but it is its essence and the ultimate destination to which architecture has to address it self”

Denys Lasdun (sep1977:367)

1.2 Perception of space

“Architecture primarily is a spatial experience” Schultz (1971) quoting Heidegger, states that “mans existence is spatial. One cannot divorce man and space. His whole existence, ever since the features are grown inside the mother’s womb, is spatial. As he lives in space, he captures the essence of this spatial experience and re-interprets it in the way he likes.”

The idea of space can be based on four kinds of perception of space. All possible aspects of the perception of space can be reduced to four:

- a) Planimetric or two-dimensional space,
- b) one-point-perspective or three-dimensional space,
- c) 'irrational' space-time, or four-dimensional space,
- d) Imaginary space as produced by motion pictures.

Our perception of architectural space is, in one way or another, the synthesis of these four phenomena.

1.2.1 Defining the space

Aristotle defines space as a container of things; a sort of succession of all inclusive envelopes, from what's within the limits of the sky. Space is therefore, of necessity, hollow and limited externally and filled up internally. There is no empty space; everything has its position, its location, and its place. It contains the quality captured from the surrounding. It contains tangible, intangible, visible and invisible things within the hollowness.

Therefore architecture too contains all those things in it. When a tangible context wants conceptions, and the resultant quality together creates a spatial quality, spirit of place which is tangible, invisible and is enshrined in architecture.

“ Our use of word like rhythm , scale , balance , mass will continue to vague until we have succeeded in giving them meaning specific to the reality which defines architecture, and that is space. ”

(Bruno Zevi , p.23)

The articulation of space is a natural act, even though space is an intangible element. The active component is important in this concept of space, the soul embedded in space. It implied that the Soul was no longer innate in the object observed, but it was a projection from the individual observer.

1.2.2 Significance of space

A space may dominate an object or be dominated by an object. It may have inward, outward, upward, downward, radial or tangential orientation; **it may relate to a force, object or another space and gain its meaning from the relationship between the two and give psychological interpretation.** A more complex space can assume the qualities of its component volumes and relate them into a unified entity. In designing a space for any given function, the designer should determine the essential qualities desired and organize his or her approach in order to provide them.



Figure 1

Space has captured the volume into one entity.

“As space begins to be captured, enclosed, molded and organized by the elements of form, architecture comes into being”

Francis D.K.Ching (1979:108)



When space is limitless and intangible in the sense of perception or conception, it means nothing...In short, space evaporates into infinity

Figure 2

Space evaporates into infinity

Space gains its own peculiar dimensions including length, direction, position, axis, centers, etc.

1.2.3 Evolution of space

The debate on space only developed at the beginning of the nineteenth century. Sigfried Giedion has categorized architecture into three spatial conceptions, according to a relevant relationship of mass and space.

Concepts of space:

- Free standing sculptural mass surrounded by space



Space flows freely giving a sculptural sense to mass.

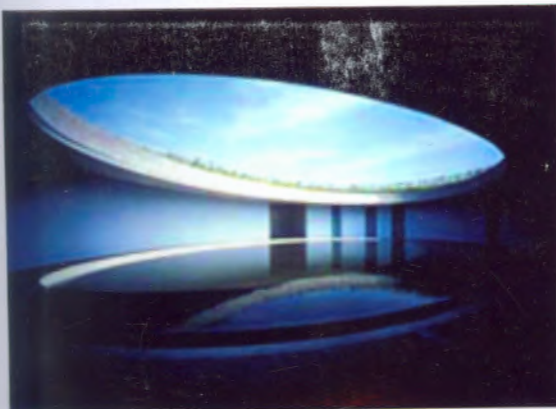
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Figure 3

Mass surrounded by space

Satellite city towers

- Space surrounded by mass



Cohesive perception of space within the mass

Figure 4

Naoshima Contemporary Art Museum, Japan

- Culmination or interpenetration of the first two



It has created spaces that linger in and out of the mass.

Figure 5

The Grand Arch, Paris

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The idea of space contributed to the belief in the early twentieth century that architecture fulfilled a principal role in the establishment of the total work of art.

Architecture was identified as the 'lowest' of arts because of its materiality. The transformation from material to space, as the location for architectural essence in the early 1890, changed this conception and consequently attracted a whole range of art historians, painters and sculptors to the field of architecture. But architecture character cannot be defined in terms of the dimensions of paintings and sculpture. The phenomenon of space becomes concrete reality only in architecture and therefore constitutes its specific character.

1.2.4 Architectural space

"Architecture is 'art', when the design of a space clearly takes precedence over the design of the object. Spatial intention is the living soul of architectural creation"

(Pierre von Meiss (1990:99)

Architectural space is born from the relationship between boundaries and planes which do not themselves have the character when in isolate, but which together define limits.

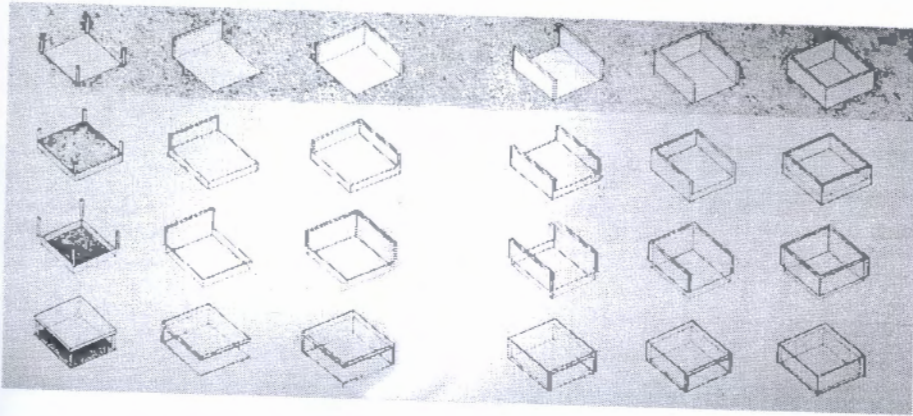


Figure 6 Summary Typology: Space defining elements

The ways in which planes define the boundary between inside and outside, affects spatial definition, and provides orientation.

“Space constantly encompasses our being. Through the volume of space, we move, see forms & objects, hear sounds, feel breezes, smell the fragrance of a flower garden in bloom. It is a material substance like wood or stone. Yet it is in heavenly formless. Its usual form, quality of light, dimension and scale depend totally on its boundaries as defined elements of form.”

(Francis D.K.Ching (1979:108)

Architecture occurs at the meeting of interior and exterior forces of space. Spaces in exterior & interior are environments in which to feel and think, through medium of emotion and feelings, Textures and expressions of waters , Light ahead, side lights reflected, shaded, filtered textural patterns induce spiritual reflections.

Apart from their abrupt relationships, there are subtle relationships worked out to reinforce this inside and outside. Such is the church Ronchamp by the architect Le Corbusier .



Figure 7

Chapel space, Notre Dame Du Haut,
Ronchamp, France

Since the inside is different from the outside, the wall -the point of change-becomes an architectural event. Architecture of the wall between the interior and the exterior becomes the spatial record of this resolution and its drama.

“ Architecture not alone , it is not merely a reflection of conceptions of life or a portrait of systems of living. Architecture is a an environment , the stage on which our lives unfold. ”



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Six planes, for example, limit a cubic space. Without needing to focus, the eye uses angles and corners as more precise clue for understanding the space.

The degree of enclosure could be taken as opposed to its openness. The configuration of its enclosing skin is determined by the degree of enclosure of a space

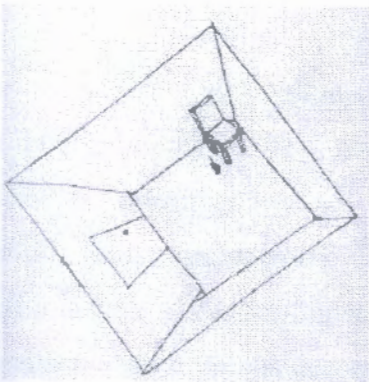


Figure 8

The sense of enclosure

Successful space = a sense of enclosure

The placing of the opening affects the sense of enclosure of the space



Figure 9

Sense of enclosure

1.3 Architecture as a mode of communication



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"One of the most important issues an architect faces is the image that the building will communicate. The choice of image will affect the attitude and the behaviour of the ultimate user of the building. In addition each building may require a number of communicating elements to reinforce the total image or to separate and express different aspects of a single building.

(Synder J.C., Introduction to architecture, 1979)

Architectural communication has a unique capability. It is capable to determine human behaviour in the presence of water. Architecture has a **visual mode of communication**. The messages are conveyed using composition of different elements in form and shape.

In this sense architecture could be categorized as a medium which happen to communicate different senses in minds, having ability to create sentimental and intellectual expressions deeper in side , same as other art and music.

Architecture communicates by giving visual expression to ideas, which may be social, ideological, political, philosophical or religious. Architecture communicates the required message through the media of space. Solids,

voids and their relationship to each other and their relationship to time are involved in SPACE, thus creating the appropriate spatial quality.

Therefore the meaningful use of solids and voids should convey the appropriate message by evoking feelings in the perceiver.

1.3.1 Language of architecture

The symbolical language is the most amazing mode which has been used to communicate in architecture. It can be used to concentrate the mind for gaining the 'insight'. It is magical in sense, it is well experienced by vision & mind.

“ In language, the whole of the vocabulary is symbolic. That is to say a word means nothing to us, until we have learnt what significance attached to it through the general consensus of those who speak the language in architecture. ”



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Electronic Thesis & Dissertations (Tryston Edwards, Architectural style, p.14, 1926)

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Signs and symbols plays a major role in this total process of communication.

“ Signs as operators ; symbols as designators ; symbols serves its purpose of stimulating the emotional response in the beholder. ”

(Signs & symbols of architecture)

Architectural communication basically happens through

- Signs - Direct and universal
- Symbols - Bound to the culture
- Physical stimuli - Combination of above 2

Eg.

- **Signs**



Figure 10

Universal sign for danger

- **Symbols**



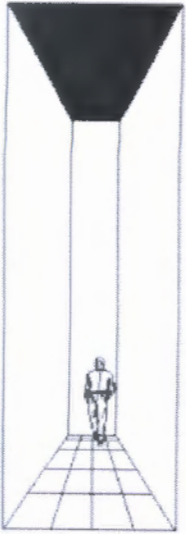
Figure 11

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Crucifix as a cultural symbol of Christians
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In some incidents Colour and water has been used to symbolize some cultural identities. But these meanings of symbols are not universal . It depends on the culture

- **Physical stimuli**

Combination of universal signs and cultural symbols generates response towards the environment. That is physical stimuli.



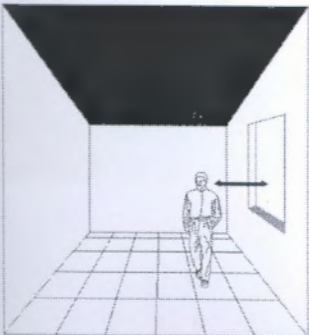
‘Narrower & tight space’
creates a movement



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Lower ceiling height
creates “uncomfortable” spatial
feelings



“ Comfortable space ”
Relationship with solids and voids

Figure 12 Physical stimulus occurs in
relation to the surrounding space

1.3.2 Expression in architecture

Architecture is the only tangible expression of space. Expressions in architecture are the mode of communication of quality and meaning. The function and the techniques of the built product is interpreted and transformed by expressions into art, as sound into music and word into literature. As discussed in 1.2.1, The expressions in architecture formulates as a result of signs and symbols, as well as articulation and presentation of concept. Thus symbolism is found to be the most effective way to express the intended meaning or function of the built form to the user.

In this sense architecture is the art of space, It is a form of art which manipulates space to convey meanings symbolically. It expresses through different flavors embodied in the space. These expressions in architecture silently plays a vital role, and these can be summarized as follows,

- Contribute to make building humane
- Participate in generating architectural emotions.
- Indirectly and silently affects the intellect of the observer.

A good work of architecture has an ability to convey the meaning of the creation through expressions and thereby evoke emotions and flavors of the observer



Figure 13

space convey meanings symbolically

1.3.3 Mode of expressions

Architectural expressions can be titled as vital ingredients , which acts as the medium of communication in architecture. In a work of architecture the expression needed to be conveyed is decided by the designer , where he supposed to give the utmost meaning to the observer by re-thinking.

- What is the to be conveyed
- Of what
- And to what degree

Hence the architectural expressions are subtle and aggressive :by manipulating these expressions can create different architectural emotions.

Form , space , and order are the three major modes of conveying these expressions to the observer . In the industry of architects use certain elements like water , color , textures , materials ect. to strengthen and get the real output of these modes .



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Figure 14

“Maathri Mandir” at auroville

Stable sphere form has used in the main meditation space which is called as “Maathri Mandir” at auroville in India to symbolize the strength could be gain meditation.

1.3.3.1 Form

As Ching expresses in his book, Architecture: Form, Space and Order (p. 28)

“ In the first place form, is the visible aspect of space, enclosed or defined by a building. Capable of stimulate the sixth sense of man. And form is the primary identifying characteristic of a volume. The shapes and interrelationships of the planes that describe the boundaries of the volume establish it. ”

In that sense form creates mass on space and give it the solidity, and strength. Form is an inclusive term that has several meanings. It may refer to an external appearance that can be recognized. As same as a human body. But in art it contributes to the formal structure of an artifact, the manner of arranging and coordinating the elements and parts of a composition so as to produce a coherent image.



Figure 15

Dome of St. Peter's Vatican



Figure 16

‘Gopuram’ of a Hindu temple

“Architectural form is the point of contact between mass and space.. Architectural forms, textures, materials, modulation of light and shade, colour, all combine to inject a quality or spirit that articulates space. The quality of the architecture will be determined by the skill of the designer in using and relating these elements, both in the interior spaces and in the spaces around buildings”,

(Edmund N. Bacon, The Design Of Cities,

Form has high contribution in spatial structure as well as to the character of the space in giving identity and uniqueness.

For example

when considering two religious spaces, such as a **Buddhist stupa** and a **catholic church**. Though they are spatially religious, but form and the shape of the envelope differs that results the images, which eliminate in a person is also to be differs creating an unique identity to the space.



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Therefore form is always embodied in the expressions of forces and architect can never forget it.

1.3.3.2 Space

“In my approach to architecture, I think my first concern is the arrangement of space. How this related to the site and the needs of the moment within whatever constrains there are”.

(Geoffrey Bawa)

Space can be anywhere varying due to time. Plate of grass, under a leaf, on a trestle shell, there is a space, which is amorphous, intangible and it is not an entity that cannot be directly expressed or analyzed.



Figure 17
Space can be anywhere
(source: Sri Lanka, Fernando. Nihal)



Figure 18
“Space “under on a leaf’



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Figure 19
“Space “ origin from nature

Space is made live through the events and those events make the space to behave in such a unique state. When space or spaces come into a certain order, to form a sequence of actions happen to make the space moving and meaningful. The properly articulated spatial configuration, create an enormous expressions to the living beings.

For example the cascade in a court yard or a garden flow its forces let loose, due to its spatial orchestration.



Figure 20

To form a space, do not need many things to come in to act. Space can be in its simplest way with a vast meaning embeds. Suppose that there is a simple column on a flat square plane surrounded by four vertical planes. The detailing of the column can express thousands of different meanings to the collective sense of place by changing the position.



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There the column will articulate the space around it and interact with the enclosure of the space. The column can attach it self to a wall and can articulate its surface. It can reinforce the corner of a space and de-emphasize the meeting of its wall

planes. And by standing within a space, can define zones of space within that volume.

When the column stands on the center it denotes the center of the space as well as define equal zones of space between, itself and the surrounding wall planes. When offset, the column will define hierarchical zones of space that are differentiated by size, form and location to create sub spaces within the volume itself.

1.3.3.3 Order

In its pure definition expressed in Architecture , Forms , Space and Order , of Ching F.D.K , order means

“.....a condition of logical , harmonious or comprehensible arrangement in which each element of a group is properly disposed with reference to the other elements and to its purpose. ”

Each and every space has to have an order and this order or spatial sequence tells a story to the observer in silence.



Figure 21



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Figure 22

Order in man made

1.4 Emotions in architecture

*“Emotion is not mere effect
of sensation, it is a distinct and
Autonomous element in the experience.....*

*.....There is more in experience
Than mere emotions, there is thought as well*

*.....When thoughts come into
Existence , it brings it new
Orders of emotion*”

(R.G. Collingwood, p.159)

The right perception on art / architecture gains from the thinking process of beholder.
Three factors are involved in act of the right perception.

- 1) The Senses - conveyor of the experience.
- 2) The Brain - recorder of the experience.
- 3) The Mind - interpreter of the-experience .

Interpretation is activated through the positive emotions, which are generated by the work of art. It's an inspiring act of poetic imagination of the beholder. Due to the expression of spatial qualities such as spaciousness, silence, emotional environment, gradually generates architectural emotions which has discussed in this chapter further are as follows,

Contemplation

Serene And Tranquility,

Devotion,

Beauty & Excitement ,

Pleasure And Enjoyment ,

Movement ,
 Rhythm ,
 Freedom ,
 Joyfulness ,
 Relaxing And
 Sensory Pleasure.

These universalized emotions which contributes to the essence in architecture is expected to be discussed further more under this chapter. .

▪ Mood of Contemplation

“ Anyone who has to works in noise , in offices , with people all around , needs to be able to pause and refresh himself with quiet in a more natural situation. ”



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(Christopher Alexander , p.302)

Then the mind is focused to the heightened emotional experience & concentrate towards it; this is incorporated to the psychological process & Finally when it feels the "quality of life" in architecture gains contemplation .



Figure 23 Mood of Contemplation

Mood of contemplation undoubtedly leads one to a state of inner peace. Mostly of the times in episode of climax which is the place introducing pause for the human movement. Here water plays a vital role in creating deep pleasure and clear concentration on mind.

" We came from water, our bodies are largely water, and water plays a fundamental role in our psychology "

(Christopher Alexander , p.327)

▪ Devotion

The sense of purity , devotion in silence , the vastness of the space and huge masses..... dominance of elements generates utterly**the devotion.**

" Waters role in architecture as a symbol of purity is its power as a cleansing agent. This physical purification that leads to spiritual rejuvenation has discussed in most of religious theories. "

(Charles Moore , Water and Architecture p. 20)

In Buddhist philosophy, water is used for purification purposes as 'pan'. The creation of ponds in temples also express the purification.

"Washing the monks feet achieves two purposes. II cleans the feet in a physical sense and what is more important from a Buddhist perspective is that it purifies the mind of the chief house holder, in a philosophical or symbolic sense. "

(Dissanayaka I.B, 2000, p33)

In Christian tradition water signals the introduction into spiritual life and the promise of external salvation.

As Moore quotes the Bible ,

" I will sprinkle Clean water upon you, and you shall be clean from all your Uncleaness, and from all your idols I will cleanse you . "



Figure 24
the outward purification serving as symbolic support of inward.

In India the sacred ' River Ganges ' embodies for Hindus the water of life. Bathing in ' The Ganges ' frees the bather from sin , the outward purification serving as symbolic support of inward.

Water is closely related to various kinds of mythologies in many cultures. It has been used in many occasions to symbolize this devotion . There are so many rituals incorporate with water to evil powers and get protection from them.

For eg: Physical purification and coming to contact with water is considers that it leads to spiritual rejuvenation at a girls attain.

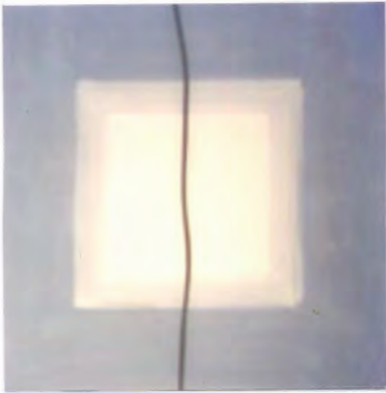


Figure 25
Physical purification that leads to spiritual rejuvenation at a girls attain.

In this sense water is not considered as just an elementary thing but a life giver as well as a life destroyer for the world

▪ Serene & Tranquility

This mood of serenity and tranquility is closely related with contemplative and concentric environments. Activities like meditative which needs high level of concentration prefers this type of tranquil environment



In architecture when the solid and void arrangement is done at very simple and peaceful manner helps to create high degree of tranquility.

Figure 26



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The tranquility can also be experienced in a natural open environment with thick vegetation and rugged finished built space.



Figure 27

Thick vegetation and rugged finished built space creating tranquility



Figure 28

All steel office complex , Dallas, Usa.

When a space is created with enclosed nature, that would facilitates tranquility as it provides a surroundings of seclusion and loneliness enabling people to concentrate on single objective. w



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▪ Movement

No space can exist without being integrated with neighboring spaces; therefore, for a space to exist, it has to continue. Continuity suggests a path for a movement. This is there in the beginning, a direction, an inclination to move along,

and facing of many disturbances and ends the destination along this path. This is common to all forms of spatial experience.



Figure 29

No space can exist without being integrated with neighboring spaces

“The theme spatial continuity evokes a dynamic principle of passages and stops with planes which guide and lead us to wonder what is to follow by the use of ambiguity between the hidden and the visible.”

Pierre Von Meiss (1990:108)

To exit a space it has to continue and make relationship with space. Either it is man made or natural space, the spatial qualities exists; it also continues with its same capacity or even strengthened form.

“ Water space can link a series of incidents or provide an element of continuity within an architectural space. ”

(Charles Moore, p.201)

▪ Rhythm

Rhythm means the recurrence of elements to a certain pattern giving life to a particular art form. It could be a poetry, music or architecture. Rhythm could be also observed by the repetition of sounds, numbers, figures, colours or movements. In this sense rhythm means the life and life means the continuity.



The term rhythm is borrowed by architecture from other art forms involving time element based on movement. But architecture itself does not have such movement based on time dimension, therefore cannot be rhythmic in the same way as music and dancing occurs.

Figure 30 Rhythm means the life and life means the continuity.

Rhythm in music is created by recurrence of a modular pattern which runs through the composition and adding a third dimension to the intervening of the horizontal, melodic time and vertical harmony. In this pattern the rhythmic unit is the beat.



This rhythmic sense may occur through repetition as well as non repetition

Figure 31

Rhythm through non repetition

A person who hears music or sees dancing does not perform but experience as though it were in his body. In much the same way one can experience architecture rhythmically that is by re-creation.



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Rhythm is one of the art form used in architectural composition where the others are scale , proportion , symmetry , balance etc. None of these could exist totally in isolation. Rhythm is in solid and voids , light and dark , movement and stillness . It is in expression of life in architecture.



Figure 32

Eye follows the great rhythm through out the building.

Simply the rhythm may be a row of pillars , from arch to arch , vault to vault ; the eye follows the great rhythm through out the building.

▪ **Freedom**

Vast spaces with power of light , pleasing colours Feelings of nature The earth , sky and water generates freedom.



Figure33
Range of mountains



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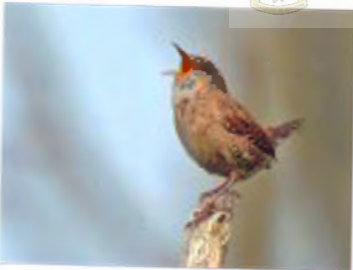


Figure34
Freedom in a bird



Figure 35
Freedom in a bird

These large volumes and water spaces expands the imagination and helps the user to release their stresses and be refresh freely by giving a sense of freedom.



Figure 36

The sense of infinity by creating a visual link towards the endless horizon.

Beauty & Excitement

In every architectural creation it is expected to be beautiful and visually pleasing while satisfying human senses in several dimensions. Therefore beauty is inseparably related to architecture.



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Figure 37

Light patches at Subodhi



The contrasting colors and textures, light and shades, sudden appearance of vistas blooms the mind creating exciting emotions which helps too enhance the poetic sense of space..

▪ **Pleasure & Enjoyment**

“ Pleasure provides a mechanism for the modification of behaviour. ”

(Herbert Spencer a psychologist)

Pleasure is a form of happiness which originated as a result of gratification of the senses or self-preservation. Enjoyment occurs as a result of this pleasure.

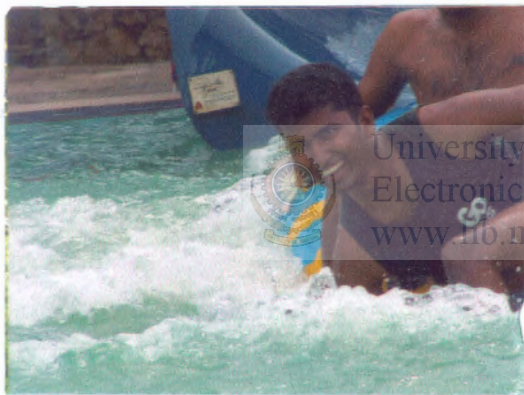


Figure 38

Pleasure is a form of happiness

Self preservation is explained as desires generated by greed. In the psychology of motivation needs like thirst, hunger, sleep are explained in terms of self-preservation. And they are also linked with the need of self assertion, power, fame, recognition, etc.

But these needs are beyond the control of architecture, because architecture communicates spatial feelings which could never fulfill these needs.

Figure 39 *Pleasure provides a mechanism for the modification of behaviour.*



Figure 40

Recognition and identity of a person.

For eg. Architectural space could serve to a certain extent to fulfill the need for recognition and identity of a person.

Both static and dynamic quality of water can be used to create pleasure in architecture.



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Figure 41 Visually and audibly pleasing emotions in human mind.

Needs like self assertion, power, fame are mostly achieved by competitions or games, plays adventures etc. Architecture also can indirectly fulfill some of those needs to a certain extent by creating required environments.

The static water can be used as a reflector which help to create an image of object. This complete picture of object and image will create **visual pleasure by evoking excitement.**

The dynamic form of water either slow moving, **shimmering and glittering with a soft quivering light creating foam, bubbles etc.** creates visually

and audibly pleasing emotions in human mind. Arousing emotions by gratification of sensory organs considered as the major source of pleasure. These dynamic forms of water will create pleasure by

Colorfulness to the eye,
 Sounds to the ear,
 Texture to the body.

■ Relaxing



Figure 42

Relaxation is a way to touch the deeper layers of the heart

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The impact on stress reducing is a very important aspect as today's world is on lot of pressure. Water can periodically re awaken the nervous system and provide a solution to the monotonous character of most of the built environments.

As Lawrence Halprin says in his book call ' Cities '

" It has been found by using water bodies as a part of ones urban territory may be sufficient enough to satisfy a wide range of social , emotional and psychological needs that have often been discussed but can never be adequately quantified. "



Figure 23

Utmost relaxation

■ Sensory Pleasure

As discussed earlier pleasure is a form of happiness which originated as a result of gratification of the senses or self-preservation. But sensory pleasure is addressing much more higher level of mind that it could be obtained through spiritual or moral happiness.



Figure 44

Spiritual or moral happiness through sensory pleasure.



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"Aesthetics and think of art is a kind of feeling. Aesthetic (Greek original of the world) means perception by the sense, especially by feelings. Aesthetic soul is that part of our psychic makeup that "senses" things and react to them in other words; a sentimental part of us."

(Ananda Coomaraswamy, p.9)

He further says more pleasure is not the aim of art; it has to go more deeper, intellectual and spiritual levels triggering off one's stream of thoughts and contemplate the mind. Thus the highest the highest function of art, is refined the 6th sense or mind to seek true satisfaction, that is sensory pleasure.



CHAPTER TWO

WATER AS A CREATOR OF EXPRESSIONS

2.1 Definition of water

*“ There is a lady called water , We cant live without her . Water is romantic , sensual , beautiful , happy , strong , sweet and fresh. Peace and movement , limited and eternal , landscape and architecture, **water is life.** ”*

Ricardo Legorreta

There is nothing in the world as soft as and yielding as water. The vast amount of expressions it gives when it is in presence helps to enhance the spatial poevity by creating emotions in architecture.

Water can be manipulated to create a dialogue between the beholder and the space. The power of the mystical , metaphorical and poetic handling of water and the conscious manipulation of water for deeper layers of spaces create a poetry in architecture.



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There are qualities of water which calls to the most deep rooted and atavistic part of our nature. Among them

1. Soothing & placid
2. Playful & dancing
3. Ragging & exploding
4. Shimmering & glittering

are identified four basic expressive qualities of water which used to enhances the emotions of architecture.

2.1.1 Concepts of water

Each culture has a strongly expressed attitude about water . From birth to death the entire life is engaged with water. Though the way it practices different from culture to culture , the basic concepts shows similarity.

Concepts of water can be identified as follows,

Sacredness of water

Psychology of water

Architecture of water

2.1.1.1 Sacredness of water

*“ Thy life giving side , like a fountain bubbling forth coming Eden,
Water thy Church , O Christ , like a reasonable Paradise,
Thence dividing into sources , into four Gospels ,
Watering the universe, purifying creation ,
And teaching the nations faithfully to worship thy kingdom. ”*

*A chant sung on Good Friday at ancient Typikon of
Jerusalem*



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(Moore, c. Water + architecture, p.42)

The combination of the “life giving side ” and the notion of “purifying creation ” reinforces two important images of the water sources. Holiness of water appears in various kinds in the mythologies of many cultures. The water of the River Jordan is sacred because Jesus Christ was baptized by Saint John in it. The spring at Lourdes is sacred because of its healing properties in connection with the appearance of the Virgin Mary to Bernadette.

At the beginning of the Judeo-Christian story of creation, the spirit of God is described as stirring above the waters, In the Koran are the words *“We have created every living thing from water “*.

In Christian culture, water is a **symbol of grace**. They use water for baptism. Water is also one of the four elements possessing fundamental characteristics;

very useful,

humble,

precious,

and chaste.

In many cultures, water appears as a reflection or an image of the soul. In Japan, water prefigures the purity and pliant simplicity of life. It can be both calm and animated.



Figure 45

Baptizing child with water

In Buddhist philosophy, water is used for purification purposes as ‘pan’ . when there was a great disaster in “ vishala mabanuwara “ in lord Buddha’s era, blessed water was sprinkled all over the city and got rid of that disaster.

"Washing the monks feet achieves two purposes. It cleans the feet in a physical sense and what is more important from a Buddhist perspective is that it purifies the mind of the chief house holder, in a philosophical or symbolic sense. "

(Dissanayaka I.B, 2000, p33)

In Islamic culture there is a large pond called ‘Hawl’ at each church which used to clean themselves before entering the church. And when there is a death , they used to bathe the dead body before starting the funeral ceremony to symbolize the spiritual purification.

As the cultural activities of ancient societies had a strong religious flavour. Man was considered impure and he became purified with the contact of water in almost all traditional practices.



Figure 46

Bathing in ' The Ganges ' frees the bather from sin

In India the sacred ' River Ganga ' embodies for Hindus the water of life. Bathing in ' The Ganga ' frees the bather from sin , the outward purification serving as symbolic support of inward.

Purification by water plays an important ritual in Sri Lanka as well. Such as in pilgrimages to ' Adam's peak ' pilgrims take a ritual bath in ' Seetha gangula ' at the foot of the hill before resuming their climb to the peak as same as in pilgrimages to Kataragama pilgrims take bath by the river ' Manik ' before proceeding to worship god ' Skanda '.

When one is endowed with kingship or any higher status ancient Sri Lankans used to bless them by pouring water over the hands amidst the chanting of ' Pptrith ' and ' Ashtaka '. This practice is still prevalent in Sri Lankan marriage ceremonies.



Figure 47

Pouring water over the hands at Sri Lankan marriage ceremony. .

In this sense water has an important role placed in most social and religious events and it has this blessed quality depicting prosperity.

2.1.1.2 Psychology of water

“ We came from water , our bodies are largely water , and water plays a fundamental role in our psychology. ”

(Christopher Alexander , Pattern Language, p.32)

Generally the human beings considers the nature as the most important and naturally drawn towards the nature. In trying to understand this someone have discovered an evolutionary theory in which at the most intuitive level respond to elements that have been important to humans throughout millions of years; water sunlight, trees, animals and plants.

“The biologist, L.J .Henderrson ,observed the saline content of human blood is essentially the same as that of the sea , because we came from the sea. Elaine Morgan, an anthropologist, speculate that during the drought of Pliocene era, we went back to the sea and lived ten million years as sea mammals, in the shallow water along the edge of the ocean. Apparently, this hypothesis explains a great deal about human body, the way in which it is adopted to water, which otherwise obscure.

Resent research by Roger Ulrich (1984) at Texas A&M investigated the stress reducing effects of viewing water by measuring levels of stress hormones released into the blood with the implication that immune functioning can be enhanced by frequent or prolonged visual exposure to nature.

Psycho physiologists at Texas have found urban scenes to be less effective than nature in holding people’s attention. They noted that relaxation occurred in only 3 to 6 minutes when people viewed nature scenes, according to muscle tension, galvanic skin response, systolic blood pressure, brain electrical activity and stress hormones, which are tied to suppression of the immune system.

“ Nature is a source of many metaphors of varying significance. It lends its characteristics and its ingredients contemplation of serenity , hardness and sublimity- the calm of the sea , the sound of the waves , the shape of the land , the mood of the season- ”.

(Anthony C. Antoniades, Poetics of architecture, p.233)

The impact of water on stress reducing is very important in today's world as urban stress has become a major issue. Water , with its enormous healing qualities can do wonders to the psychology of the user and satisfy wide range of social , emotional and psychological needs and periodically reawaken the nervous system by providing antidote to the monotonous built environment.

2.1.1.3 Architecture of water

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Figure 48

“With the relatively small amount of water , all of the world's water is called to mind and it is water that provides the lifeblood for meaningful architecture ”

(Moore C.W. 1990 P.27)

The key to understand the water of architecture is to understand the architecture of water. What physical laws governs its behavior, how the liquid acts and reacts with our senses, how its symbolism relates to us as human beings.

“ Man, fish, river and landscape are dateless: the placid river reflecting sky and scenery, always moving downstream to the sea; promiscuous eddies on the surface and ripples from a disturbance radiating in mathematical circles; rivulets cascading into the main stream. Quite suddenly, there is a bite, meditation turns to action, there is flash from below, a struggle, and all is again quite. Study to be quiet.”

(Picadors, The complete angler, 1653)



Figure 49

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Quietness and action

are together the essence of all water design. Contemplative water is the more enduring experience. One stimulates the mind, the other the eye. The practice of water in architecture should essentially be an extension of human nature and their

psychological needs , and not an additional ornamentation. Therefore it is an exercise, which needs much care and thinking.

Water has been used to create various emotions in architecture. Its vast expressive qualities provides a medium for meaningful communication by creating a healing environment , consoles the annoying environment acting as a buffer and gives comfort , pleasure , peace and serenity , tranquility and calmness.



Figure 50
Joy present in water



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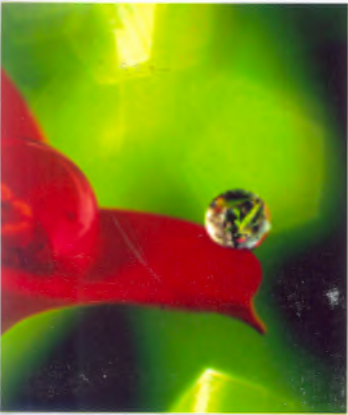


Figure 51
Life within the water

“ the seemingly infinite water confront human mortality and smallness, but their existence on earth surrounds us with a feelings of immediacy , intimacy and belonging. As it rhythmically waves on to beaches around the world , crashes in white water against desolated cliffs , or gentle ventures into safe harbors. The eternal ocean comes into physical contact with land and humanity.”

(Moore C.W. 1990 P.157)

From these movements of wild water, the architects of water have learned to harness and shape it to produce their desired effects.

. Playful and dancing, raging and exploding, soothing and placid, and shimmering and glittering

these are the basic expressive qualities with which they work to get their desired architectural emotions in poetics of space.

2.2 Concepts of using water in architecture

Water as an element in the vocabulary of architecture can do wonders to the built environment by its correct application. Water as a spatial element embedded in the living entity poses different impacts towards them. Among all aspects, water concerns with certain living dimensions of all human lives. It is the physically inevitable, socially vibrant and psychologically meaningful natural force, which dictate human lives.

The appreciation of the water element in its architectural context whether as a water space, urban waterfront, or by the diversity of expressions associated with water activities, would emphasize the experimental, spatial, static and dynamic qualities of water.

The broad range of aqua tectonic experience extends from the visual pleasure of reflective pools, the dynamic qualities of turbulence and the physical confrontation inherent in water play and water sports.

Water was used architecturally, shaped in fountains, animating statutory, as reflective surfaces, as impressive cascades and as part of the symbolism relating to mythology and topography.

Wrapping with water also can be used to provide ability for amusement in the form of water features and concealed jets that could surprise the unwary.

2.2.1 Static

The still water of the reflective pool or lake can create an ethereal separation, as in the case of the Taj Mahal or the Chateau at Cheononceaux. Compact water surrounded by calm water can suggest suspended detachment. Reflected sky and cloud patterns appear to replace the firm support of the ground. The effect of light on the water and building is important. Both are important to emphasize contrasting effects. Sunlit building reflected in dark water or silhouetted building reflected in a silver mirror like surface as well as reflect light up into building such as , the shimmering light reflected up at textured ceilings of Alhambra creates dramatic effects in architecture.

“ Pensive stillness and silent collection , still waters have traditionally represented the contemplative and pervasive ‘ indwelling spirit ’ of nature residing in the forest ”



University of Moratuwa, Sri Lanka. (Moore C. 1986.,p.120)
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When we consider the static, flat quiet body of water , it is obvious that two basic forms could identified as ponds and pools depending on the plan shape and the character of the container.

“ pool is a body of water of a size placed in a hard well defined constructed container a pond is different form a part by being designed to appear natural or semi natural ”

(Weddle A.E.,Landscape techniques.,p.121)

Water pools

Pools are more or less artificial still water bodies which expresses its emotions depending on the setting and other determinant of form and character. In most cases pools takes a geometric shape but it is not necessarily to be of form and character. In most cases pools takes a geometric shape but it is not necessarily to be symmetrical or purely geometric as circles , squares or triangles.



Pools are commonly used in urban tight spaces where there is a necessity to express the human control over nature.



Figure 52
Pool of hotel blue waters



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As (figure 53) shows below, still water contains in a firm geometric shaped basins together creates calm and serene qualities forming a bit formal setting. But when it becomes to a dynamic free form feelings may get an informal setting and stimulates pleasurable and relaxing qualities.

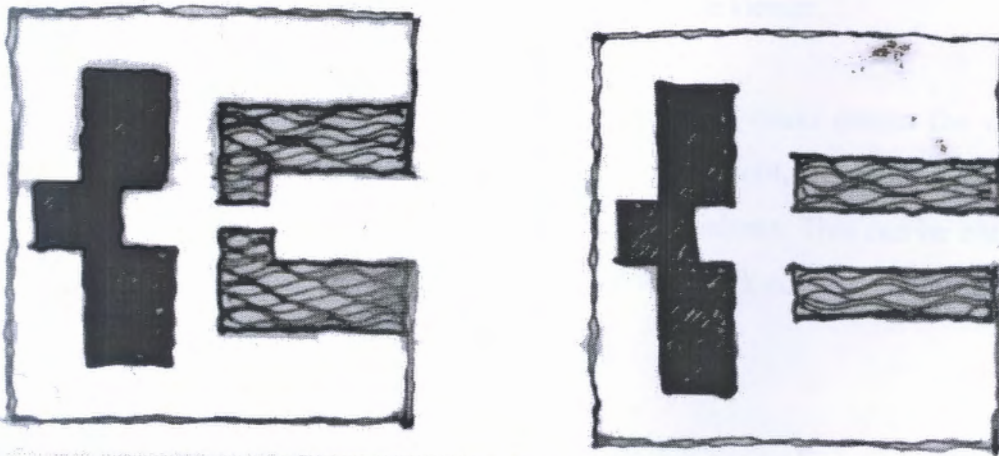


Figure 53 Static water in geometric forms.

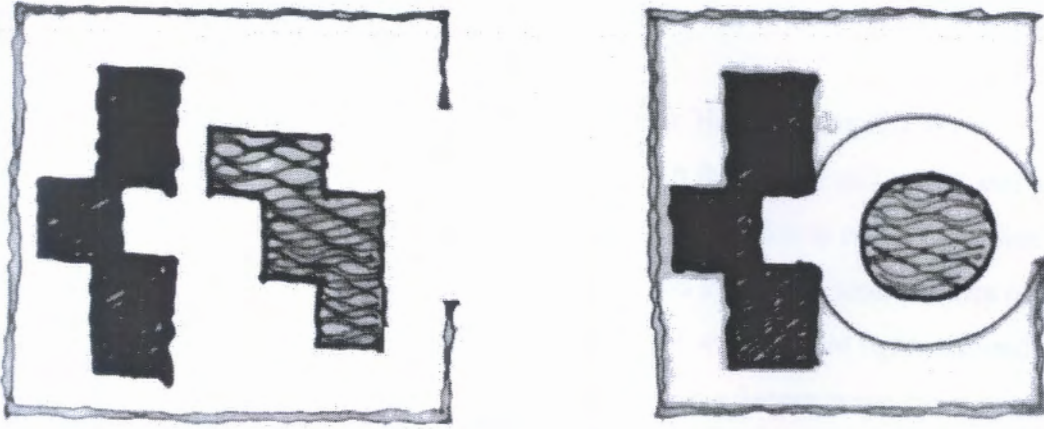


Figure 53 Static water in geometric forms.

Still water as a reflector

Still water can be used in architecture both as a reflector as well as a non reflector. When it is used as a reflector, the nature of the reflection plays a major role in spatial communication.



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Reflectivity of a pool depend on several factors , such as,

- The level of water
- Depth of the pool
- Colour of bottom and the extent of the pool
- Location of the pool in relation to the object and the viewer.

By increasing the depth of the pool could obtain the maximum reflection and minimize the shadow cast by the edge of the pool, and also when the water surface becomes darker , it helps to cast more detailed shadows. This can be obtained by deepening the pool or by painting the inside the pool with dark colours.

Still water not as a reflector

Shallow pools incorporated with other decorative elements like river pebbles , tiling effects, etc. provides different spatial quality than it as a reflector.

Ponds

A **pond** is typically a body of water smaller than a lake. However the difference between a pond and an artificial lake is subjective. They are both formed by still water, either by excavating a hollow in which water may lie or by forming a dam to collect the water in a valley. In some cultures, the meaning has been extended to include small bodies of water collected naturally. Scientifically, a pond is any body of water where light is found in the entire body of water. A lake is any body of water that has a deeper zone; there is a limit of effective light penetration for organisms.



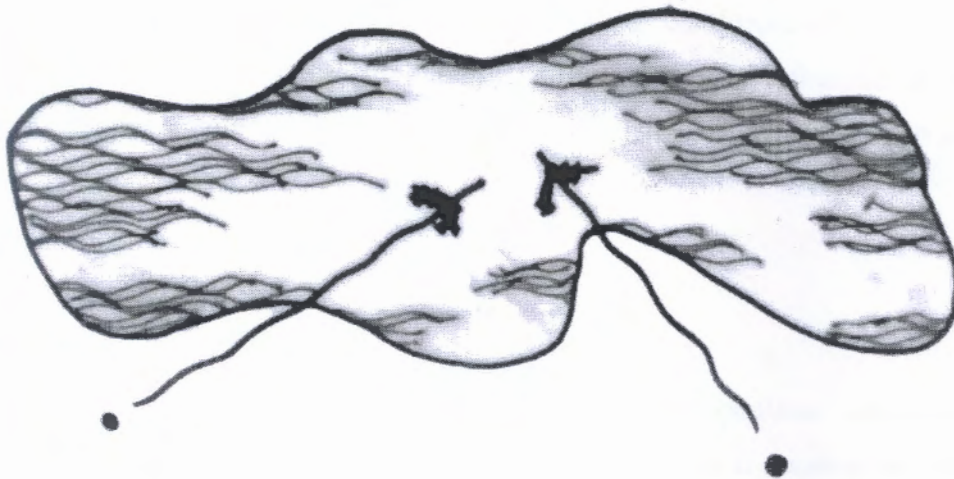
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Figure 54

Natural pond in landscape

Hence a pond is characterized as being a small body of water that is shallow enough for sunlight to reach the bottom, permitting the growth of rooted plants at its deepest point.

The soft natural landscape of the pond is much effective than a pool in creating a feeling of tranquility in outdoor spaces. Ponds may be used in landscape to establish unifying link between different areas



Figure

55

“ Visual links and sudden appearance of glimpse and vistas arouses a sense of mystery and fascination.”

The other important aspect of a pond is that it provide sequence of spaces in many occasions stimulating different feelings. Sudden appearance of glimpse and vistas arouses a sense of mystery and fascination.



Figure 56

Sense of mystery and fascination.

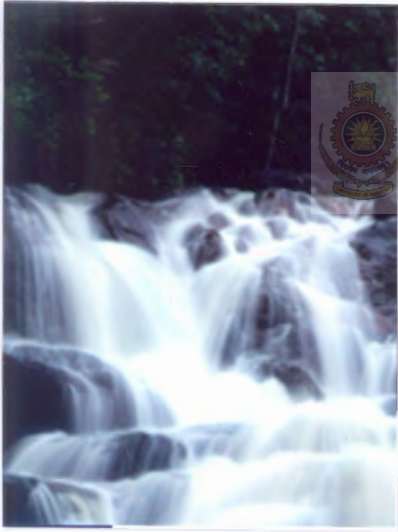
2.2.2 Dynamic

Water being one of the most remarkable natural element , can touch the deep layers of human senses. The most important aspect is that water has its genuine properties which time cannot alters. Its unique patterns and textures in the motion

of water stimulate human senses depending on the nature of water, the speed it falls, the way it splashes and also the lighting and wind conditions of the space. The gentle whispering water over rocks, the tinkling of fine spray from a fountain as it falls into the pool below is remarkable and can never be experienced by any other form of elements.

“ water has its own very special qualities of change, movement and variations under the play of light and wind which set it apart of all other materials. The fact is at times unpredictable in its changes and even someone difficult to control only adds to its interest..... ”

(Curtley M.C. ,Bryon E., Water pools & fountains, p.481)



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Figure 57

The vibrancy and potential for excitement of water in motion has remained unchanged through centuries. Effects to be generated is largely depend on the scale of water and the speed it rushes. When the water used in personal scale it gives a sense of attraction and while the grandest scale is often in the making of life with pleasure and excitement.

Water can be made to flow, gush, bounce, turn, repulse or react when its presence in nature through the sea, rivers or waterfalls. The exploitation of water in dynamic form can fill the life with joy and enhance the sense of place.

For example, The oceans and seas are incredibly huge volumes of water that moves within themselves. Waves of them provides most striking visual

impression of the uncontrolled power of the sea. But when this motion of water becomes gentle and rhythmic ,stimulating feelings also get a form of casual and humane.

The movement of water can be formed into three basic categories.

1. Flowing water
2. Falling water
3. Fountain jets

1. Flowing water

The character of flowing water and the behaviour pattern depends on the volume of water , steepness of slope and the size and material used in channels. When the channels are lined with sleek and smooth material with constant width , the flow of water becomes more gentle and evokes peaceful environments.

But when the channels become narrower there would be a turbulent effect and flow faster. Disturbed rushing water creates a chute effect which is more eye catching with higher sound effect than in smooth flowing.

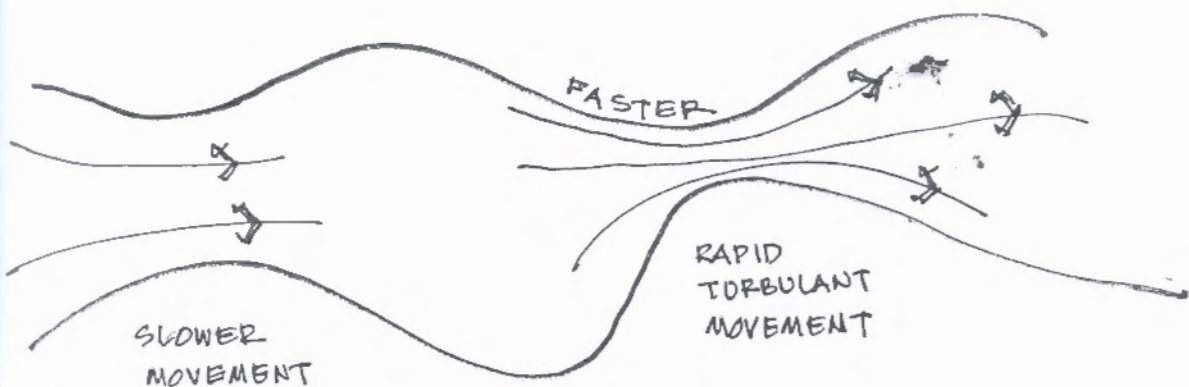


Figure 58 Behaviour of flowing water with respect to channel condition.

Source - SLIA Vol 100

2. Falling water

This falling of water can be seen in three forms which could dramatize the space when it is in presence .

- Free falling
- Obstructed falling
- Sloped falling

▪ **Free falling**

The transformation of water from one elevation to another elevation under gravitation is called free falling. The volume and velocity of water together with the edge condition and the level difference, determines the emotions it expresses.

Many different visual qualities and sound effects could be achieved by adjusting above variations.



Figure 59
Free falling

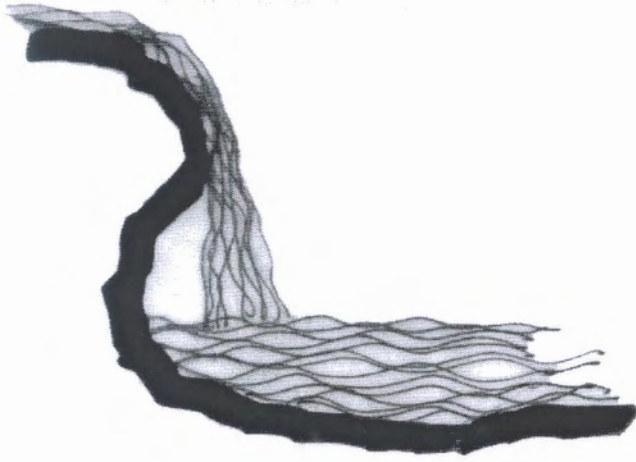


Figure 60 Sound and splashing absorbed

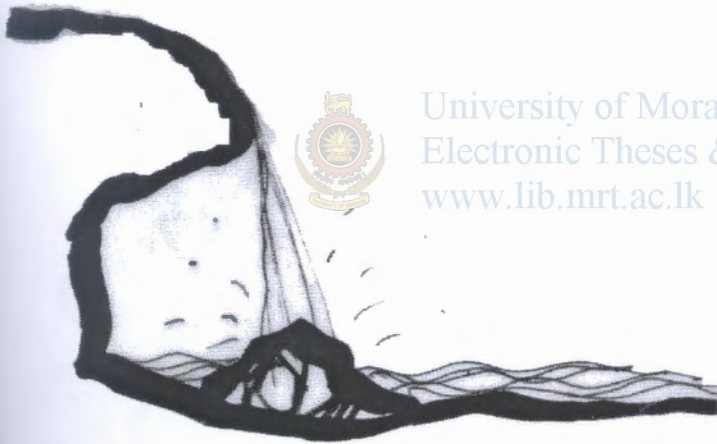


Figure 61 Sound and splashing intensified.

This dramatic effect of free falling could be effectively incorporate in urban designs to discard the annoying city noise.

Obstructed falling

This effect occurs with the contact of water on various intermediate obstacles while falling one level to another. This obstructed mode is much noticing in sight and sound than free falling because of the rhythm it generates. By

controlling the volume of water , the level difference , surface finishes could effectively incorporated in designing various water effects.



Figure 62 More commotion in sight and sound



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Figure 63
Obstructed falling

Sloped falling

This effect is bit similar to the flowing water but this occurs in much steeper slopes in smaller controlled volumes. The effect of sloped falling could be enhanced with the integration of obstructed falling by providing rough uneven surfaces for channels.

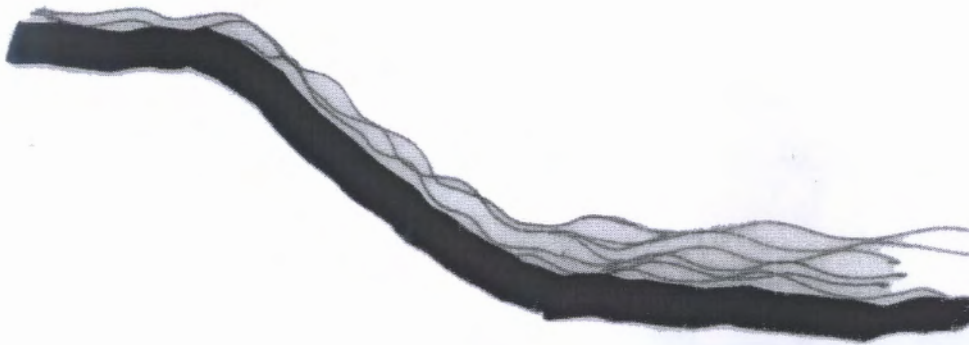


Figure 64 Sloped falling

3. Fountain jets

“ Fountain represents the wellspring of life ”

(Moore Charles., Water and Architecture,p.38)



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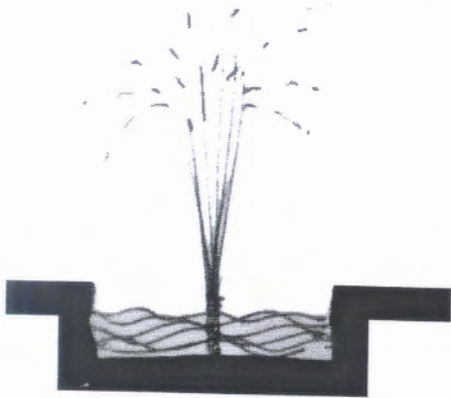
This life giving quality of fountains can be seen in many forms , such as bubble, jets , geysers, sprays etc. The discharging water can be purely transparent or can form white water effects when it is aerated with high pressure.

Fountain jets are formed by forcing water up into the air through a nozzle in defiance of gravity. In most cases these fountain jets are used as a focal point where the whole attraction is need to be drawn. With the technological developments of today’s world, fountain effect interplay with light and musical rhythm has been used to enhance the emotions in space.

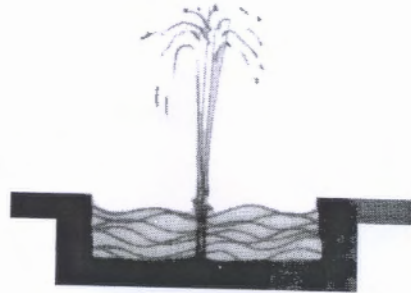


Figure 65 Musical fountain at Las vegas

Types water jets are as follows.



Single orifice jet



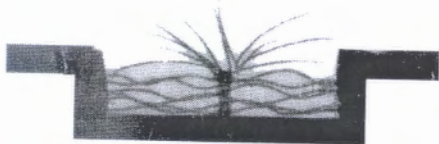
Aerated jet



Multiple number of jets



pray jet



Formed of jet

Types of water jets

Figure 66 Source - Water pools and fountains.

2.3 Implications of water in historical background

2.3.1 International

“ The worlds water embraces every culture each has its own way of designing with water and including it in architecture.”

(Moore C. Water and Architecture, p. 22)

Each culture since then has had a strongly expressed attitude about water and the way it has been used ; in each period the great inventiveness and highest talents have been lavish on the elaborated and exciting use of water.

For the Greeks the sacred springs as the source of water were not only imbued with mythology, but embellished with grove settings. The water was released into carved basins, and these often incorporated sculptured figures or animals to form a decorative feature, thus combining a legendary theme with a cascade or fountain.



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Figure 67

Fountain of Four rivers , Rome.

(Source : Water + Architecture, 1992)

The seaside and lakeside villas, a favourite subject of the Pompeian painters, convey the Roman consideration for the natural surroundings and the capacity to relate buildings to topography. The form of simple villas consisted of a row of rooms with

wide openings, facing the coast. In the more palatial villas, either the conventional atrium was adapted to be outward-looking with extended terraces to accommodate sloping terrain, or a more informal layout suited to seaside landscape was adopted.

The topography and strong Greek tradition led not only to a close relationship between buildings, natural landscape and water scenery, but also to the integration of water-based leisure and non-utilitarian uses within the building complex. Greek water technology had provided a range of innovative applications. These included pressurised water, aqueducts, fountains to enrich public squares, and more frivolous devices such as water organs and simulated sounds for the sculptured figures. The therapeutic use of water was part of the Hellenistic gymnasium, the educational centre in Greek life.

This utilization of water was developed on a vast scale for the cities and private concerns of the Roman world. The aqueducts of imperial Rome provided the immense supplies of water necessary for the 121 public fountains, 11 imperial thermae, 926 public baths and the many private establishments. Each aqueduct terminated in a massive fountain enriched with statues, and water shrines were used to memorialize great men and noble deeds.

The Islamic view of paradise includes a garden of pleasure with cool springs and fountains, and the traditional Persian garden utilised water for irrigation, display and sound effects. The basic form of the courtyard garden was an enclosed quadrangle, divided into four sections by channels symbolic of four rivers branching from a common source, dividing the Earth. Gardens were places for contemplation, meditation and pleasure.

Later this Persian culture was absorbed by Islam and spread through the Muslim world. The architecture took on a religious symbolism with water representing the source of life. A city's water supply was parallel with its wealth and spiritual strength. Water in architecture provided both spiritual meaning and an amenity.

Water was displayed in fountains, cascades, channels and pools to cool, humidify and to achieve dynamic and tranquil visual effects. The fluidity of water was reflected in the planning of palaces and enclosed gardens in which interior and exterior spaces were closely interwoven. In India and Spain, Islamic design was adapted to local topography, scenery and to an abundance of water.

In 15th century Italy ,the garden of Tivoli which was outside the Rome was build with aqueduct fed spouting fountains to heighten the public regard for the power and prestige of the religious royalty.



Figure 68

Villa d'Este Tivoli, Italy

(Source : Water + Architecture,1992)



Figure 69

Tivoli fountain, Italy

(Source : Water + Architecture,1992)

When considering the contemporary history of water architecture, a private residence called Falling Water designed by Frank Lloyd Wright for Kauffmann at Bear Run could be considered as a masterpiece of organic architecture which has successfully blended with the nature.

Wright successfully balances extensive cantilevers against uplifting stone towers, smooth planes against textured stone work and moving water against stationary architecture.



Figure 70

Falling Water

(Source : Water + Architecture, 1992)

2.3.2 Sri Lankan history

Sri Lanka has a long history of hydraulic civilization where people developed techniques of water storage almost to perfection with its origin in the dry zone. It was not only for domestic and agricultural purposes but for landscape gardening as a natural resource. The royal gardens such as Mahamega Uyana, Ranmasu Uyana and Nandana Uyana stand out as the exquisite water gardens in history. There had been other

water bodies like pools, ponds and fountains with great engineering techniques built in the Royal parks and great ministries. Among the most significant artistic achievements in the field of hydraulic engineering are the Twin Ponds, or Kuttam Pokuna.



Figure 71

Kuttam Pokuna, Anuradhapura



Figure 72

“Kumara pokuna” the Royal pool of king parakramabahu at Polonnaruwa

The water garden at Sigiriya perhaps the most extensive and intricate surviving example for water usage concepts in Sri Lanka. The terraced gardens slope down to the boulder gardens and then to the geometrically laid out water gardens, with running water and fountains, pools and ponds, aquatic flowers and birds, and tropical trees. The entire water garden is in a walled enclosure.

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Figure 13

Arial view of Sigiriya water garden

The miniature water garden consists of winding waterways, shallow reflecting pools, paved watercourses, marbled floors and an remarks of tiled roof buildings. Adjacent to this, there is a central island surrounded by four L-shaped water pools. These pools appear to have been used as bathing pools. These had polished walls,

flights of steps and surrounding terraces similar to a modern-day swimming pool.

There are fountains fed by water under gravitational pressure from the artificial Sigiriya Lake. Symmetrically perforated limestone plates fashion their spouts. These fountains operate in rainy weather even today.



Figure 74
Fountain pools



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Figure 75
Perforated limestone plates to fashion the spout
of the fountains

An octagonal pool is set at the transition point from the water gardens to the boulder gardens. It is surrounded by a wide terrace, which follows its shape. The terrace at the base of a towering boulder forms a dramatic rock and water combination at a point where the water garden and the boulder garden meet. The two inner islands, closely adjoining the fountain garden on either side are, partially built on bed rock. They are surrounded by walls and moats. The flattened surface of the island

was occupied by “Sitala Maliga or Water Pavilions”. The double moat that surrounds the garden and the artificial lake that extends from the Sigiriya Rock are intricately connected with the water gardens. Excavations have revealed that the pools were inter-linked by a network of underground conduits, fed initially by the Sigiriya Lake.



Figure 76

The double moat surrounds the garden



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CHAPTER THREE

3.0 WATER IN CREATION OF POETICS OF SPACE

The major parallel to architecture is art . Every art has its own fundamentals. Generative forces of spaces can be identified as those fundamentals. Therefore appraisal of fundamentals in poetics of space is identified as essential and it could be considered as working on the basis consists of **space and water**.

In this creation ;that is architecture – two major events could be identified.

- Establishing a particular spatial conception *
- Invariability of the elements of water which is articulated.

The relationship between two concepts may be identified as two contrasting concepts consisting of primary and secondary or two concepts complementary to each other. This mystical interaction becomes the fundamental notion in architecture.

Water can be manipulated to create a dialogue between the beholder and the space. The power of the mystical , metaphorical and poetic handling of water and the conscious manipulation of water for deeper layers of spaces create a poetry in architecture.

“ All the water in the world can be called to the mind “

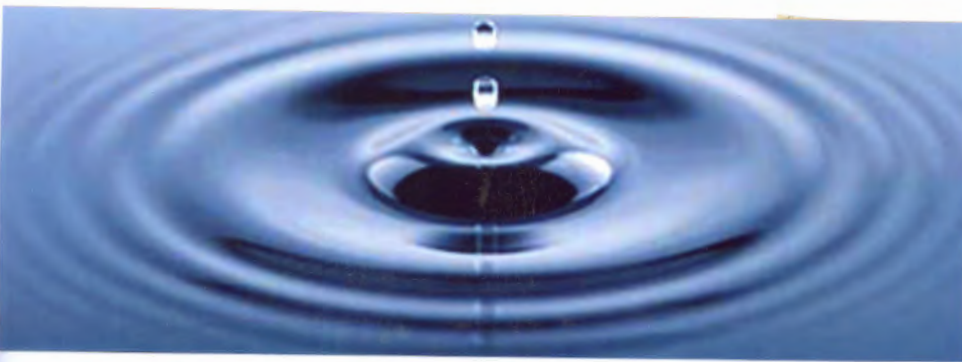
(Charles Moore, p. 124)

There are qualities of water which calls to the most deep rooted and atavistic part of our nature. Among them to simplify this study it has been identified four basic expressive qualities of water which enhances the emotions of architecture.

Those qualities are as follows:

1. Soothing & placid
2. Playful & dancing
3. Ragging & exploding
4. Shimmering & glittering

3.1 CASE STUDY ONE- SOOTHING & PLACID



Background

Soothing & placid quality is an impression given by the still water which address directly to the higher level of mind and generates different emotions in human mind.

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“ Stationary waters are natural reflectors, their mirrored surfaces absorb, repel and refract their surroundings, mirrored images of landscapes or buildings. ”

(Charles Moore, p. 124)

Architects incorporate this natural reflective quality in their designs and try to create certain moods in spaces. Integration of still water with other architectural elements such as , light , colour , textures , etc., can generate different emotions in architectural space. Among them **contemplation , devotion, serene & tranquility , movement** are the main architectural emotions concerned through this case study which results of meaningful collaboration and thoughtful manipulation of soothing & placid expression of water.

3.1.1 Mood of Contemplation

As discussed in chapter 1 mood of contemplation undoubtedly leads one to a state of inner peace. Mostly of the times in episode of climax which is the place introducing pause for the human movement , water has been used to create deep pleasure and clear concentration on mind.

❖ **Hotel Blue Water**

The Hotel Blue Water is located 27 km Colombo along the Southern coast of Wadduwa. Situated between the railway line and the beach, it stands as an example of contemporary Sri Lankan architecture. The materials used are basic, widely available building materials while rough finishes bear witness to the designers ability of achieving a sense of style glamour and identity without the use of luxurious materials.

Through out the design water receives prominent treatment as an experiential and reflective element to generate different moods.

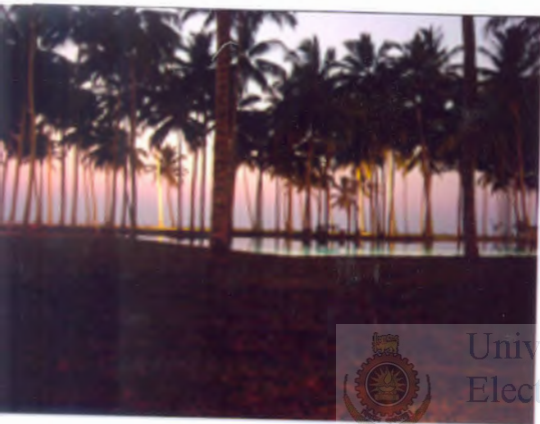


Figure 77
Unruffled calmness in Hotel Blue Waters makes the mind soothing environment



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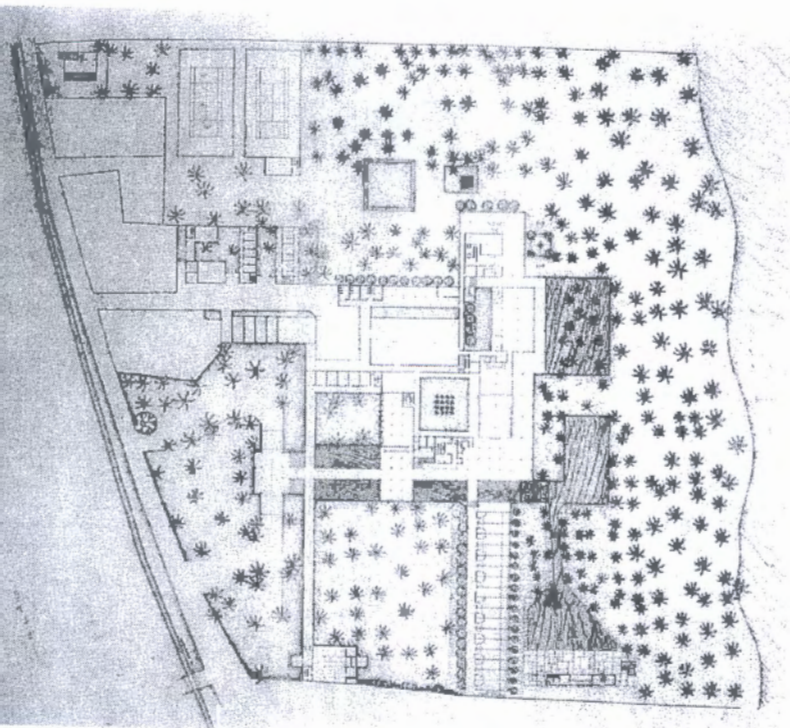


Figure 78 Plan of the Hotel Blue Waters

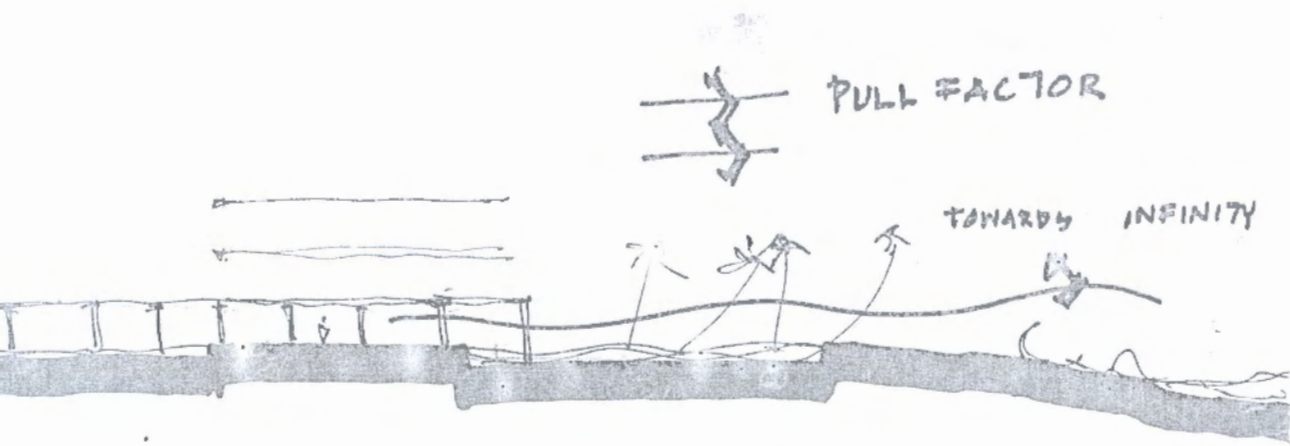


Figure 79 Section through the pond - Hotel Blue Water

Human scale of the reflecting pond incorporated with the infinite expanse of the sea pulls the user to a state of mind which takes them

beauty



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wisdom.



Figure 80

Expands the personal space into infinity

Unruffled clear water in the shallow pond with reflections of the sky and the surrounding expands the personal space into infinity with contemplation. Hotel Blue Waters provides an ample evidence that water has many distinguishing qualities and can be the most attractive and compelling element when carefully designed.

❖ **Hompuku-ji water temple**

This is one of the main temple of oldest sector of Buddhism in Japan. It is a subordinate temple of Kyoto's Ninnaji, founded in 888 as the seat of Japans Shingon sect of Buddhism. It is located on a hillside on the island of Awaji overlooking the bay of Osaka.



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Figure 81 Aerial view of water temple showing the plan form

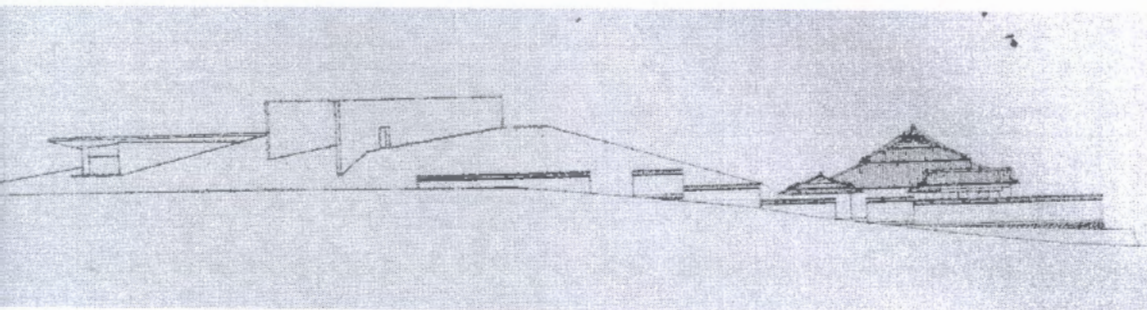


Figure 82 Section through the Water Temple

A small footpath leads to an imposing concrete wall with only one opening. Here, one discovers not the entrance but rather another wall, curving this time, with a gravel path leading on.



Figure 83 Curved path along the oval shaped pond at the entrance

Once beyond this wall, and only then, oval lotus pond bisecting a descending stairs becomes visible. At the bottom of the stairs, the visitor enters the temple proper, below the pond. Concrete here gives way to a red wood lattice work design set out along the lines of a 17.4 meters square inscribed in an 18 meter circle.



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The only source of natural lighting is an opening situated behind the representation of the Buddha, facing due west, so that the setting sun inundates the temple with its rays. Deceptively simple in its geometric design, The water temple requires that a visitor make a specific progression through doors and past walls to reach the heart of the structure.



Figure 84

Descending stairway through the pond

Specifically Buddhist in its evocation of the form of the Mandala the symbolism of lotus, this temple is nonetheless imbued with a sense of modernity and ecumenical spirituality. **The large scale of the dark colored entering pond with floating water lilies gives the insight of the vastness of the world.** By locating the temple at the highest level and allowing the user to descend through the pond by giving a sense of sinking in the water with the sight of infinite sky makes the user contemplate the life. Walking between the lotus flowers, one feels that this is a place which transcends day-to-day life, a place where the combination of architecture with nature and the reverberation of the placid mirror of water naturally lead to meditation and contemplation.

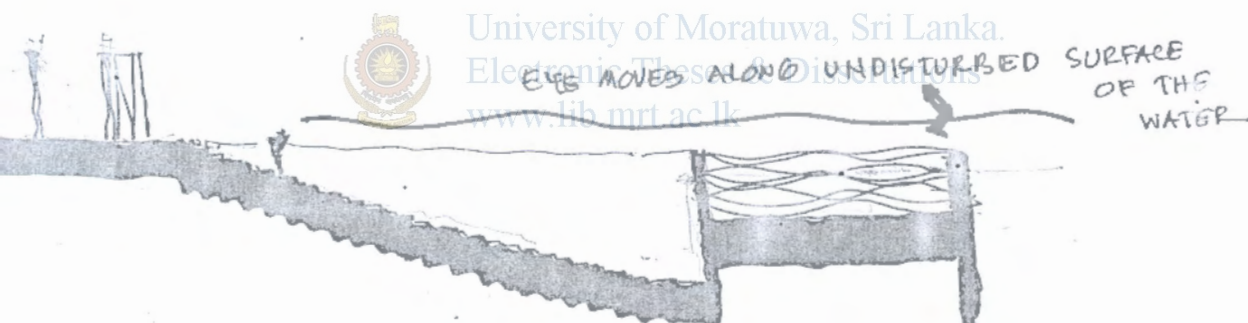


Figure 85 Section through the pond illustrates the sense of infinity.

Rather at Hompuku-ji water temple, water and the lotus are the symbols of this place of worship. And by using oval shaped pond along with the curved wall makes contemplative while walking, helping the visitor to change his attitudes to the temple

3.1.2 Devotion

This mood of devotion comes not only because of the pure nature of the water but also the quality of the life giving nature.

"It is common belief that evil spirits or the evil can not cross water, and it appears that people believed that magical power were contain or enhanced by enclosure by water"

(Pennic N. 1987,p.52)

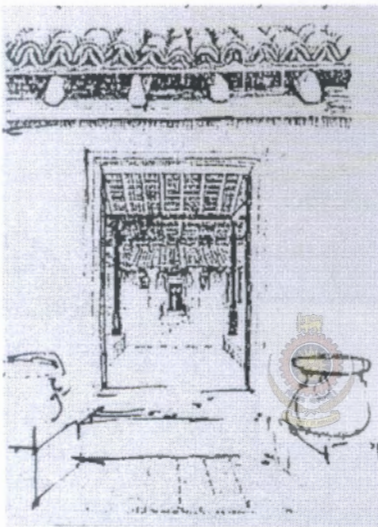


Figure 86

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Water vessel at a door step of a house to symbolize the protection from evil sprits.



Figure 87

Vast water body surrounding
Locating the vicinity of temples in ancient cities in Sri Lanka symbolizes the spiritual rejuvenation and generates devotion in observers mind.

❖ **Seemamalakaye**

Seemamalakaye is the only modern Buddhist building in Sri Lanka to have been built to a non-traditional design. It floats on Colombo's Beira Lake and is used as an inauguration hall for the monks of the nearby Gangarama temple.

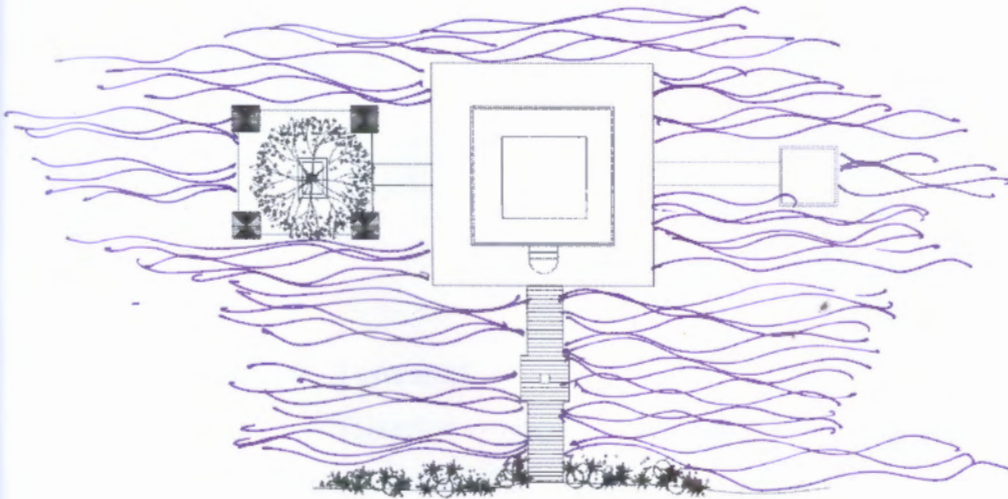
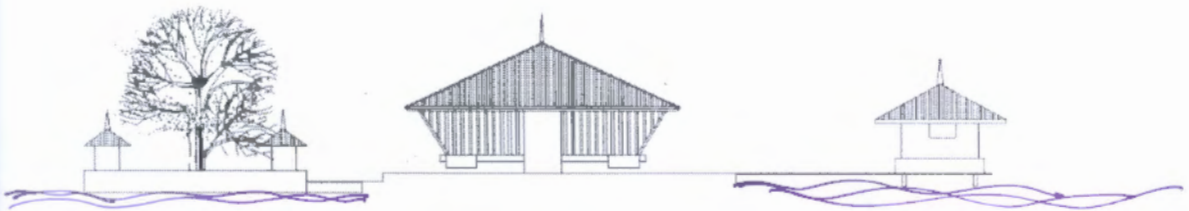


Figure 88 Layout Plan Seemamalakaya



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Section - Seemamalakaya



Figure 89 Water as a sacred barriers at seemamalakaya

Seemamalakaya ' surrounded by the lake symbolizes the sacredness achieved by the use of water creating devotion in human mind.



Figure 90

Night view with floating effect

❖ **Tajmahal**

Tajmahal is one of the marvelous designs, which reflects dignity and sacredness. The water feature has contributed a lot in order to achieve this sacredness. When analyzing the design with respect to the usage of water in the expression of the building, it could be stated as follows.

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Figure 92

Taj Mahal reflects dignity and sacredness.



Figure 90

Mirrored image of Taj Mahal stimulates the sense of devotion

The broad canals have been used to categorized - separate the garden. These water canals are being made strong from the fountains. However the fountains are used only in the North and South side of the ponds. Faint waves are created through these fountains. But the fountains are not been used in the East and West side of the canals further these canals run through out the garden and made the place wonderful. It is important to state that the water reflection of the Tajmahal seen form the front pond articulate the expression. The clear water and the darkness of the pond create a sense of devotion.

However due to grace and marvelous quality of the fountains and canals create a movements in the beholder towards the sacred object, the Tajmahal.

❖ Chapel on Water

As Tadao Ando says, **chapel on water**, by his experience of exterior water expressions where the building it self is invisihle from the artificial water content of the design.

The church faces a large pond, 180m by 42.7m in size. The pond steps down in five stages towards the small river. At the high end of the pond is the building, the shape of which is basically a pair of overlapping cubes. The larger of the two faces the pond directly, and serves as the chapel. It is connected to the smaller cube entrance by means of a semi-circular, spiral stairway. Finally, a long, L-shaped wall runs alongside the south and east of the pond-building grouping, separating the church from the hotel behind it.

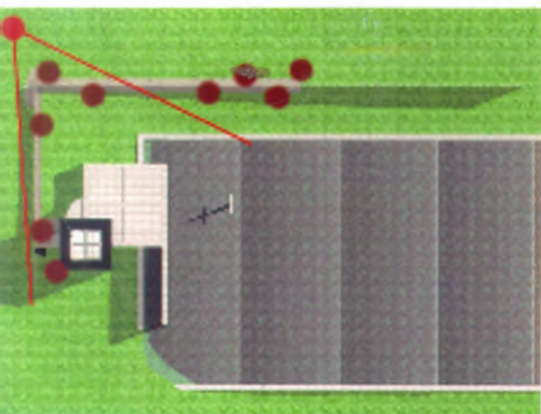


Figure 93

Layout Plan of the church



Figure 9
Aerial view of church



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Figure 95
The reflection of the Holy Cross in water

" From this point visitor descends a darkened stairway to emerge into the rear of the chapel. The wall behind the altar is fully glazed, providing a panorama of the lake, in which the large crucifix is seen rising From the surface of the water.

(Ando.T,Complete works of Tadao Ando p.240)



Figure 96
the large crucifix is seen rising From the surface of the water.

Meaning of this architectural endeavor finds its deeper contemplative episode; the climax with the expression of water, creating a contemplative, sacred expression have had alter is placed, as to average from the water which can be seen from back wall .

3.1.3 Serene & Tranquility

❖ **Kaludiya Pokuna Monastic Complex**

A short path rising from the high road for some fifty yards amidst boulders, to a level area, takes you to the ruined area of the **Kaludiya Pokuna**. The central attraction of this monastic complex is the black water pool. The name 'Black Water Pool' was given to this Pond because of the colour of the waters created by the reflection of the rock boulders and shady trees of the forest. Around this pond are the remains of an Arama consisting of bathing houses, meditation halls, and walled caves.

Water was an important element in the traditional landscape. The rock cut pool which looks like a natural pond, measures 200 feet in length and is 70 feet wide. Buildings were mostly located in relation to water. Kaludiya Pokuna was undoubtedly a place for spiritual exertions and this is established by the presence of a padhanaghara at the south west of the Kaludiya Pokuna.



Figure 97 Areal view of kaludiya pokna

Kaludiya had terraces along the axial path, with built or rock cut steps and rubble retaining walls of dressed granite slabs. Rainwater was carefully channeled from terrace to and led to the main pond.



Figure 98

Harsh edges of rock boulders blended with sleek undisturbed water sheet creating tranquility.

Harsh edges of rock boulders blended with sleek undisturbed water sheet makes very calm and peaceful environment at “**Kaludiya Pokuna Monastic Complex**” at Mihintale.



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Figure 99

❖ Kandalama hotel

Kandalama hotel can be cited as an architecturally simple, almost monastic building with its minimalist structure acts as a belvedere from which to observe the remarkable landscape. The architecture is stark and understated, emphasizing the idea of a giant belvedere by the Archt. Geoffery Bawa.

The Kandalama hotel represents a picture of excitement, presenting the soaring vistas across uncluttered spaces, secluded patios, and digression through unexpected framed views quiet areas for contemplation and alluring punctuations that redeem the repetitive.

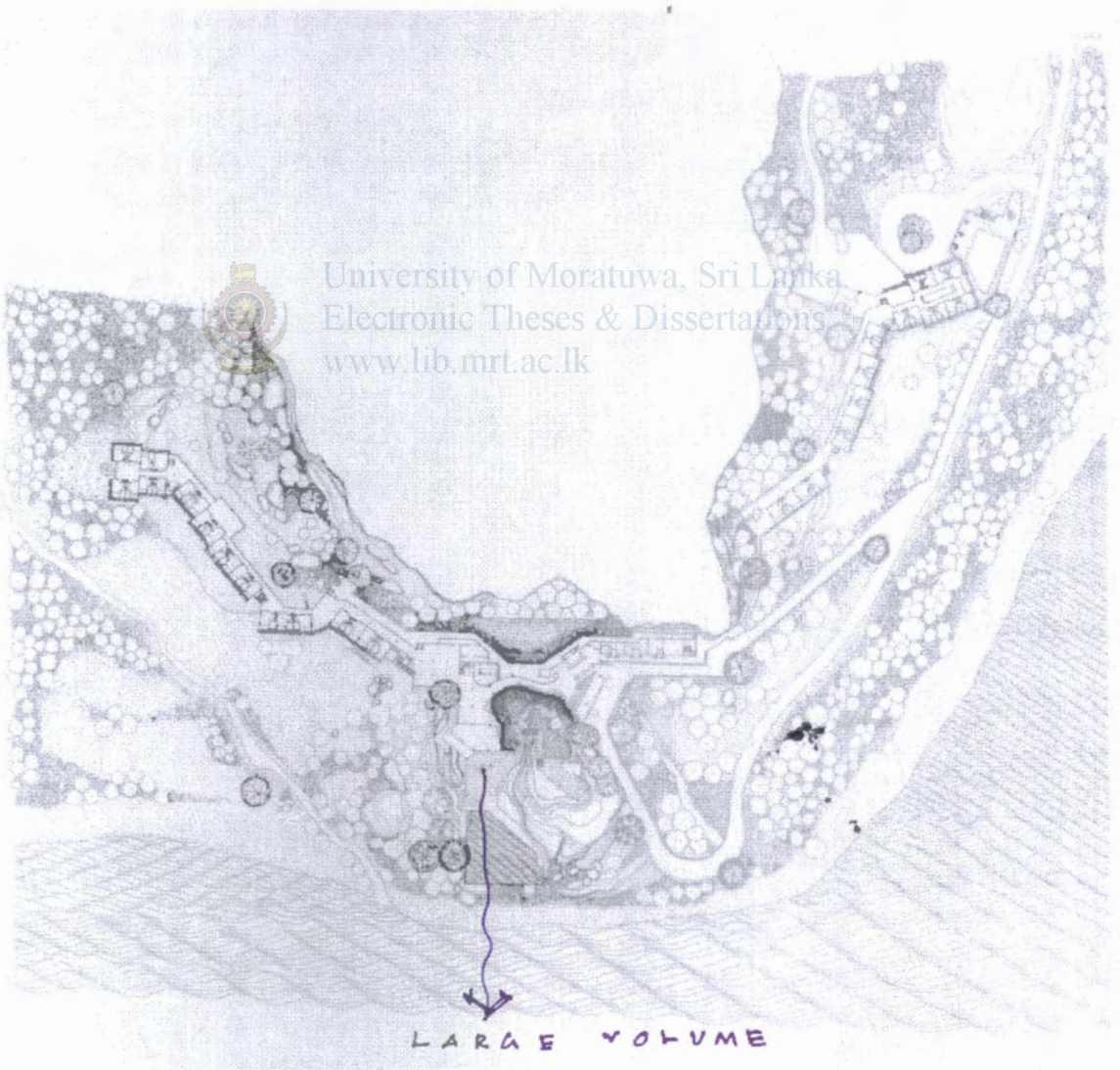


Figure 100 Plan form of Kandalama hotel

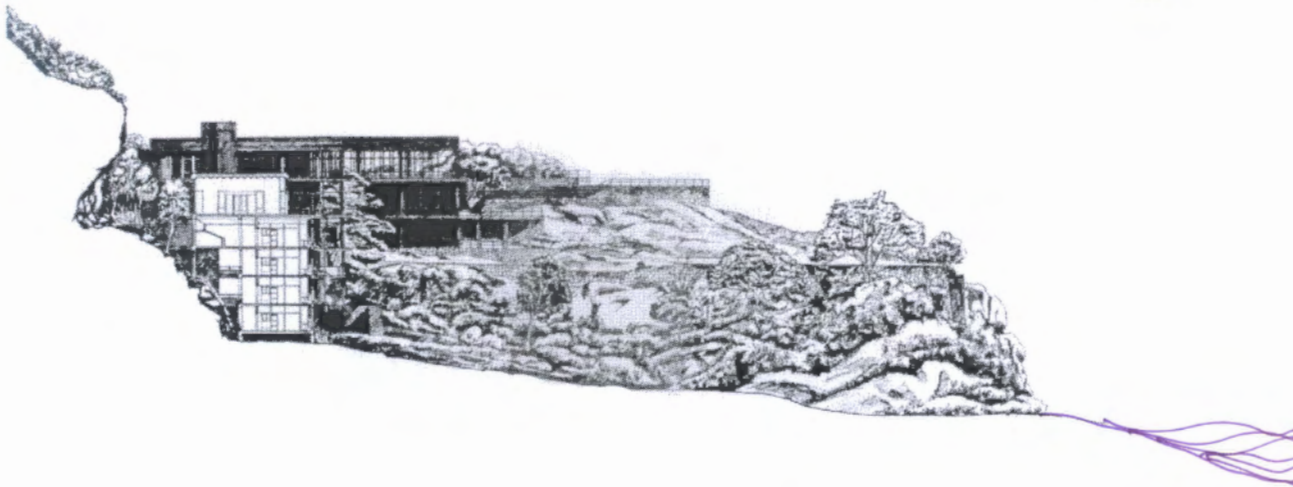


Figure 101 Section of Kangdalama hotel



Figure 102



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Lit up swimming pool which seems to hang like a shelf on the edge of the cliff is a glowing fragile by night

To achieve the goal of creating a sense of tranquility , Bawa has used water , lighting and the nature in such a way that one thing cannot be isolated . They all are blended within harmony.



Figure 103

Thick vegetation of natural environment and the built structure has harmonized with water creating a feeling of serene & tranquility.

3.1.4 Movement

❖ **Hotel Blue Water**

As earlier discussed in **Blue Waters** provides an ample evidence that water has many distinguishing qualities. Plan form of the hotel (figure 10) the orientation of the reflecting pond along the repetitive pillars of the corridor encourages the movement and helps the **space to be integrated with the neighboring spaces and maintain continuity**.



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Figure 104

Movement in relation to the neighboring spaces

Larger reflective surfaces of light on water has created rich interpenetration of spaces while creating a drama between light, water and space in **Hotel Blue Water**.

❖ **Taj Mahal,**

it is well-known, was built by the Mughal Emperor Shah Jahan in the memory of his Empress Mumtaz Mahal. As symbols of undying love go, it is one of the most deservedly famous and and best examples of unparalleled excellence in Indo-Persian architecture.



Figure 105

Linear form and the proportion of the reflecting pond comparing with the human scale encourages the movement towards the sacred object; The Taj Mahal while reflecting the grandeur of the built structure which stand at its opulence.



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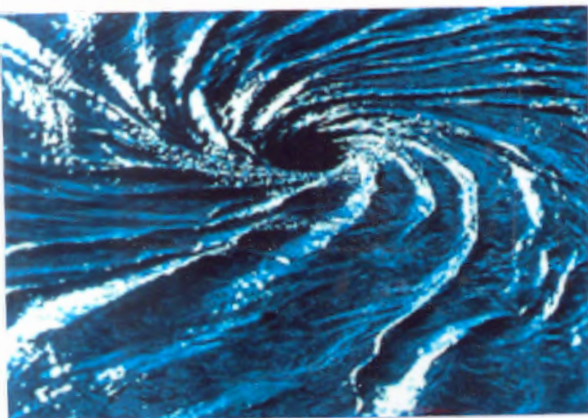
Figure 106

Linear form of the pond enhances the movement towards Taj Mahal

Sir Edwin Arnold wrote about it -

*"Not architecture! As all others are,
But the proud passion of an Emperor's love,
Wrought into living stone, which gleams and soars
With body of beauty shining soul and thought."*

3.2 CASE STUDY TWO - PLAYFUL & DANCING



Background

The **gentle flowing of water** creates playful & dancing effect which is one of the expressions in dynamism of water. Sound of water is important as its visual qualities. For at each step there is a gurgle which creates a doppler like effect.

Rhythm and freedom are some of architectural emotions which result from those expressive qualities of flowing water.

3.2.1 Rhythm

❖ **L'Esposizione Universale di Rome**

Dynamic and playful flow of water in step form creates a rhythmic environment and emphasizes the life within architecture.



Figure 107

L'Esposizione Universale di Rome

This obstructed falling of water space in **L'Esposizione Universale di Rome** creates more dramatic environment in terms of sight and sound and consequently be more easily noticed than free falling.

Repetition in series enhance the poetic quality of space , in which all elements are rhythmically with beat and intervals. Even though where elements are not repeated as above , eye tends to group elements that are close together in proximity and enjoy the rhythmic composition.

❖ **Dancing fountain at Las vegas**

Fountains have always been important features in architecture and landscaping. Modern-age fountains create incredible entertainment. People always gather for endless photo opportunities and a truly different experience.



Figure 108

Musical fountain at Las vegas

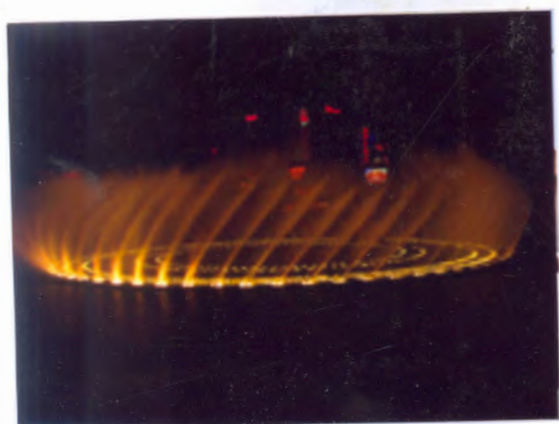


Figure 109

Movement of water has synchronized with rhythm of the music.

Dancing fountain at Las vegas is a marvelous example showing the musical rhythm harmonized with the movement of water creating cheerful emotions. There the rhythm has been achieved without the repetition. The dynamic quality of water has used to its maximum to get the correct feeling. The other important aspect is that colours and lighting effects also has been incorporate to the design to enhance the real cheering effects of the water.

3.2.2 Freedom

❖ Hotel Triton

The setting of the Triton hotel is idyllic along stretch of unspoiled palm fringed beach on the south west coast beside the Indian ocean. So the site largely shaped the design of the hotel which is married to water.

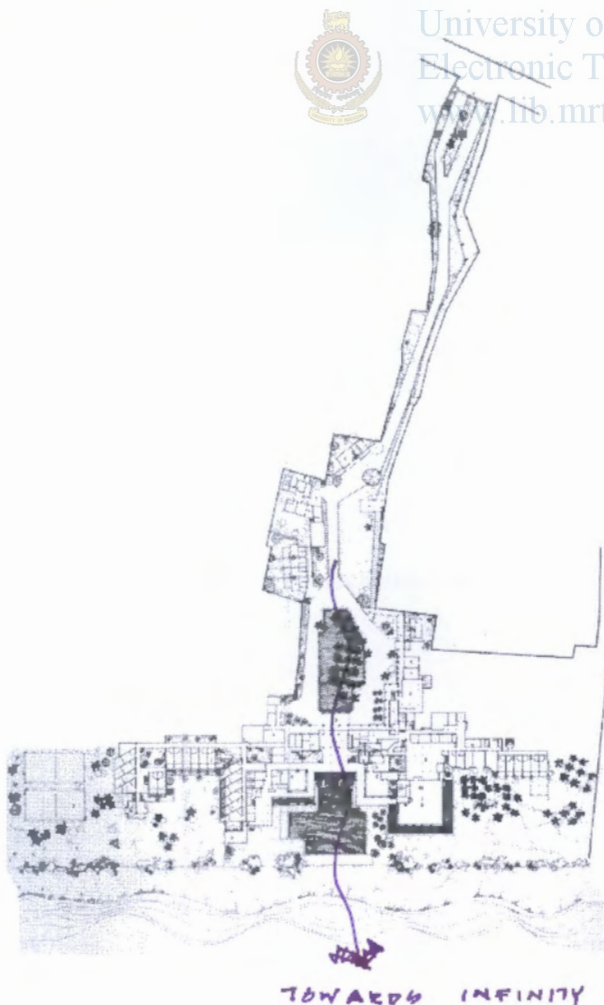


Figure 110
Layout Plan of Triton

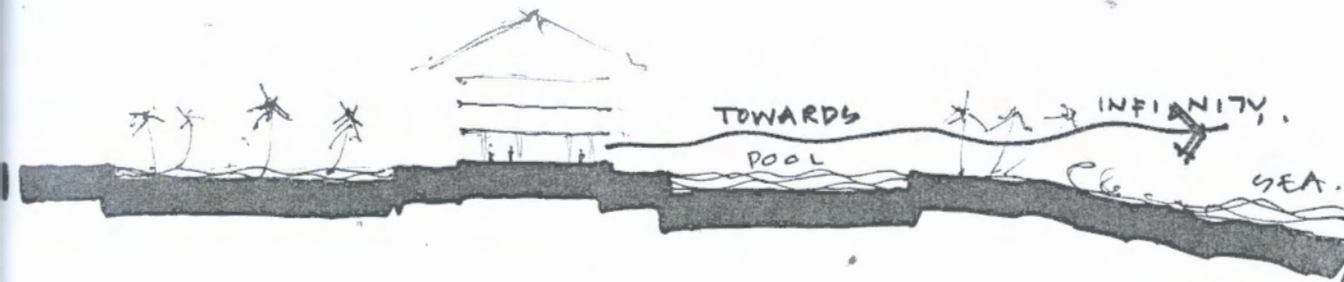
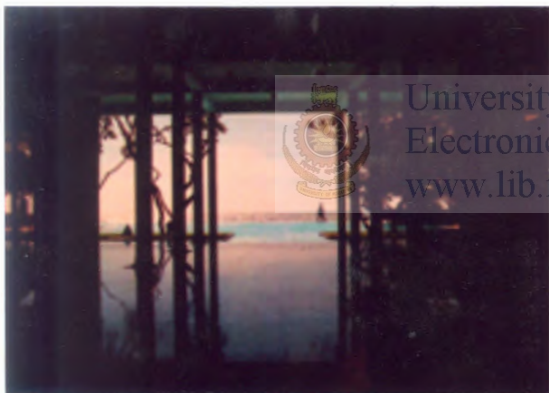


Figure 111 Section of Triton



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Figure 112

The interior space flows and integrates with the exterior towards infinite horizon giving a sense of freedom.

Depth and the scale of the lobby comparing with the volume of the outdoor space and views of the gentle waves of reflecting pool which occurs due to the sea breeze, implies the free flow of imagination which also acts as a pull factor to proceed user freely by extending his personal space to infinity.

❖ Kandalama hotel

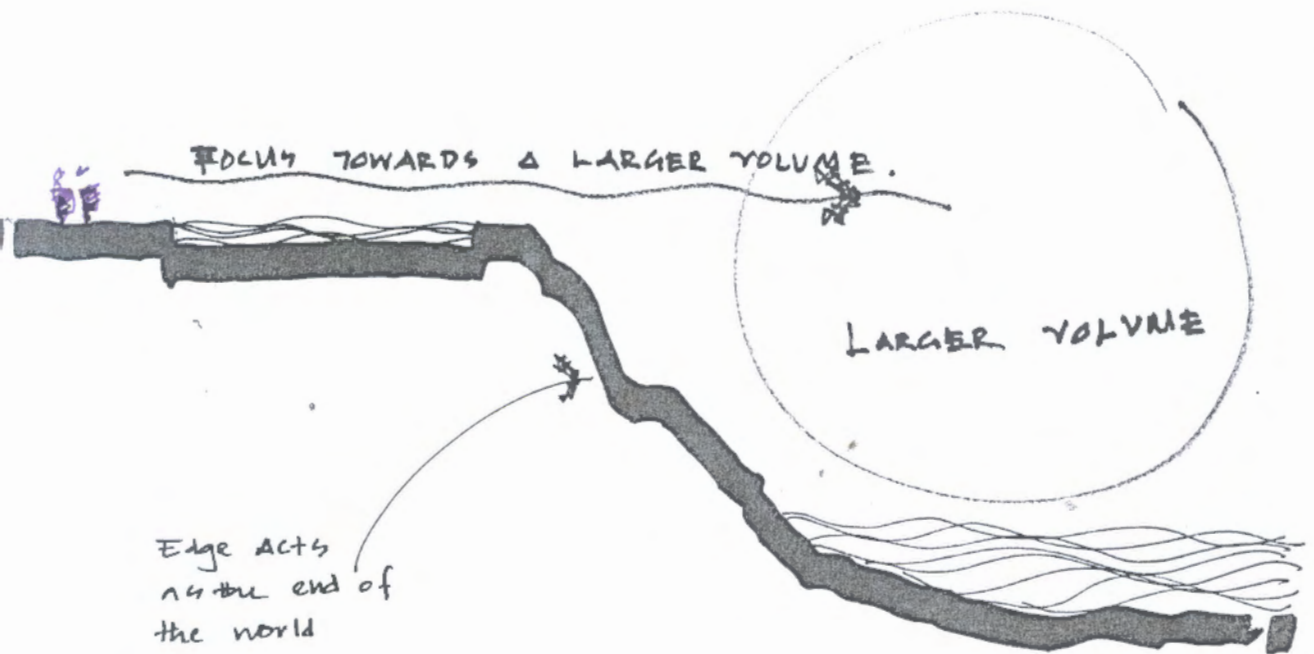


Figure 113 Section through the pool



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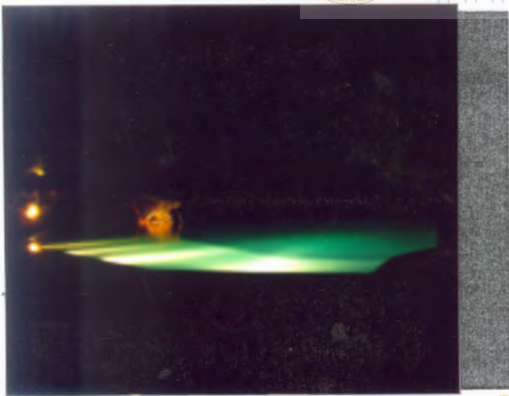


Figure 114
 Lit up swimming pool of Hotel Kandalama which seems to hang like a shelf on the edge of the cliff is a glowing fragile by night

The way it blends with the nature and locating it at the highest level at the edge of the cliff focusing a large volume of undisturbed natural setting, and the gentle waves of pool created by natural breeze enhance the sense of freedom.



❖ **Hotel Blue waters**

“Sight and sound of water stirs the most elements and basic roots of human mind.”

(Lawrence H., Cities., p.134)



Figure 115

Free falling of water at the lobby

With framed infinity.

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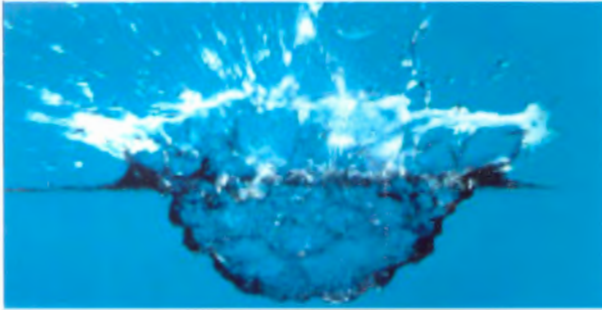


Figure 115

Quality of the free falling has enhanced by using lighting effects

The water which starts at the upper lounge gently falls down as a sheet of water to a lower pond freely at the main lobby of Hotel Blue waters. It touches the deepest emotions while the dancing quality and the murmuring sound of this water blending with the framed views of infinite horizon is to have a healing and calming ability and thus creating a sense of freedom.

3.3 CASE STUDY THREE - RAGING & EXPLODING



Background

“ The vast range of qualities that water is shaped into by environment sets the stage for profound poetic interpretation and inspiration for architect. ”



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(Charles Moore, p. 16)

The qualities of water are infinite in their variety. In depth, water may range from deep to no more than a film of surface moisture. In motion, from rush to gush, plumper, spurt, spout, spilt, spray, or seep. In sound from tumultuous roar to murmur. Each attribute suggest a particular use and application in built environment.

Rushing water with a tumultuous roar of sound gives raging and exploding quality to water.

3.3.1 Beauty & Excitement

❖ Light House hotel

The is situated on a rocky outcrop and sits tightly between the main road and the sea about a mile to the North of Galle. The sea is in hospitable but the views are stunning.

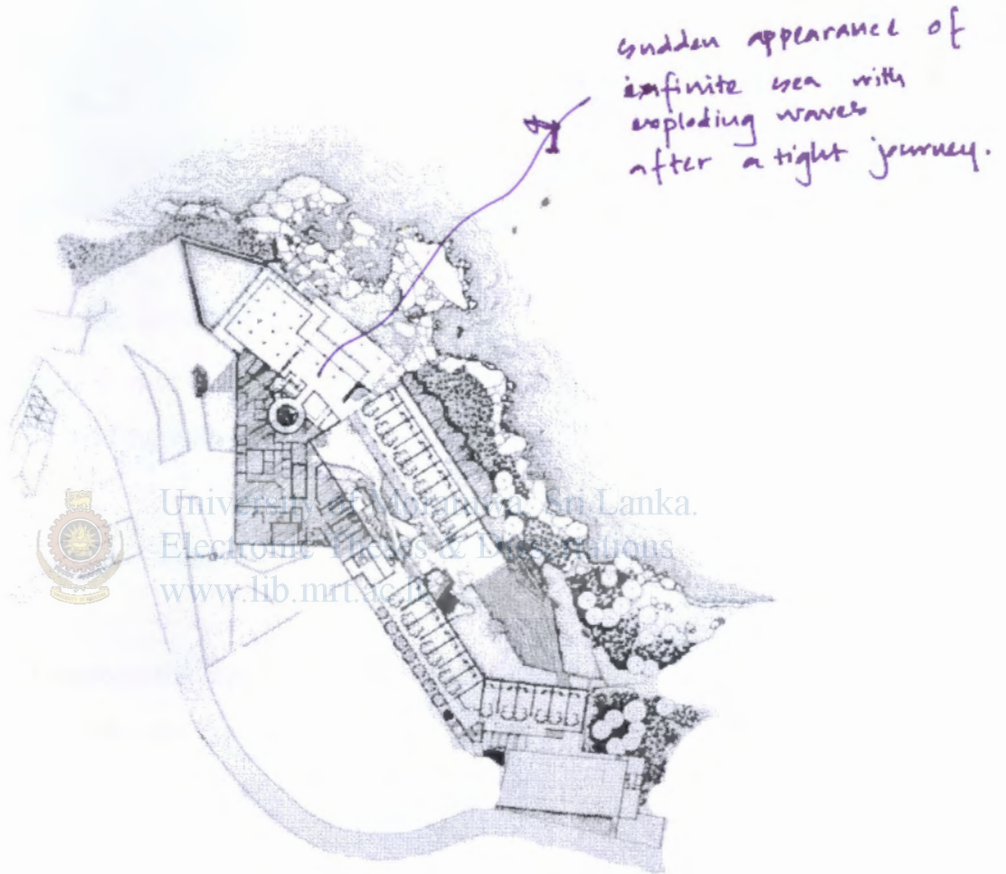


Figure 117 Layout plan - Light house hotel

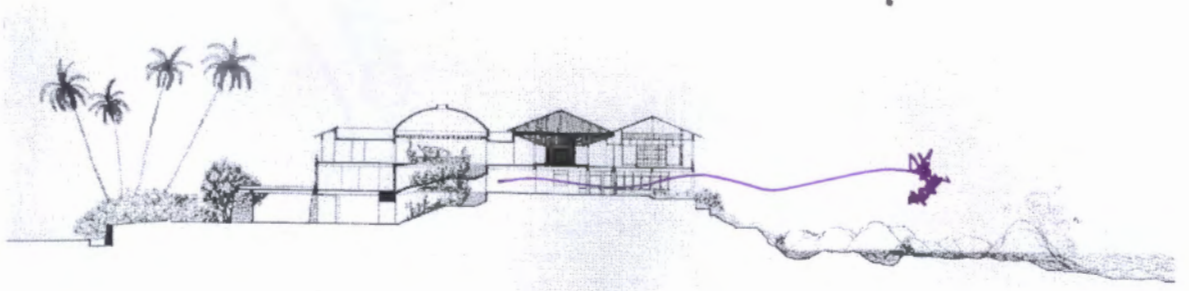


Figure 118 Section - Light house hotel



Figure 119

Sudden appearance of the sea

Sudden appearance of ragging and exploding quality of the sea which could be experienced after a tight journey of the sculptured stairway at the hotel creates exciting feeling blending with the beauty of the nature.

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Unpredicted appearance of the exploding quality of entrance fountain at Leisure World blooms the mind after a tired journey of the High level road. The spray of water

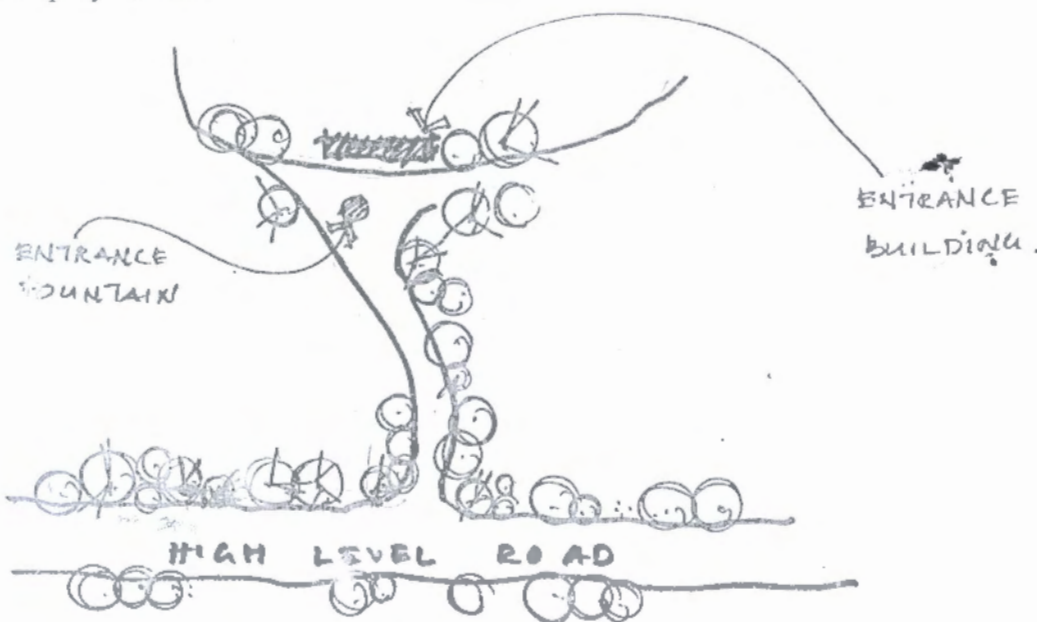


Figure 120 Spatial progression of entrance path



Figure 121
Entrance fountain at Leisure World

3.3.2 Pleasure & Enjoyment

❖ **Fort worth water garden at Texas**

Water being one of the most essential and closely related natural element in a flexible fluid form, it pleases and arouses human senses creating pleasure.



Figure 122
Gigantic scale of the fountain gives a dramatic experience

Fort worth water garden at Texas is one of the most suitable example where the ragging and exploding quality has used to its maximum to gain pleasure. This was built in downtown Fort. Worth, Texas over 20 years ago. It was designed by the architect Phillip Johnson.

Unlike other water fountains which only visually pleasing , this one allows you to actually walk into the fountain itself. At the bottom of the steps your **senses are completely surrounded by the roar, the sight, and the feel of the rushing water**. It is a great place to escape the Texas heat and enjoy the pleasure of life.



Figure 123

Senses are completely surrounded by the roar of the rushing water.

This outdoor public sculpture garden containing a dramatic blend of modern sculpture and cascading fountains. Dropping below street level by almost 100 feet, this urban gorge is filled with plants and trees, around which water rushes, spills, swirls, and cascades into a series of pools.



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Figure 124

Actual participation gives life experience

❖ Leisure World

Leisure world at Kaluaggala is a water park which has recaptured the simple enjoyment of the sea side , with added interest of water rides and water play equipments in the character of family amusement parks.

Figure 125 Layout plan of water park





Figure 126
Slides

The individual features has provided a scope for imaginative design , both in the use of water elements , the ambiance of the water environment and the actual mechanics of various water activities.

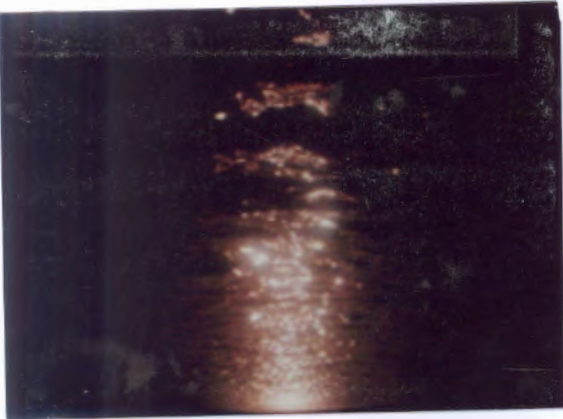


Figure 127

Wave pool recaptured the simple enjoyment of the sea side

Wave pool generates fan waves on to a simulated beach. Chutes , slides , flume rides , activity pools and flow channels provide a day's relaxation and leisurely enjoyment.

3.4 CASE STUDY FOUR - SHIMMERING & GLITTERING



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Background

The pattern of water is always stimulating , yet relaxing , as it swirls around stones, bubbling and gurgling as it flows down stream.

“ Rhythmic pattern of predictable sameness , combine with moderate diversity , allows the senses to maintain optimal levels of response and experience comfort. ”

(Anthony Wilson, 1985)

The shimmering and glittering mostly bounds with the lighting effects of environment.

Visual quality of water depends largely on its activation and the way it reflects light. Relaxing and the sensory pleasure are the main architectural emotions discussed here which generates by the effects of shimmering and glittering expressions of water.

3.4.1 Relaxing

❖ Hotel Blue waters

With water we touch our primal rhythm which gives us both balance and physical and spiritual renewal which is simply calls relax. By stepping out of the familiar human realm into wilderness we as individuals and as a culture may find inspiration and wisdom.

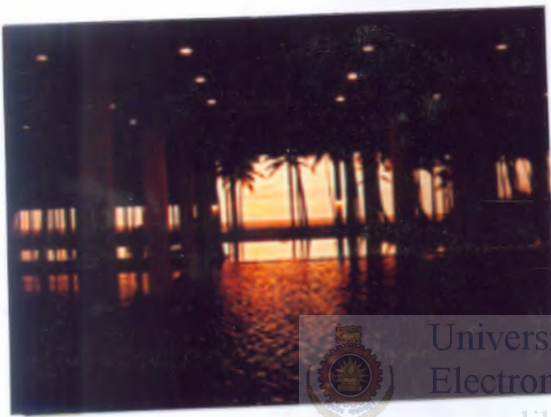


Figure 128

Undulating surface of water provides opportunity to marvelous reflections of light.



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The proportion of the white pillars of **Hotel Blue waters** that stands within the ponds of flowing water have been clearly calculated to extend that the pool the sea beyond and the palm trees standing in between appear to be continuation of the ponds.

Experiencing the patterns of glittering water and shimmering effects plays very important role in giving relaxing spatial quality. **The orchestration of shining splendor of water was used for emotional intensity and symbolic , poetic expression.**

❖ Boulder garden

Boulder garden is set against the lofty mountain in the tranquil, healthier jungle demarcating the tea and paddy terraces at Kalawana in Sri Lanka's South West region. It is an all suite boutique hotel, which allows you to indulge in nature blending with the luxuries. Nature related activities such as Trekking, Bird watching, Cave tours, Kayaking Trips, Sinharaja Rain Forest visit, where water has softened the harsh edges of rock boulders giving a sense of relaxation.

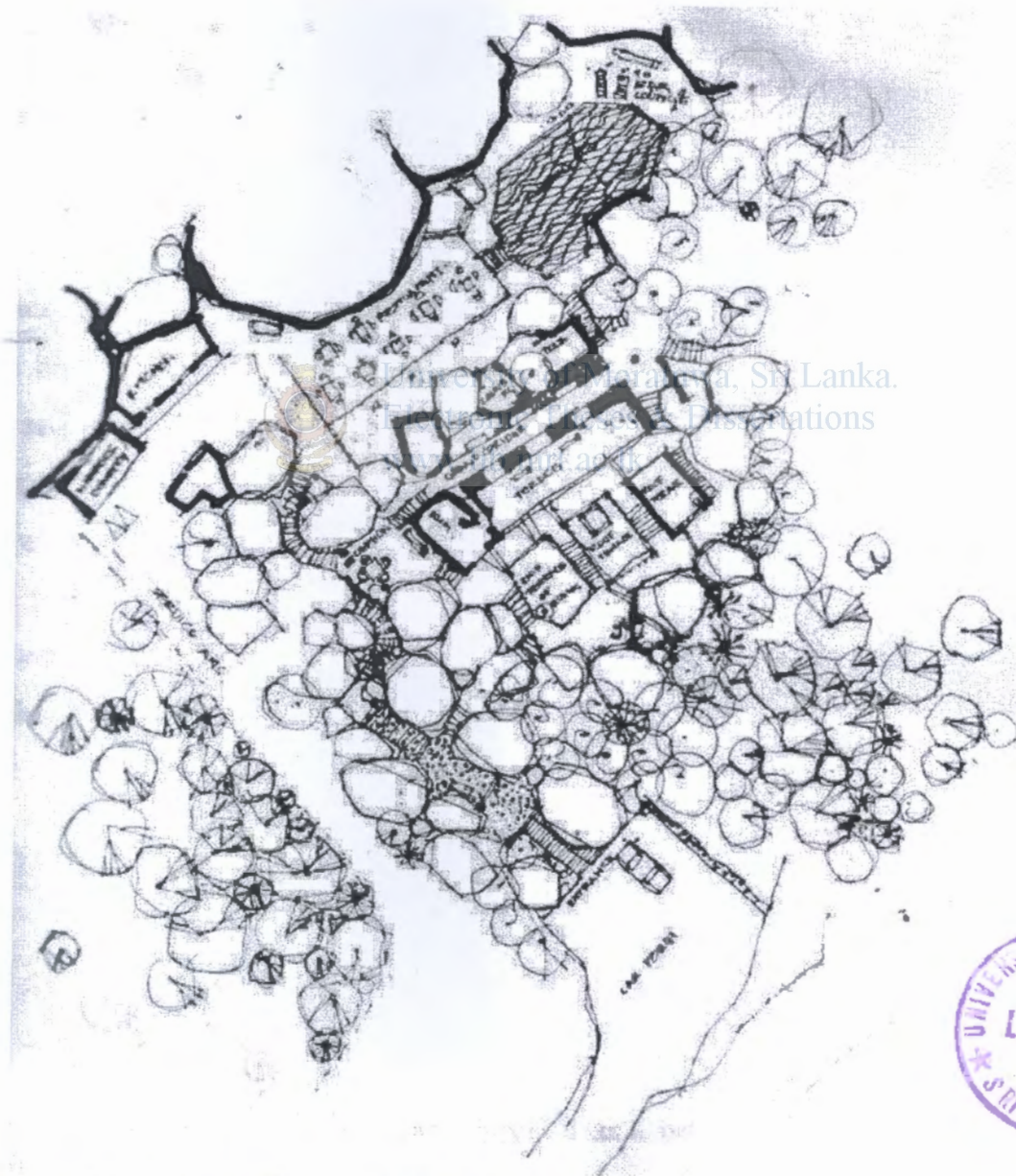


Figure 129 Layout plan - Boulder garden





Figure 130

Dining at Boulder Garden



Figure 131

Dining at Boulder Garden

Dining at Boulder Garden provides another high point where main restaurant rest under a canopy of tropical forest rock aligning to a shallow reflecting pond and is linked by shaded and rocky paths to rooms.

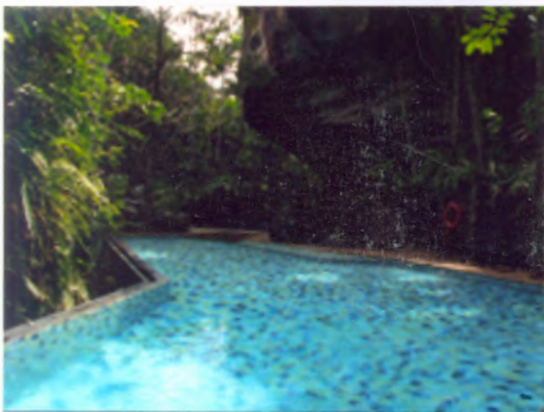


Figure 132

spring-water swimming pool

Reflecting shallow pond and the spring-water swimming pool nestled beneath the trees, are some of the picturesque features of this wondrously charming hotel located in quiet and luxurious surroundings which gives really a feeling of retreat. It provides a sanctuary of serenity and beauty for the extreme in relaxation.

3.4.2 Sensory Pleasure

❖ Hotel Blue Waters

Dynamic quality assists in amplifying the melodious sound of falling water where the passage of water elements within the composition , consolidates many audio-visual qualities, and the **combination of quietness and action creating sensory pleasure** can be clearly experienced at the **Hotel Blue Waters** at Wadduwa which was designed by Geoffery Bawa.



Figure 132

Silence and movement



Figure 133

Shimmering effect amplifying the sensory pleasure

CONCLUSION

“ Water –, life giving, life healing and life enhancing” each and every creature in this world has become a dependant on water. This life giving water appears over and over as a common thread woven through the religion, literature, and art of every culture. So this living quality of water with its amazing ability to address the user psychology can do wonders to the built environment.

In this sense water can be manipulated to create a dialogue between the beholder and the space. The power of the mystical, metaphorical and poetic handling of water and the conscious manipulation of water for deeper layers of spaces create a poetry in architecture.

Even few drops of water can represent the poetic splendor of the water source. Water; in all of its variations, interpretations, and presentations, generates a vast range of emotions in architecture.

Through this study it has clearly illustrated the nature of the moods in water and the way it contributes to the spatial poitivity.

“ Architectonic qualities of water channels, fountains, the sound of water splashing or trickling through foliage, combined with the scent and colour of flowers, ornate and structures and decorative surfaces all contributed towards creating the qualities of delicacy, sensibility and delight.

(Wilson Anthony, Aquatecture, 1986.,p.156)

The conclusion of four expressive qualities of water which was selected for the case studies could be summarized as follows.

CASE STUDIES	EXAMPLES	PHYSICAL CHARACTERISTICS	NATURAL WATER
1 Soothing and Placid			
Eg. 1	Hotel Blue Water	Human scale, geometric shape shallow pond	Cristal in stat
		Human scale, lenear , rectangular shaped shallow pond has located along the corridor	Cristal in stat
Eg. 2	Hompuku-ji water temple	Larger scale oval shape pond	Dark v form
Eg. 3	Water vessel at a door step		Cristal in stat
Eg. 4	Vast water body locating the vicinity of temples	Larger scale water body in irregular shape	Dark v form
Eg. 5	Seemamalakaye	Irregular shape large water body	Dark v form
Eg. 6	Tajmahal	Larger scale, geometric shape dark pond	Still w
		Larger scale linear pond located perpendicular to the sacred object	Reflec with st
Eg. 7	Chapel on Water	Panoramic views of the lake,	Cristal in stat



OF	OTHER IMPORTANT ASPECTS	CONCLUDING REMARKS	ENHANCED EMOTIONS IN ARCHITECTURE
ar water rm	Reflections of the sky and the surrounding , Visual links with the horizon	Unruffled clear water in the shallow pond with reflections of the sky and the surrounding expands the personal space into infinity with contemplation .	Contemplation
ar water rm	Repetitive pillars of the corridor	The orientation of the reflecting pond along the repetitive pillars of the corridor encourages the movement and helps the space to be integrated with the neighboring spaces and maintain continuity and movement .	Movement
r in static	Floating water lilies which is a symbol of Buddhist Enlightenment, Locating the pond at the highest level , Visual links with the horizon	By locating the pond at the highest level and allowing the user to descend through the pond by giving a feeling of sinking in the water with the sight of infinite sky makes the user contemplate on the life. Walking between the lotus flowers, one feels that this is a place which transcends day-to-day life, a place where the combination of architecture with nature and the reverberation of the placid mirror of water naturally lead to meditation and contemplation .	Contemplation
ar water rm	Common beliefs in the society regarding the magical power contained in water (Eg . evil spirits or the evil can not cross water)	Symbolize the protection from evil spirits, and stimulates devotion .	Devotion
in static	Locating the vicinity of temples	Symbolizes the spiritual rejuvenation and generates devotion in observers mind.	Devotion
in static	Floating effect of the temple ,	surrounded by the lake symbolizes the sacredness achieved by the use of water creating devotion in human mind.	Devotion
	Mirrored images of the large monument	Mirrored image on still water and the darkness of the pond create a sense of devotion .	Devotion
ond ater		Linear form and the proportion of the reflecting pond comparing with the human scale encourages the movement towards the sacred object;	Movement
water n	Locating the crusifix in the middle if the lake.	Large crusifix is seen rising from the surface of the water creates contemplative devotion .	Contemplation & Devotion

	Eg. 8	Kaludiya Pokuna Monastic Complex	Irregular shape large water body	Dark form
	Eg. 9	Kandalama hotel	Irregular shape pool of water	Clear form
2 Playful and Dancing	Eg. 1	L'Esposizione Universale di Rome	obstructed falling of water space in with sight and sound effects	Dynam water falling
	Eg. 2	Dancing fountain at Las vegas	Number of fountains of water with chuting effect	Water form
	Eg. 3	Hotel Triton	Geometric shape of shallow reflecting pond	water v occatio waves
	Eg. 4	Kandalama hotel	Irregular shape pool of water	Dynam occurs occatio breeze
	Eg. 5	Hotel Blue Water	Geometric shape ponds located in different elevations allowing free fall	Free fa water f dynami
3 Ragging and Exploding	Eg. 1	Light House hotel	Endless volume of the sea	The rag explodi the sea dynami water
	Eg. 2	Leisure World	Circular shaped pond with four fountain jets	Four jets tog creates effect

static	Pensive stillness of water has surrounded by solid rock boulders.	Harsh edges of rock boulders blended with sleek undisturbed water sheet creates tranquility .	Serene & tranquility.
static	Surrounded by the views of thick vegetation	Thick vegetation of natural environment and the built structure has harmonized with water creating a feeling of serene & tranquility .	Serene & tranquility.
of structured		Repetition in series enhance the poetic quality of space , in which all elements are rhythmically with beat and intervals.	Rhythm
amic	colours and lighting effects also has been incorporate to the design to enhance the real cheering effects of the views towards infinity	Movement of water has synchronized with rhythm of the music. The rhythm has been achieved with non repetition.	Rhythm
ntle		The gentle waves of reflecting pool which occurs due to the sea breeze, implies the free flow of imagination .	Freedom
water the natural	Locating the pool at the edge of the cliff	Locating the pool at the highest level, at the edge of the cliff focusing a large volume of undisturbed natural setting , and the gentle waves of pool created by natural breeze enhance the sense of freedom .	Freedom
of clear the	With framed views of infinity and the lighting effects on the water	The dancing quality and the murmuring sound of this water blending with the framed views of infinite horizon is to have a healing and calming ability and thus creating a sense of freedom .	Freedom
			Beauty & Excitement
and effect of passes the ability of	The sight of the largest volume of the sea provides after a tight journey	Sudden appearance of ragging and exploding quality, of the sea which could be experienced after a tight journey of the sculptured stairway at the hotel creates exciting feeling blending with the beauty of the nature.	Beauty & Excitement
water and water		Unpredicted appearance of the exploding quality of entrance fountain at Leisure World blooms the mind after a tired journey of the High level road	Beauty & Excitement

Eg. 3	Fort worth water garden at Texas	Obstructed falling of large water space in with sight and sound effects,
Eg. 4	Leisure World	Human scale water bodies and other individual water features with easy accessibility and ability for actual participation
4 Shimmering and Glittering		
Eg. 1	Hotel Blue Water	Human scale,geometric shape pond with framed views of the infinite sea
Eg. 2	Boulder garden	Reflecting shallow pond and the spring-water swimming pool nestled beneath the trees
Eg. 3	Hotel Blue Water	Human scale,geometric shape pond with light reflections

	People are allowed to go in and feel the exploding quality of water	senses are completely surrounded by the roar, the sight, and the feel of the rushing water creating pleasure and enjoyment.	Pleasure & Enjoyment
es of and er of leses in	Actual participation	Wave pool generates fun waves on to a simulated beach. Chutes , slides , flume rides , activity pools and flow channels provide a day's relaxation and leisurely enjoyment.	Pleasure & Enjoyment
urface rides light.	Lighting effects on the surface of water	Experiencing the patterns of glittering water and shimmering effects plays very important role in giving relaxing spatial quality	Relaxing
h shimmering		Reflections of surrounding rock boulders on the shimmering water provides a sanctuary of serenity and beauty for the extreme in relaxation.	Relaxing
urface rides light and ct of		Combination of quietness and action integrating with the shimmering effects of water creates sensory pleasure	Sensory pleasure

Water being one of the most essential and closely related natural element in a flexible fluid form , it pleases and arouses human senses. It has inherent and immutable properties that time cannot alter. After examining the case studies closely , it can be conclude that all of water's expressions in static or dynamic form plays a vital role in generating emotions and the most important aspect of this creation is that each of this expressions could generate not only one emotion , but several different emotions at once.

Therefore an architecture of water element , cannot only identify as the visual and experiential pleasure that water can convey. It also can establish mans custodial role . In this sense architects should be much aware of these expressive qualities of water which provides a dynamic, reflective or experiential element for the built environment by generating emotions in architecture in enhancing poetics of space to create better quality architecture.



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