Planning for Conservation of Heritage Area through Smart Planning Strategies – A Study of Paschimavahini, Srirangapatna, India

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Abstract: The paper presents an overview of the application of smart planning strategies in the management of heritage resources in Paschimavahini. The paper attempts to apply smart planning strategies as a means of conservation for protecting the heritage resources which have been exploited and are facing the axe of developers within the urban scenario.

The methodology applied to study the case of Paschimavahini are as follows - Background history, Recording the present condition of the site, Identifying the problems causing the degradation of the heritage site, conducting a household survey to understand the needs and wants of the people using the space, Activity mapping, Suggesting suitable planning strategies.

To conclude, Retrofitting enables the heritage sites to have an aesthetic appeal within the urban space and aims at educating the community and passing the monuments and sites to the next generation…

Keywords: Retrofitting, Conservation, Preservation, Heritage, Heritage site

1. DEFINITIONS

Urban retrofitting is the development or upgrading of technology for example – energy distribution and consumption within existing infrastructure, it is a common strategy for rapid reductions of carbon footprints. Source - (Hudson. M, 2016).

Conservation – It means all the process of looking after a place to retain its historical and/or architectural and aesthetic, or cultural significance and includes maintenance, preservation, reconstruction, and adoption or a combination of more than one of them. Source-(Model building Byelaws, Government of India -2016).

Heritage – Heritage is our legacy from the past, what we live with today, and what we pass on to future generations, our cultural and natural heritages are both an irreplaceable source of life and inspiration. Source-(UNESCO, world heritage conservation-1972).

The heritage area is the various touchable and untouchable things that are passed to us by our ancestors and have a cultural or social significance. Source-(Model Building byelaws, Government of India-2016)

Heritage precinct means and includes any space that requires conservation and/or preservation for historical and architectural, aesthetic, cultural, environmental, and ecological purposes. Walls or other boundaries of a particular area or place or building may enclose such space by an imaginary line drawn around it. *Source-(Model Building byelaws, Government of India -2016)*

Preservation - It means and includes maintaining the fabric of a place in its existing state and retarding deterioration. *Source-(Model Building byelaws, Government of India -2016)*

2. INTRODUCTION

"People without the knowledge of their history, origin, and culture are like a tree without roots" *(Marcus Garvey,1921).*

"Our heritage – our historic buildings, landscape, archaeology and gardens, and the art, books, and machines that they contain it is a set of essential landmarks to guide our journey from the past to the future". *(History Matters: Pass it on, 2006).*

Preservation of cultural heritage should be an integral part of the development of a city, cultural heritage is a palimpsest and a city is a cultural landscape and like a palimpsest too, has history written on it, over which built environment intervenes with every passing generation. *(Bridge wood and Lennie, 2019).*

India is a country with diverse culture with 3 major religions of the world taking birth in India, India is home to 7 religions of the world (Hinduism, Islam, Christianity, Sikhism, Buddhism, Jainism, Zoroastrianism). Because of the multi-religious and multi-cultural nature of India, the practices and customs are also diverse. India places high significance on places of celebratory and sad occasions which is an integral part of their tradition and rituals. One such site with high religious and cultural importance is Paschimavahini.

Paschimavahini is a small hamlet located in the suburbs of Srirangapatna town, Mandya district, Karnataka state, India. This is a place that is considered sacred and auspicious for the Hindu community, where people come and immerse the ashes of their beloved/ deceased in river Cauvery so that they could attain "Moksha or Salvation".

In India, many religious sites perform the same function as that of Paschimavahini for example Kashi, Prayag Raj, Haridwar, Gaya, and Garh

Mukteshwar in north India. But in south India, Single Kaveri is the only river that is a part of 7 holy rivers mentioned in ancient Vedas, Paschimavahini is the only place this ritual is being conducted.
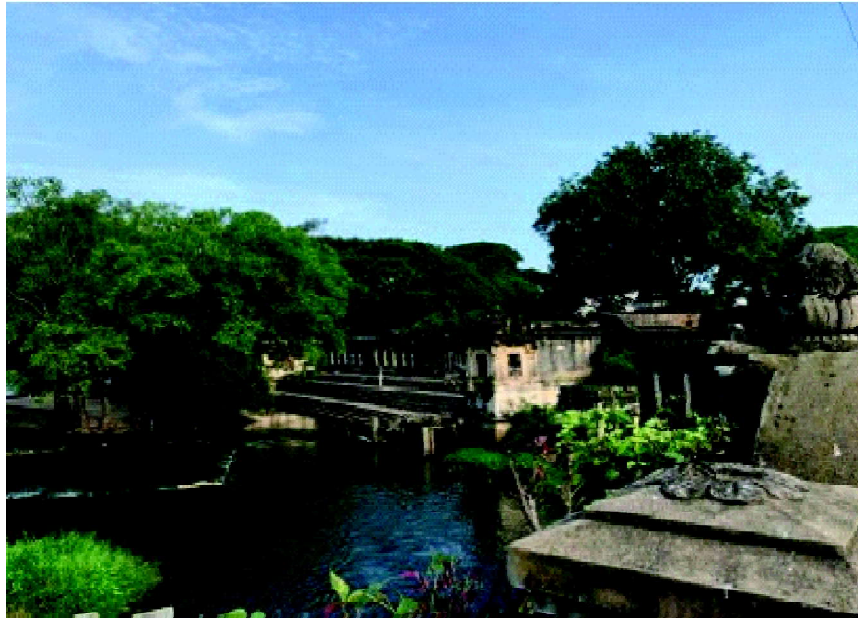
Fig. 1: View of Paschimavahini from NH-275
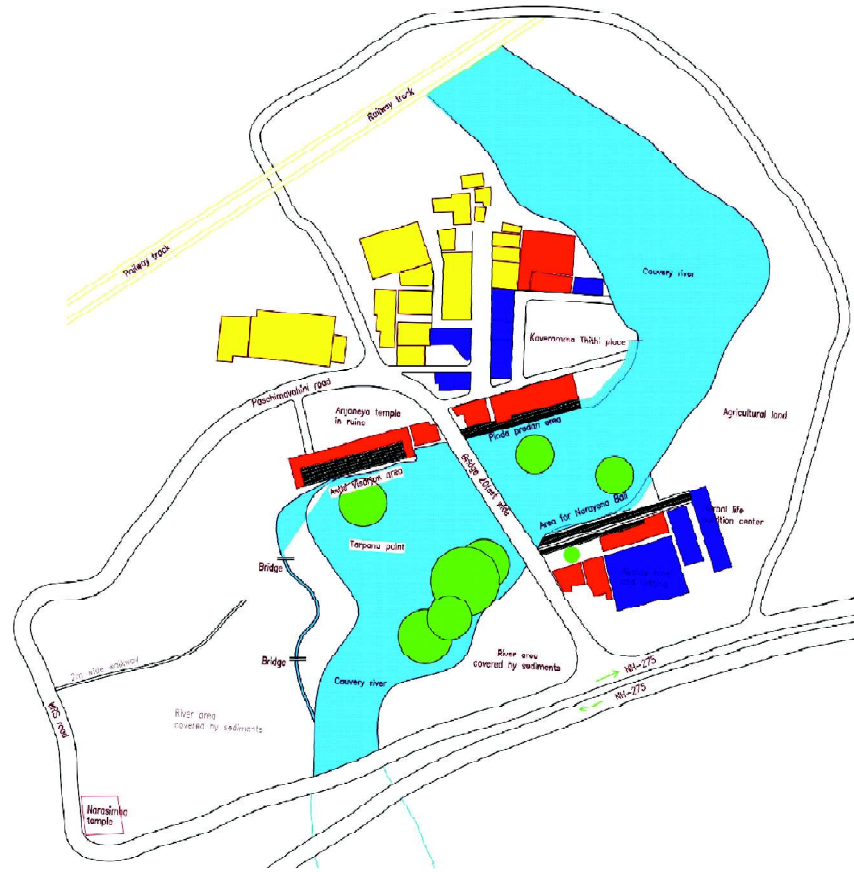
Source: Author Generated

3. STUDY AREA: PASCHIMAVAHINI, SRIRANGAPATNA TALUK, MANDYA DISTRICT, KARNATAKA, INDIA

Based on the survey conducted the total population of Paschimavahini hamlet is 1260 and the total area of the study area is 1.2 KM square where agriculture is the predominant activity practiced in this place and 54% of the population belongs to the Brahmin caste and the other major caste is Vokkaliga which is 38%.

4. WHY IS ASH IMMERSION PRACTICED ONLY IN PASCHIMAVAHINI?

"Paschima" in Kannada means west. Hence, Paschimavahini means that which flows towards the west. River Cauvery flows in their region and later joins Sangam (Congregation of Kaveri + Hemavati + Lokapavani river).

It is believed in Hinduism that the river Kaveri is a holy river. River is believed to flow in heaven before it descends. So, it is also called a celestial

Figure 2: Existing Site Plan of Paschimavahini Hamlet

Source: Author Generated

river. Hinduism believes that immersion of the last mortal remains in river water takes one's soul to the place of gods. Kaveri takes birth in the Bramhagiri hills of Kodagu and flows for 80km until it reaches the sea in Kaveripattanam in Tamilnadu. It is only at Paschimavahini that it takes a western turn and the west is the direction of sunset and metaphorically a symbol of the end of a person's life.

Many people of the current generation have forgotten the practice of ash immersion the ashes of Mahatma Gandhiji were immersed in Paschimavahini on Feb 12[th,] 1948. This place has a few buildings that are at least 100 years old and were built during the period of Mysore Maharajas. As this place is not that well maintained, these buildings are seeing their downfall now.
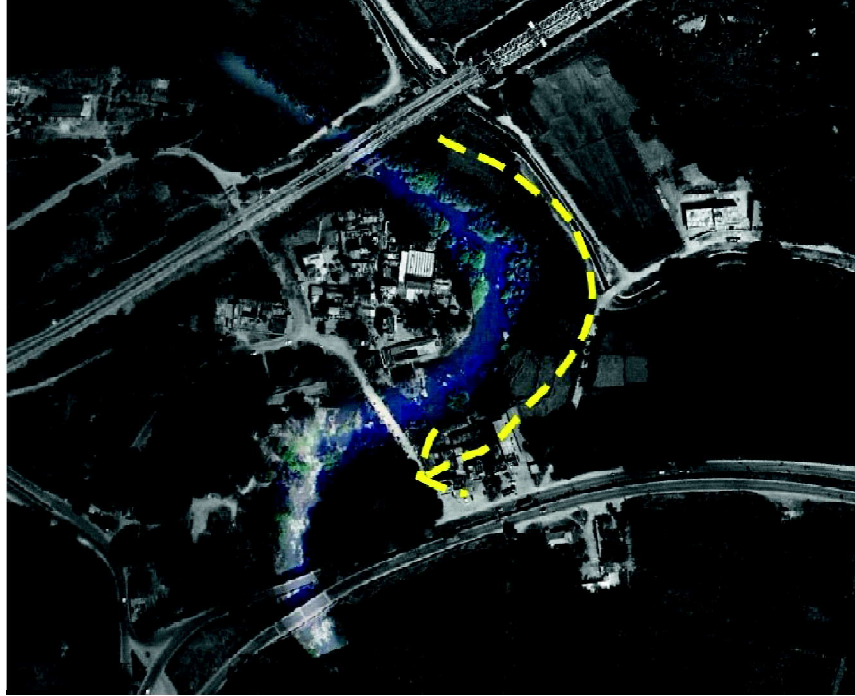
Figure 3: Aerial view of River Kaveri taking a western turn in Paschimavahini

Source: Google Maps image, Analysis done by Author

5. TYPES OF ACTIVITIES PERFORMED IN PASCHIMAVAHINI

- AsthiVisarjan/ Ash immersion
- Pitru Tarpan
- Pinda Pradhan
- Shraadha

5.1. Asthi Visarjan/ Ash Immersion

Asthivisarjan is the holy act of submerging mortal remains of beloved ones in river Kaveri, Hinduism believes that the human body is composed of 5 basic elements air, earth, water, fire, and earth. After death the body decomposes and all elements try to mix themselves into their form through decay. Burning or incineration or Anthim Samskar is the solution for all of this. All bodily elements like fluids, air, and soil come out and finally, some ashes and bones remain. These final remains of a person are immersed in river water in Kaveri so that they can get final salvation.

Figure 4: Carrying Ash remains in an earthen pot

Source: Author Generated

5.2. Pitru Tarpan

According to Hinduism, Pitru Tarpan means offering water to the ancestors to get rid of Pitrurin, water, and food are considered basic items for human survival. So, it is believed that the souls of ancestors also require water and flood (Pind dan). Hence tarpan is done to offer water to the deceased souls.

Figure 5: Pitru Dosh Nirvana Ritual

Source: Shivology article

5.3. Shraadha

The work done with devotion is known as shraddha, there is also a sunray called shraddha which rises at noon and provides elements essential for life to human beings and to conduct Japa (Reciting holy hymns), pooja

(worship), shraddha, etc. That is why there is a tradition of conducting shraddha in the afternoon. Therefore, as various necessities are required for survival, similarly shradh is essential for the satisfaction of ancestors.

Ancestors being satisfied by the shradh ceremony customs their blessings on their heirs in forms of happiness and prosperity.

Figure 6: Shraadh Ritual

Source: Author Generated

Figure 7: Shraadh Ritual
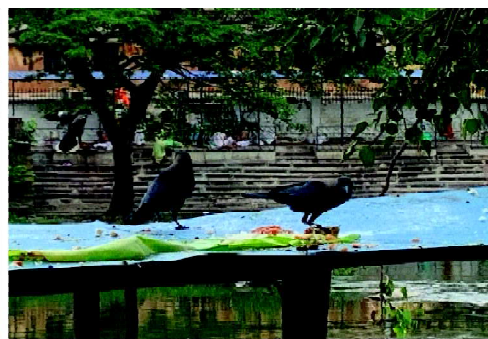
Source: Author Generated

5.4. Pinda Pradaan/ Mukti Marg

Pinddaan is primarily a practice aimed at the attainment of mukti or freedom from the cycle of birth, death, and rebirth. It is a practice that one carries out as an effort to aid the souls of one's ancestors in achieving deliverables from what may be expressed as the Hindu equivalent of purgatory. It is believed that the execution of this practice from a specific place on a specific date helps one's forefathers be delivered permanently into the ultimate plane of peace.

Figure 8: Pind Daan

Source: Author generated

Figure 9: Offering Pind to Birds

Source: Author Generated

6.   PROBLEM STATEMENT

The mythology, folklore, and rich heritage of Paschimavahini are widely recognized. Despite the study area's abundance of cultural heritage, these resources have been negligently managed. The main problem for developments in the area of study has been a lack of planning, development policies, and activity management. All of this has led to the insensitive use of cultural resources, which has caused resource degradation and insufficient economic rewards. The current study focuses on the aforementioned historical preservation challenges. It has been shown that effective development and administration of Paschimavahini's activities may provide residents with opportunities for employment and money generation. The study aims to assess the Paschimavahini cultural site's current condition and suggest potential locations for its ongoing development.

7.   METHODOLOGY

The methodology used in this work includes reconnaissance survey-aided delineation of the study area, A closed questionnaire survey was carried out to get the responses to the questions that were raised by the first observation and documentation of the cultural and physical features within the study area. A questionnaire was conducted to acquire people's opinions to gain a better grasp of their wants and needs. To gain insight into the significance of cultural heritage, monuments, conservation, preservation, etc., several studies of literature have been carried out. Analysis of the data obtained from the aforementioned surveys was done employing maps and pictorial representations of the study area. The maps and graphs were evaluated to find the issues and suggest the most efficient planning strategies.

8.   OPINION SURVEY

An opinion poll was carried out at Paschimavahini, Srirangapatna taluk, Mandya district. The study was intended to reach out to both residents and visitors who come to the sacred site to perform their rituals. A structured interview form was used to ask around 100 respondents, and their responses were analyzed using pie charts, bar graphs, and so on.

8.1. From which place do they come?

The information in the following bar graph reveals where the people who visit the Paschimavahini to perform last rites for their loved ones and other Puja ceremonies permanently dwell. According to the graph, on average,

FROM WHICH PLACE DO THEY COME?
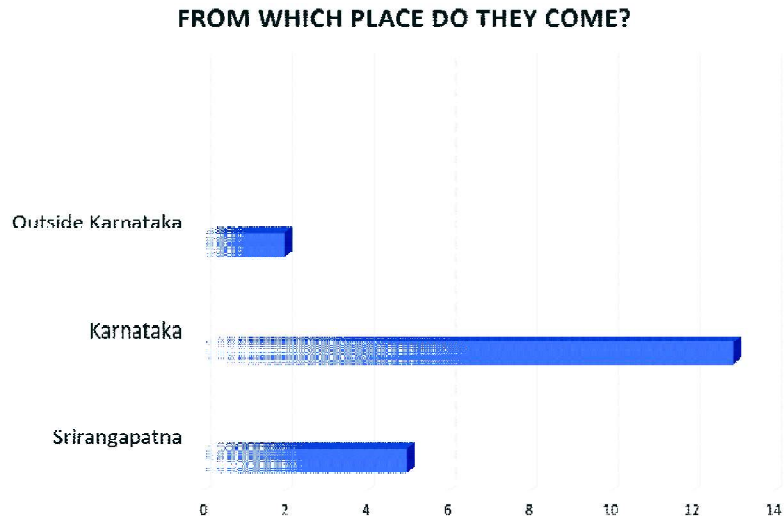
Figure 10: Graphical representation of Questionnaire Survey

Source: Author Generated

13 visitors from Karnataka, 2 visitors from outside Karnataka, and 4 visitors from Srirangapatna come to Paschimavahini each day. Around 25 people often visit the holy place daily and the majority of them hail from the state of Karnataka.

THE AGE GROUP OF PEOPLE VISITING PASCHIMAVAHINI
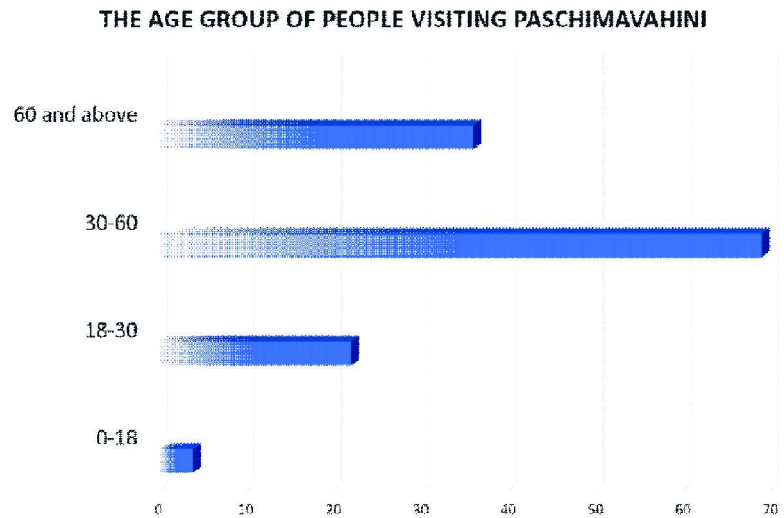
Figure 11: Graphical representation of Questionnaire Survey

Source: Author Generated

8.2. What is the age group of people visiting the Paschimavahini site

The age distribution of visitors to Paschimavahini is depicted graphically in the above chart. The first bar displays the number of individuals aged 60 and older, the second bar displays the number of people aged 30 to 60, the third bar represents the number of people aged 18 to 30, and the last bar indicates the number of people aged 0 to 18. Overall, it is evident that the age range of 30 to 60 accounts for the bulk of visitors to the holy site, with 0 to 18 years old receiving the least number of visitors.
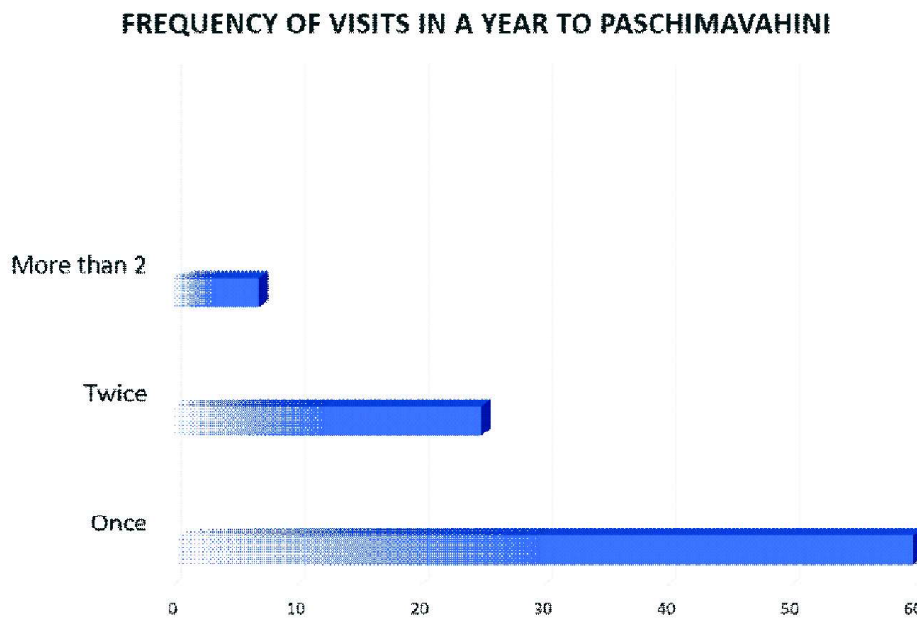
FREQUENCY OF VISITS IN A YEAR TO PASCHIMAVAHINI

Figure 12: Graphical representation of Questionnaire Survey

Source: Author Generated

8.3. What is the frequency of visits by tourists in a year to the Paschimavahini site?

The graph mentioned above illustrates how frequently visitors come to Paschimavahini each year. Using the graph, we can see that the majority of people come to the holy location just once to complete the ceremonies, and no more than ten people come to Paschimavahini to perform different rituals. Based on the data from this graph, we may conclude that most visitors to this holy site only come once a year, and there aren't many regular visitors to the site within the same calendar year.
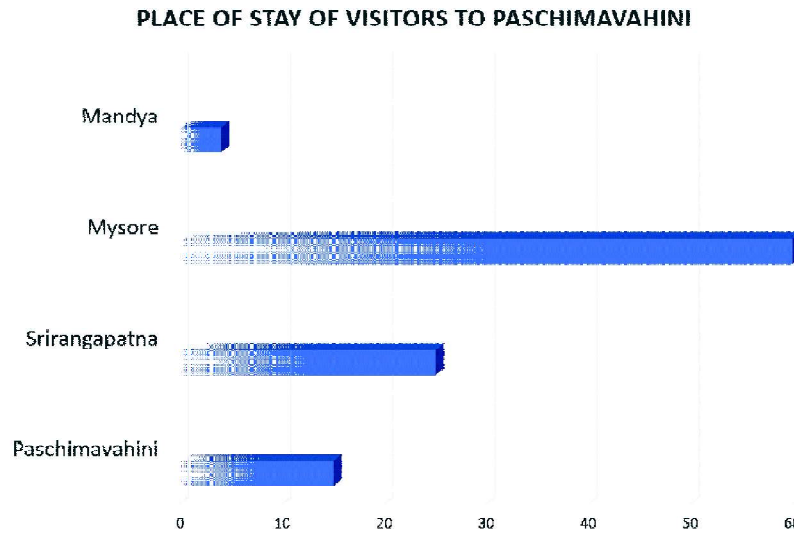
Figure 13: Graphical representation of Questionnaire Survey

Source: Author Generated

8.4. Where do the visitors stay after visiting Paschimavahini

The above graph shows where visitors that travel to Paschimavahini stay. The graph above shows that although Paschimavahini and Srirangapatna provide a wide variety of options for lodging and are near the Holy site, the bulk of visitors prefers to stay in Mysore.
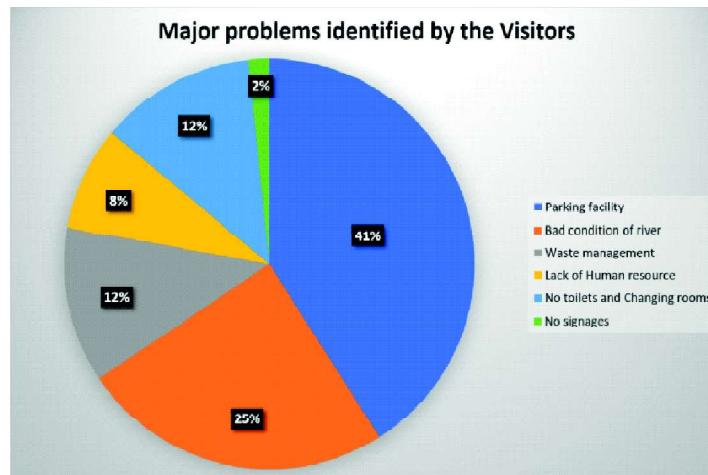

Figure 14: Graphical representation of Questionnaire Survey

Source: Author Generated

8.5. What are the major problems faced by the visitors to Paschimavhini site

The pie chart above illustrates the major problems faced by the visitors during their visit to Paschimavahini. According to the pie chart around 41% of people face parking-related problems,25% of people are finding it difficult to take a dip in the river as the condition of the river is bad and polluted.12% of people faced difficulties in finding changing rooms and toilets and a few people could not find enough human resources like priests, Karmacharis..etc

9. TYPES OF THREATS TO PASCHIMAVAHINI

- **Lack of parking Facilities**: The increase in the number of vehicles and inadequate parking infrastructure has forced people to park their vehicles on the street and lack of monitoring has made it a nightmare experience for the people to pass by and to find a spot for their vehicles to park.

- **Stray dogs and cattle problem:** Cows, buffaloes, and dogs roaming the streets and eating from garbage bins are a common sight in every part of India. Since this is a holy site, people who practice livestock rearing will leave their diseased cows, buffaloes, and dogs in this holy place thinking that they might be recharged by being in this holy precinct. Due to this, the diseased animals are polluting and also infecting the other animals and water they are consuming.

- **Open waste Burning:** As per the National green tribunal act – 2010 "The person who is found burning waste material and responsible for abutting such burning would be liable to pay compensation in terms of suction 15 of NGT Act, 2010 for polluting the environment and would be liable to pay a fine of 5000 instantly. In Paschimavahini, this practice of open waste burning is done every day and there is no place for waste collection and garbage is dumped everywhere which is spoiling the sanctity and holiness of this place.

- **Bathing and washing in rivers:** 70% of people living in Paschimavahini are predominantly agriculture-based economy. These people bring their cattle to the river and wash them and also their clothes and utensils are washed as well. According to River and canals act, 1863 A person is prohibited from bathing or washing, or any other person or any linen or clothes or any animal in the river or stream or any part of it who contravenes the prohibition shall commit an offense and shall on conviction be liable to a fine of 50 rupees.

- **Negligence leaves ancient temples in ruins:** Many ancient temples like Biddukote Anjaneya Temple, Shani mahatma temple, and Shiva Temple

are on the verge of collapsing. Since the temple structure is not safe people are scared to go inside the temple and perform puja to their deity. Due to a lack of management and maintenance such holy places in the evening have turned into a den of illegal activities.

Fig. 15: Lack of Waste Management

Source: Author Generated

Fig. 16: Ancient temples in ruins

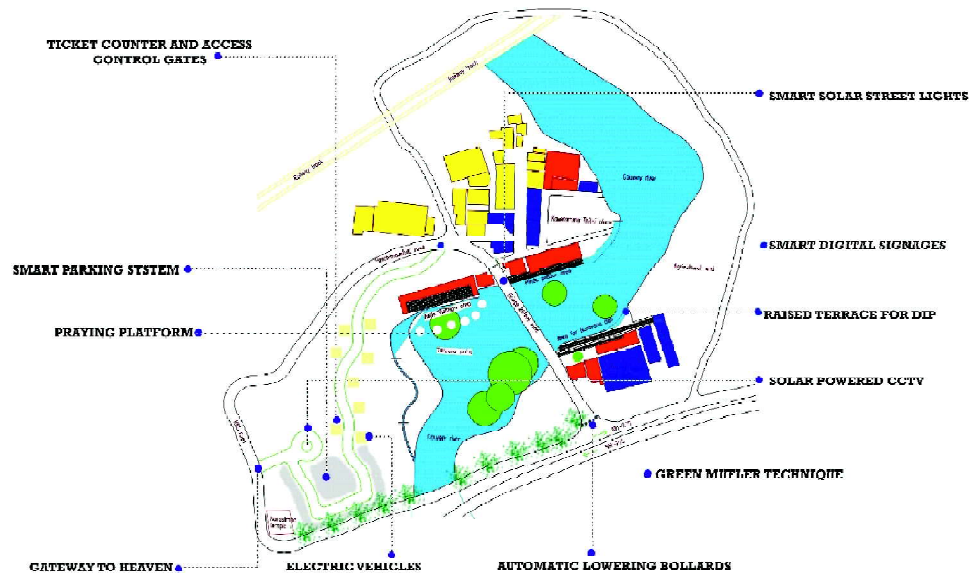*Source:* Author Generated

Fig. 17: Polluting River

Source: Author Generated

10. DESIGN PROPOSALS

Figure 18: Proposed Site Plan for Paschimavahini

Source: Author Generated

- **Entrance resembling heavens gateway:** According to Hindu mythology, a person's final destination after his physical demise is heaven. The gateway to heaven is one of the principal components to retrofit and

recreate the ambiance of paradise for the people who visit the place to pay their last respect to their elders. The gateway is designed in such a way that it looks massive and intimidating and at the same time should initial cultural values as well.

• **Smart parking system:** When people enter the campus there are dedicated parking lanes for both 2-wheelers and 4-wheelers. Using the help of technology and smart app the motorists are directed toward the available parking spaces, pieces of advice on the parking conditions and traffic, and help in contactless payment. As per the survey conducted every day on average, 20 people visit the holy site and during the full moon and new moon day, the number goes up to 100-500. Hence parking is provided for 50, 4 wheelers and 200, 2 wheelers.

Fig. 19: Entrance resembling Heaven's gateway

Source: Author Generated

• **Mobilization / Transportation through electric vehicles:** Since no private vehicles are allowed inside the premises, 6-8 seater electric vehicles are used mainly because they cause zero noise pollution and avoid government incentives and tax benefits so we are saving money by promoting e-vehicles.

• **Smart digital signage:** Smart digital signage's used to direct the visitors to their destination place also there will be an application to direct them towards their destination using GPS technology which will make wayfinding much easier for them and their overall experience of the place will be smooth without any mistakes.

• **Solar-powered CCTV and Streetlight:** Solar CCTV towers are used at sites and outdoor venues using autonomous batteries and solar panels.

This ensures that the security surveillance remains operational continuously. The solar panels charge a rechargeable battery which powers a LED lamp during the night. The cost of each unit will be around 5000-6000 rupees. we can eliminate the external wires through this and increase the aesthetics of the space.

• **Kaveri Aarathi:** Kaveri Aarathi is a form of thanksgiving ritual performed by the devotees. It is a religiously uplifting ceremony and is performed daily to honor the river goddess Kaveri. The aarthi ritual is of high religious significance. Fire is employed as an offering to the river by lighting several divas, chants, the fragrance of incense, flowers, and musical instruments to create an ambiance of divine bliss. By recreating such practices use can bring back people to be connected to their roots.
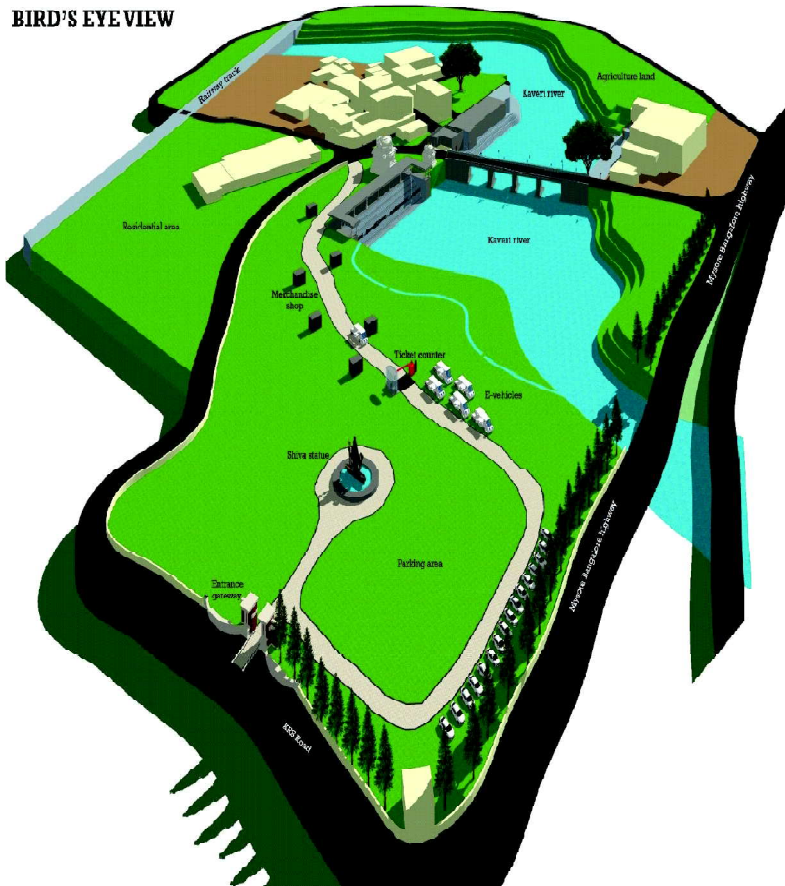

Figure 20: 3D model of Proposed Paschimavahini Site

Source: Author Generated

- **Place to take a dip in holy water:** The Hindus believe in taking a holy dip in the river Cauvery to cleanse their Sins. A dip in the river here, especially during the fete, may wash away their sem. A separate concrete platform on the bank of the river Cauvery is designed with barricades all around for the devotees to take a holy dip in the river. This concrete terrace is located away from the asthivisarjan place so that devotees won't come in contact with the ash remains that have been lifted in the river.

- **Green Muffler Technique:** The green muffler is a technique of reducing noise pollution but planting rows of trees around the noisy areas so that dense trees reduce noise pollution as they filter out the noise and obstruct it from reaching the people inside the Paschimavahini campus. Since the site is located adjacent to the national highway- 275, there is a lot of vehicular noise and the 400km length of the road is designated as a honking zone or mute zone. This also avoids heavy vehicular noise and there are no speed breakers and barricades which contribute to the slowing down and end-to-end collision of vehicles.

- **Automatic lowering bollards during an emergency:** Automatic bollards work by using an access control device to activate a hydraulic system in

Figure 21: The 3D image of the usage of the Green muffler technique

Source: Author Generated

the foundation. The bollards lower only when the electric vehicles come near them and their driver has control of these bollards. This is used to avoid unnecessary additional traffic from other vehicles. There will be a master button that can be used during an emergency; this master button will help in lowering the bollards and makes way for an ambulance or a fire engine vehicle during a fire breakout.

- **Smart ticket counter and access-controlled gates:** After they pack their vehicles, the visitors are directed toward the ticket counter where they will have to buy a common ticket for electric vehicle services, and puja accessories like flowers, fruits, etc… And a kiosk to keep their footwear. Access-controlled gates are used to prevent vehicles from entering the premises. Those who have a common ticket can swipe their ticket and use various services available on the premises without any human intervention.

Figure 22: Automatic lowering Bollards
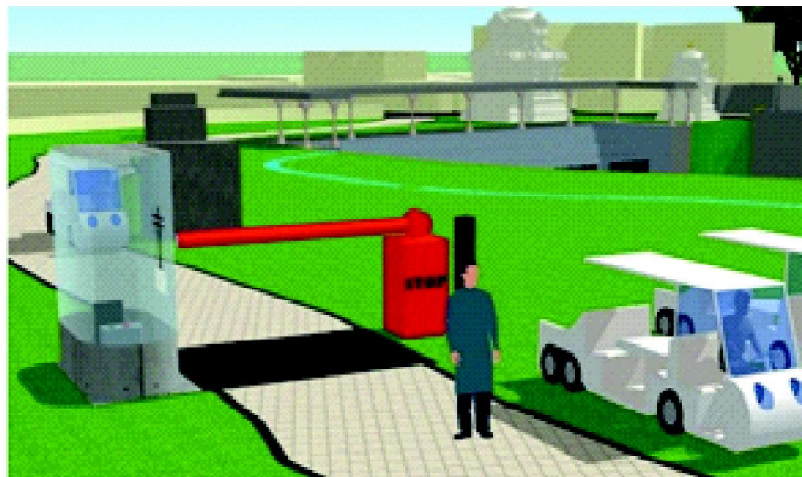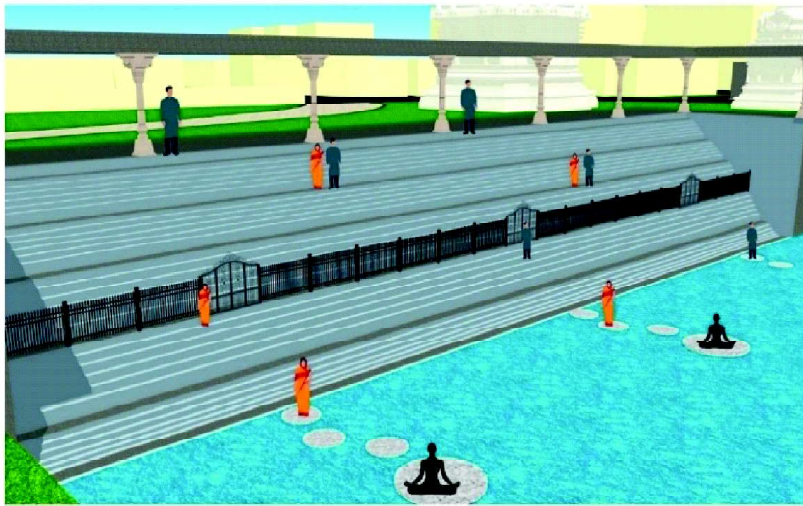
Source: Author Generated

Figure 23: Access controlled gates and Kiosks

Source: Author Generated

- **Praying Platform:** A small platform is created on the bank of the river where activities like asthivisarjan and shradh puja can be practiced. The common digital ticket issued at the entrance will be used here, where the devotee will scan their ticket and come to know about the gate number where he is supposed to go and the name of the priest assigned to perform that particular puja. Devotees reach this place with the help of electric vehicles where the digital signage devotees will reach their location. After the ritual is completed, devotees can contact any of the e-vehicles drivers using the app and the e-vehicles will track them with the help of GPS tags attached to the digital tickets.

Figure 24: The 3D image of Praying Platforms and Gates in Paschimavahini

Source: Author generated

11. CO-RELATION BETWEEN THE NUMBER OF VISITORS PARTICIPATING IN THE RITUAL AND THE PRICE OF RITUAL

Karl Pearson's method is used for calculating the coefficient of correlation between two variables. This coefficient is applied to calculate the relationship between two variables considering the number of visitors as 'X' and the price of the ritual as 'Y'. The formula for Calculating Karl Pearson's coefficient

of correlation is : $\dfrac{N\Sigma XY - (\Sigma X).(\Sigma Y)}{\sqrt{N\Sigma x^2 - (\Sigma X^2)}.\sqrt{N\Sigma y^2 - (\Sigma Y^2)}}$

Where, r = Coefficient of correlation

X = Number of Visitors

Y = Price of ritual

N = Number of days

XY = Product of X and Y variable

ΣX^2 = Summation of the square of the X variable

Σy^2 = Summation of the square of the Y variable

Sl No.	No. of visitors (x)	Price (y)	x.y	x^2	y^2
1	14	2000	28000	196	4000000
2	16	2000	32000	256	4000000
3	18	2000	36000	324	4000000
4	17	2000	34000	289	4000000
5	13	2000	36000	169	4000000
6	180	7000	1260000	32400	49000000
7	21	2000	42000	441	4000000
8	13	2000	36000	169	4000000
9	14	2000	28000	196	4000000
10	23	2000	46000	529	4000000
11	17	2000	34000	289	4000000
12	18	2000	36000	324	4000000
13	12	2000	24000	144	4000000
14	11	2000	22000	121	4000000
15	9	1500	13500	81	2250000
16	21	2000	42000	441	4000000
17	24	2000	48000	576	4000000
18	8	1500	12000	64	2250000
19	17	2000	34000	289	4000000
20	14	2000	28000	196	4000000
21	18	2000	36000	324	4000000
22	22	2000	44000	484	4000000
23	16	2000	32000	256	4000000
24	12	2000	24000	144	4000000
25	13	2000	36000	169	4000000
26	23	2000	46000	529	4000000
27	21	2000	42000	441	4000000
28	176	7000	1232000	30976	49000000
29	13	2000	36000	169	4000000
30	17	2000	34000	289	4000000
N = 30	Σx= 815	Σy= 69000	Σ x y= 3433500	Σx²= 38871	Σy²= 104000000

$$r = \frac{N\Sigma XY - (\Sigma X).(\Sigma Y)}{\sqrt{N\Sigma x^2 - (\Sigma X^2)}.\sqrt{N\Sigma y^2 - (\Sigma Y^2)}}$$

$$r = \frac{30 \text{X} (3433500 - (815) \times (69000)}{\sqrt{30 \times 38871 - (38871)}.\sqrt{30 \times 104000000 - (104000000)}}$$

$$r = \frac{103005000 - 56235000}{\sqrt{1166130 - 38871}.\sqrt{3120000000 - 104000000}}$$

$$r = \frac{46770000}{\sqrt{1127259}.\sqrt{3016000000}}$$

$$r = \frac{46770000}{1061.72 \times 54918.12}$$

$$r = \frac{46770000}{58307666.37}$$

$$r = 0.80$$

Since the r value is more than 0 and less than 1 there exists a strong positive correlation between 2 variables. That means for every increase in one variable, there is a positive increase in the other fixed proportion. From this we can conclude that the price of ritual is directly dependent on the number of people visiting the holy site.

12. CONCLUSION

It is of the utmost significance to save these sites of cultural heritage to preserve earlier customs and cultures and pass them on to future generations for the greater good of the community. The case study of Paschimavahini is an illustration of a transition that was influenced by people, place, and time. The current study focuses on the Paschimavahini cultural heritage that became prevalent in the 18th century. Because of their original historic structure and the unique stories that each location and temple within Paschimavahini have to tell, the study of this region is important The governments of many nations are upright in protecting the cultural legacy for future generations as a result of the emergence of globalization and urbanization and the threat of demolition posed to an increasing number of structures. Without change, it is impossible to preserve every aspect of the past's cultural legacy for present and future generations; yet, by utilizing technological advancement, we may keep up practices that include advanced technology. The goal is to manage these changes by embracing the architectural, historical, and cultural elements of the past and influencing

its future as change is now envisioned. Heritage site preservation has waged some of its most difficult struggles with real estate developers and, more importantly, with the current goals of a modernizing city. Since it necessitates balancing the numerous pressures of people, their goals, political aims, and development practices, the management of historic places and the progression of their cultural value are complicated issues.

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