

Study on Exhibition Facility

A museum and galleries for Varanasi's history, culture and art were requested from Varanasi Municipality to be developed as a part of VCC. Therefore, the needs for the museum/galleries in Varanasi were studied. However, due to the budgetary limitation for the Phase 1 (under JICA Grant Aid), museums/galleries are proposed as buildings to be developed in Phase 2.

1. Existing Facilities in Varanasi

In order to understand the situation of the museums/galleries and facilities in Varanasi and India, JST conducted a survey on the existing museums/galleries and tourism facilities. The results of the survey are summarized as follows:

(1) Infrastructure for Tourists in Varanasi

As described in Chapter 3, Varanasi received approximately 6 million tourists in 2015, and the tourist inflow in Varanasi has had an annual growth of 6.3%. Out of the 6 million, 94.7% are domestic tourists and only 5.3% are foreigners.

Although Varanasi is one of the world's most famous tourism destinations, one of the key factors is an inadequate support infrastructure for tourists, such as inadequate hotel rooms, hygienic and quality food outlets, lack of guided tours and information centres.

UP State Tourism Policy highlights key challenges for tourism development in Varanasi.





English is the semi-official language in India, but not much information is provided in English at the tourist destinations or on the street.

There are three tourist information centres in Varanasi and Sarnath, however more tourist information centres are highly demanded in Varanasi.

(2) Museums in Varanasi

There are several museums in Varanasi, but it was recognized that there is no place that shows a comprehensive history and the culture of Varanasi.

There is a need, which was pointed out by several organizations in Varanasi, for an exhibition facility that can give an introduction to Varanasi, for example the city's highlights, topography, Ganga, Hindi, event information, access information (transportation/web), restrooms, etc. to tourists.

<p>Bharat Kala Bhavan (BHU museum)</p>	<p>Sarnath Museum</p>
	
<p>Museum in the BHU, with more than 100,000 artefacts/objects.</p>	<p>Museum to introduce history and architecture in Sarnath.</p>
<p>Silk Khazana Factory & Store</p>	<p>Craft Museum</p>
	
<p>Organized by association of silk factories. Space for presenting weaving method of Varansi's silk is attached to the Silk shop.</p>	<p>Newly developed museum for textiles in Varanasi, opened in December 2016.</p>

2. Study on Conceptual Plan for Exhibition/Museum in VCC

2.1. Outline of exhibition

In the discussions between the Governments of Japan and India, the exhibition plan of this convention centre project is organized as follows. Emphasis is placed on environmental education and enlightenment.

Table 1 Outline of Exhibition

Basic policy of GOJ and GOI on VCC project		
<ul style="list-style-type: none"> - To be a symbol of friendship between Japan and India - To be integrated into the “Ganga Rejuvenation project” 		
Theme	Method	Expected function
a) Environmental education b) Sanitary education (toilet use etc.) c) Sewerage d) History of river purification in Japan e) History, culture and ecology of Ganga	By exhibition / training etc.	a) Awareness raising concerning the environment and sanitation b) Promoting understanding about the importance of promoting sewerage improvement and toilet use

Source: JST, based on business instruction sheet of this project

Interviews with stakeholders in Varanasi indicated that there was a greater need for introducing local cultures than environmental education. In other words, there are many tourists in Varanasi, but there is no facility that introduces what kind of city Varanasi is. The stakeholders demanded such a facility that has such a function.

2.2. Basic policy for Exhibition

Consideration regarding the exhibition theme is summarized below, based on the field and document survey etc.

Table 2 Considerations on the Exhibition Theme

Considerations	Contents
a) Symbol	Suitable for the city's core facilities
b) Majesty	Worthy of Hindu holy land
c) Target demographic	Gender and age of the exhibition target are clear
d) Novelty	Can only be experienced in this facility
e) Theme	Introduction/ Presentation of Varanasi's culture and art
	Introduction of Varanasi's history, topography, industries
	The life of people in Varanasi around Ganga

Source: JST

In addition, whether the facility's function is as a convention centre or for cultural activity, the following contents are required as exhibition contents in addition to "Varanasi as a sacred place of Hinduism".

- Varanasi's pride for the citizens
- Children-friendly facilities
- Promotion of Varanasi for tourists and visitors from abroad

In addition to environmental education, we also focus on introducing tourism resources in Varanasi. As a result, the following exhibition themes were extracted. Then, depending on the area of the exhibition, we will choose from these.

Table 3 Proposed theme of museum: stockpot of Varanasi

Theme	Contents
a) Introduction	Outline of Varanasi
	Geography
	History
b) "Namami Ganga"	Outline of Ganga
	Reincarnation
	Life with ghats
	Water environment
c) Culture & Handcrafts	Religious city (mainly Hindi)
	Silk sari/ metal products
	Music (Registered as a creative city by UNESCO)
	Ayurveda, Yoga
d) Introduction of Other Sightseeing Places	Sarnath
	BHU museum (Bharat Kala Bhavan)
	Hindi temple (Bharat Mata Mandir)
e) Vibrant City Varanasi	Old area information
f) People from Varanasi	Arts, music and entertainment
	Literature and academics
	Politics
	Royalty
	Sports
	Others
g) Clean Varanasi	Sewerage project
	Public toilet project

	Garbage project
h) Tie-up	JICA project information
	Kyoto City information

Source: JST

2.3. Expected visitors

Visitors for the exhibition in VCC are expected as follows.

Table 4 Expected visitors

Category	Men				Women			
	Infants & students		Adults		Infants & students		Adults	
Age	0-9	10-17	18-39	40-	0-9	10-17	18-39	40-
Local residents	B	A	B	C	B	A	B	C
Indian tourists	B	B	A	A	B	B	A	A
Foreign tourists	C	C	A	A	C	C	A	A

Legend: A - main target, B - sub target, C minor target.

Note: Indian adult (≥18 years old).

Source: JST

3 Study on exhibition facilities

This section describes the exhibition facilities and methods. The contents of the exhibition for each exhibition theme will be described in the next section.

3.1. Features and points to remember about each exhibition method

The appropriate exhibition methods are selected from the following:

(1) Theatre

Moving picture theatres have been around since 1900, with images projected by a projector onto a big screen. Recently, it has become possible to create a theatre space more easily than before by combining commercially available computers, projectors, and software. Also, projection mapping which can project to non-screen surfaces is also widespread.

(2) Gallery

The gallery is very classic and the most conventional display method in museums. On the other hand, trick art or scale models are sometimes adopted depending on the constraints (weight, height, etc.) of the installation place. If a gallery can be installed, the exhibition can be more appealing and effective.

(3) Display

Liquid crystal panels and processors controlling them have become high-performance and inexpensive, thus the hurdles to introduction of exhibition equipment have been lowered. After that, it is necessary to produce attractive contents commensurate with the introduction of this equipment.

There are various sizes of displays, and now wearable terminals and virtual reality (VR) goggles are prevalent worldwide.

(4) Maps

The map is an effective exhibition method for indicating the positional relationship of the object. Recently, geographical information systems (GIS) linking various kinds of information to maps have been spreading, mainly in developed countries.

(5) Panels

Exhibits by panels are easier to introduce, because the cost of the equipment is generally less expensive than others. The display content is fixed and the display area is easily restricted. Also, when installing multiple pieces, placement considering flow lines is necessary.

(6) Others

The experience type exhibition is an example. In order to attract visitors to an exhibition, it is important to know how to capture the interest of the visitors. Especially for plain or difficult subjects, it is advantageous to introduce some form of novelty in the exhibition format to get the visitors to stop and engage in the exhibit. This trend is prominent in children.

Experience type exhibitions can be freely touched in the exhibition space. To be safe for children and easy to understand, it is usually simplified.

3.2. Other points of attention

Other points of attention are as follows.

- Mainly as indoor exhibition.
- In order to make it possible to publish the latest information, it shall have a variable exhibition form and exhibition system.
- Commentary panels and signs in the hall should be in both Hindi and English.
- Utilizing a universal design for both hardware and software, create an exhibition environment open to everyone.
- When choosing between a case exhibition or exposure exhibition, consider the exhibition concept of each corner in addition to the characteristics of the material.
- Hands-on etc., incorporate hands-on exhibition methods together with other forms.
- Exhibition methods such as hands-on etc. should also be adopted.
- In order to deal with diverse age groups, it is necessary to devise a broadly attractive type and arrangement of materials to be displayed.
- Showing characteristic numbers by infographics is effective.

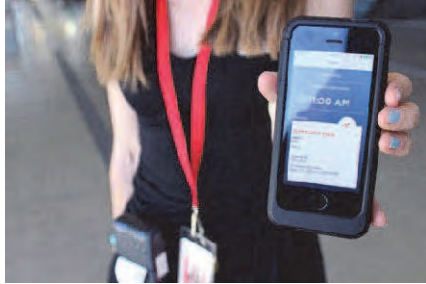

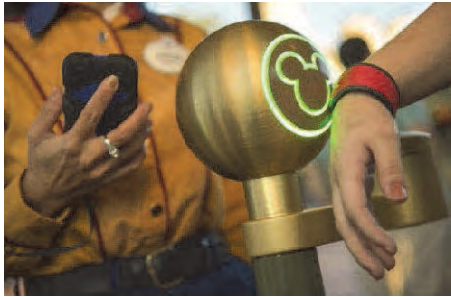


3.3. Exhibition commentary

Based on the survey results of museums in Delhi and Varanasi, exhibition plans considering the following points are necessary.

- A method that will become the centrepiece of the exhibition: Things that can be experienced at once in a group.
- Sound accompanying each image (commentary narration, environmental sound, etc.): When student groups visit, they cannot hear the sound because the children are noisy.
- Video content: It is possible to create an attractive video space without using the latest device. That is, by employing ingenuity in the projection method for a large image and the contents, it is possible to obtain an immersive feeling, or obtain an illusion that the viewer himself is moving.

(1) Examples of exhibition







Table 5 Device for motivation to enter or view the exhibition

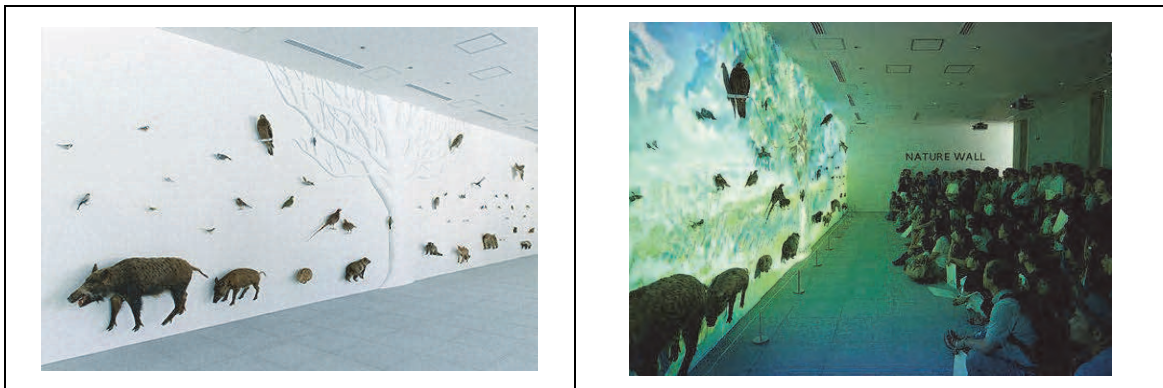
	
<p>A-1) Schedule and ticketing</p>	<p>A-2) Schedule and ticketing</p>
	
<p>A-3) Entrance system Count the number of visitors and survey interest of visitors</p>	
	
<p>A-4) Multilingual commentary device</p>	<p>A-5) Multilingual commentary device (Audio guide system)</p>
	
<p>A-6) QR code explanation system</p>	

Source:

- A-1) THE BROAD in Los Angeles, A-2) Metropolitan Museum of Art,
 A-3) Disney World, A-4) The Museum of Nature and Human Activities in Hyogo
 A-4) National Museum of Ethnology, A-5)The Railway Museum in Saitama

Table 6 Example of video in theatre format

	
<p>B-1) Mini theatre with seating</p>	<p>B-2) Large circumferential image and a directing such as fog</p>
	
<p>B-3) Produce an immersive feeling by projecting images on the whole space (floor, walls, ceiling)</p>	
	
<p>B-4) Production using projection mapping</p>	

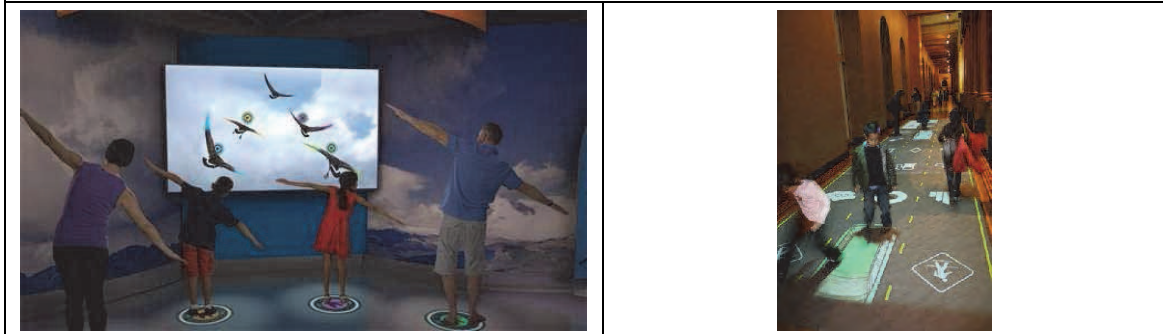


B-5) Open type video corner using one corner of the exhibition room

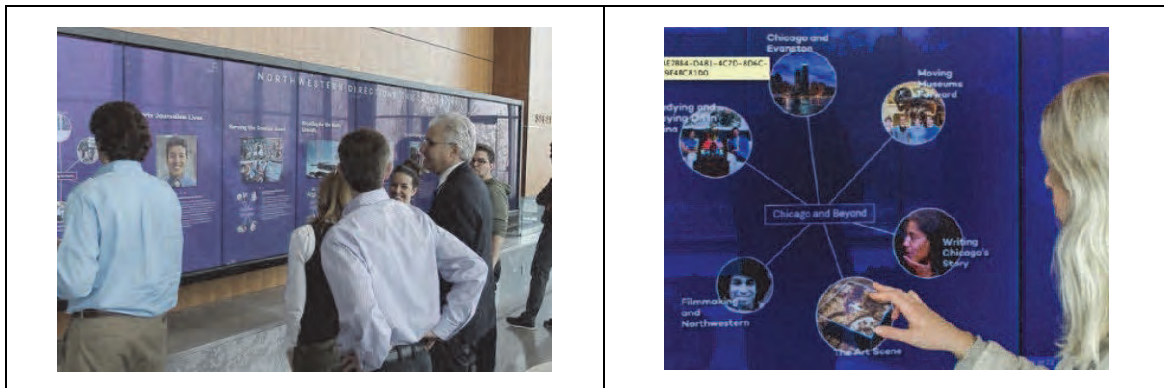
Source: B-1) Hanergy Renewable Energy Exhibition Centre in Beijing, B-2/B-4) Orbi YOKOHAMA ,
B-3) Orbi YOKOHAMA/Wu Kingdom Helv Relic Museum in China, B- 5) TAKAO 599 MUSEUM



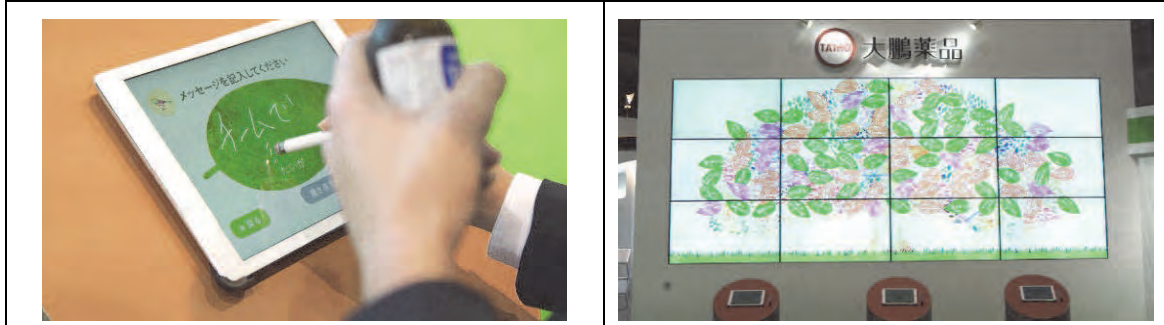
C-1) When an item is selected in the large image, the relevant information is displayed.



C-2) The video responds to the movement.



C-3) By touching the screen, the linked information is presented.



C-4) As a memorial of the visit to the facility, leave a message by handwriting. Then, it is projected onto another large screen. The visual gradually completes.

Table 7 Examples of methods incorporating interactive elements

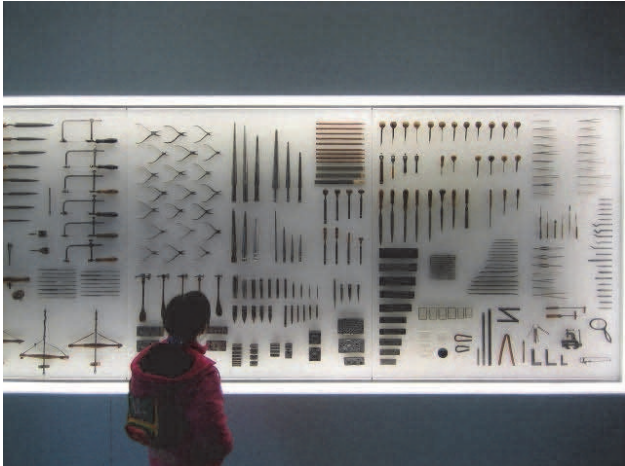
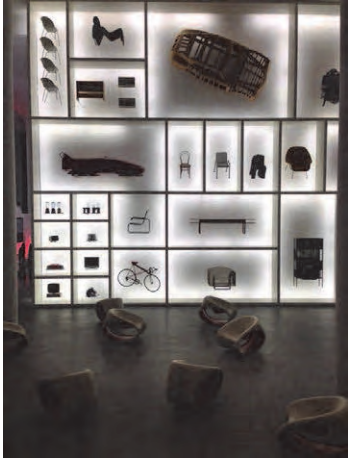


Source: C-1) Orbi YOKOHAMA, C-2) Boeing to host centennial exhibition in London during summer 2016/National Building Museum, C-3) Northwestern University, C-4)Transportation Hall, National Building Museum, Trade fair

Table 8 Examples of display methods



D-1) Display on a stairway wall



D-2) Display in an entrance hall (Wall system)

	
<p>D-3) Showcase in part of a wall</p>	<p>D-4) Showcase in part of a wall</p>
	
<p>D-5) Display products (visitors touch products)</p>	<p>D-6) Graphics and products (visitors touch products)</p>

Source:

- D-1) Sharpes Pottery Museum, D-2) Children's Medical Centre in Dallas,
 D-3) Pforzheim Jewellery Museum, D-4) AUDI forum in Munich,
 D-5) Devialet showroom in Munich, D-6) Japan creative in Milano Salo

Table 9 An example of how to travel around the city based on facilities

	
<p>E-1) Museum of London Street museum</p>	



Source: E-1) The Tower of London Event

(2) Equipment planning

In general, items to be noted when considering equipment planning are as follows.

- Installation cost
- Maintenance (cost and procurement method for personnel/ parts)
- Versatility (to avoid obsolescence of exhibits due to rapid new developments in equipment)

Recently, products have been produced that require less power consumption and require almost no maintenance, even if the initial introduction cost is somewhat higher.

Especially, for projectors which are indispensable for large-sized images, there are products with long life of the light source lamp and dust removing function which prevents malfunction, thus, it is said that they are almost maintenance free.

The exhibition commentary supplements the exhibition so that various visitors from India and overseas can understand Varanasi deeply. In addition, consideration is given to handicapped people to explain by touching exhibits, voice commentary, and installation at appropriate heights corresponding to children and wheelchairs.

Also, there is room for discussion on the following contents.

- To improve convenience and for cost reduction, each visitor installs and uses an application on his own smartphone after installing Wi-Fi in the facility.
- Create free exhibition explanation printed material.
- Guide and talk by a commentator at the gallery.

(3) Flow line and area

a) Flow line

The exhibition is divided into 8 themes. When arranging the exhibits, standard flow lines are assumed, but as much as possible, partitioning walls are not provided so that they can freely go between themes. Also, ensure a material carry-in line.

b) Area

The exhibition rooms are assumed to be comprised of three areas of 1,000 m² (2 floor), 500 m² (1 floor) and 50 m² (in a part of the foyer). Necessary equipment for each exhibition area is as follows.

Table 10 Necessary equipment

Case	Required Area	Floors	Required facilities					
			Theatre	Gallery	Display	Map	Panel	Other
A	1,000m ²	2	X	X	X	X	X	As required
B	500m ²	1	X	X	X	X	X	
C	50m ²	1 (Foyer)	—	—	X	X	X	

Source: JST

(4) Exhibition place

a) Ceiling height, floor etc.

- The ceiling height of the exhibition room should be about 4 m.
- Plan the layout so that the exhibition room can be integrated and efficiently utilized.
- The floor of the exhibition room should be able to bear a heavy load.
- Structure, interior and exterior are planned according to the National building code of India 2005.

b) Lightning and external light

- Lighting must use equipment that does not affect the display material, so that it can dim the light to the optimum illuminance for the material, and consider the preservation environment and maintainability.
- Regarding the colour and temperature of the lighting, consider the type and state of exhibited materials including its variability.

c) Showcase

- Regarding valuable historical materials, it is desirable to use cases that have been subjected to countermeasures against degradation.
- Regarding the type, quantity and arrangement of the exhibition cases, we will consider appropriate displays for each exhibition material and exhibition theme in the exhibition design, and also make it possible to respond to renewal of the exhibition after opening.
- The glass of the display case is to be made of anti-reflection type laminated glass or scattering prevention film affixed to enhance safety.
- With respect to movable standalone display cases, in order to increase stability and make it harder to fall over, lower the centre of gravity and install a fall prevention device.
- The opening of the exhibition cases should be carefully designed so as not to disturb the viewing of exhibition materials.

d) Air conditioning

- Manage temperature and humidity so that it will be the optimum environment for exhibition materials and visitors.
- Depending on the display location, install windows, ventilation openings and air conditioners.

e) Other

- Fire extinguishing facilities in the exhibition room will adopt gas fire extinguishing and equipment taking into account disaster prevention measures.
- Develop infrastructure that can respond to progress in the new development of video / information equipment etc. and its introduction.
- Use pictograms and icons together for guidance displays (desirable to refer to ISO 7001/7010). Also, consider the handicapped.

3.4. Special Exhibitions

As a theme of the special exhibitions, the following can be considered. To prevent obsolescence, update the contents of the exhibit at least every 3 months.

- Pictures and Paintings of Ganga
- Languages in India/ Varanasi
- Statistical information of India/ Varanasi
- Drone aerial photography
- Gandhi's thoughts
- Food culture

- Auto rickshaws and motorcycles
- VR (on the Ganges River)

3.5. Study of exhibition layout

(1) Plan A (Approx. 1,000m²)

- In the case of a facility that mainly introduces the cultural elements of Varanasi, it is desirable to have a total space of about 1,000m² distributed in two rooms, an exhibition room and an independent room for the gallery. Each room size is assumed to be 500m².
- In the exhibition room, we introduce Varanasi with geographical, historical and cultural approaches.
- In the gallery, we have a place to present exhibitions of artists that conduct activities such as music and art.
- In consideration of facility management, various room spaces such as a lecture room, storage room, library space, office of management staff, exhibition preparation room, warehouse, and baggage room are required separately.
- To manage and operate the exhibition room, it is necessary to update the information, collect the materials, archive the information, change the exhibition, plan the gallery exhibition etc. So we need to consider the employment of special staff.
- Proper equipment for the gallery includes electric equipment considering the movable wall panels, LED lighting, wiring duct installation, picture rail system, Wi-Fi equipment, acoustics and the like.
- The floor is a tile carpet that is easy to procure.
- We assume wide use such as domestic and international tourists, and citizens from around Varanasi.
- The provision of illustration/animation/diagrams for multilingual correspondence and broad age range.
- The gallery also serves as a place where you can hold mini project exhibits, and experience exhibitions, workshops, etc.

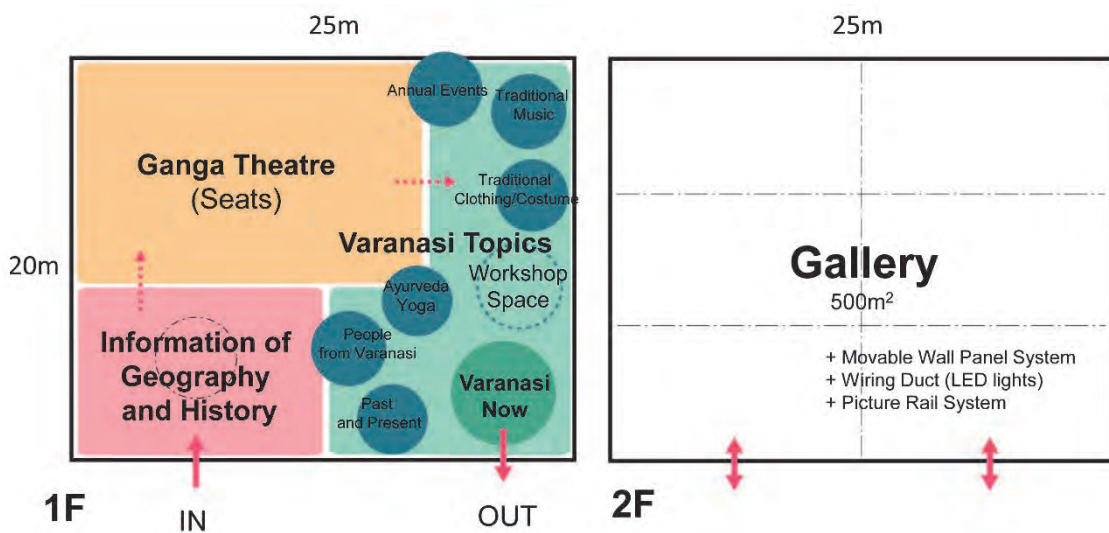


Figure 1 Layout of plan A

Source: JST

(2) Plan B (Approx. 500m²)

- Plan B has the same content as plan A, but since it is half the space of plan A, the content is exhibited compactly.

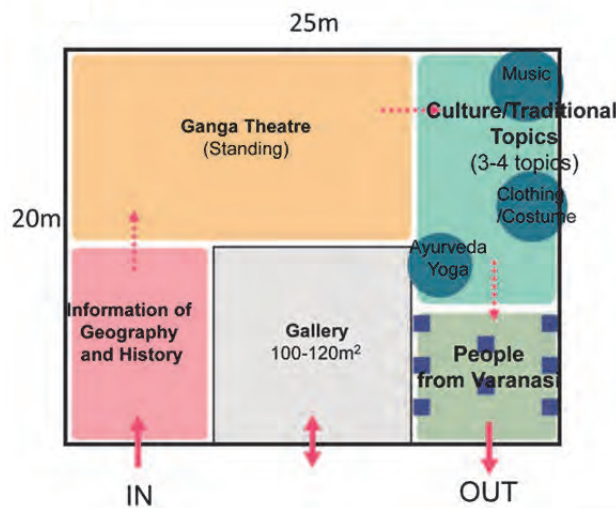


Figure 2 Layout of plan B

Source: JST

(3) Plan C (Approx. 50m²)

- Consider the space of the whole building, even if it is not in an independent exhibition room, we plan a layout that can introduce Varanasi effectively.

- Establish a terrain model of Varanasi in the lobby space, and transmit information on a GIS basis.
- Introduce exhibit elements to the entire building. For example, use the elevator hall, stair landing wall, and outdoors as exhibition spaces.
- For examples of the use of showcases, exhibition of artist's work, introduction of Varanasi industries such as Sari or crafts, exhibition of citizens and children's works, and materials borrowed from BHU museum are all applicable.
- It could be advantageous to cooperate with BHU museum regarding the management operation in the showcase.
- For plan C, it may be considered to combine with Plan A or B respectively.

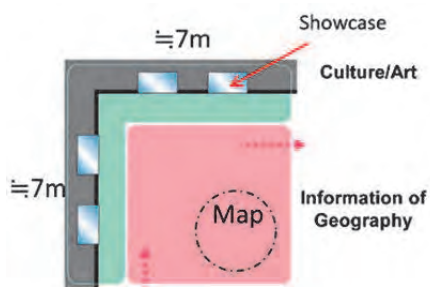


Figure 3 Layout of plan C

Source: JST

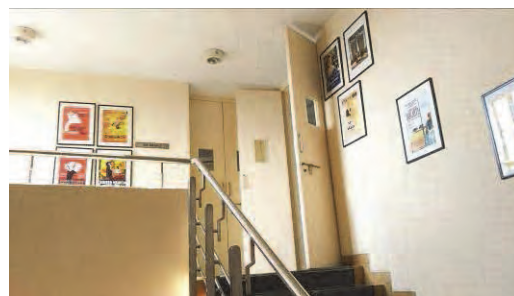


Figure 4 Example of art gallery at stairs

Source: JST, Shot at India International Centre

Central area, Varanasi

11-Dec-2016, Central area, Varanasi

Photo-1 :



This place is 10 minutes on foot to Ghats.
The traffic light in the picture is installed in 2016.

Photo-2 :



The way to Ghats.
There were a lot of people on Sunday.

Photo-3 :



There is no parking space for bikes. Bikes are parked in the centre of the road, causing traffic jams.

Photo-4 :



Placing the products on the guardrail. Bicycles and bikes are parked on the road. A stricter road traffic policy is necessary.

Photo-5 :









A market close to Ghats.

Photo-6 :



Long queue at all ATM in town due to the switchover of newly printed bill from November, 2016.







Ghats, Varanasi

<p>Photo-1 :</p>  <p>11-Dec-2016, Ganga near Dashashwamedh Ghats, Varanasi Looking to the upper stream of the Ganges (south) from Ghats. The opposite shore has nothing, considered as cesspool.</p>	<p>Photo-2 :</p>  <p>11-Dec-2016, Ghats, Varanasi Looking to Ghats from the boat. The river water is unclear.</p>
<p>Photo-3 :</p>  <p>11-Dec-2016, Ganga, Varanasi Sunset in Ghats. Since Ghats faces the east, the good timing for sightseeing is early in the morning.</p>	<p>Photo-4 :</p>  <p>11-Dec-2016, Dashashwamedh Ghats, Varanasi There are many sizes of boats. The fee can be bargained. Relatively high price for foreigners. Introducing a fixed-price and fixed timetable can satisfy foreigners.</p>
<p>Photo-5 :</p>  <p>11-Dec-2016, Pooja at Dashashwamedh Ghats, Varanasi There are performance every night. Mainly for tourists.</p>	<p>Photo-6 :</p>  <p>11-Dec-2016, Pooja at Dashashwamedh Ghats, Varanasi Need measures against cold because Ghats is near the river and built by stone. This kind of information is useful for tourist.</p>

Sarnath, Varanasi

10-Dec-2016, Sarnath, Varanasi	
<p>Photo-1 :</p>  <p>30 minutes from Varanasi by car. Pay to enter. The morning haze makes it awe-inspiring.</p>	<p>Photo-2 :</p>  <p>The main building. Many Buddhist walk around the building and pray.</p>
<p>Photo-3 :</p>  <p>Praying at remains. There are regular flights from Bangkok to Varanasi in winter. Might be tourists from Thai from the look and language.</p>	<p>Photo-4 :</p>  <p>Praying at other remains. 'Take off shoes' is written on a white board at the left from the centre of this picture.</p>
<p>Photo-5 :</p>  <p>There are remains spread on site, with explanation board at each remains.</p>	<p>Photo-6 :</p>  <p>Introducing history with video in free exhibition space near the entrance. The next site has a museum with entrance fee (only documents, no pictures allowed)</p>
<p>Current Problems</p> <p>a) There is a museum at the entrance to the ruins, but the facilities themselves are difficult to understand, and many visitors pass by. b) Although the contents of the exhibition are interesting, the position of the explanation is high and the letters are small thus it is difficult to read.</p>	<p>Improvement Advice</p> <p>a) Devices of sign display. Although it seems that there are restrictions on materials, etc. within the ruins, it is necessary to consider font size etc. Considering the space of the building (the space in the exhibition room, the width of the entrance and exit are narrow), it seems that it is easier to use if the entrance / exit is provided separately instead of one. b) Because the exhibition space is limited and there are many tourists, it is necessary to narrow down the contents to convey in each exhibition room. Conduct a commentary/ explanation plan for the entire ruins, and use pamphlets and guidebooks to convey the contents.</p>

Bharat Kala Bhavan (BHU museum) & Varanasi city, Varanasi

<p>Photo-1 :</p>  <p>10-Dec-2016 Bharat Kala Bhavan (BHU museum, no photos inside), Varanasi BHU is located on south of Varanasi. The fountain in front of the building is not working.</p>	<p>Photo-2 :</p>  <p>10-Dec-2016 Bharat Kala Bhavan (BHU museum, no photos inside), Varanasi The building façade has mould.</p>
<p>Photo-3 :</p>  <p>11-Dec-2016, New community toilet (under construction), Varanasi Public toilet is under construction at various places in the city.</p>	<p>Photo-4 :</p>  <p>11-Dec-2016, New community toilet (under construction), Varanasi Portable toilet. Uses water washing from the black tank shown on the left.</p>
<p>Photo-5 :</p>  <p>11-Dec-2016, New garbage container, Varanasi Waste collection point close to Ghats. Newly built in 2016. Inside a market, most of the waste is vegetable. Many cows gather.</p>	<p>Photo-6 :</p>  <p>12-Dec-2016, New garbage truck, Varanasi Garbage collecting truck, for a cleaner city little by little.</p>

Bharat Mata Mandir, Varanasi

11-Dec-2016, Bharat Mata Mandir, Varanasi

Photo-1 :



The building behind the tree. Shoes must be removed in front of the stairs.

Photo-2 :



Inside of the building, uses white as the base colour.

Photo-3 :



Map of India made of marble.

Photo-4 :



Too dusty, needs to be cleaned.

Photo-5 :



Photo-6 :



Silk Khazana Factory & Store, Varanasi

13-Dec-2016, Silk Khazana Factory & Store, Varanasi

Photo-1 :



Silk hand weaving.

Photo-2 :



Weaves pattern from punch card above.

Photo-3 :



Silk weaving machine.

Photo-4 :



Punch card is piled up a round.

Photo-5 :



Shop in the factory. There's a tourist from Korea on that day.

Photo-6 :




Sells various silk product.
Prices can be bargained. Can use credit card.


Folk craft, Varanasi

13-Dec-2016,Folk craft, Varanasi	
<p>Photo-1 :</p> 	<p>Photo-2 :</p> 
<p>Hindu-related souvenirs.</p>	<p>Buddhism-related souvenirs. The souvenirs need to be separate by religion.</p>
<p>Photo-3 :</p> 	<p>Photo-4 :</p> 
<p>Parade of weddings at various places almost every night in winter, with fancy lighting, music performance, and decorations.</p>	<p>Guests are dancing following the marching band. The party is held in a banquet hall after the parade.</p>
<p>Photo-5 :</p> 	<p>Photo-6 :</p> 

National Museum, New Delhi

8-Dec-2016, National Museum, New Delhi	
<p>Photo-1 :</p>  <p>The entrance. Outside the building is free to view. Belongings are kept outside. Audio guide (5 languages) is available for rent. Equipped with a theatre of 220 seats on 1F.</p>	<p>Photo-2 :</p>  <p>Exhibits are stored in a glass case. Spotlights are installed on the wiring duct. There's no ventilation.</p>
<p>Photo-3 :</p>  <p>Exhibits are fixed on pedestals and exposed (stone statues). Spotlights are installed on the wiring duct. There is ventilation.</p>	<p>Photo-4 :</p>  <p>Recently renewed, feels modern. Each exhibit has an explanation. The lighting is LED.</p>
<p>Photo-5 :</p>  <p>Exhibits on the corridor. Many are covered in dust, not desirable from the perspective of protecting cultural properties.</p>	<p>Photo-6 :</p>  <p>Examples of exhibitions by theme. When the amount of exhibition is large, it feels spectacular.</p>
<p>Current Problems</p> <p>a) The M&E equipment is old b) Although many materials are being exhibited, the explanations are difficult to understand, thus ineffective c) The graphics shown are difficult to understand d) Signs of room names and video showing information are difficult to understand. Because the signs are not clear, 1. Staff is necessary. 2. Visitors are not gathered at each video show (about 5 people), thus inefficient. e) Lighting is not effectively designed.</p>	<p>Improvement Advice</p> <p>a) If the lighting is replaced with LEDs and a shooting lighting system is used, the exhibition can be more attractive. b) Each material's exhibition method should be considered carefully for it to be easy to understand (e.g. show in numbers or separate in categories with explanations, etc). c) It is necessary to specify a title and increase the font size. All the important information must be included in the graphic, even if the audio guide has the same contents. d) 1. Signs should be simple and easy to understand (Universal Design). 2. Video show's information can be provided in information board at building entrance, in-house broadcasting, etc. e) It is better to have a resting space in places with natural light, than exhibits. The resting spaces are too few in comparison to the facility size.</p>

Sulabh International Museum of Toilets, New Delhi

<p>'14-Dec-2016, Sulabh International Museum of Toilets , New Delhi</p>	
<p>Photo-1 :</p> 	<p>Photo-2 :</p> 
<p>In the suburbs of Delhi, 40 minutes by car from the city centre. Free entrance. Has an informative website..</p>	<p>A very compact indoor exhibition, Usually there is a curator who can give free guidance in English.</p>
<p>Photo-3 :</p> 	<p>Photo-4 :</p> 
<p>Toilet relics are also exhibited in picture.</p>	<p>Exhibits toilets of all ages and countries in picture.</p>
<p>Photo-5 :</p> 	<p>Photo-6 :</p> 
<p>Example of a real toilet exhibit. Not for use.</p>	<p>The showroom of simple toilet to popularize in India is located outdoor.</p>
<p>Current Problems</p> <p>a) A curator usually gives explanations on the exhibits, but it is difficult to read the graphic (due to the amount of letters, font size, and location of the explanation graphic).</p>	<p>Improvement Advice</p> <p>a) Since the exhibits are extensive and interesting, an impressive exhibition can be realized by devising graphic design.</p>

Humayun's Tomb, New Delhi

15-Dec-2016, Humayun's Tomb, New Delhi

<p>Photo-1 :</p>  <p>One of the well-known historic spot in Delhi. The site is clean and well-managed.</p>	<p>Photo-2 :</p>  <p>Natural drainage (slope) for rainwater. Easy maintenance consideration is necessary when planning an architecture.</p>
<p>Photo-3 :</p>  <p>The decoration of the building is well-maintained.</p>	<p>Photo-4 :</p>  <p>The building colour is based on white and brown.</p>
<p>Photo-5 :</p>  <p>Good architectural pictures can create good image, which is good for advertisement. SNS (Facebook and Instagram) has a lot of impacts especially nowa days.</p>	<p>Photo-6 :</p>  <p>Provides space for the exhibition overview near the site entrance. Provide model of the facility to understand the museum easily.</p>
<p>Current Problems</p> <p>a) The model is difficult to understand (unclear to see) b) The graphic are divided into themes and are designed with explanation, layout of photos and maps. It is regrettable that the graphic are damaged and look unattractive.</p>	<p>Improvement Advice</p> <p>a) 1. Put a brief description to the model. 2. Since the current acrylic cover is scratched easily and is too high, it should be change. → A glass cover is good, but the foundation must be considered carefully. b) Make sure the texts' size is easy to read. Change the lighting equipment. (For example, using spotlight mainly on commentary, or internal lighting etc.)</p>

National Science Centre, New Delhi

15-Dec-2016, National Science Centre, New Delhi

Photo-1 :



Building Façade, with banners appealing the exhibition concept. Difficult to see all exhibition in a day due to the large amount.

Photo-2 :



Building lobby, with eye-catching stairs. Far from barrier-free.

Photo-3 :



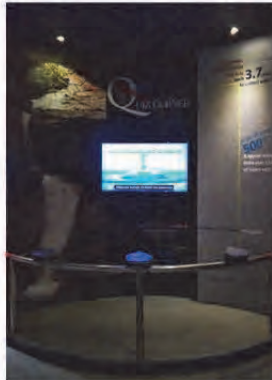
Exhibition area with water. There were many groups of students in all area, noisy.

Photo-4 :



JICA is related with this exhibition area as shown here. However, there's not much explanation of JICA, not very promotive.

Photo-5 :



Quiz corner. 3 people can answer quizzes on the monitor using a portable device.

Photo-6 :





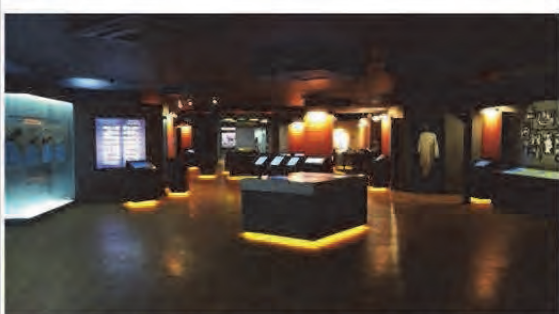



An example of an integrated display of a panel, model and a monitor.

National Science Centre, New Delhi

<p>Photo-7 :</p>  <p>Exhibits fishes in small aquarium.</p>	<p>Photo-8 :</p>  <p>An interior design that gives an ancient image.</p>
<p>Photo-9 :</p>  <p>Instruments exhibition, for view only. There's a video playing in the background.</p>	<p>Photo-10 :</p>  <p>Science Lab. Not used when visited.</p>
<p>Photo-11 :</p>  <p>An example of a field trip. Seats have steps, with no desk.</p>	<p>Photo-12 :</p>  <p>An example of an interactive exhibit. Seems to be a game corner for students.</p>

National Science Centre, New Delhi

<p>Photo-13 :</p>  <p>The area for nuclear exhibit. The blue colour gave a futuristic impression.</p>	<p>Photo-14 :</p>  <p>There are too many images and interactive exhibits in one theme.</p>
<p>Photo-15 :</p>  <p>A trick where half of the student's is hidden by a mirror refraction</p>	<p>Photo-16 :</p>  <p>There are 6 PCs, but not really used.</p>
<p>Photo-17 :</p>  <p>A recently renewed area, with mainly ambient light. There are monitors for each themes with the newest AR device.</p>	<p>Photo-18 :</p>  <p>A mini theatre made of big arch screen from two projectors.</p>
<p>Current Problems</p> <p>a) There are many users from organizations and groups, but the interactive exhibits are mostly for individual use.</p> <p>b) There are too many videos and interactive exhibits in one theme,</p> <ol style="list-style-type: none"> 1. Too much content to convey. 2. It takes time to see all exhibits. 3. The sounds overlap when there are more than one explanation video, making it difficult to hear. 	<p>Improvement Advice</p> <p>a) Increase user satisfaction by a management that corresponds to groups (for example, improvement of educational programs using museums and provision of explanation sheets based on the exhibits). Depending on the exhibited items, a facilitator can be provided as a method to explain to many visitors at once.</p> <p>b) It is necessary to separate the space for explanation video and the space for interactive exhibition.</p> <p>A graphic that conveys the summary of the content without watching the video is necessary.</p>

Gandhi Smriti, New Delhi

15-Dec-2016, Gandhi Smriti, New Delhi

Photo-1 :



Building façade, uses white as the colour base.
The place where Gandhi passed away.

Photo-2 :



Outdoor passageway is used as a panel exhibition space.

Photo-3 :



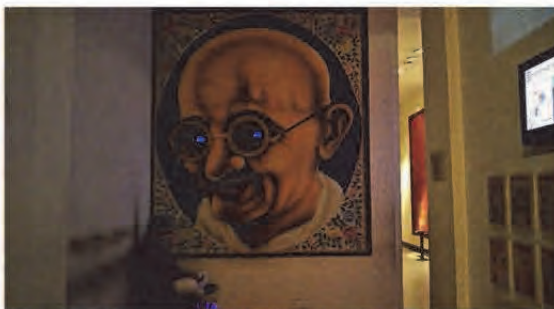
Panel exhibitions at an indoor corridor.

Photo-4 :



Series exhibitions (more than 20) of Gandhi's life using models.

Photo-5 :



Modern art exhibition related to Gandhi on 1F.

Photo-6 :



Interactive exhibition. A monitor can be seen through the scope.

Current Problems






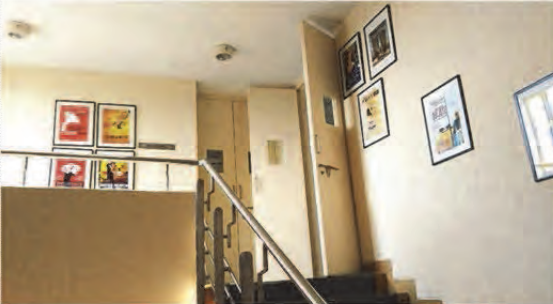
- a) The explanations are too long. Installing graphic panels on both sides of a narrow aisle tends to confuse visitors' reading order.
- b) Although the quality of the model itself is not high, it is an interesting exhibition that tells the life of Gandhi with multiple models.

Improvement Advice

- a) It is necessary to adopt a method that can be easily understood by visitors and exhibition methods that leaves a good impression, such as partially incorporating video explanation.
- b) Needs to devise the exhibition place and method. For example,
 1. Change of display case. Or change the setting environment of the model, such as installing it in a case embedded to the wall.
 2. When coming in front of the exhibition case, you can hear the conversation of scenes of each model.

India International Centre, New Delhi

16-Dec-2016, India International Centre, New Delhi

<p>Photo-1 :</p>  <p>Building façade.</p>	<p>Photo-2 :</p>  <p>Event flyer board, including event from other facilities.</p>
<p>Photo-3 :</p>  <p>There were about 100 visitors at 10am on a weekday when visited. The venue smells of incense, with a rugby-ball-shape stage.</p>	<p>Photo-4 :</p>  <p>Dance recital, 5 minutes per person.</p>
<p>Photo-5 :</p>  <p>The monitor at the building entrance, showing today's exhibition.</p>	<p>Photo-6 :</p>  <p>Example of exhibition on stairs.</p>
<p>Current Problems</p> <p>a) Event information monitor. It is hard to read because the place of installation is too high (and also small letters).</p>	<p>Improvement Advice</p> <p>a) Need to devise the method for sharing information in texts.</p>

India Habitat Centre, New Delhi

16-Dec-2016, India Habitat Centre, New Delhi

Photo-1 :



Glass panels cover all of the outdoor space. Having both openness and unity, a good composition.

Photo-2 :



Modern art are placed appropriately.

Photo-3 :



Exhibits student drawings at public space in front of ELV.

Photo-4 :



An education convention was held at the courtyard (outdoor).

Photo-5 :



There were about 30 exhibition stands, with buffet space for lunch at the centre. There were several (permanent) restaurants as well in the site.

Photo-6 :







Current Problems / Comments

Elevator-front and courtyard (with roof) is used for exhibition. Efforts at the entire facility are impressive. Management method (such as space renting system, etc.) can be useful to further improve study.

Improvement Advice

India Islamic Cultural Centre, New Delhi

16-Dec-2016, India Islamic Cultural Centre, New Delhi	
Photo-1 :	Photo-2 :
	
Learning centre for Moslems. Does not expect tourist visitors.	The building façade is based on Brown. The Blue colour on the left side of the picture is a mosaic of tiles.
Photo-3 :	Photo-4 :
	
Learning space with a stage. The design is simple. The main purpose is for lecture.	Emergency access map. Needs 2 or more exit.
Photo-5 :	Photo-6 :

National Handicrafts & Handlooms Museum, New Delhi

17-Dec-2016, National Handicrafts & Handlooms Museum, New Delhi

<p>Photo-1 :</p>  <p>The exhibition space is difficult to understand.</p>	<p>Photo-2 :</p>  <p>The main facility is souvenir shop of various regions.</p>
<p>Photo-3 :</p>  <p>Indian music was playing but not many people listened.</p>	<p>Photo-4 :</p>  <p>Outdoor exhibition. The explanation board is too high for children to read.</p>
<p>Photo-5 :</p>  <p>Indoor exhibition is on 1F. The entrance was difficult to understand, not suitable for tourist.</p>	<p>Photo-6 :</p>  <p>Indoor exhibition. There's no explanation at all.</p>
<p>Current Problems</p> <p>a) It is difficult to understand the layout within the facility (there are few information signs). b) There are many materials, but lack attractive display.</p>	<p>Improvement Advice</p> <p>a) Since consideration of the landscape is necessary, distribution of only leaflets and facility layout diagrams can be considered. b) Same with National Gallery of Modern Art, each material's exhibition method should be considered carefully for it to be easy to understand (e.g. show in numbers or separate in categories with explanations, etc). By devising lighting, 1. The documents will be easier to view. 2. The important materials can look precious (special), creating a vibrant space.</p>

National Gallery of Modern Art & Hauz Khas Complex, New Delhi

17-Dec-2016, National Gallery of Modern Art (No photos inside), New Delhi

Photo-1 :



There are 2 main buildings, with many painting exhibitions.

Photo-2 :



Outdoor sculpture exhibition in the courtyard.

Photo-3 :



A recreation area for Delhi citizen in the suburb of Delhi. Free entrance.

Photo-4 :



The white building in the middle is a house. This area is close to a residential area.

Photo-5 :



A historical spot but not well-maintained.

Photo-6 :



No entry around the pond.

Current Problems

National Gallery of Modern Art





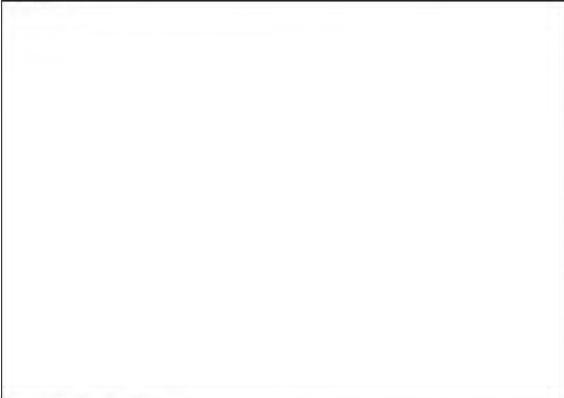
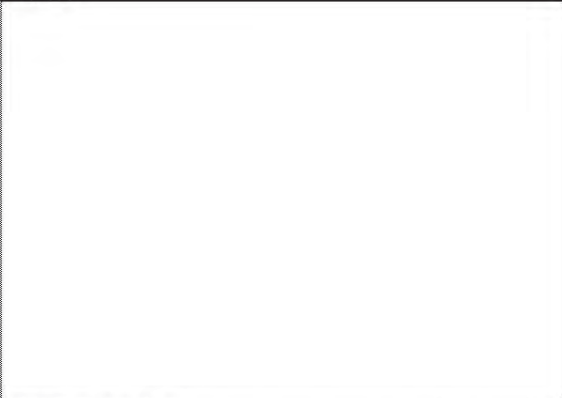
a) Outdoor exhibition in the courtyard. Few people see this because not many people expect to have an outdoor exhibition. It is not common to have the courtyard connected to the inside exhibitions, thus not many people come.

Improvement Advice

National Gallery of Modern Art

a) Establish wayfinding system (sign) in the whole facility. Actively utilize the courtyard for events.

Sageet Natak Akademi (Lalit Kala Akademi), New Delhi

18-Dec-2016, Sageet Natak Akademi (Lalit Kala Akademi), New Delhi	
<p>Photo-1 :</p>  <p>The National Academy of Art was established in 1954. Mainly conducts exhibition, event, publishing, and research related to art.</p>	<p>Photo-2 :</p>  <p>Rental gallery has 3 stories, the total area is 1,500 sqm. Has exhibitions on all floor. Rental fee are shown on HP.</p>
<p>Photo-3 :</p>  <p>The site has gallery, theatre, library, and auditorium (capacity: 80 people).</p>	<p>Photo-4 :</p> 
<p>Photo-5 :</p> 	<p>Photo-6 :</p> 
<p>Current Problems</p> <p>a) Each exhibition space is divided into space that is easy for individuals and group writers to use, though small, it has 4 or 5 exhibitions. Innovation method is necessary for the exhibition advertisement (since there is only a sign at the building entrance in the site, it can be hardly noticed when passing through)</p>	<p>Improvement Advice</p> <p>a) Create a new notification system that is recognizable from the street. Or set up a poster at the entrance of the site.</p>



2017

Survey for the proposed Varanasi Cultural Convention Center



Submitted to:

Oriental Consultants Global Co. Ltd., Japan

Research Report by: **BRIEF Pvt. Ltd.**

South Extension Part II, New Delhi



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ACRONYM

AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy
BHU	Banaras Hindu University
DESD	Decade of Education for Sustainable Development
GDP	Gross Domestic Product
IBEF	Indian Brand Equity Foundation
ICCA	International Congress and Convention Association
ICPB	India Convention Promotion Bureau
IITTM	Indian Institute of Tourism and Travel Management
ITPO	India Trade Promotion Organisation
MICE	Meetings, Incentives, conferences and Exhibition
Mn.	Million
PCO	Professional Congress/Conference Organizer
PRASAD	Pilgrimage Rejuvenation and Spiritual Augmentation Drive
VCC	Varanasi Cultural Convention Centre
U.P.	Uttar Pradesh
GoI	Government of India
Cr.	Crores
Rs.	Indian Rupees (INR)
Min / Max	Minimum / Maximum

Introduction

Varanasi is Uttar Pradesh's second-most visited tourist city and is synonymous with its historic temples and age-old spirituality. It is located along the river Ganga and is among the oldest living cities in the world. It has been a cultural centre of North India for several thousand years and is a major centre for pilgrimage. It attracts both domestic and foreign tourists and the total tourist inflow to the city in 2013 was over 5.2 mn. with Domestic Tourist Visitors inflow being 95% of the total.

The Kyoto-Varanasi Partner City Agreement was announced by Prime Minister of Japan, H.E. Shinzo Abe in a 5 day bilateral meeting with the Indian Prime Minister, Shri Narendra Modi on 13th January, 2015. Later a committee of 11-members was formed to facilitate the modernization of water management, sewage management, waste management and urban transportation using Japanese expertise and technologies. This committee would also promote application of Japanese practices and management for conservation of rich heritage of Varanasi. This would add to the coordination and exchange of ideas between Kyoto University and Banaras Hindu University and some other religious organizations. With the recent initiatives announced by the government towards overall development of the city and its infrastructural facilities by means of converting it into a smart city, the city has been attracting huge traction from all corners of the world. This traction is expected to convert the city into a hub of tourism and developmental activities that is slated to change the city's outlook completely. Hence, to meet the estimated demand, development the Varanasi Cultural Convention Centre (VCC) has been proposed by government authorities. Basis the mandate received from Oriental Consultants Group (OCG), Tokyo, BRIEF Private Limited has undertaken a comprehensive study on MICE (meetings, incentives, conferences and exhibition) industry and Tourism in India, with an objective to provide relevant information that would be critical to evaluate the feasibility of the proposed VCC. The expansive study encompassed meeting several stakeholders from related industry such as Professional Congress Organisers (PCO's), MICE Venue Management, Hotels, Tourists & the concerned government organisations. Qualitative interviews were conducted with the stakeholder using questionnaires & discussion guidelines. The research process & tools were developed by BRIEF & post approval from OCG, interviews were conducted at identified locations whose details have been shared in the appended table & the findings from the study has been detailed in the subsequent section.

Sl. No.	Convention Centres	City
1	India Habitat Centre	New Delhi
2	Indian International Centre	New Delhi
3	Pragati Maidan (India Trade Promotion Organisation)	New Delhi
4	Indian Islamic Cultural Centre	New Delhi

5	Mahatma Mandir	Gandhinagar
6	Benaras Hindu University (BHU)- 2 venues; 4 Officials	Varanasi
7	J.P. Narayan International Centre	Lucknow
8	Indira Gandhi Pratishthan	Lucknow
9	KGMU Scientific Convention Centre	Lucknow
10	Hyderabad International Convention Centre (HICC)	Hyderabad
11	Bengaluru International Exhibition Centre	Bengaluru
Sl. No.	Professional Congress Organizers	City
1	Orient Express	Delhi
2	Luxury MICE Travels	Delhi
3	Indebo	Delhi
4	Alpcord	Delhi
5	India China Economic and Cultural Council (ICEC)	Delhi
6	Plan It!	Delhi
7	SITE (Inspiration India)	Delhi
8	Wizards	Delhi
9	ICE group India	Delhi
10	Corporate Travels Pvt. ltd	Delhi
11	India Attitude	Delhi
12	ICPB (India Convention Promotion Bureau)	Delhi
13	Zenith Holidays	Delhi
14	TIC Events	Delhi
15	Quest Conference	Gurgaon
16	Thomas Cook	Gurgaon
17	Momentum Communications	Gurgaon
18	K W Conference	Gurgaon
19	Global Nexus	Noida
20	International Conferences & Exhibition Services (ICES) Pvt Ltd	Noida
Sl. No.	Government Departments/ Officials	City
1	Department of Tourism- UP Govt.	Lucknow
2	Department of Urban Development- UP Govt.	Lucknow
3	Department of Tourism- UP Govt.	Varanasi
4	Nagar Nigam (Municipal Corporation)	Varanasi
5	Ministry of Tourism- Govt of India	New Delhi
6	Department of AAYUSH	New Delhi
Sl. No.	Hotels	City
1	HHI Varanasi	Varanasi
2	Radisson Hotel Varanasi	Varanasi
3	The Gateway Hotel- Ganges Varanasi	Varanasi
4	Ramada Varanasi JHV	Varanasi
5	Costa River Varanasi	Varanasi
6	Taj Vivanta Lucknow	Lucknow
7	Gemini Continental, Lucknow	Lucknow
8	Clarks Awadh, Lucknow	Lucknow
9	Shangri La- Eros Hotel	Delhi
10	Taj Mahal Hotel	Delhi
11	The Lalit	Delhi
12	The Ashok	Delhi
13	Le Meridien	Delhi
14	Cambay Sapphire	Ahmedabad
15	Fortune Inn Haveli	Ahmedabad
Sl. No.	Tourists	City
1	India Tourists (50)	Metro/T1 Cities
2	Foreign Tourists (25)	Metro/T1 Cities
3	India Tourists (25-30)	Varanasi
4	Foreign Tourists (15-20)	Varanasi

Feasibility report by BRIEF on the proposed convention centre in Varanasi

A holistic review of secondary information was undertaken in due course of the study where relevant documents on Tourism policy of the Government of India (GOI) & UP (State) Government, published reports on MICE Industry were looked upon to extract relevant information for the project report.



In due course of the study, the field team faced & overcame several challenges that has marginally affected the scope of work & the deliverables. The bigger challenges have been listed below:

- Non-availability of data- On several occasions, requisite historical data on several aspects was not available with the government departments or trade associations. It appeared that such data was not maintained in the early years & efforts have been made in recent times to store the data. Hence in some cases information was available only for last 3 years. Since no concerted efforts were made to store the MICE industry data, it wasn't available with all sources & the analysis has been done on the basis of presumptions of industry experts in some cases.
- Non-cooperation- Some organisations were unable to meet us because either they were not ready to participate in the study or they were unwilling to share relevant information/data such as costs, operational details etc.
- Peak Season- Since the study was being conducted in peak season for MICE industry, it took enough time to convince the respondents to give an appointment to discuss the project & seek their inputs.

Since the focus was shifted to evaluate the cultural aspect, the commercial establishments & corporate organisations had to be ignored (that was planned at proposal stage).

The term MICE - Meetings, Incentives, Conventions and Exhibitions refers to a specialized niche of group tourism which includes business events and activities with a purpose beyond leisure tourism. Business tourism is an intrinsic part of tourism and it majorly includes conventions and exhibitions. The business travellers are connected to the sectors of tourism and hospitality through MICE activities. The business tourism is usually planned well in advance and it has a particular theme such as an educational, leisure or business. The MICE industry brings in new ideas and clients to a destination which in turn increases sales of relevant goods and services and results in the growth of business. The industry brings in trade, transportation, travel and finance together. It creates awareness through social media and promotes MICE business and improves customer service. In order to attract MICE travellers, Indian MICE and tourism industry is in a constant process of upgrading its facilities involving planning, booking and facilitating conferences, meetings, seminars and other events. It includes meeting planners, convention and banquets departments of hotels, caterers, logistics firms, tour operators, incentive houses, etc. Some of the key stakeholders in the MICE industry include:

1. Convention Centers: Facilities where meetings and exhibitions are hosted. It also provides for banquet and concession service.
2. Professional Congress Organizers: People who organize and manage congresses, seminars conferences and other similar domestic & international events.
3. Hotels: It provides accommodation to the participants of various MICE events and also supplements with meeting and convention facilities on a smaller scale.
4. Convention & visitor bureaus: They provide direction and path for growth. They provide a platform for organizing more MICE events. They help in coordinating all activities surrounding meetings and convention including promotion of event, marketing the destinations and providing necessary information.

International MICE Destination Scenario

More than 11,000 large scale meetings have been held till now across the world according to International Congress and Convention Association. United States of America with 831 meetings is the global leader in the MICE industry which is followed by Germany- 659 meetings, Spain- 578 meetings, United Kingdom- 543 meetings and France with 533 meetings. The inbound MICE segment is growing at 15 to 20% annually and according to estimates, the entire MICE meetings market all over the world is pegged at over 270 billion USD. In the business travel market, the MICE segment grew by 37% between 2007 and 2014,

Feasibility report by BRIEF on the proposed convention centre in Varanasi reaching a 54% market share. Conferences/Meetings/Seminars (41%) and trade fairs/exhibitions (29%) are the two largest MICE sub-segments¹.



Although USA and Europe continue to rule in terms of total volume of meetings conducted, Asia Pacific region has emerged as the fastest growing MICE region in the world. Australia and Singapore has also seen an increase in MICE events in recent years. India occupies 35th position in the world with 116 Global conferences organized in the year 2014-15. In the neighbouring region only China, with 332 conferences, leads at the global stage. Though there isn't any data available with Indian authorities on the number of MICE events held in the country, most of the stakeholders don't agree with the numbers reported by the ICCA and presume it to be much higher.

Indian MICE Destination and Scenario

Indian MICE Scenario

India has always been one of the fascinating destination for tourists from all over the globe and recently it has also become one of the fastest growing destinations for MICE Tourism. India has an advantage of modern and advanced technology as well as cultural heritage. The recent developments of world-class MICE centres in Gujarat, Hyderabad, Bengaluru and Delhi NCR have put India on the global map for hosting conferences and enabled India win several prestigious MICE events which would play an instrumental role in shaping up the MICE industry in the country.. Further, India as a country with rich diversity, can cater to the interest of various genres of tourists from hill stations to beaches, from spiritual to wellness tourism, etc. The warmth, courtesy and hospitality are also the factors for increase in MICE tourism in India. With the upcoming convention centres, hotels, and meeting facilities along with technology, logistics and connectivity, India is emerging as a hub for MICE tourism in the region. It also has an advantage of educated manpower who are fluent in English and other international languages. The major industries making use of the convention and conference facilities in India are the automobile, pharmaceutical, corporates, doctors and engineering industries, etc. MICE tourism has given a new boost to the tourism industry in India with nearly 25 %of tourism coming from MICE or business sector².

In a study commissioned by the Ministry of Tourism, the estimated contribution of MICE to GDP was found to be 0.22%, while that to Tourism was approximately 3.26%³. Majority of MICE travellers stay in accommodations having a facility of 4 Star or above and they are

¹ Source: ITB World Travel Trends Report 2014/2015/2016

² Source: MICE Segment: Poised for Growth in India, (Biz and Bytes Vol.6, Issue 2, 2015)

³ Source:FICCI Report, 2016.

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employed in private or government service or are self – employed or own a



small business. These travellers are in age group of 35 to 44 years predominantly⁴.

Indian MICE Destinations

India offers a unique amalgamation of culture, tradition, history with luxury and modern facilities which appeal to the MICE travellers. World-class convention centres is one of the requisites in this sector along with world class Hotels. Hyderabad International Convention Centre, Hyderabad; The Ashok , New Delhi, Mahatma Mandir, Gujrat, Le Meridian, New Delhi, Convention Centres in Cochin are forerunners in the Indian MICE tourism industry. MICE sector in India includes following destinations:

MICE Destinations

Delhi NCR	According to the quality of service, capacity and preferences, the major MICE centres in New Delhi are Pragati Maidan, Vigyan Bhawan, India Habitat Centre, The Lalit, Taj Hotel, Le Meridien, Shangrila, The Ashok, JW Marriott, Radisson, Pullman, Aerocity, Westin and etc.
Mumbai	With around 38 MICE centres, Mumbai is well geared up in terms of MICE infrastructure. Some of the major MICE centres in this commercial capital are Reliance Convention Centres, Bombay Exhibition Centre, JW Marriott, Taj Land, and etc.
Hyderabad	The Hyderabad International Convention Centre is the largest of the 18 MICE centres in Hyderabad. It has hosted conferences on healthcare, education and IT from across the world and is the top list of Professional Conference Organiser's due to its quality service, capacity of facility and logistics support.

⁴ FICCI Report, 2016

Government Intervention

With the increase in the inbound MICE demand, the Ministry of Tourism has made significant investments in the convention centres in the country. The government has sanctioned Rs. 5 Crore to every state government for developing a convention centre⁵. Public Private Partnership (PPP) models have been adopted for the development of venues⁵ and efforts are being taken to strategically brand India as a MICE destination. Andhra Pradesh Tourism with Rs. 1000 crore investment is one such state to use this model to build new tourist spots. The other states like Rajasthan, Madhya Pradesh, Odisha, and West Bengal are also moving in the same directions. Pragati Maidan, New Delhi is being updated to transform into a modern state-of-the-art exhibition centre-cum- convention complex. Apart from convention and exhibition centres, hotels also play an important role in MICE tourism. More than 20% of the hotel's business comes from MICE tourism. The MICE infrastructure in the country is developing rapidly and convention centres, hotels and conference venues of international standards are being setup. There has been regular infrastructure development to support the MICE industry, and there is a steady growth in the Indian MICE sector.

Central Government Policies & MICE Tourism

Ministry of Tourism has established the India Convention Promotion Bureau (ICPB) to promote India as a destination for MICE Tourism. The Bureau aims at projecting India as a conference destination and develops conference traffic to India. The draft national tourism policy 2015 laid strong emphasis on MICE Tourism by maximizing synergies between leisure and MICE Tourism. This aims to provide for pre and post leisure for MICE visitors motivating them to visit nearby locations. The new tourism policy identifies MICE as an important factor, in addition to heritage, culture, yoga and spirituality, which can boost tourism revenue in the country.

To promote MICE Tourism the Government of India has launched two new schemes in mission mode: *Swadesh Darshan*⁶ and the *National Mission on Pilgrimage Rejuvenation and Spiritual Augmentation Drive (PRASAD)*⁷. An amount of Rs. 150.77 Crore and Rs. 1330.82 crore has been sanctioned by the Ministry in 2015-16 for PRASAD and Swadesh Darshan respectively. Varanasi has been identified as major MICE destination under these schemes⁸. The Swadesh Darshan scheme aims to develop tourist circuits thus developing infrastructure. It aims at promoting cultural and heritage value of the country, follow

⁵ Source: MICE Segment: Poised for Growth in India, (Biz and Bytes Vol.6, Issue 2, 2015)

⁶ http://tourism.gov.in/sites/default/files/Other/Swadesh%2BBrochure%2B2016%2B-%2BEng%2BWeb_without%2BPM.pdf

⁷ http://tourism.gov.in/sites/default/files/News/PRASAD%20Low%20Res%20-17_3_205_compressed.pdf

⁸ As mentioned in UP Tourism Policy, 2016- <http://uptourism.gov.in/site/writereaddata/siteContent/new-trsm-policy.pdf>

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community based development promote local arts, crafts, culture handicrafts,



cuisines, etc. and encouraging pro-poor tourism approach. The PRASAD scheme aims at integrated development of pilgrimage destinations in a planned, prioritized and sustainable manner to provide complete religious tourism experience. Thus having a direct and multiplier effects on employment generation and economic development. This scheme also aims to create awareness among the local communities about the importance of tourism and promote local arts, crafts and handicrafts to generate livelihoods.

The Ministry of Tourism also provides Central Financial Assistance to the State Governments for development of tourist infrastructure and promotion of tourism including river cruise. Varanasi circuit is already identified under the National Waterway-1, River Ganga Project. It promotes Varanasi circuit which includes the Ghats, 'Ganga Aarti', Dev Dipawali' Kashi Vishwanath Temple, Sankat Mochan Hanuman Temple, Gyanvapi Mosque and Shri Guru Ravidass Janam Sthan.

In addition, a four days sensitization programme has been launched for the boatmen, rickshaw pullers, pandas, porters, shopkeepers and street vendors in and around ghats and Kashi temple in Varanasi. This programme is implemented by Indian Institute of Tourism and Travel Management.

The Ministry of Tourism has laid emphasis on World Heritage sites, Adarsh Monuments, wherein eleven of the Adarsh monuments have been shortlisted where feasibility of having sound and light shows would be checked. Also various attractions are being considered to illuminate the monuments in a creative manner. For example certain monuments in Sarnath and Varanasi have been chosen to illuminate. Ghats of Varanasi is also considered as a big attraction and Boat Safaris are also being promoted. Varanasi has also been added to the list of 16 airports offering Visa on Arrival to the nationals from 150 countries.

The Ministry of Finance, Government of India recognises the need to support the growth of MICE tourism & has notified the Harmonized Master List of Infrastructure Sub-Sectors⁹ to boost supply of hotel rooms in the country which includes:

- a. 3 star or higher category of hotels being developed in cities with less than 1Mn. population or hotels with more than Rs. 200 Cr. investment across India (any star category)
- b. Convention centers with project cost of more than Rs.300 Cr.

⁹ Annual Report 2015-16 – Ministry of Tourism, Govt. of India

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State Government (U.P.) & MICE Tourism Promotion



The Uttar Pradesh Tourism Policy also recognises the importance of MICE Tourism as an engine to drive the growth. The Uttar Pradesh Tourism policy 2016 outlines the following objectives for itself:

- It aims to establish convention centers for seminars, meetings and conferences with the collaboration of private entrepreneurs
- Entrepreneurs developing convention centers will be provided with land on priority
- There will be rebate in taxes to these new convention centers for the first five years of business
- The MICE facilities will be widely promoted and publicized with government's efforts.

The Heritage Arc

Taj Mahal has made Uttar Pradesh the most sought after destination for foreign tourists in India. Varanasi is also known for cultural, historical and spiritual destinations makes it a unique location which can be developed on the same lines. The proximity of UP with the national capital is also an advantage apart from the rapid pace of infrastructural development which makes it as a MICE destination.

Department of Tourism, Uttar Pradesh has introduced Heritage Arc which connects three most important tourism hubs of U.P. i.e. Agra, Lucknow and Varanasi. It covers the true essence of U.P promoting its cultural, religious, spiritual and heritage tourism assets. Efforts have also been made to extend Train (Shatabdi) connectivity to Varanasi within the Heritage Arc. The tourists arriving at Agra are being encouraged to visit Varanasi. Infrastructure facilities are being improved and the promotion and publicity of Heritage Arc is being done on a large scale through print, electronic, digital and outdoor media.

In Varanasi the heritage walk is a morning affair also known as Subah-e-Banaras. It is an amalgamation of culture, music and yoga has now become an integral part of the itinerary of every tourist visiting Varanasi, wherein early morning aarti of river Ganga is performed, followed by a 'Yagna' (recitation of Vedas & morning raga). It finally concludes with Yoga session being conducted by the experts on the Ghats itself.



PRIMARY FINDINGS OF THE STUDY

MICE Market in India & Stakeholders view on VCC

1. Professional Congress Organizers

Most of the professional congress/conference organisers covered in the survey have booked a convention or a conference facility for MICE events for at least 10 to 20 times in the last 12 months.

While selecting a convention centre, quality of service and the assistance offered by the venue is the most important factor for PCOs. The other important factors are the capacity of the facility and the availability of accommodation at the venue. Some of the PCOs also mentioned that sometimes the decision of a convention facility is in the hand of the event sponsor so they book the venue according to their own liking and preferences.

Better road/air/rail connectivity is the most important factor considered by most of the PCOs while selecting a city for an event. Apart from this, the availability of hotels of all categories in plenty and the general perception of the destination are the other relevant factors considered while selecting a city for an event. Opportunities of local entertainment and a place rich in art, culture and history also has an effect while selecting a destination.

The PCOs were also asked to name the top convention centres in the country. Their decision was based mainly on the quality of services provided by these facilities and the availability, space and capacity of these facilities. For some PCO's availability of accommodations in convention centres and its location i.e. being close to airport, railway station, bus stops, markets etc. are also important reasons for planning events at these convention centres. According to them some of the premiere convention centres in the country include:

- Hyderabad International Convention centre, Hyderabad
- Pragati Maidan (ITPO), Delhi
- The Ashok, Delhi
- Vigyan Bhawan, Delhi
- Mahatma Mandir, Ghandhinagar
- Le Meridien, Delhi etc.

Looking at these preferred options, it is affirmed that available space & location are important for the organisers, who plan & execute big events in the country.

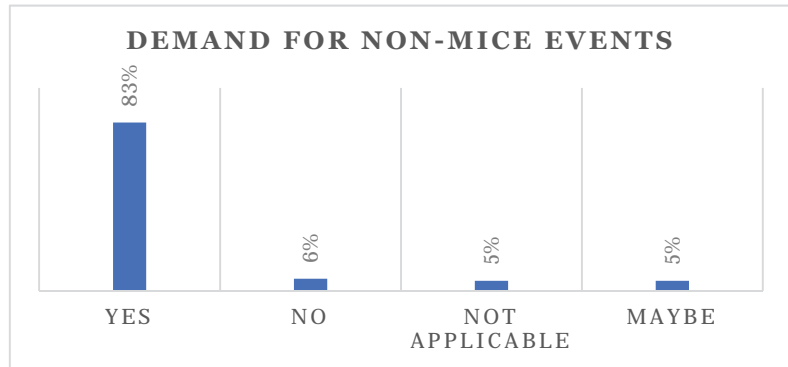
For most of the PCOs the Peak season is during winters i.e. October to February. Whilst in summers that is from March to September there is not much business carried out in the sector and they consider this their non-peak season. The major events organised during non-peak seasons are mostly family functions however according to few PCOs some of the seminars and conferences are also held during this time because the booking charges of the facilities are comparatively low.

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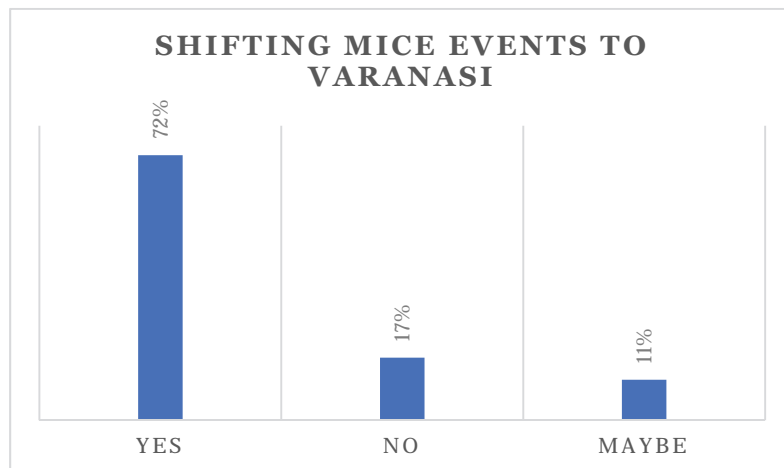
Demand for non-MICE Events

Sometimes these facilities are also booked for non-MICE events like wedding, engagement ceremonies, birthdays and other family functions. Non-MICE events like cultural functions for e.g Diwali and Holi Meets etc. are



also organised in the facilities. The study showed that 83% of the PCOs believed that there is a significant demand for non-MICE events, which includes mostly in social events as well as smaller meetings such as dealer/distributor’s meet, quarterly review, product launch etc.

Willing to Relocate Key MICE & Cultural Events to Varanasi

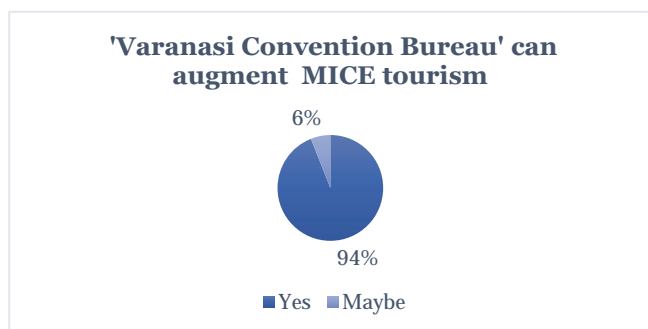


All the PCOs are of the opinion that Varanasi can be developed as a cultural and exposition hub in the near future. 72% of the respondents were interested in shifting their key cultural and MICE events to Varanasi once the convention centre is operational. However, all the

respondents emphasised the need for a better infrastructure facility, connectivity and availability of accommodation if Varanasi has to come up as a MICE tourism hub.

Varanasi Convention Centre

According to 94% of the respondents Varanasi Convention Bureau developed with the support of Varanasi Municipal Corporation will help in attracting international MICE events.



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According to the PCOs, Varanasi convention Centre can aim at cashing on the



Buddhist circuit and the global Hindu conventions. The demand for incentives is believed to be growing in future for Varanasi and it has a huge potential but it needs to be supported by infrastructure. The Varanasi convention can attract the PCOs from the eastern part of India as there are less convention centres in that region. Since Varanasi is not a very expensive city therefore it can attract sponsors and event organizers across India. However the city needs to offer better infrastructure to support the convention centre.

The Indian Convention Promotion Bureau (ICPB) projects India as a conference destination and it aims at the development of conference traffic to India. The endeavour of ICPB is to have highly developed convention centres all over the country to make India the preferred MICE destination of the world. According to ICPB, Varanasi can be promoted on the lines of spirituality, yoga and wellness tourism but for that connectivity and infrastructure needs to be further developed. Once this is done ICPB can help in promoting the convention centre by bringing there conferences and conventions to Varanasi and can also open a Bureau in Varanasi. According to ICPB, organisers & sponsors are looking out for new options and places to organize conferences and Varanasi had an additional advantage of Tourism and it should be promoted as a cultural, religious and spiritual hub also. Cleanliness in the city as well as Cleaning Ganges is required to improve the quality of life in Varanasi.

2. MICE Centres

Overview of MICE Venues

Banaras Hindu University, Varanasi

Banaras Hindu University also known as Kashi Hindu Vishwavidyalay in Hindi, is commonly referred to as BHU and was formerly known as Central Hindu College. It is a public central university located in Varanasi, Uttar Pradesh and established in 1916 by great nationalist leader Pandit Madan Mohan Malaviya with cooperation of great personalities like Dr Annie Besant, who viewed it as the University of India. BHU is one of the largest residential universities in Asia. The university comprises all castes, creeds, religions and genders, and is on the list of Institutes of National Importance.

Banaras Hindu University was created under the Parliamentary legislation - B.H.U. Act 1915. It played a stellar role in the independence movement and has developed into the greatest center of learning in India. It has produced many great freedom fighters and builders of modern India and has immensely contributed to the progress of the nation through a large number of renowned scholars, artists, scientists and technologists who have graced its portals. The area of the main campus of this premiere Central University is 1300 acres, having well maintained roads, extensive greenery, a temple, an air strip and buildings which are an architectural delight. The Air Field of the campus was started for military training for flying during the Second World War. Another campus of the university at Barkachha, in adjacent Mirzapur district, covering an area of 2700 acres is coming up. The university comprises 3 Institutes, 14 Faculties 140 Departments, 4 Inter-disciplinary Centres a constituent college for women's and 3 Constituents Schools, spanning a vast range of subjects pertaining to all branches of humanities, social science, technology, medicine ,science, fine arts and performing arts. It has 6 centres of Advanced Studies, 10 Departments under Special Assistance Programme and a large number of specialized Research Centers. Four Degree Colleges of the city are affiliated to the University.

All larger Academic Faculties of the university either has a meeting/conference room or a mid-sized auditorium where around 100 students/visitors can attend the conferences & lectures of eminent scholars or visiting faculty.

Bharat Kala Bhavan, is the reputed museum of the university & is a treasure trove of rare collections. The campus also has a 927-bedded hospital belonging to the University and is equipped with all the modern amenities. The university provides a wide range of facilities for

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sport and hobbies, has large playgrounds, a big auditorium, a flying club and many auxiliary services and units like Printing Press, Publication Cell, Fruit Preservation Center, Subsidized Canteens, Employment and Information Bureau, Security etc. The University family consists of about 15000 students belonging to all streams of life, castes and religions and races, about 1700 teachers, and nearly 8000 non-teaching staff. A large number of students from foreign countries like the U.S.A, the countries of Europe, Asia, Middle East, Africa etc., come to study here. The university has taken a leadership role in promoting new ideas, the spirit of integration of the world, and cultivation of intellect and culture. The map of BHU detailing about the departments, facilities etc. can be accessed here- www.bhu.ac.in/aboutus/map.php

JP Narayan International Center, Lucknow

JP Narayan International Centre (JPNIC) is an architectural marvel conceptualised by the leading architects & developers and being built by the Lucknow Development Authority, Govt., Of Uttar Pradesh, and is slated to open early 2017. Jai Prakash Narayan International Convention and Sports Centre is designed as a signature building for the city of Nawabs, Lucknow. The JPNIC at Lucknow comprises of a multiple number of facilities ranging from an aquatic centre, a sports centre, a business centre, a museum and a hotel along with sufficient parking space. It is built on a massive area of 18.84 acres and has a built up area of 17778 sq. mtrs. while total covered area for all floors is 88867 sq. mtrs. for all blocks. The prestigious project is being built with an investment of Rs 615 crores.

A world class convention hall with four star hotel facilities reportedly should be fully operational from April at the Jayaprakash Narayan International Convention Centre in Gomtinagar. Lucknow Development Authority (LDA) has modelled this international convention centre on the lines of New Delhi's popular 'India Habitat Centre' which offers most comprehensive facilities like convention halls, auditoriums, restaurants, hotel rooms to various institutions under one roof. The facility would offer memberships too & it will have its exclusive benefits. To seek lifetime membership of JPNIC, a government employee needs to pay Rs 50,000 while others would have to pay about Rs 1.75-2 lakh. The members would get almost 35% discount on its hotel-rooms, spa, salon, swimming pool, sports facilities, etc. Besides, one can also get temporary membership on recommendation basis for a week on a member's card. JPNIC will also give corporate membership cards which can be availed by different employees of the company from time to time. The centre also has a Museum dedicated to Shri J.P. Narayan which was inaugurated in October 2016¹⁰.

¹⁰ Website: <http://jpnico.co.in/about.html>



Indira Gandhi Pratishthan, Lucknow

Indira Gandhi Pratishthan is a state government owned & managed (by LDA) convention centre where social functions, government events & conferences are held. It is located in Gomtinagar and was inaugurated in 2010. The vast campus is spread over 6 Acres & offer meeting space for 1500 persons in its biggest auditorium. It also offers banquets for social functions, two large lawns and meeting rooms for holding official & social events. The auditoriums at the venue are of international standards and offer all advanced light & sound facilities that is required by the organisers of small & medium sized events.

KGMU Scientific Convention Centre, Lucknow

The KGMU Scientific Convention Centre is an integral part of the King George Medical University, a premiere medical college in the region. It was inaugurated in 2004 and the project was conceived by the Ex-Prime Minister and Member of Parliament from Lucknow, Shri Atal Behari Vajpayee and was funded from MP funds. The centre is being used to host national and international level scientific and cultural functions of the university and other government as well as private bodies. The Convention Centre has a floor area of 200,000 sq feet. The grand dome which measures 52.5 metres adds to its architectural elegance. The centre has 3 halls of 200, 400 and 1400 seating capacity, 2 banquet halls, 2 exhibition galleries, an open air theatre, a general library, an audio visual library, rehearsal rooms, a foyer area below the dome and connecting corridors. All are fully air conditioned. There are 8 lifts, including a capsule lift from which historical buildings of Lucknow can be seen.

The center has state of the art audio visual facilities The auditoria is being used for plays, music as well as films. An automatic translation system and remote voting system is also in place. Besides, there are 8 VIP suites with complete lodging facilities, which is offered only for events that are held there. The lawn of the complex is being offered for social functions such as marriage, private get-togethers. There is also a complete kitchen and pantry as well as food hubs. More details can be accessed here- www.kgmu.org/scientific_conv_centre.php

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Hyderabad International Convention Centre, Hyderabad



Hyderabad International Convention Centre (HICC)¹¹ is one of the most advanced & biggest convention centre located in the business hub area of Hyderabad city. It was built by Emaar Properties and the project was supported, funded by Telangana State Industrial Infrastructure Corporation Ltd. The entire property is managed by Accor group, a renowned globally for its hospitality projects. HICC is a purpose-built, state-of-the-art convention facility, the first of its kind in South Asia. It features an internal hall measuring 6,480 square meters that can be partitioned into six smaller halls. The facility has quite a few feathers in its cap. It has been the winner of the excellence award for “Best Standalone Convention Centre” for a record four times nationally and now regionally awarded by Ministry of Tourism, Government of India and Andhra Pradesh. HICC has also received the award for ‘Best Meeting & Conference Venue’ at the South India Travel Awards 2015. In every aspect, be it infrastructure, services or technology, its offering can be compared with the best in the world and owing to the huge space that it offers for meetings & conferences, it is considered for hosting larger conferences in India.

Some of the unique features of HICC that make it truly world class include- Pillar less internal hall of net 6480 sq. metres that can host a 6000-delegates event and can be divided into 6 smaller halls, 12.5 metre high ceiling, roof cat walkers and truss to withstand heavy suspension, Service pits every 6 metres, with power, water, internet etc., A spacious pre-function foyer area, In-house 5-star banqueting service, State-of-the-art IT infrastructure, design, technology, telecommunications and AV equipment. Apart from these, the facility also has a 287 bedded business hotel – Novotel, adjacent to the convention centre.

Mahatma Mandir, Gandhinagar- Ahmedabad

Mahatma Mandir is the world class facility for International Conferences and event venue located at Gandhinagar, a capital of State of Gujarat, India. It was built by the government of Gujarat in 2011 & managed by a state government organisation – Industrial Extension Bureau (iNDEXTb), which is dedicated to promote industrial growth in the state. The design of the Mahatma Mandir Convention cum Exhibition Centre has been inspired from and reflects the life and philosophy of the Father of the Nation- Mahatma Gandhi; reflecting the prosperity of Gujarat. The construction of this convention has been supported by the 16000 village residents from all over Gujarat who had contributed with the soil & water from their villages as they considered this as a paying homage to the father of nation, popularly called ‘Bapu’. The Convention Center and Exhibition Halls are designed to meet with the

¹¹ Additional details can be accessed from here- <http://www.hicc.com/>

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requirements for organizing Global Meets, Conventions, seminars, conferences,



exhibitions of both national and international level with the state of art facilities. The Convention Center has column free air conditioned halls, suitable for organising conference with huge seating capacities in various styles. In the theater style seating arrangements, the Main Hall has seating capacity of 6000 persons. The main hall can also be participated in to 3 seminar halls to simultaneously have separate programs. The complex site is spacious enough to handle swift movement of up to 15000 people. The planning and design is done as per green construction technology, through use of materials of construction, structural design and services. The centre has a recycling mechanism in place where all waste water is treated & recycled for flushing, irrigation etc. & the street lights are powered with hybrid renewable energy.

The other features of this gigantic convention centre are- a large conference hall with 6000 seats (Undivided) with VIP viewing galleries., offering a ceiling height of 11M, multi-purpose column free air-conditioned space of size 60M x 90M, 8 language interpretation booths, movable modular stages, lighting trusses, hanging hooks capacity up-to 2 tones and other mechanical and electrical facilities, Plug & play sound reinforce system (SRS) facilities, larger LED display enabling clear visibility to the people seated in the back rows, controlled temperature and lighting for thermal and visual comfort, Seminar, Conference Rooms and Business meeting rooms having facilities of attached pantry and equipped with Audit-Video facility, Simultaneous Interpretation facility with Video Conferencing High Tech watch LED, Wi-Fi etc¹².

The Convention centre also has a museum depicting the life story of Bapu & also a Gandhi Memorial where a concrete dome structure has been constructed representing salt mound houses a museum, library and research center. A sculpture garden with stone murals depicting the life of Mahatma Gandhi has also been developed. A grand spinning wheel, Charkha, is installed also on the suspension bridge is built in memory of the 'Dandi March'- a freedom movement initiative by Bapu.

India Habitat Centre, New Delhi

Spread over an area of nine acres the India Habitat Centre (IHC) campus has been designed and built by Joseph Stein, Doshi and Bhalla who have created an island of architectural excellence in the busy metropolis of India's capital, Delhi. The public agency for Housing and Urban Development Corporation Ltd (HUDCO) wanted an office building for its workers and

¹² Additional details & layout can be accessed here- <https://goo.gl/pwZzDb>

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made the unprecedented decision to invite chosen no n-profit organisations that shared their concern with habitat to share that work space and thus IHC was set up.



Started in 1993, the campus weaves in a unique interplay of institutions, supporting infrastructure and facilities such as conference venues, auditoria, hospitality areas, the library and resource centre, art galleries and offices of the founder organisations who had contributed towards building of the complex. Known for its elegant design, the campus is a hub of activity while simultaneously being serene. The architectural and design elements that Stein has built in enable this paradoxical blend. The landscaping, horticulture and fountains add to the pleasing ambience of the campus. It is a multipurpose building and is India's most comprehensive convention centre. It is spread over an area of 9 Acres and has facilities such as conference venues, auditoria, hospitality areas, the library and resource centre, and galleries, guest rooms, swimming pool, restaurants of which some are exclusively for the members of the society. It offers life time & temporary membership to individuals & organisations for a fee. It is located in the central business district of the city & organises and promotes conferences, seminars, lectures, public debates and exhibitions in matters relating to habitat, human settlements and environment. It has Library Lounge which provides a relaxing conversational space for members and it is also wi-fi enabled with a seating capacity of 50 persons. The Visual Art Gallery established in 2000 has become the hub of art activity which spans different genres, crossing many boundaries. A monthly calendar of the exhibitions and other activities at the Visual Arts Gallery is sent to all the members.

The events is being managed by a hospitality group – Old World Hospitality which takes care of all MICE events held in the complex and is responsible to promote art & cultural events in the campus. To promote cultural events, at times the venue is offered to the artists without any fees and that makes it a prominent institution for promoting art & culture from all over the world.

India International Centre, New Delhi

The India International Centre (IIC) is considered as one of the country's premier cultural institutions, and is a non-government institution widely regarded as a place where statesmen, diplomats, policymakers, intellectuals, scientists, jurists, writers, artists and members of civil society meet to initiate the exchange of new ideas and knowledge in the spirit of international cooperation. Its purpose, stated in its charter, was 'to promote understanding and amity between the different communities of the world'. The activities held the IIC cover a wide range, from lectures, seminars, panel discussions, international and national conferences to a variety of cultural events of music, cinema, performing and visual arts, both

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classical and folk. Entry to these is not restricted to members as all its programmes are open to the wider public of the city. Three core departments provide fitting platforms for its activities; the Programmes Division, the Library and the Publications Division.



The idea of the IIC first came up in October-November 1958, when Dr. S. Radhakrishnan, then Vice President of India, and John D. Rockefeller III discussed setting up a centre for the 'quickenning and deepening of true and thoughtful understanding between peoples of nations'. Mr. Rockefeller suggested an International House on the model of Tokyo's International House of Japan, in whose founding he had played a great part and offered a generous grant towards this end. Pandit Jawaharlal Nehru, then Prime Minister of India, was so enthused by the idea & selected the beautiful 4.76 acres site adjacent to Lodi Gardens, on which the present complex stands. Later, as the activities of the Centre expanded, an Annexe was added to the main complex in December 1996.

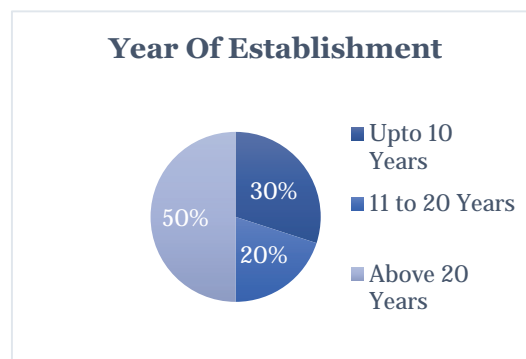
IIC was inaugurated in 1962 and is considered one of the country's premier cultural institutions it was established with an aim 'to promote understanding and amity between the different communities of the world'. The Centre is known for its hospitality, and its accommodation facilities as it provides comfortable and personalised service with modestly priced meals. The main complex of the Centre has three wings, one deals in cultural programmes which are open to the interested public, the other is to provide residential facilities to members and their guests and the third wing consist of The lounge, Dining hall, Private Dining Hall and Terrace Pergola. The main complex has the C. D. Deshmukh Auditorium and the two Conference Rooms, the Publication Division, the Library and the main administrative offices. The other facilities here include 48 single rooms, 25 double rooms and two Fellows Flats.

India Islamic Cultural Centre

The main purpose of setting up the Indian Islamic Cultural centre was to promote mutual understanding and amity amongst the people of country. The membership of the IICC is granted to an individual who is a citizen of the Republic of India and has attained 21 years of age. IICC has become a hub of cultural, social and educational activities. It organises numerous of seminars, conferences, meetings, debates and National festivals and functions in its main hall, meeting rooms and exhibition centre. It also provides for accommodation for around 50 people. It is within close proximity to government offices, shopping centres, markets and airport and railway station. It has around 3500 members who can access the venue and facilities at a discounted price. It was established in 1980 and is run by the trust which is elected by the board of directors which comprise the founding members. It also has a mosque inside its venue where prayers are offered by the members & visitors.

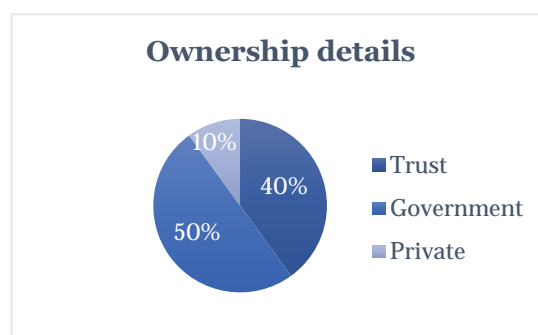
Analysis of the MICE Venues

Out of the 10 MICE centre Surveyed 50% of them are up to 10 years old and 20% of them are between 11 to 20 years old. The rest 20% are above 20 years old. The details of the MICE venues has been attached in the excel sheet.



Ownership

The state and central government owns 50% of the MICE centres covered in the survey. Trusts holds 40% of them and 10% of them is held by private.



Details on MICE Area

Details on Area & Cost		
MICE Centers	Total area of the MICE centre (acres)	Construction cost (Rs., in Cr.)
Indian Habitat Centre	9	N/A
Indian Islamic Culture Centre	3	N/A
India International Centre	4.5	N/A
Pragati Maidan- ITPO	123	N/A
Banaras Hindu University	2700	N/A
JP Narayan International Centre	18	615
Indira Gandhi Pratishthan	25	N/A
KGMC Scientific Convention Centre	5	N/A
Hyderabad International Convention Centre	15	N/A
Bangalore International Exhibition Centre	14	300
Mahatma Mandir	34	350

Feasibility report by BRIEF on the proposed convention centre in Varanasi



The total area of India International Centre is 4.5 acres whereas for BHU it is 2700 acres. BHU campus has over 16 departments who organise some or other event which are more of academic & research oriented. Almost every department would have a facility to hold meetings, conferences with a capacity of 20 to 250 persons.

The maximum Area covered is of 30 acres and the construction cost ranges from Rs. 350 Cr. to Rs. 615 Cr. Since these data points were confidential information, some hotels had refrained from sharing it. The number, area and capacity of the facilities in the MICE centres are as follows:

Facilities	Available	Numbers		Area (Sq. ft.)		Capacity	
	Yes	Min	Max	Min	Max	Min	Max
Main Hall	100%	1	6	768	69750	230	6000
Multi-Function/Exhibition Hall	90%	2	18	6500	643000	70	1400
Medium & Small Meeting Room	90%	2	17	1100	34500	20	1000
Common Space	90%	1	5	5000	20000	200	5000
Accommodation	70%	3	287	5000	60000	40	574
Office Space for leasing	20%	N/A					
Cafeteria/ Restaurant	80%	2	10	4000	34000	300	1000
Art Gallery	50%	1	2	6000	10000	200	500
Library & resource centre	80%	1	20	1800	10000	70	6000
Gym/Spa/Fitness centre	50%	1	1	3000	25000	100	150
Swimming pool	30%	1	3	2500	31000	N/A	
Open theatre	80%	1	3	1500	10000	250	7500

N/A- Data Not Available

MICE Area details

MICE Center	Main Hall				Multi-Function/ Exhibition Hall				Medium & Small Meeting Room			
	Yes/ No	No.	Area (sq ft)	Capacity (persons)	Yes/ No	No.	Area (sq ft)	Capacity (persons)	Yes/ No	Number	Area (sq ft)	Capacity (persons)
Indian Habitat Centre	Yes	1	66000	535	Yes	2	470 to 2870	100 to 450	Yes	10	700 to 1290	1000
Indian Islamic Culture Centre	Yes	1	768	300	Yes	2		150	Yes	2	1100	
India International Centre	Yes	1		230	Yes	2		70	Yes	10		45
Pragati Maidan- ITPO	Yes				Yes	18	2500 to 91000	200 to 5000	Yes	8	5700	400
Banaras Hindu University	Yes	1	15000	1500	Yes	5	1000 to 4000	300-350	Yes	5	500 - 1500	100
JP Narayan International Centre (to be opened in 2017)	Yes	1	26799	2000	Yes	2	19000	1400	Yes	2	6000	100
Indira Gandhi Pratishthan	Yes	1	20000	1500	Yes	2	18000	800 - 1000	Yes	5	8000	40 - 100
KGMC Scientific Convention Centre	Yes	3	15000	1450	Yes	2	6500	600	No			
Hyderabad International Convention Centre	Yes	6	69750	5000	No				Yes	7	8900	300
Bangalore International Exhibition Centre	Yes	1	15000	1500	Yes	4	1,13,753 to 2,27,034	500 - 3000	Yes	7	650- 3500	20-700
Mahatma Mandir	Yes	1	60000	6000	Yes	3	18000 - 44000	1000 to 4000	Yes	17	34500	2900

A-6-27

Follow the link to access the sheet containing detailed data of the MICE venues- [Annexure- 1B](#)

Parking Details

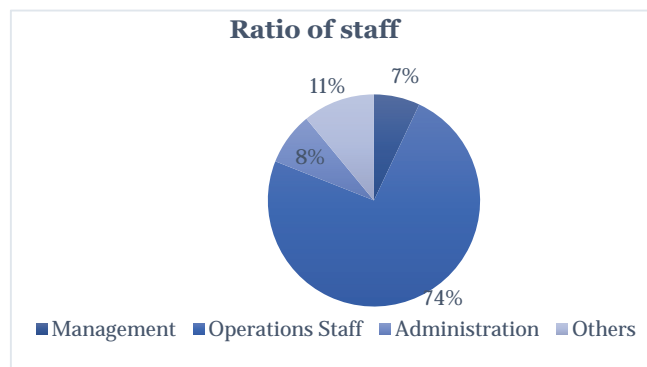
The parking space in these MICE centres ranges from 400 sq. ft. to 21,000 sq. ft. and the Number of cars

Parked in these facilities ranges from 250 to 5000 cars.

Parking		
Details	Minimum	Maximum
Area (Sq. ft.)	400	21000
Capacity of cars	250	5000

Staff

In the MICE centres 7% of the staff represent the management, 74% of them are engaged in business operations and 8% are in administration. Security, support and house-keeping staff comprise rest 11% of the staff.



Permanent Membership

Permanent membership in the centre	
MICE centre	Yes/No
India Habitat Centre	Yes
India Islamic Culture Centre	Yes
India International Centre	Yes
Pragati Maidan- ITPO	No
Banaras Hindu University	No
JP Narayan International Centre (to be opened in 2017)	Yes
Indira Gandhi Pratishthan	No
KGMC Scientific Convention Centre	No
Hyderabad International Convention Centre	No
Mahatma Mandir	No
Bangalore International Exhibition Centre	No

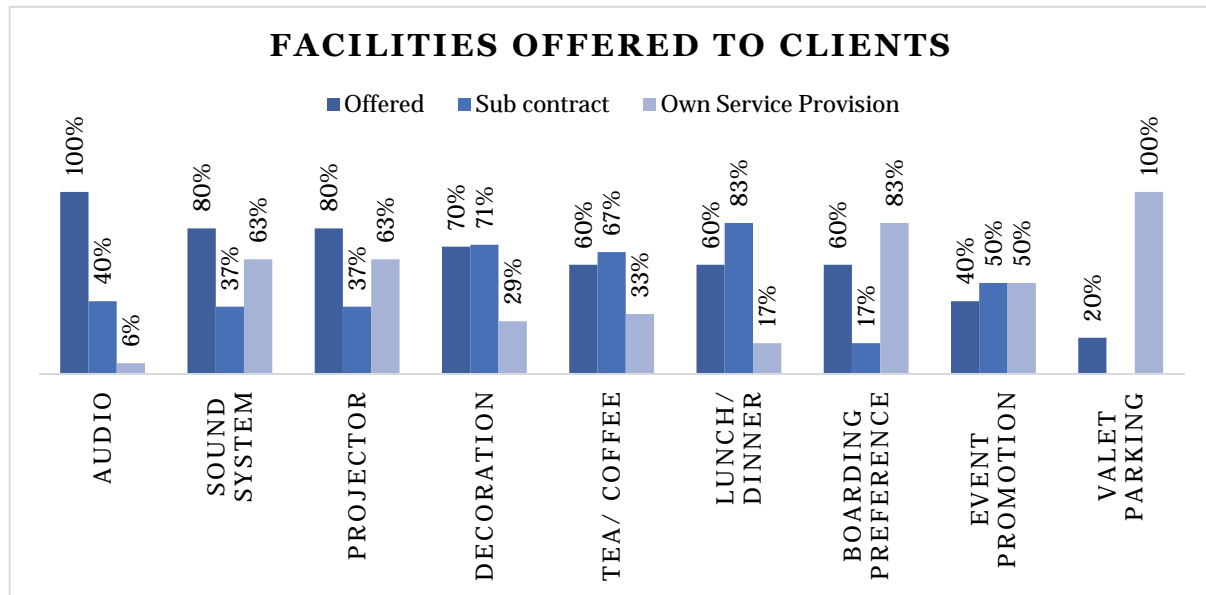
Out of the total MICE centre 60% of them do not have a membership scheme. Only India Habitat Centre, India Islamic Culture Centre, India International Centre and JP Narayan International Centre offers membership to organisations & individuals who are entitled to some benefits in terms of access to restaurants, discounts on bookings etc.

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Facilities at MICE Centres



The Following charts show the details on the facilities available in the MICE centres and also if these are provided on sub contracts basis or the by the MICE centres themselves. Depending on the events organised at the centres & its ownership, some of the facilities being offered are sub-let to a concessionaire such as food & decoration arrangements. The



details of services being offered & its provision is detailed in the appended chart.

Type of MICE Events Organised

Types of MICE events organised				
MICE centre	Meeting	Incentive	Conference/ Convention	Event
India Habitat Centre	Yes	Yes	Yes	Yes
India Islamic Culture Centre	Yes	Yes	Yes	Yes
India International Centre	Yes	Yes	Yes	Yes
Pragati Maidan- ITPO	Yes	Yes	Yes	Yes
Banaras Hindu University	Yes	No	Yes	Yes
JP Narayan International Centre (to be opened in 2017)	Yes	Yes	Yes	Yes
Indira Gandhi Pratishthan	Yes	Yes	Yes	Yes
KGMC Scientific Convention Centre	Yes	No	Yes	Yes
Hyderabad International Convention Centre	Yes	Yes	Yes	Yes
Mahatma Mandir	Yes	Yes	Yes	Yes
Bangalore International Exhibition Centre	Yes	Yes	Yes	Yes

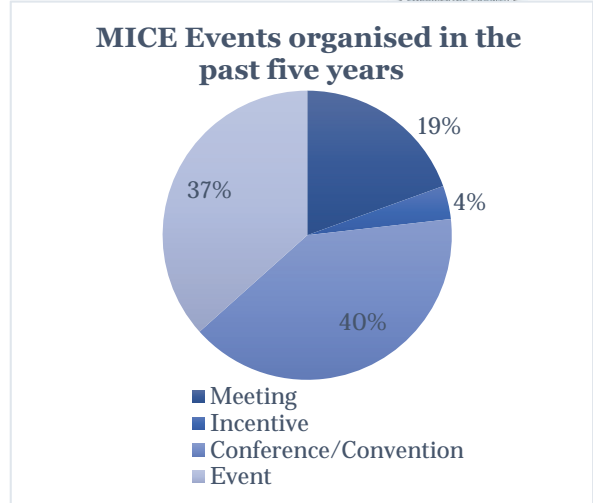
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Out of all the MICE centres BHU and KGMC Scientific Convention Centre do not organise any incentive meets. Apart from them all the other centres organises meetings, Conferences and events.

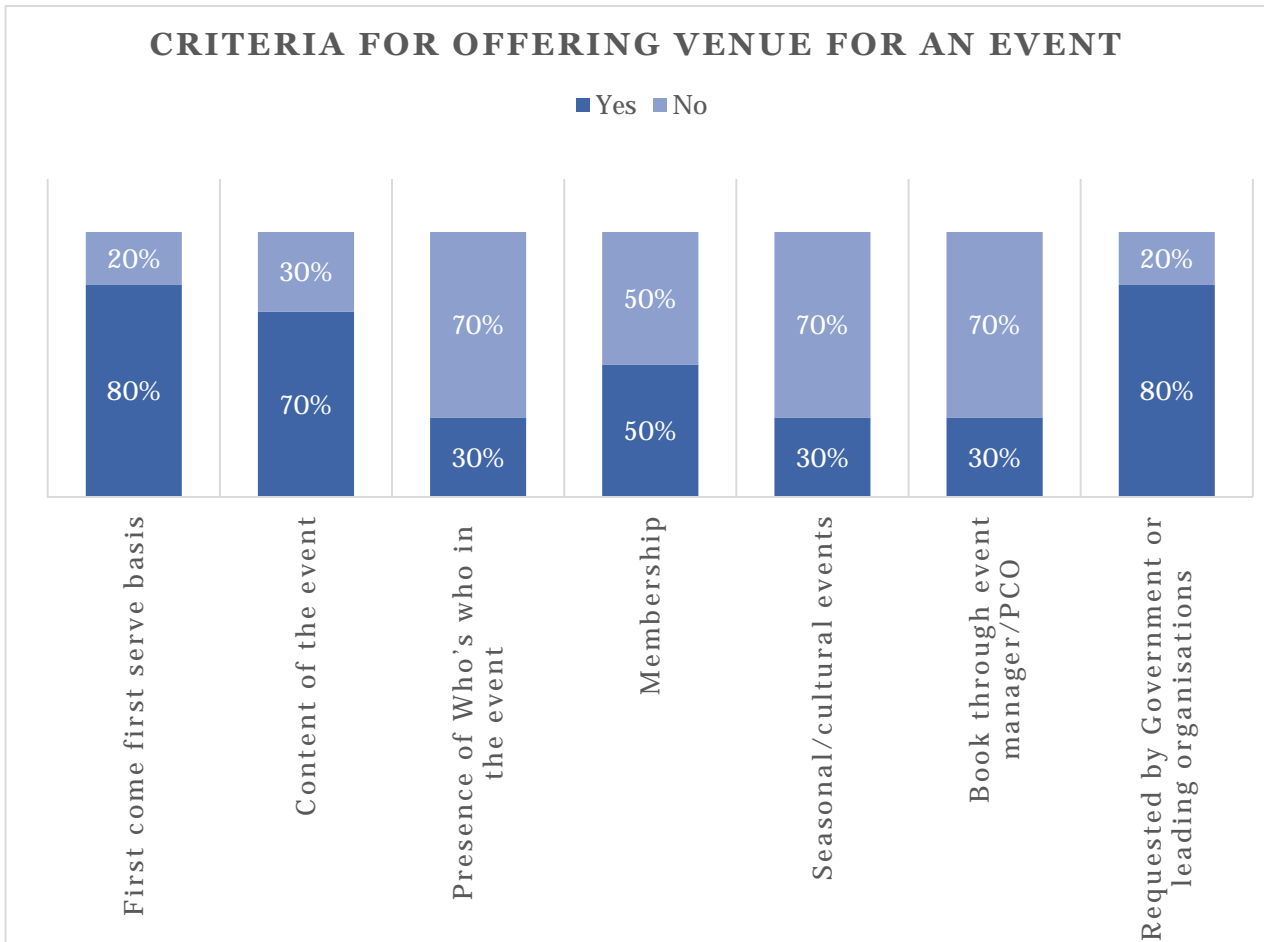
MICE Events in Last 5 Years

Out of the total MICE events organised in the past 5 years, 40% were conference and convention, 37% were events, 19% were meetings and 4% were incentive meets.



Criteria for Selection of an MICE Event

For 80% of the MICE Centres the criteria for selection of an event or conference is based on first come first serve basis and on the request made by the government.



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Programme Calendar

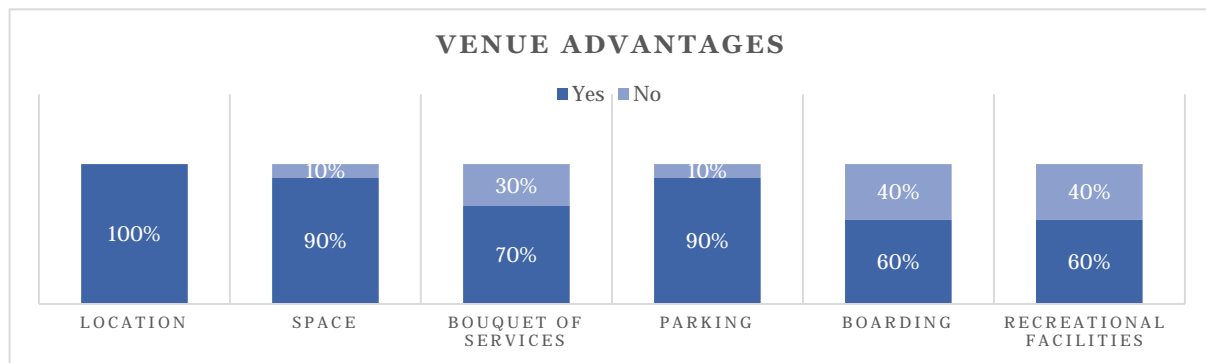
Out of the MICE centres Surveyed, 60% maintain programme calendar and 30% of them don't maintain it. JP Narayan International Centre is set to open in 2017 so it has not yet decided on maintaining any programme calendar.

Programme Calendar	
MICE Centre	Yes/No
India Habitat Centre	Yes
India Islamic Culture Centre	Yes
India International Centre	Yes
Pragati Maidan- ITPO	Yes
Banaras Hindu University	Yes
JP Narayan International Centre (to be opened in 2017)	Not decided
Indira Gandhi Pratishthan	No
KGMC Scientific Convention Centre	No
Hyderabad International Convention Centre	Yes
Mahatma Mandir	No
Bangalore International Exhibition Centre	No

Occupancy Details

The minimum occupancy (annual, on an average) for the main halls in 15% and the maximum occupancy is 80%. For multi-function halls, Medium and small meeting rooms, cafeteria/ restaurant and library and resource centre the Maximum occupancy is 90% and the minimum occupancy is 25%,30%,50% and 60% respectively.

Occupancy of MICE facilities		
Details	Min	Max
Main Hall	15%	80%
Multi-Function/Exhibition Hall	25%	90%
Medium & Small Meeting Room	30%	90%
Office	80%	80%
Accommodation	20%	95%
Cafeteria/ Restaurant	50%	90%
Art Gallery	5%	85%
Library & resource centre	40%	90%
Gym/Spa/Fitness centre	60%	90%
Swimming pool	80%	80%



Advantage of the Venue

All respondents in the study think that their venue is very well located and is well connected to airport, station, nearby markets etc. 90% of them think that the availability and capacity of space in their facility is an advantage to them.

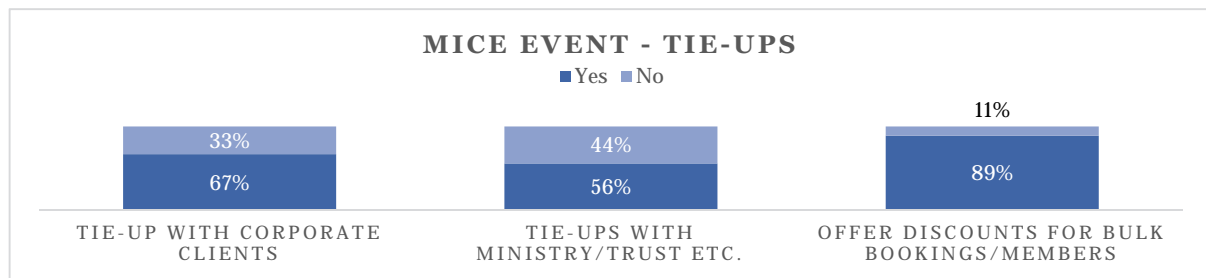
Tariff

The minimum Tariff for the Main hall Ranges from Rs. 35,000 to Rs. 22,00,000, for Multi-function hall it ranges from Rs.5,000 to Rs 26,00,000 and for Medium and small meeting room it ranges from Rs. 5,000 to 72,000.

Venue	Tariff (Rs.)	
	Min	Max
Main Hall	35,000	22,00,000
Multi-function Hall/Exhibition Hall	5,000	26,00,000
Medium & Small Meeting Room	5,000	72,000
Office	Data not available	
Cafeteria/ Restaurant	83,000	1,10,000
Art Gallery	18,975	65,000
Library & resource centre	32,500	32,500
Gym/Spa/Fitness centre	Data not available	
Swimming pool	Data not available	
Open theatre	9,600	15,000

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Tie-Up's



It was found that 67% of the MICE centres have tie-up with their corporate clients and 56% of them have tie ups with the Ministry and/or Trusts. Almost 89% of these MICE centres offers discounts to its members or for Bulk booking.

Peak & Non-peak Season - Occupancy

It was found that the peak season comprised of months September to March when the weather is conducive for hosting events. Also the peak season coincides with the marriage season where several pre & post marriage events are executed along with a grand marriage function. During off season the realization drops upto 30% & hovers around 90% in peak season. The details on occupancy in the peak and non-peak seasons and the average realization is in the following table :

Occupancy in Non-peak & Peak Seasons	Occupancy		Average Realization (%)	
	Peak	Non-Peak	Min	Max
January	100%	-	60%	85%
February	100%	-	60%	90%
March	89%	11%	40%	85%
April	67%	33%	40%	80%
May		100%	30%	75%
June		100%	30%	75%
July		100%	30%	70%
August		100%	30%	70%
September	11%	89%	30%	80%
October	100%	-	60%	90%
November	100%		60%	95%
December	100%		60%	90%

Feasibility report by BRIEF on the proposed convention centre in Varanasi



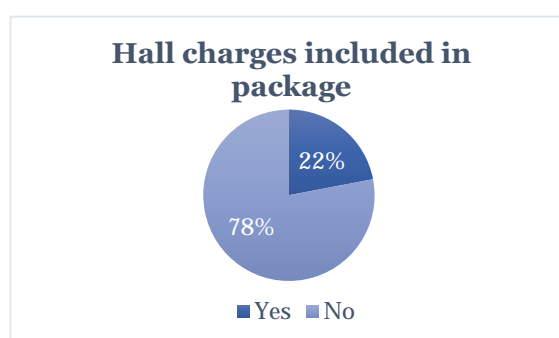
Revenue

The Revenue earned by these MICE centres ranges from Rs. 0.70 Cr. to Rs. 376 Cr. and Profit ranges from Rs. 0.5 Cr. to Rs. 165 Cr.

Details of Revenue, Cost & Profit		
	Minimum (Rs. Cr)	Maximum (Rs Cr.)
Revenue	0.70	376
Cost	0.5	165
Profit	0.2	1.8

Hall Charges included in Conference Package

Around 78% of the MICE centres include Hall rental charges in the conference package. However some organisations like BHU, IGP, 22% of them do not include hall charges in the conference package as they do not offer food/catering services, but charge only venue rentals.



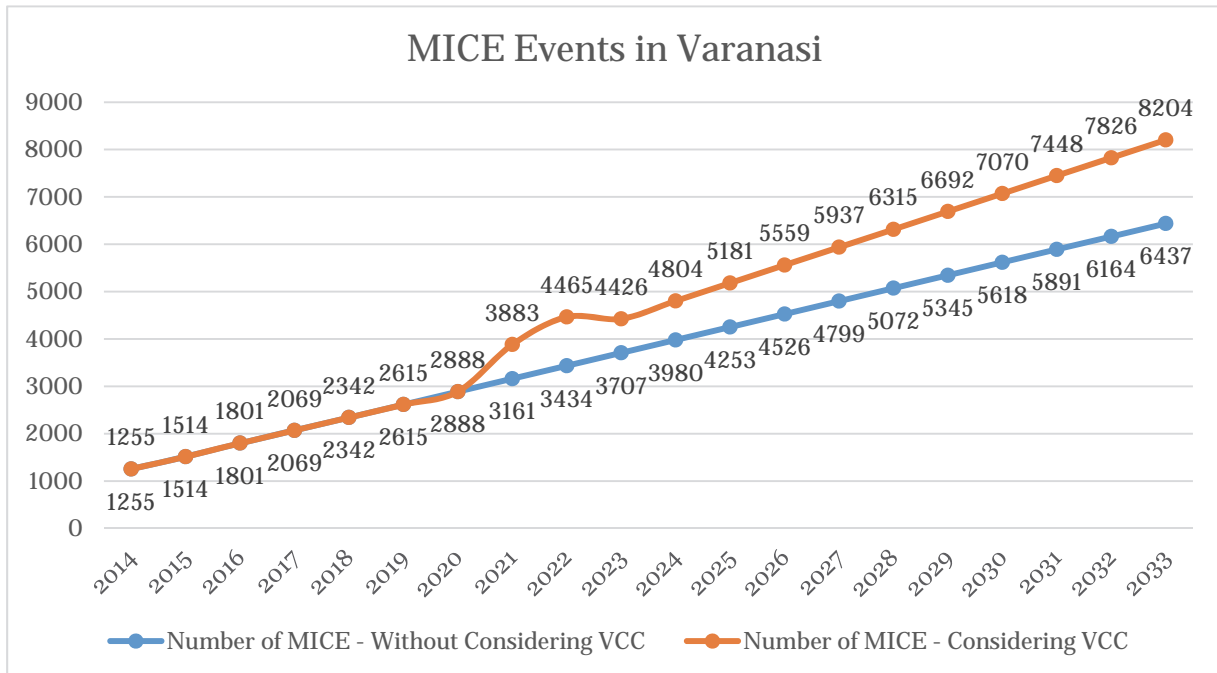
Fixed Rates

Fixed Rate of offerings	
MICE centre	Yes/No
India Habitat Centre	No
India Islamic Culture Centre	No
India International Centre	Yes
Pragati Maidan- ITPO	Yes
Banaras Hindu University	Yes
JP Narayan International Centre (to be opened in 2017)	Not Operational yet
Indira Gandhi Pratishthan	Yes
KGMC Scientific Convention Centre	Yes
Hyderabad International Convention Centre	Yes
Mahatma Mandir	Yes
Bangalore International Exhibition Centre	Yes

The rates for the MICE events are not fixed for India Habitat Centre and for India Islamic Culture Centre. For the rest of MICE centres the rates are fixed expect JP Narayan International Centre as it is not operational yet.

Feasibility report by BRIEF on the proposed convention centre in Varanasi

MICE projections



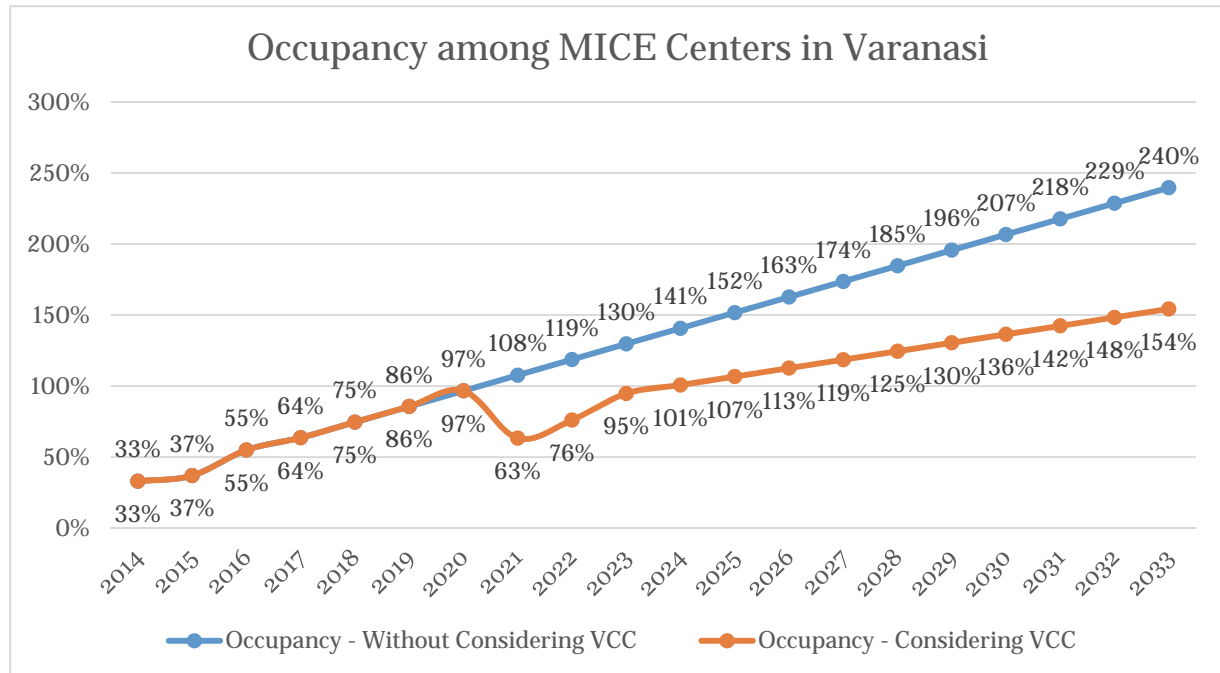
All projections have been made on the basis of MICE events organised by existing MICE centres in Varanasi in past years till 2016. Forecast estimation of the number of events to be held in the region has been arrived at basis two conditions – First, considering the inception of proposed VCC and other similar MICE centres & Second one, without considering the same. The future estimation for number of MICE events, without considering new MICE centres, is based on linear forecast method.

For the 2nd situation (considering new MICE centres commencing operations), it has been assumed that the Varanasi region will witness three larger new MICE centres by 2021 (VCC, Ramada, Taj). The estimated number of events has been arrived as below:

- It has been assumed that the number of events hosted by MICE centers are dependent on the capacity of the infrastructure, without considering any other factor.
- Number of events to be conducted by new MICE centers in the year 2021 (A) is being arrived at using the following calculation= (Total no. of events being conducted in the region/Total Capacity) X Capacity of new MICE venues
- Total no. of events to be conducted by all MICE centers in Varanasi in the year 2021 = B (i.e. No. of events to be conducted by existing MICE centers) + A
- Number of events in the year 2022 has been arrived by taking into consideration the average growth rate in the previous years.
- Basis the performance till 2022, the projections for future years has been made.

Feasibility report by BRIEF on the proposed convention centre in Varanasi

Occupancy of MICE Venues



The future occupancy in the existing MICE centres has been estimated basis linear forecast method. The projection of future occupancy in the MICE centres, considering new MICE centres in the region, has been slightly different. The calculation has been based on following:

- Share of proposed capacity of new MICE centers in the total capacity of all the centers
- The estimated occupancy (demand) in the year 2021 has been adjusted accordingly due to the increase in the total capacity (supply) of all MICE, as 3 new venues are expected to be operational in that year. It is also expected that with the additional infusion of venues, supply would increase, and it is assumed that occupancy would be lesser than the previous year.
- The occupancy in the year 2022 has been arrived by keeping in mind the average growth in occupancy of existing MICE centers in the region.
- Basis the occupancy till 2022, the projections for future years has been made.

Existing MICE Venues in Varanasi

The currently available space for hosting MICE events in Varanasi comprise of the space being offered by hotels and marriage gardens cum banquet halls. Apart from these, BHU offers a standard infrastructure to hold academic & medical MICE events. It was found that there is a dearth of quality MICE venue in the city & the convention centre at municipality office is in bad shape and used only for smaller government body meetings. Due to the non-

Feasibility report by BRIEF on the proposed convention centre in Varanasi

availability of quality MICE venues, it becomes imperative to set up one such venue which would augment MICE Tourism in the city & also offer space to hold cultural programs.



3. Hotels

Overview of Hotels

The Ashok Hotel, New Delhi

The hotel is spread across 25 acres of land in the diplomatic area and is a 5 star deluxe hotel. It offers convention tourism for national and international conferences. It also offers luxury rooms and suites, national and international cuisine with a health club, spa and a business centre. It is known for its hospitality, high level comfort, quality services and catering. It is located 15 km. from international airport and 9 km. from New Delhi Railway Station.

The Lalit, New Delhi

The Lalit is a 5-star deluxe hotel located at Connaught Place and is minutes away from the government offices, cultural centres and historical monuments etc. It is the flagship brand of Bharat Hotels Limited Enterprise, India's largest privately owned hotel company. The hotel is 24 km from the international airport and 3km from New Delhi railway station. The Luxury business hotel has lavish room spread across 18 floors offering comfort.

Le Meridien, New Delhi

Le Meridien is a perfect blend of class and elegance and is known for comfort and customer service. It is an ideal destination for business travellers and family vacationers and is situated 2 km away from Rashtrapati Bhavan. It is located 20 km from the International Airport and 3 km from the railway station. It offers luxurious and well-decorated 358 Rooms, which are spread across 14 floors. The main shopping hub Connaught place and the shoppers delight Janpath market, is within walking distance from the hotel. It is a perfect getaway for a business traveller

The Taj Mahal Hotel, New Delhi

The Taj Mahal Hotel is a 5-star luxury hotel in Delhi, India. The 11 storey hotel is an example of Mughal architecture in the city and offer 294 luxury rooms, including 27 deluxe suites. It offers luxurious suites with modern fitness centres, spas, banquets and conference halls. It is 23 km from the international airport and 5 km from the New Delhi Railway Station.

Shangri La- Eros Hotel

Shangri La is city's finest and most eminent five-star hotels. It is within close proximity to government offices, shopping centres and commercial, financial and business districts. The hotel is a 30-minute drive from the domestic and international airports and a few minutes

Feasibility report by BRIEF on the proposed convention centre in Varanasi
away from the international grounds of Pragati Maidan and most embassies.



The hotel is well equipped with a 24-hour Business Centre and its ballroom is an ideal venue for important meetings and banquet celebrations and offers the best convention and conferencing facilities in the city.

Varanasi Hotels- Overview

HHI, Varanasi

The Hotel Hindustan International (HHI) Varanasi is centrally located at cultural capital of India and is a few minutes' drive from religious places and marketing complex. It is a 7 storey high building which offers 96 guest rooms and 2 suites. It offers more than 7,500 square ft. of flexible indoor space and 4000 square ft of garden space. The HHI Varanasi is designed to cater the needs for meetings and conferences and offers high speed internet access and audio-visual capabilities to support such events. It is 1 km from the railway station, 20kms from the airport and 2.5 km from Shri Kashi Vishwanath Temple. Additional details about the hotel can be assessed here- <http://www.hhihotels.com/hotel-varanasi/>

Radisson Hotel, Varanasi

Radisson Hotel is a 7-minute walk from a bus stop, 5 km from Kashi Vishwanath Temple and 9 km from Banaras Hindu University. It offer 116 spacious hotel rooms and suites and is designed keeping comfort and convenience of guest in mind. Out of the 116rooms two are elegantly designed suites, 14 are business class Rooms and 100 are Superior Rooms with city and pool views. Some of the other facilities are free Wi-Fi, flat-screen TVs, minibars, tea and coffee making facilities etc. Link to the hotel website for detailed information- <https://www.radisson.com/varanasi-hotel-up-221002/indvaran>

The Gateway Hotel- Ganges Varanasi

The Gateway hotel is located 2 km from the Varanasi railway station, 4 km from the Kashi Vishwanath Temple and 7 km from the Ganges River. The hotel is spread across 40 acres of lush gardens at a convenient distance from the airport. The hotel offers 120 spacious rooms complemented by efficient services. It offers free Wi-Fi, flat-screen TVs, minibars, garden or pool views, formal restaurant, an International cafe and a relaxed bar. It also offers amenities like an outdoor pool, a hot tub and landscaped gardens with seating, an exercise room and a business centre. The hotel is well equipped to host all kinds of business events from meetings, conferences to corporate cocktail parties. Link to access hotel website for additional details: <https://gateway.tajhotels.com/en-in/ganges-varanasi/>

Ramada Plaza JHV, Varanasi

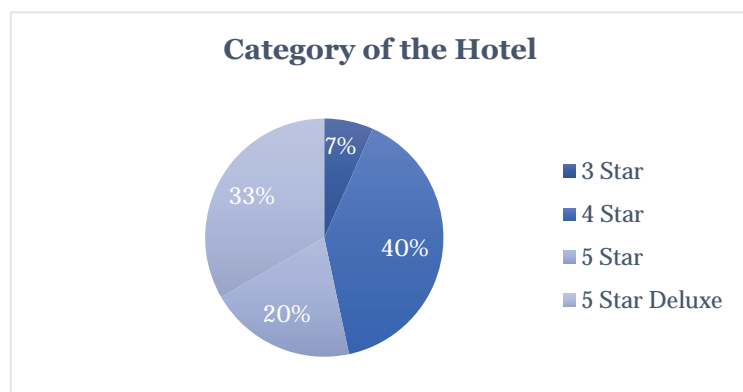
Ramada offers 120 guestrooms which are designed keeping luxury and comfort in mind. Its Shehnai Ballroom is spread over 4154 sq. ft. whereas the Sarangi is 1924 sq. ft and Sarod is 1392 sq. ft. They have 215 sq. ft board rooms for closed door meetings, formal interactions & interviews located at the business centre. It can accommodate 10 to 12 people and it offers all the modern technology and latest audio visual facilities. It is 5.5 km from the Ganges River at Dashashwamed Ghat and 5.7 km from Kashi Vishwanath Temple. Hotel website link to access additional information about the hotel & its offerings: <http://www.ramadajhvnns.com/>

Hotel Costa River, Varanasi

Hotel Costa River is located at the Mall road, in Varanasi and is at a walkable distance from all the govt. and corporate offices, shopping malls and places of entertainments. It is 22km from the airport and is a 10-15 minutes' walk from the Varanasi Cantonment Railway station. It offers 32 spacious and comfortable rooms and provide services like in house Travel Assistance, Wi-Fi hi-speed Internet Access, Express laundry Service, a 24 Hours Multi cuisine Restaurant – Seasons, Other value added services include round the clock In-room dining, Doctor on call, Electronic Safety Locker, Mini Bar, Satellite TV, and Currency Exchange in the building premises. It offers two Banquet Hall Alaska & Florida which can host till 200-250 people at a time for conferences and meetings. Additional details about the hotel can be accessed here: <http://www.costariver.com/index.php>

Category of Hotels

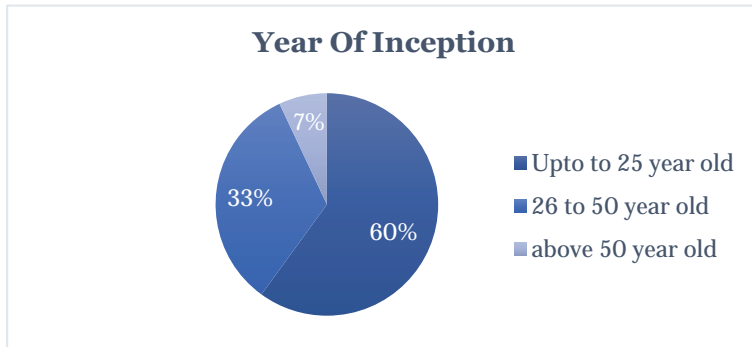
In this exercise, 5 hotels from Varanasi were surveyed along with 10 hotels in the other Metro Cities in India. Out of the surveyed hotels, 40% were 4 star hotels, 33% were 5 star deluxe hotels. 20% and 7% of the hotels were 5 star and 3 star respectively.



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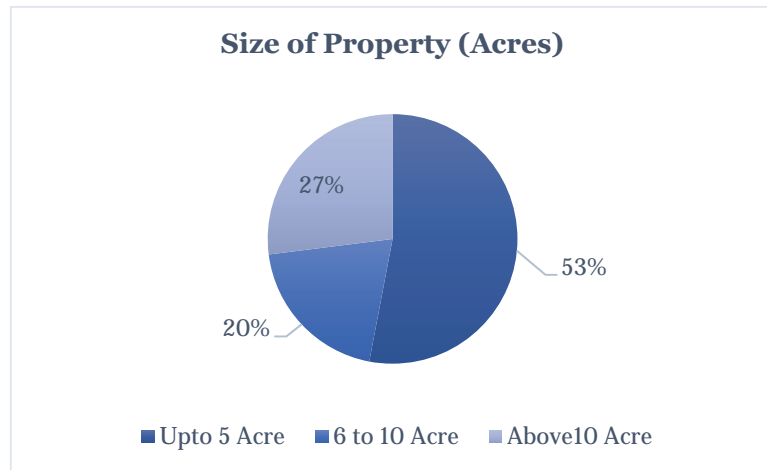
Year of Inception



Out of the surveyed hotels, 60% were established up to 25 years ago and 33% were established between 26 to 50 years back. Around 7% of these establishments are older than 50 years.

Size of Property

Among the hotels surveyed, 53% are up to 5 acres in area, and around 13% span over 6 to 10 acres. The sizes of the properties covered in the survey range from 0.4 acres (Costa River, Varanasi) to 25 acres (The Ashok, Delhi). Further, 26% of the sample hotels are above 10 acres in area.



Distance of Major Hotels from Major Landmark

The distance of the sample hotels from major landmarks has been shown in the following table:

Distance from Major Landmarks		
Major Landmark	Minimum (Kms.)	Average (Kms)
Airport	12	17.33
Station	1	5.13
City Centre	0.5	3.73
Main Road/Highway	1	7.8

HOTELS	From airport	From Station	From City Centre	From Main Road/ Highway
HHI Varanasi	20	1	3	10
Radisson Hotel Varanasi	18	2	2	8
The Gateway Hotel- Ganges Varanasi	18	3	2	8
Cambay Sapphire	20	15	15	5
Fortune Inn Haveli	15	10	10	5
Taj Vivanta Lucknow	20	8	5	10
Gemini Continental, Lucknow	15	5	1	15
Clarks Awadh, Lucknow	15	4	1	16
Ramada Varanasi JHV, Varanasi	14	2	2	8
Costa River Varanasi	15	4	1	16
Shangri La- Eros Hotel	18	3	2	2
Taj Mahal Hotel	23	5	4	4
The Lalit	24	3	0.5	1
The Ashok	12	9	6	7
Le Meridien	13	3	1.5	2

MICE Events Organised

Out of the total MICE Events organised in the surveyed hotels, a majority are corporate events, followed by conferences, meetings and incentive meets.

No. of MICE events organised & Y-o-Y Growth					
MICE Events	2014	2015		2016	
	Total Events	Total Events	YOY Growth	Total Events	YOY Growth
Meetings	741	853	13%	1015	19%
Incentives	101	125	19%	159	27%
Conferences	802	946	15%	1130	19%
Events	1050	1200	13%	1500	25%
Grand Total	4708	5139	9%	5820	13%

The year-on-year growth in corporate events has been 20% in the year 2015-16 as compared to 13% in 2014-2015. Meetings have shown a growth of 16% in 2015-16 from 13% in 2014-15. Incentive meets have experienced a Y-O-Y growth of 21% in 2015-16 as compared to 19% in 2014-2015 and conferences have shown an increase in growth from 15% in 2014-2015 to 16% in 2015-2016.

Feasibility report by BRIEF on the proposed convention centre in Varanasi

The details on Tariff and Occupancy and on number, capacity and area of facilities is provided in the excel sheet provided in [Annexure-1A](#).



Capacity of Banquet Halls

The capacity of a banquet hall ranges between 60 and 2500 persons in a theater style seating. For conference halls, the minimum capacity

Capacity of Halls at venue			
	Minimum	Maximum	Average
Large Banquet	125	2500	534
Small Banquet	60	500	218
Big Conf. Room	10	1300	174
Smaller Conf. Room	16	150	53

is 10 people and the maximum is 1300 persons (theatre style). The capacity, charges and occupancy of banquet halls and conference rooms are as follows:



Details of the Hotels w.r.t Banquet & MICE infrastructure has been provided in the excel sheet in Annexure

Year	Large Banquet Charges (Rs.)			Large Banquet Occupancy		
	Minimum	Maximum	Average	Minimum	Maximum	Average
2012	900	900	900	45%	45%	45%
2013	950	950	950	45%	45%	45%
2014	900	2000	1175	40%	82%	56%
2015	1000	2200	1315	50%	84%	65%
2016	1000	3200	1843	63%	100%	79%

Year	Small Banquet Charges (Rs.)			Small Banquet Occupancy		
	Minimum	Maximum	Average	Minimum	Maximum	Average
2012	900	900	900	45%	45%	45%
2013	950	950	950	45%	45%	45%
2014	1000	1600	1160	42%	80%	58%
2015	1100	1800	1307	52%	82%	68%
2016	1200	2800	1694	65%	100%	83%

Year	Big Conf. Room Charges (Rs.)			Big Conf. Room Occupancy		
	Minimum	Maximum	Average	Minimum	Maximum	Average
2012	NA	NA	NA	NA	NA	NA
2013	NA	NA	NA	NA	NA	NA
2014	900	2000	1300	42%	75%	55%
2015	1000	2200	1389	52%	85%	67%
2016	1000	2400	1570	65%	100%	80%

Year	Smaller Conf. Room Charges (Rs.)			Smaller Conf. Room Occupancy		
	Minimum	Maximum	Average	Minimum	Maximum	Average
2012	NA	NA	NA	NA	NA	NA
2013	NA	NA	NA	NA	NA	NA
2014	900	2000	1300	42%	70%	54%
2015	1000	2200	1414	52%	75%	64%
2016	1000	2400	1529	65%	100%	78%

Facilities (Number)	Minimum	Maximum	Average
Multi-Function/Exhibition Hall	1	4	2
Medium & Small Meeting Room	1	10	3
Common Space	1	1	1
Office Space for Leasing Out	1 Floor	3 Floor	-
Cafeteria/ Restaurant	1	8	4
Gym/Spa/Fitness centre	1	1	1
Swimming Pool	1	1	1
Open Theatre	1	1	1

Facilities (Area in Sq. ft.)	Minimum	Maximum	Average
Multi-Function/Exhibition Hall	1500	16435	
Medium & Small Meeting Room	400	7448	
Common Space	-	-	-
Office Space for Leasing Out	-	-	-
Cafeteria/ Restaurant	1000	4000	2570
Gym/Spa/Fitness centre	500	1200	910
Swimming Pool	600	2000	1225
Open Theatre	-	-	-

Facilities (Capacity)	Min	Max	Average
Multi-Function/Exhibition Hall	250	2500	1020
Medium & Small Meeting Room	14	3000	455
Common Space	-	-	-
Office Space for Leasing Out	-	-	-
Cafeteria/ Restaurant	52	250	128
Gym/Spa/Fitness centre	-	-	-
Swimming Pool	-	-	-
Open Theatre	-	-	-

Parking & Its Capacity

Out of the hotels surveyed, Radisson Hotel, Varanasi has a parking capacity of 20 cars whereas the parking capacity of Le Meridien Hotel is around 1600 Cars. The hotel has an in house parking capacity of 600 Cars, but it has acquired a parking space for nearly 1000 cars at the nearby metro station.

Total Parking Area & Capacity			
	Minimum	Maximum	Average
Area (sq. ft.)	600	8000	3075
Capacity (No. of Cars)	20	1600	277

Hotel-wise details	Total Parking Area(sq.ft.) & Capacity _____ cars	
	Area	Capacity
HHI Varanasi	2000	50
Radisson Hotel Varanasi	600	20
The Gateway Hotel- Ganges Varanasi	5000	200
Cambay Sapphire	Open	100
Fortune Inn Haveli	1000	30
Taj Vivanta Lucknow	2000	50
Gemini Continental, Lucknow	1000	30
Clarks Awadh, Lucknow	8000	75
Ramada Varanasi JHV, Varanasi	5000	150
Costa River Varanasi	Open	50
Shangri La- Eros Hotel	NA	400
Taj Mahal Hotel	NA	500
The Lalit	NA	400
The Ashok	NA	500
Le Meridien	NA	1600

Type of Visitors

In a year, out of all guests staying at the sample hotels, most of them are domestic travellers (28%) followed by business travellers (23%), foreign tourists (20%). Attendees of MICE conferences/company events comprise a healthy 20% share and those staying for of local events such as parties, marriages, etc. constitute 9% of total visitors.

Distribution of Visitors at Hotels (Annially)	
Business Travellers	23%
Domestic Tourists	28%
Foreign Tourists	20%
MICE Conferences/Company Events	20%
Local Demand (Party/Marriages, etc.)	9%
Total	100%

Feasibility report by BRIEF on the proposed convention centre in Varanasi



Average Duration of Stay

The average duration of stay at the sample hotels for domestic and foreign tourists are for 3 days whereas for business travellers and MICE conferences, the average stay is for 2 days.

Stay Duration (Days)			
Visitors	Minimum	Maximum	Average
Business Travellers	2	3	2
Domestic Tourists	2	3	3
Foreign Tourists	2	3	3
MICE Conferences/Company Events	2	3	2
Local Demand (Party/Marriages, etc.)	2	3	2

Hotel	Business Travelers	Domestic Tourists	Foreign Tourists	MICE Events	Local Demand (Social)	Average
HHI Varanasi	2	3	3	2	3	2.5
Radisson Hotel Varanasi	2	3	3	2	2	2.3
The Gateway Hotel- Ganges Varanasi	3	2	3	3	2	2.5
Cambay Sapphire	3	2	3	3	3	2.8
Fortune Inn Haveli	2	2	3	3	3	2.5
Taj Vivanta Lucknow	3	3	3	3	2	2.8
Gemini Continental Lucknow	3	2	3	2	2	2.3
Clarks Awadh, Lucknow	3	3	3	2	2	2.5
Ramada Varanasi JHV, Varanasi	2	3	3	3	2	2.5
Costa River Varanasi	2	3	3	2	3	2.5
Shangri La- Eros Hotel	2	3	3	2	2	2.3
Taj Mahal Hotel	2	2	3	3	2	2.3
The Lalit	3	3	2	2	3	2.8
The Ashok	3	3	3	3	3	3.0
Le Meridien	2	3	3	2	2	2.3

Geographical Spread of Visitors

Out of the total visitors arriving at the sample hotels, 26% are from other states, 20% are international visitors, 15% are from other capital cities, 15% are from the same state, 12% are from the same city and around 10% are from the neighbouring state.

Geographical Spread of Visitors	
Same City	12%
Other Capital City	16%
Same State	16%
Neighbouring States	10%
Other States	26%
International Visitors	20%

Peak Season

For almost 33% of the respondents, the peak months are from October to March. For around 33% of the respondents, the non-peak months are from April to September.

Peak		Non-Peak	
Nov - Feb	13%	Apr - Oct	13%
Nov - Mar	13%	Apr - Sep	33%
Oct - Apr	7%	Mar - Sep	27%
Oct - Feb	20%	March - Aug	7%
Oct - Mar	33%	March - Oct	7%
Sept - Apr	7%	May - Aug	7%
Sept - Feb	7%	May - Sep	7%

Hotels wise Peak/ Non-peak seasons	Peak Season & Non-peak season in Business	
	Peak	Non- Peak
HHI Varanasi	Oct - Apr	May - Sep
Radisson Hotel Varanasi	Oct- Mar	Apr - Sep
The Gateway Hotel- Ganges Varanasi	Oct- Mar	Apr - Sep
Cambay Sapphire	Oct- Feb	Mar- Sep
Fortune Inn Haveli	Oct- Feb	Mar- Sep
Taj Vivanta Lucknow	Oct- Mar	Apr - Sep
Gemini Continental, Lucknow	Nov- Mar	Apr - Oct
Clarks Awadh, Lucknow	Nov- Mar	Apr - Oct
Ramada Varanasi JHV, Varanasi	Oct- Mar	Apr - Sep
Costa River Varanasi	Oct- Mar	Apr - Sep
Shangri La- Eros Hotel	Nov to Feb	March to Sept
Taj Mahal Hotel	Oct to Feb	March to Sept
The Lalit	Nov to Feb	March to Oct
The Ashok	Sept to April	May to Aug
Le Meridien	Sept to Feb	March to Aug

Particular of Peak & Non-peak Season

As is customary, the inflow in the peak season is high and it is low in the non-peak season. The details on occupancy, tariff and room realization rates are as follows:

Occupancy - Peak & Non - Peak

Occupancy and Tariff Particulars: Peak and Non-peak Seasons			
Occupancy	Minimum	Maximum	Average
Peak	60%	90%	79%
Non-peak	40%	75%	59%

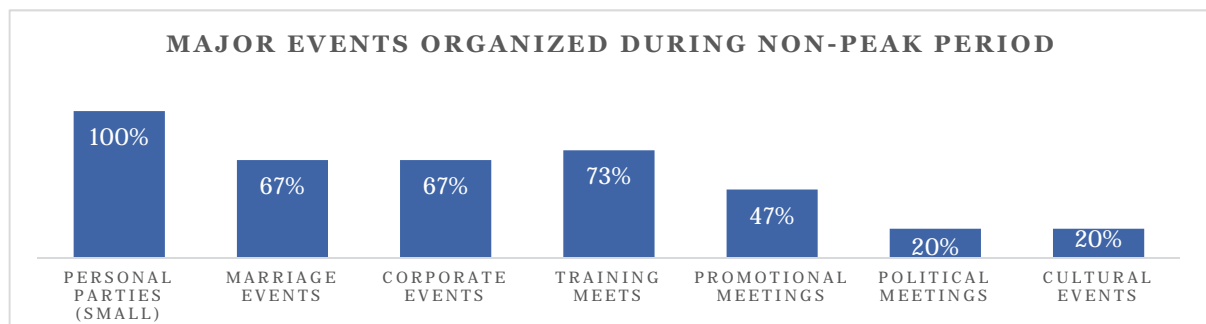
The tariff for MICE venues at the sample hotels ranges between Rs. 900 to Rs. 2500. The rates were found to be significantly high in during Peak season.

Tariff during Peak & Non – Peak (Minimum, in Rs.)			
Minimum Tariff	Minimum	Maximum	Average
Peak	900	1700	1340
Non-peak	900	1700	1200
Tariff During Peak & Non – Peak (Maximum, in Rs.)			
Maximum Tariff	Minimum	Maximum	Average
Peak	1000	2500	1620
Non-peak	1100	2500	1500

Average Room Realization (%)	Minimum	Maximum	Average
Peak	65%	95%	81%
Non-peak	40%	80%	59%

Major Events Organised During Non-peak Season

It has been noted that all sample hotels organise personal parties in the non-peak period. Marriage events are organized by 67% of these hotels, and only 20% of them organise cultural events in the non-peak period.

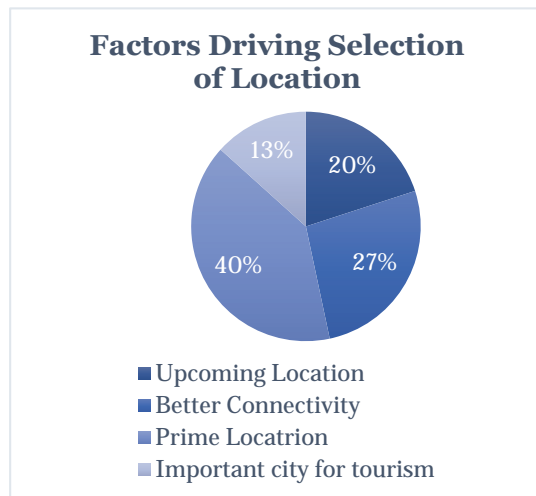


Revenue Share from MICE Events

Share of Revenue from MICE Events		
Minimum	Maximum	Average
15%	60%	26%

As per the information received, all the hotels covered in the survey have corporate clients for MICE events, and on an average, 26% of the total revenue of these hotels come from MICE events. A minimum of 15% and a maximum of 60% of the revenue of the sample hotels are generated from MICE events held in these facilities. The Ashok hotel in Delhi reportedly had a larger share of revenue from such events as most of the government events are organised there & its centrally located too.

Decision for Hotel Location Selection



In due course of the study, Attempt was made to understand the logical reason behind setting up the hotel at current location. As per the responses received, following are the key reasons:

- The location being prime (40%)
- Connectivity being good (27%)
- Future growth potential being high (20%)
- The potential of the city in terms of tourism activities was high (13%)

Perception on Upcoming Hotels/Resorts/Convention Centres



As per the responses, currently, none of the hotels in the sample have any future expansion plans. Further, around 87% of the respondents are not aware of any new hotels/resorts/convention centres coming in and around their area. However, according to certain respondents ITPO and Oberoi Hotels in Delhi, and Hotels Taj Gateway & Ramada have expansion plans w.r.t. MICE facility & hotel

room inventory to be ready for the foreseen demand.

Hotels in Varanasi

Particulars for Hotels & Guest Houses in Varanasi			
	Minimum	Maximum	Average
No of Rooms	4	350	25
No of Beds	7	700	49
Tariff Minimum (Rs.)	50	16000	738
Tariff Maximum (Rs.)	150	130000	1834

Attempt was made to find out the inventory of hotel rooms along with the beds available, range of tariff for all hotels in Varanasi. It was found that as on 2013 year end, out of the 498 hotels registered with the tourism office in Varanasi, the minimum number of rooms in a

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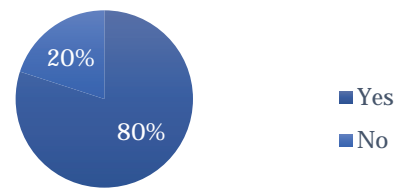
hotel was 4, while the maximum was 350. The minimum number of beds in a hotel was 7, whereas the maximum was 700, thus average rooms in city hotel stood at 49. The minimum tariff for a hotel is Rs. 50 (Vaishali Vishram Bhavan) whereas the highest tariff is of Rs.1, 30,000 (The Gateway Hotel Ganges, Nadesar). On analysing the sample, the average tariff has been found to be Rs. 1834. The details on rooms, beds and tariff has been provided in Annexure-2.



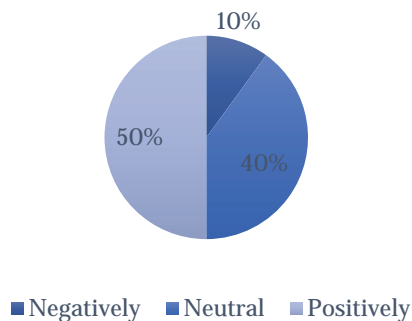
Perception on Convention Centre in Varanasi

Out of the respondent hotels, 80% are affirmative that developing a convention centre in Varanasi will result in overall development of Varanasi & tourism business. They also agree that it would also boost MICE business. Whereas only 20% of them opine otherwise, as they were not keen to encourage competition in the market & were being sceptical without much conviction about the market's growth

Development of Convention Centre Varanasi



Perception on Impact on Business



Perception on Impact of Business

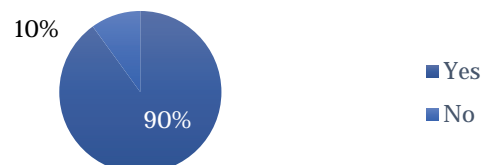
Among the hotels surveyed in Varanasi, 50% of the respondents think that the upcoming convention centre will positively affect their business. 40% of them believe it will not have any effect on their business whereas 10% of them

think the effect on their business would be negative as they would have to compete with them.

Perception on Need of Convention Centre

Out of the respondents, 90% believe that there is a need for a convention centre with a 1000 sq.mt main hall and a 1000 sq.mt exhibition hall.

Need for a Convention Centre



Feasibility report by BRIEF on the proposed convention centre in Varanasi

Inputs from Hotels Surveyed



- All respondents from the hotels surveyed agree that MICE promotes tourism and should get special focus from all quarters
- Varanasi Hotels strongly feel the need of a world class convention center in the city
 - I. Everyone agrees that it would boost MICE tourism and attract more visitors
 - II. They suggest that promoting Varanasi as a religious and cultural hub would be easy and should be aggressively done at international level
 - III. Also, medical and technological conferences take precedence in Varanasi owing to BHU as opined by the respondents
 - IV. A considerable share of the domestic tourist influx is from outside the state of UP, which can potentially be a major determinant of success for a convention center

Taj Gateway Ganges, Varanasi and Ramada Plaza, Varanasi are planning to build/develop convention centres with a capacity of ~1000 persons by 2020. They sense the need of a convention centre in the city, which would offer better facilities in comparison to other properties in the city. Being a part of the premium segment, the rates of these properties are higher by 20%-25% from other properties.

4. GOVERNMENT OFFICIALS

Ministry of Tourism - Gol

Uttar Pradesh is the cradle of the greatest and oldest civilization of the country and is blessed with a varied spectrum of tourist attractions, from one of the wonders of the world, Taj Mahal to the unique cultural and religious hotspots like Varanasi. The Ministry of Tourism aims at promoting and developing UP as a national and international tourism destination. It aims to promote the cultural diversity, harmony, spirituality as well as the rich heritage and civilisation. MICE Tourism in Uttar Pradesh is consistently gaining importance and is an important reason for increase in tourist footfall in the state.

The Government of India has launched two schemes to promote MICE tourism in Varanasi i.e. Swadesh Darshan and PRASAD. These schemes aim at promoting the spiritual and cultural heritage of Varanasi, thereby encouraging sustainable and community based development. The Ministry has laid considerable importance on the development of necessary infrastructure and enhanced connectivity to develop a convention centre in Varanasi. According to the ministry, the upcoming convention centre in Varanasi should be developed as a venue for promoting regular cultural programs and should also be promoted on the lines of Buddhist Circuit.

Ministry of AYUSH

The Department of **Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH)** focuses on developing education and research in Ayurveda, yoga, naturopathy, unani, siddha and homoeopathy as well as other indigenous medicine systems. The Department of AYUSH was elevated to Ministry of AYUSH on 9th Nov, 2014. The National AYUSH Mission was implemented in the 12th Five Year Plan to promote AYUSH medical systems through cost effective AYUSH services, facilitate the enforcement of quality control of ayurveda, siddha, unani and homoeopathy as well as ensure the strengthening of educational systems.

Yoga is a way of balancing and harmonizing the body, mind and emotions. At Varanasi, there has always been a great tradition of learning yoga which continues even to this day. Traditionally, Ashrams were the centres of yoga practice and learning. However, at today's date, modern institutions have been promoting yoga as well. A convention centre in Varanasi will definitely have a positive impact on the promotion of yoga in the city. Events like Aarogya 2015 have been organized in B.H.U., Varanasi by the Ministry of AYUSH, Govt. of

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India and Govt. of Uttar Pradesh to showcase the strength of the AYUSH system.



The development of an increased number of potential venues for these events will go a long way in increasing the number of events hosted by the Ministry in Varanasi.

Ministry of Tourism- Govt. of U.P.

In due course of the study, a qualitative interaction with the Uttar Pradesh Ministry of Tourism revealed that the tourism in UP was growing at around 9% YOY which is a healthy growth. Incidentally the state of Uttar Pradesh has been popular with domestic & international tourists

“Benaras (Varanasi) is older than history, older than tradition, older even than legend, and looks twice as old as all of them put together” – Mark Twain

wherein it ranks 2nd in terms of share of Domestic Tourist Visit (14.3%). The state ranks 3rd for International tourist visits (with 13.3% share) in 2015¹³. Moreover the state government is keep to fuel the growth by promoting tourism actively and taking up new initiatives such as organising Buddhism Summit, Ganga Mahotsav, traditional events on the banks of Ganga River at Varanasi apart from developing certain new circuits. The Heritage Arc Project is one of the key initiatives from the government to promote tourism across the state. Agra, Lucknow, Varanasi have been developed as a ‘heritage arc’ by improving infrastructure, including roads, pathways and condition of monuments, among other things, to attract tourists in a big way. Understanding the direct impact tourism has on the economy and image of the state and job creation and investments, the state government is focusing on tourism infrastructure development projects wherein initiatives like developing suitable facilities for tourists, training of guides and setting up of information centres at identified tourist spots/centres.

Heritage Arc & Varanasi

Of the three cities in the Arc, Varanasi has a special focus for various reasons. Primarily because it’s one of the oldest city in the world and also a conglomeration of religions, faith and cultures. The city has always been considered as great cultural centre notably in the field of learning, religion, philosophy, Yoga, Ayurveda, astrology, music, literature and spirituality. During an interactive session the



¹³ India Tourism Statistics- Ministry of Tourism, Govt. of India Data 2015

Feasibility report by BRIEF on the proposed convention centre in Varanasi with Regional Tourist Officer (RTO), Varanasi, religious & cultural tourism was underlined.



Being a key link of the Buddhist circuit which comprises of destinations Sarnath, Kushinagar, Lumbini (Nepal), Kapilavastu (Nepal), Sravasti and also nearness to Bodh Gaya makes it a prominent tourism destination for a segment of tourists who follow the religion. Also is being regarded as one of Hinduism's seven holy cities accompanied by River Ganga following along, makes it a quintessential city to be visited by more Indians who follow Hinduism & Jainism. According to the RTO, the influx of domestic tourist in the city has also increased by over 30% over between the years 2010 to 2015 and is expected to grow at a steady rate with over 54 lakh domestic visitors having visited in 2015. And the city is also attracts over 3 lakh foreign tourists annually (as on 2015) which had grown by over 38% since 2010.

Acknowledging the high inflow of domestic & foreign tourists, the government has been planned to develop smaller satellite locations such as Chunar, Bhadohi etc. which are <50 kms. away from Varanasi. Bhadohi is famous for hand knotted carpet weaving cluster and a prominent carpet manufacturing hub in south Asia.

Prospects of the proposed Cultural Convention Centre

The state tourism authority are upbeat about the proposed Cultural cum Convention centre as they perceive that MICE tourism has not taken up in the city as there isn't any dedicated infrastructure to host large meetings & conferences. Lack of availability of spacious convention venue with facilities to hold world-class MICE events, non-availability of industries in the vicinity are the two key reasons due to which the city hasn't been able to host any such event. It was also highlighted that though the city's ambience, temples, ghats etc. speaks about the culture, but there isn't any one place or source such as a museum which could narrate the rich cultural heritage that the city is a symbol of. So a cultural centre would enable tourists to be aware of Varanasi which is also regarded as melting pot of culture.

To develop the city the central government is also allocating funds for restoration of Ghats & ensuring health & hygiene. The state government had reportedly received around 6 crores for this purpose.

Initiatives to promote Tourism in the region

Some of the prominent events organised in & around Varanasi to promote tourism includes:

- Symbolic **Ganga Aarti** at morning & evening at prominent Ghats on Ganga river
- **Subah-e-Banaras** –It is an amalgamation of culture, music and yoga has now become an integral part of the itinerary of every tourist visiting Varanasi, wherein

Feasibility report by BRIEF on the proposed convention centre in Varanasi



early morning aarti of river Ganga is performed, followed by a 'Yagna' (recitation of Vedas & morning raga). It finally concludes with Yoga session being conducted by the experts on the Ghats itself.

- **International Buddhist Conclave** which was organised in Varanasi-Sarnath from 2nd to 6th, October 2016. The conference had attracted 250 nominations from 38 countries and now it can become an annual event being held in the region.
- **Varuna River development project** by the state government wherein Rs 25 Crores have been allocated for the rejuvenation of the river and its banks on a stretch of 10 kms, have been planned. The prestigious project also includes developing of green belt, construction of road, cycling zones, jogging parks and gardens along the river.
- Under the '**Namani Gange**' programme, an Integrated Ganga Conservation Mission commissioned by the GOI Rs 100 Crores have been allocated for the development of the Ghats & river beautification in Varanasi along with Kedarnath, Haridwar, Kanpur, Varanasi, Allahabad, Patna.
- **Light & sound show** at Sarnath- Dramatic narrating of life of Lord Buddha slated to begin in 2017
- **Ganga Riverfront Development Project**- National Waterway-1 (NW-1) is being developed under the prestigious Jal Marg Vikas Project of GOI with assistance from the World Bank at an estimated cost of Rs. 4,200 crore. The project is expected to ensure commercial navigation of higher tonnage vessels on 1,620 km stretch on Ganga from Varanasi to Haldia.
- The state government had also planned projects worth Rs. 18 Crores which included floating jetties on river Ganga, decentralising drinking water, improving steps & pathways, restoration & betterment of heritage property at the Ghats, health & hygiene etc.¹⁴

Expectations from the Convention centre

The convention centre is expected to augment the tourism sector in a greater way and also expected to showcase the rich cultural heritage of India. The tourism officials had highlighted the following areas where the proposed centre can contribute towards development of the city & business environment.

¹⁴ City Development Plan for Varanasi 2041- A CRISIL Report under Capacity Building for Urban Development project (CBUD) which is a Joint Partnership Program between Ministry of Urban Development, Government of India and The World Bank, released on Mar 2015

Feasibility report by BRIEF on the proposed convention centre in Varanasi



- Promote MICE tourism & enable considering the city as a MICE venue
- Aid the suffering Silk industry in the region by providing opportunity to display Silk products at the events/conferences being organised there.
- Provide platform to showcase Indian culture through cultural shows, gallery etc.
- Contribute towards marketing of goods, technology, knowledge exchange etc.

Infrastructural Developments Expected in & Around Varanasi

It was agreed by both officials that there are certain areas where the stakeholders need to improve & advance swiftly to move ahead on the developmental path. There were some key concerns that was highlighted during the interaction with the stakeholders which needed to be resolved for overall development of the city.

- Broader road & decongestion of city traffic- should reduce travelling time in the city
- Better and efficient hygiene & sanitation management
- Better connectivity from city to airport- faster construction of the highways
- More flights from metros & encouraging direct international flights
- Cooperation between center & state to better Varanasi's image on the global map

It was also learnt that in the City Development Plan (CDP) for Varanasi 2041 that was drafted under the Capacity Building for Urban Development project (CBUD)¹⁵. The CBUD project was a joint partnership program between Ministry of Urban Development (GOI) and the World Bank and during that study, the need of a convention centre was established. In the same report, under the 'Local Economic Development Sector Strategy', the need for a Convention centre was felt which included provision for development of indoor exhibition areas, conference halls and accommodation units with services with an estimated cost of Rs. 25 Crores.

¹⁵ Link to access the CBUD project report- <http://nnvns.org/data/Final%20CDP%20Varanasi.pdf>

5. TOURISTS

India is a large market for travel and tourism, the options for domestic and international tourists ranging from cruises, adventure, medical, wellness, sports, eco-tourism, film, rural, religious tourism, etc. to MICE and business tourism. Considering this potential, the total contribution by the ‘Travel and Tourism’ sector to India’s GDP is expected to increase from US\$ 136.3 billion in 2015 to US\$ 275.2 billion in 2025. Further, travel and tourism is the third largest foreign exchange earner for India. Essentially the travel & tourism sector includes the revenue generated from tourism related activities. In 2014, the country managed foreign exchange earnings to the tune of USD 19.7 billion from tourism. The launch of several branding and marketing initiatives by the Government of India such as “Incredible India!” and “Athiti Devo Bhava” have provided considerable fillip to the growth prospects of tourism in India.

Tourism in India accounts for 7.5% of the GDP and is the third largest foreign exchange earner for the country. The direct contribution of the ‘Tourism and Hospitality’ sector (only) to the GDP in 2016 is estimated to be US\$47 billion. The direct contribution of travel and tourism to GDP is expected to grow at 7.2 per cent per annum during 2015 – 25, with the contribution expected to reach US\$160.2 billion by 2026¹⁶.

Varanasi has become one of the upcoming destinations for Indian as well as foreign tourists. The following tables indicate the inflow of tourists in Varanasi city & Uttar Pradesh state over the period 2010-2015.

Origin of Tourists Visiting Varanasi					
Year	Indians*	Foreigners*	Total*	Indian Tourists (%)	Foreign Tourists (%)
2010	41.40	2.19	43.59	95	5
2011	44.67	2.46	47.13	95	5
2012	47.83	2.79	50.62	94	6
2013	49.66	2.85	52.51	95	5
2014	52.02	2.88	54.90	95	5
2015	54.14	3.02	57.16	95	5
Total	289.72	16.19	305.91	95	5

* Figures in Lakhs

Around 95% of the tourists in visiting Varanasi are domestic travellers, while foreigners form the remaining 5%. This trend was found to remain consistent during the period 2010 to 2015

¹⁶ IBEF Report, 2016. ‘Tourism & Hospitality’ would essentially include Hotel segment that generates revenue from tourism sector

⁵ UP Tourism, 2016

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except in 2012 when an increase of 1% in foreign tourists was witnessed in the



year 2012¹⁷. The share of foreigners visiting Varanasi (5%) is higher than that of the state's average (<2%).

Tourist Visiting Uttar Pradesh (in '000)				Y-o-Y change %
Year	Indian	Foreigner	Total	
2010	1,447.55	23.24	1,470.79	(+) 7.58%
2011	1,554.30	26.39	1,580.69	(+) 7.47%
2012	1,683.81	29.89	1,713.71	(+) 8.41%
2013	2,265.31	32.06	2,297.37	(+) 34.05%
2014	1,828.20	29.10	1,857.30	(-) 19.15%
Total	8,779.18 (98.4%)	140.68 (1.6%)	8,919.86	-

The total number of tourists arriving Uttar Pradesh in the Year 2014 was 18.5 crores, whereas in 2010, the number was 14.7 crores. In 2012, the influx of tourists saw a huge growth where it increased by >34% and the reason for such high inflow was the Mahakumbh Mela which was organised in Allahabad. This is held every 12 years in which Hindus gather to bathe at Triveni Sangam, the meeting point of the three holy rivers Ganga, Yamuna and Sarasvati¹⁸. The foreign tourists in Varanasi mostly arrive from Japan (1.21 lakhs), followed by South Korea (1.17 lakhs) and USA (1.09 lakhs). Apart from these countries, the foreign tourists from other countries visiting Varanasi are mainly from U.K, Sri Lanka and France. The details on tourist visiting India and the foreign tourist Visiting Varanasi is provided in Annexure - 3.

Demand Forecasting of tourists inflow in Varanasi

Basis the tourist influx in Varanasi over the period 2010- 2015, estimation of the tourist inflow up till 2030 has been provided in the following table:

Years	Number of Tourists (in Lakhs)			YoY Growth		
	Indian	Foreigner	Total	Indian	Foreigner	Total
2010	41.40	2.19	43.59	-	-	-
2011	44.67	2.46	47.13	8%	12%	8%
2012	47.83	2.79	50.62	7%	13%	7%
2013	49.66	2.85	52.51	4%	2%	4%
2014	52.02	2.88	54.90	5%	1%	5%
2015	54.14	3.02	57.16	4%	5%	4%

¹⁷ UP Tourism data

¹⁸ http://incredibleindia.org/magazines/PDF/Indiaandyou/Uttar_Pradesh_Kumbh_Mela-India_you-March_April-2013.pdf

Years	Number of Tourists (in Lakhs)			YoY Growth		
	Indian	Foreigner	Total	Indian	Foreigner	Total
2016	57.52	3.25	58.62	6%	7%	3%
2017	60.02	3.40	61.28	4%	5%	5%
2018	62.52	3.56	63.94	4%	5%	4%
2019	65.03	3.72	66.60	4%	4%	4%
2020	67.53	3.88	69.26	4%	4%	4%
2021	70.03	4.03	71.92	4%	4%	4%
2022	72.54	4.19	74.58	4%	4%	4%
2023	75.04	4.35	77.24	3%	4%	4%
2024	77.54	4.50	79.90	3%	4%	3%
2025	80.04	4.66	82.56	3%	3%	3%
2026	82.55	4.82	85.22	3%	3%	3%
2027	85.05	4.97	87.88	3%	3%	3%
2028	87.55	5.13	90.53	3%	3%	3%
2029	90.06	5.29	93.19	3%	3%	3%
2030	92.56	5.44	95.85	3%	3%	3%

*Projection – 2016 onwards

Prominent tourist attracting monuments in India

The list of most popular tourist monuments across India has been detailed along with the entry fee applicable to Indian & Foreign tourists in the appended table:

Sl. No.	Tourist Destination	Location	Entry Fee (Rs.)*	
			Indian	Foreigner
1	Taj Mahal	Agra	20	750
2	Mahabodhi Temple	Bodh Gaya	No Entry Fee	No Entry Fee
3	Red Fort	Delhi	10	250
4	Humayun Tomb	Delhi	10	250
5	Jama Masjid	Delhi	No Entry Fee	No Entry Fee
6	Qutub Minar	Delhi	10	250
7	Jantar Mantar	Jaipur	40	200
8	Amer Fort	Jaipur	25	200
9	Jaisalmer Fort	Jaisalmer	30	50
10	Sun Temple	Konarak	30	250
11	Charminar	Hyderabad	5	100
12	Golden Temple	Amritsar	No Entry Fee	No Entry Fee
13	Gateway Of India	Mumbai	No Entry Fee	No Entry Fee
14	Agra Fort	Agra	20	300
15	Hawa Mahal	Jaipur	10	50

*Destination Source: tourmyindia.com, Lonely Planet, tripadvisor.com

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Tourist from Metro cities

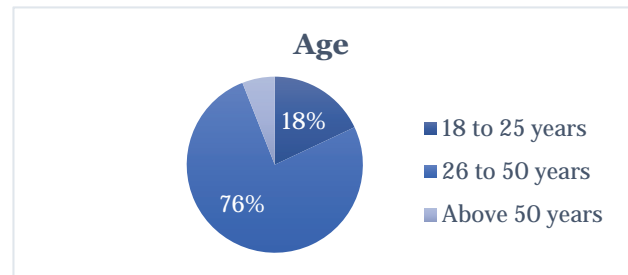


During the course of the study, a sample of 50 tourists from the various metro cities in India were covered & their opinion were sought.

Indian Tourist

Age of Indian Tourist

Most of the respondent i.e. 76% of them were from the age group between 26 to 50 years, between 18 to 25 years comprised 18% of the respondent. Whereas the res 6% were above 50 years of age.

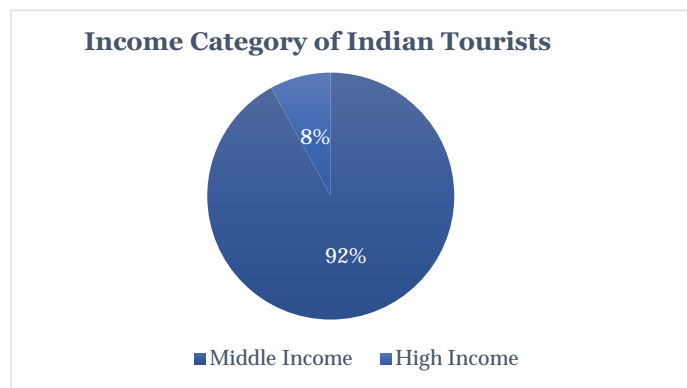


Gender of Indian Tourist

Out of the total respondent 68% were males and 32% of them were females.

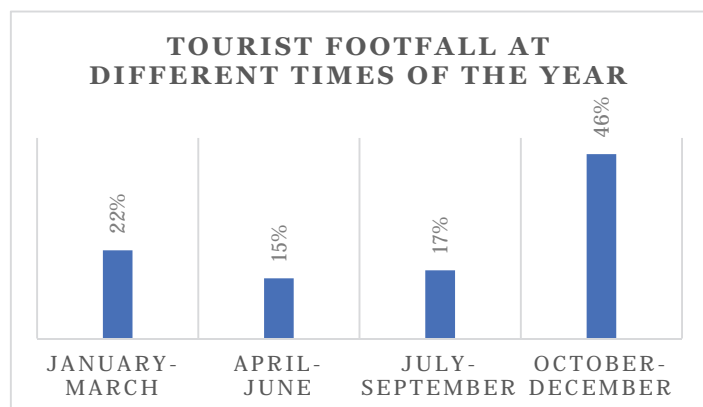
Income of Tourist

From the total sample, 92% comprised of individuals from the middle income group whereas the remaining 8% belonged to the high income group.



Arrival of Tourist

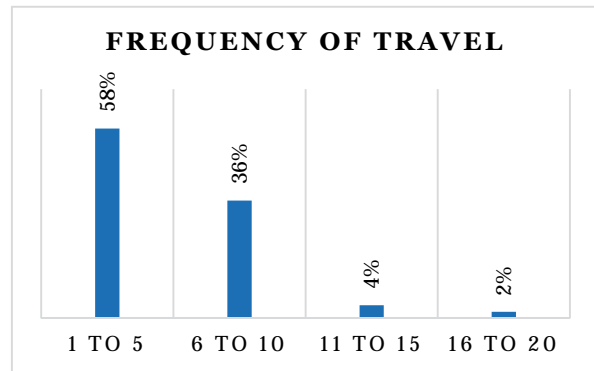
As per the responses received, it was gathered that from October to December, the influx of tourists was the maximum, with almost 46% of the respondents travelling during these months. Only 15% of the respondents travelled during April to June, in spite of this timeframe coinciding with the summer holidays of school children.



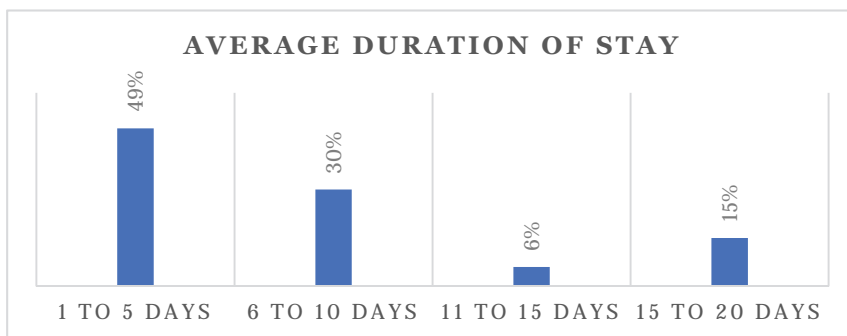


Travel Frequency

From the responses received, it was found that the majority of the of sample Indian tourists (58%) travel between 1 to 5 times a year, while another 36% tourists travelled between 6 to 10 times in a year. It was also found that only 4% travelled between 11 to 15 times while a mere 2% of the respondents travelled more than 16 to 20 times in a year.



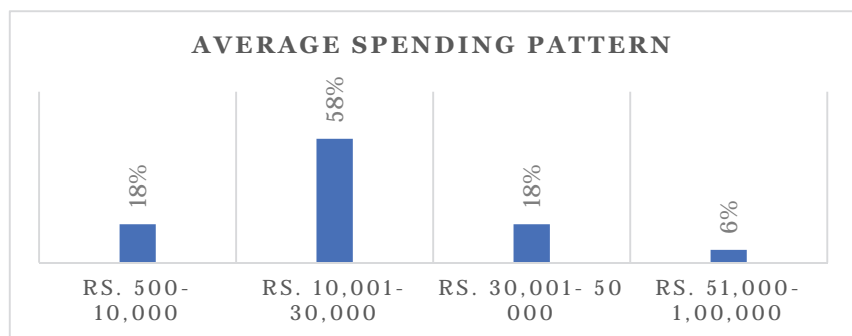
Average Stay Duration

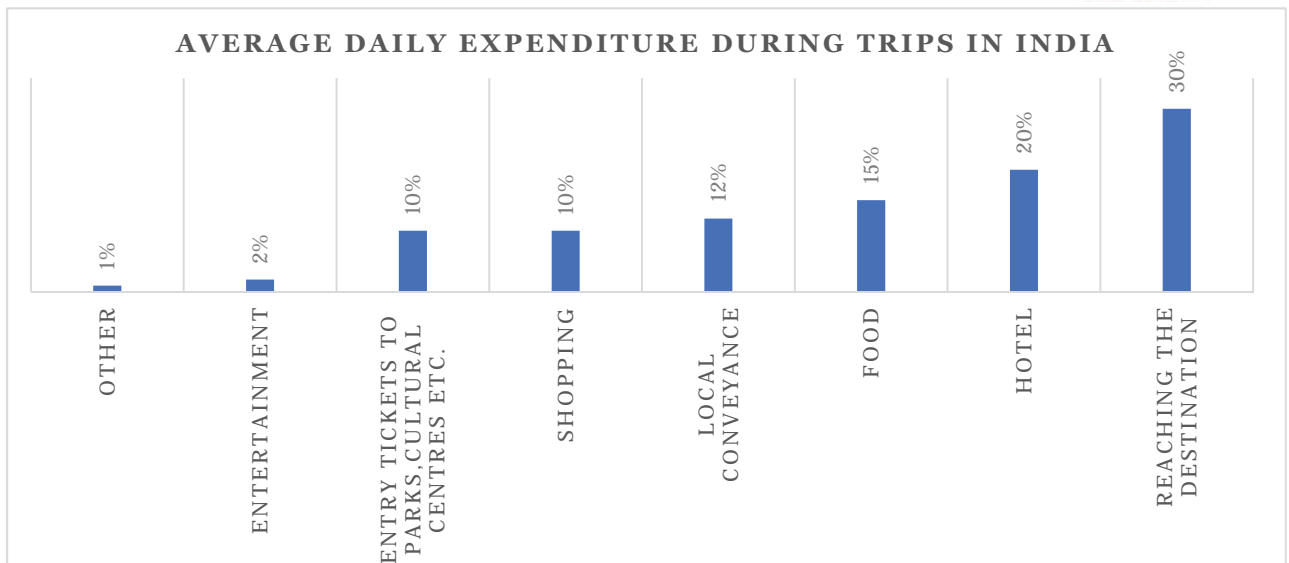


On an average, 49% of the respondents stay for 1 to 5 days during their travel. Further, around 6% of the respondents stay for 11 to 15 days on an average.

Spending Pattern

Around 58% of the respondents spend between Rs. 11,000 to Rs. 30,000 each time they travel, whereas only 6% of the respondents spend between 51,000 to 1 lakh.





Expenditure break-up

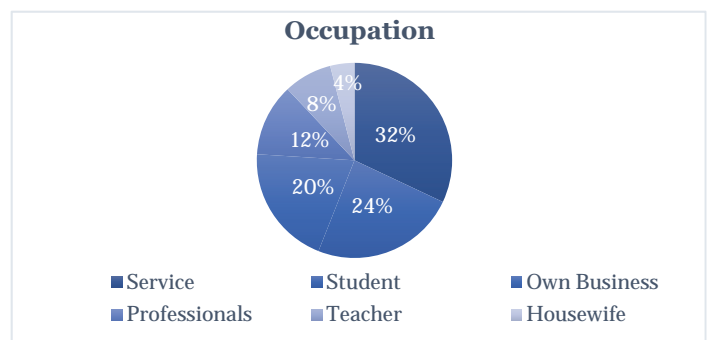
Out of the total expenditure on their trips in India, the respondent had spent ~30% to reach the destination (taking into consideration all modes of travel i.e. air, water, road and rail). They reportedly spent 20% on booking accommodation during the trip and 15% was spent on food. The remaining 35% of their expenditure was spent on local conveyance (12%), entry tickets (10%), shopping (10%), entertainment (2%) and other activities.

Tourists from Varanasi

A total of 25 respondents from Varanasi were interviewed in due course of the study.

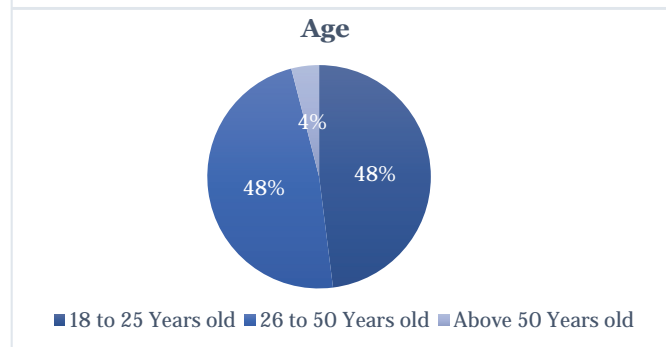
Occupation of Tourist

From the total sample respondent 32% of the respondents were employed in private firms, 24% were studying, 20% were business owners, 12% were professionals, 8% were teachers while the rest 4% were housewives.



Age of Respondent

About 48 % of the surveyed respondents represented between the age group of 18 to 25 years and same share of respondents also represented the age group 26 to 50

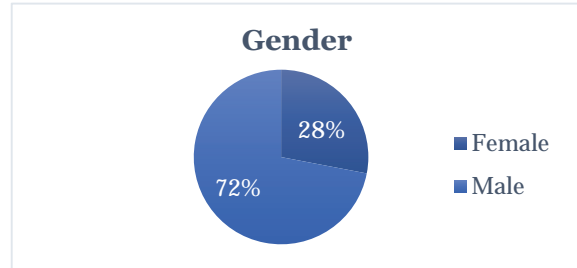


Feasibility report by BRIEF on the proposed convention centre in Varanasi years. Only 4% of the respondents were above 50 years old.

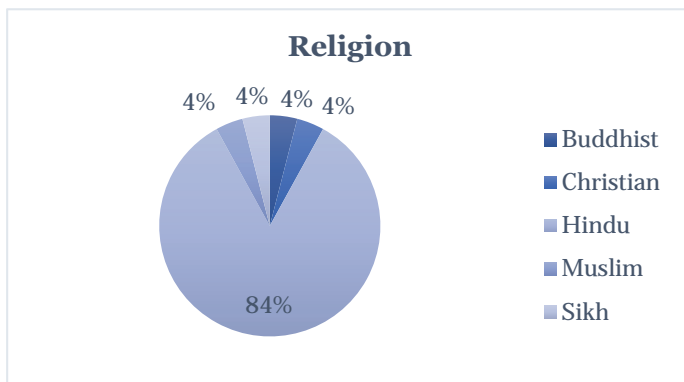


Gender of Tourists

Out of the total respondent 72% were males and 28% of them were females.



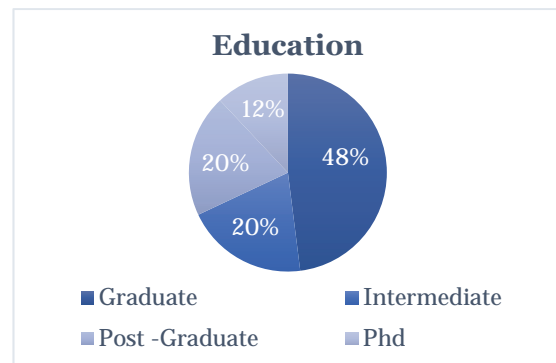
Religion of Tourists



It can be seen from the chart that 84% of the sample respondents Hindu and the rest of the respondent were Buddhist, Christian, Muslim & Sikh (4% each).

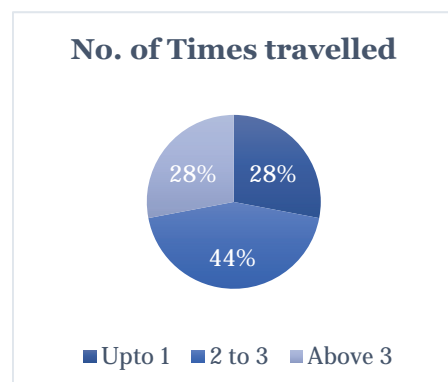
Education of Respondent

Out of the total respondents 48% were graduate, 20% were intermediate and post graduate each and 12% of them had PHD degree.



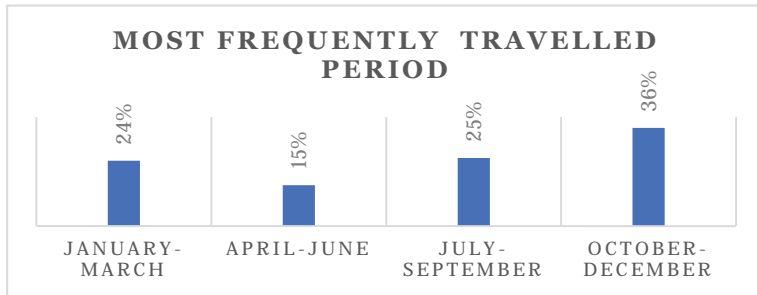
Number of Times Travelled

From the primary survey it was revealed that 44% of the sample respondents travelled 2 to 3 times annually while those travelled up to 1 time & more than 3 times formed 28% each.





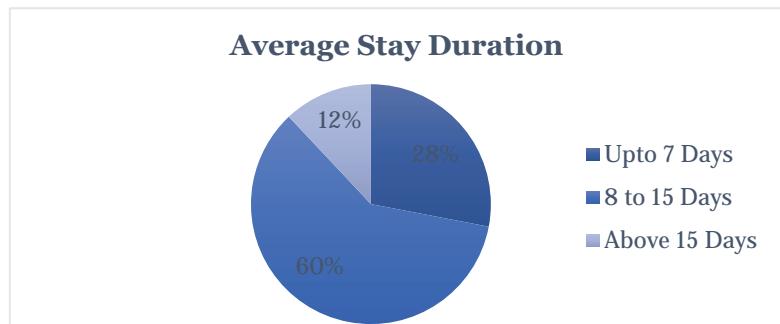
Travel Period



October to December are the most travelled month as 36% of the respondent preferred travelling during these months.

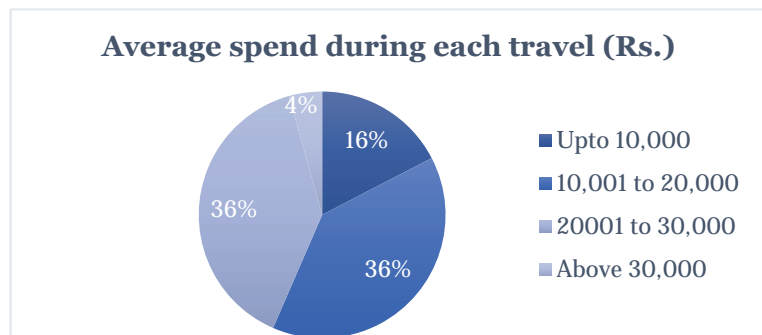
Average Stay

The average stay duration for 60% of the respondent was from 8 to 15 days. Whereas for the 28% of the respondent the average stay duration was up to 7 days.



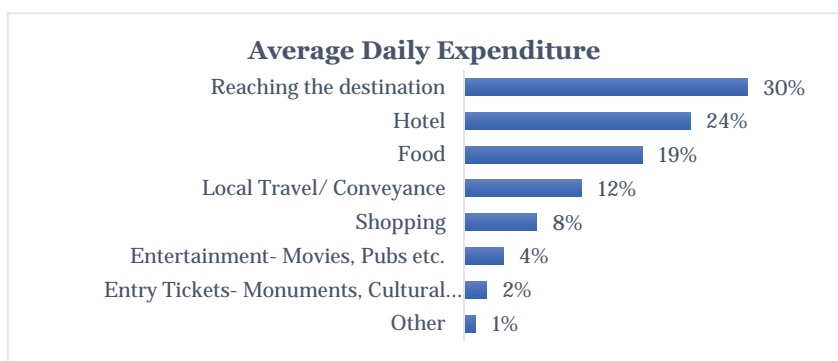
Average Expense During Travel

On an average 36% of the respondents spend between Rs. 10,001 to Rs. 20,000 whereas 36% of the other respondents spend between Rs. 20,001 to Rs. 30,000.



Average Daily Expenditure Break-up

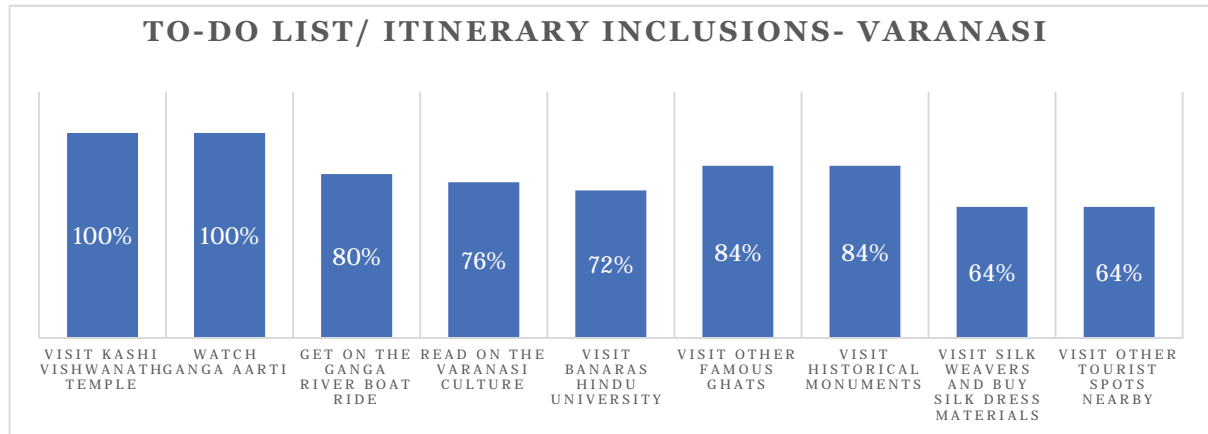
On an average the tourists reportedly does 30% of the total expenditure on travelling and reaching the destination, whereas the rest 24% is spend on hotels. On food and local conveyance 19% and 12% is spent respectively.



Feasibility report by BRIEF on the proposed convention centre in Varanasi
Itinerary for Varanasi



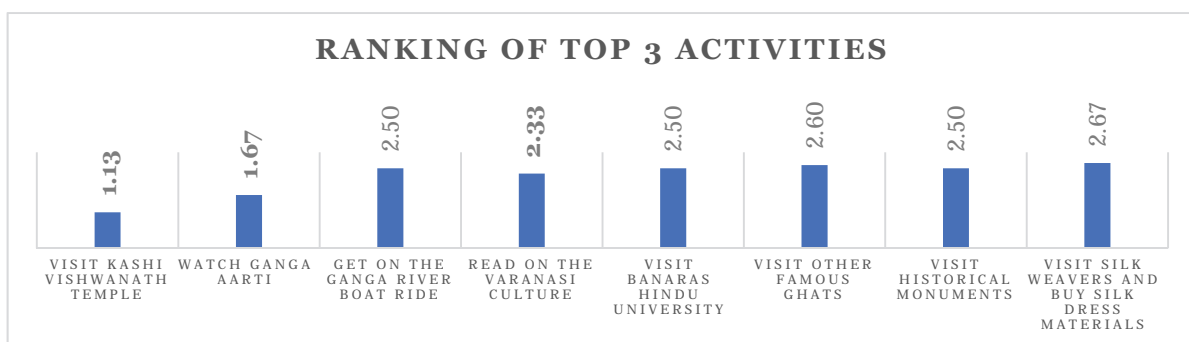
All respondents has Kashi Vishwanath Temple & Ganga Aarti in their To-do list/ itinerary whereas 80% of them wants to go on Ganga river boat ride, which are the two most popular



activities for Tourists apart from visiting Ghats which 84% tourists wanted to do .

Ranking Top 3 Activity in Varanasi

Respondents were asked to rank activities that they would intend to do on a scale of 1 to 5 where 1 was most likely to be done & 5 was least likely to be done by the respondent during his/her visit to Varanasi. Visiting Kashi Vishwanath temple was ranked the most (1.13) preferred activity, followed by Watching Ganga Aarti (1.67), Reading on the Varanasi Culture (2.33), Getting on the Ganga River Boat Ride (2.50), Visiting Banaras Hindu University (2.50), Visiting Historical monuments (2.50), Visiting Other Famous Ghats (2.60) & Visiting

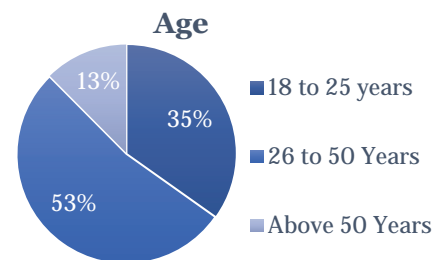


Silk and Weavers and Buying Silk Sarees (2.67).

International Tourist

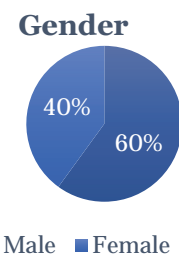
Age of Tourists

A total of 40 international tourists were interviewed during this survey. Out of them 53% were in the age group of 26 to 50 Years, 35% were between 18 to 25 years and 13% were above 50 years old.

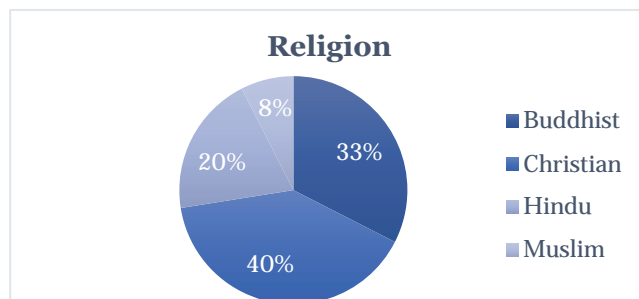


Gender of Tourists

Out of the total respondents 60% were male and the rest 40% were female.

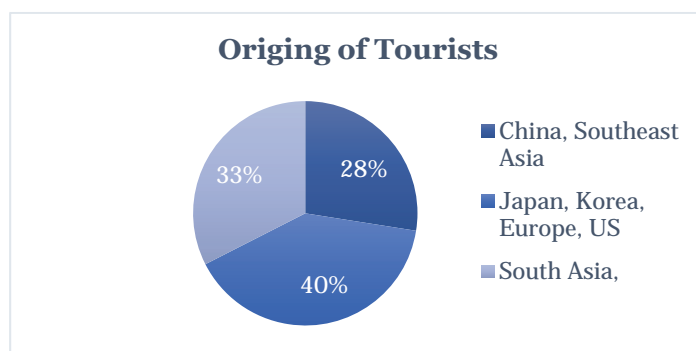


Religion of Tourists



Out of the total respondents 40% were Christians, 33% were Buddhists, 20% were Hindus and 8% were Muslims.

Origin of Foreigner Tourists

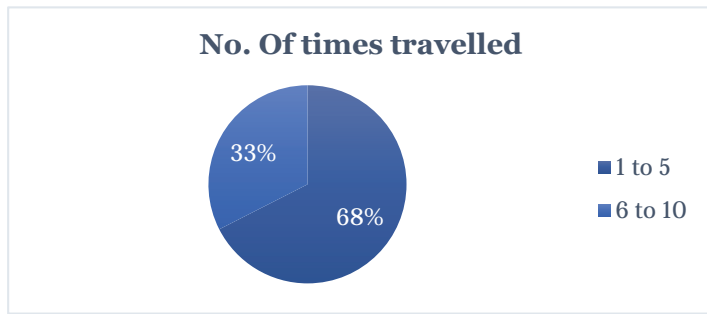


Of the total respondents 40% were from Japan, Korea, Europe, US, 28% were from China and Southeast Asia and the rest 33% were from South Asia.

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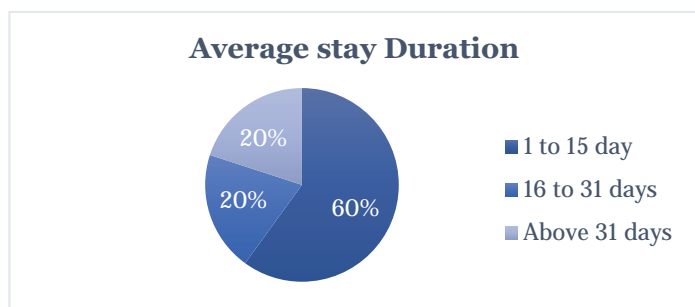
Number of Times Travelled



Of the sample respondents 68% had travelled 1 to 5 times annually, whereas 33% travelled between 6 to 10 times a year.

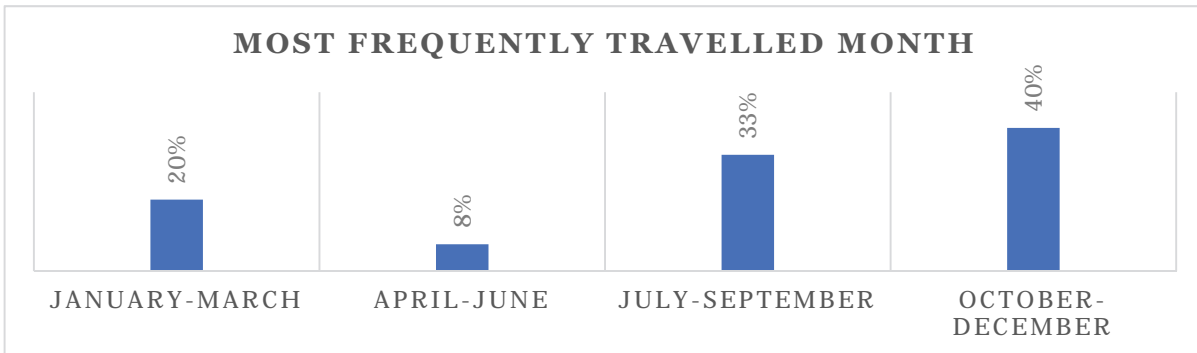
Average Duration of Stay

The average stay duration for 60% of the respondent was between 1 to 15 days, annually. Among the respondents 20% had an average stay for 16 to 31 days and another 20% stayed for 31 days and above.



Month of Traveling

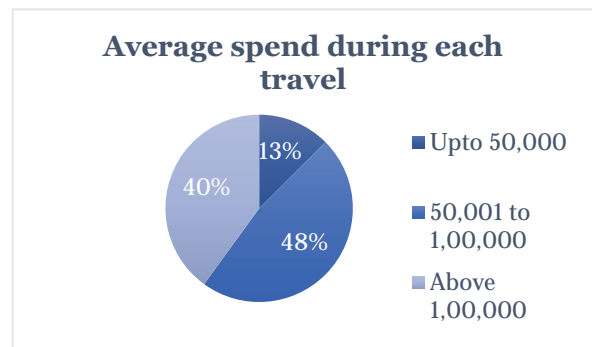
October to December is the most frequent month of travelling for 40% of the respondent and



only 8% of the respondent travelled in the month of April to June.

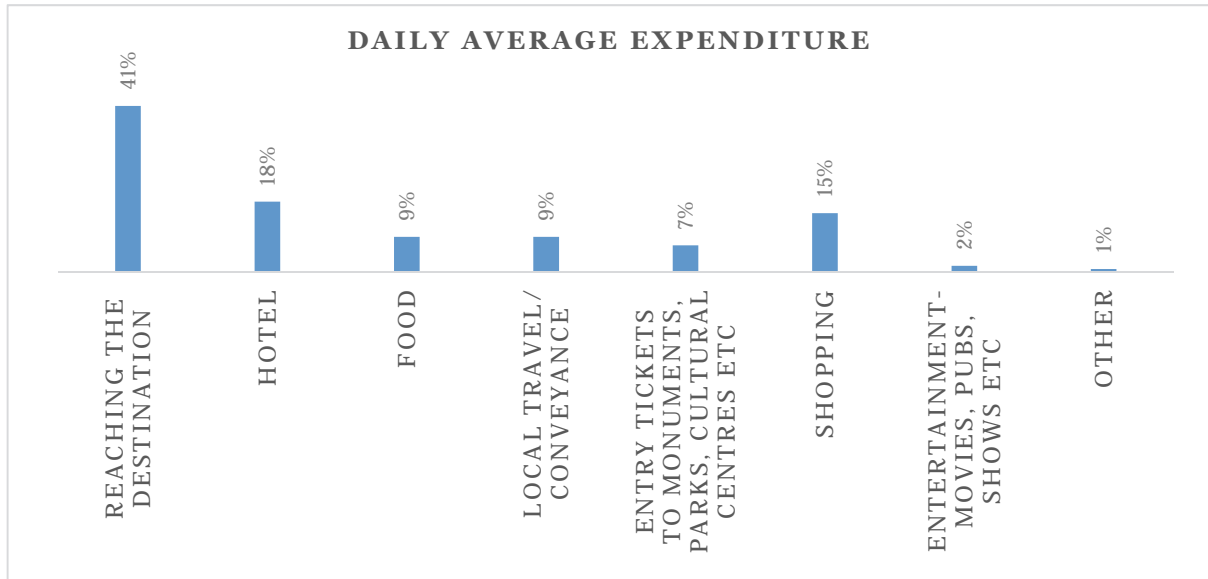
Average Expenditure in Each travel

Out of the total respondent 48% of them spend between Rs. 50,001 to Rs. 1,00,000, 40% of them spend above Rs. 1,00,000 and 13% of them spend up to Rs. 50,000.



Expenditure break-up

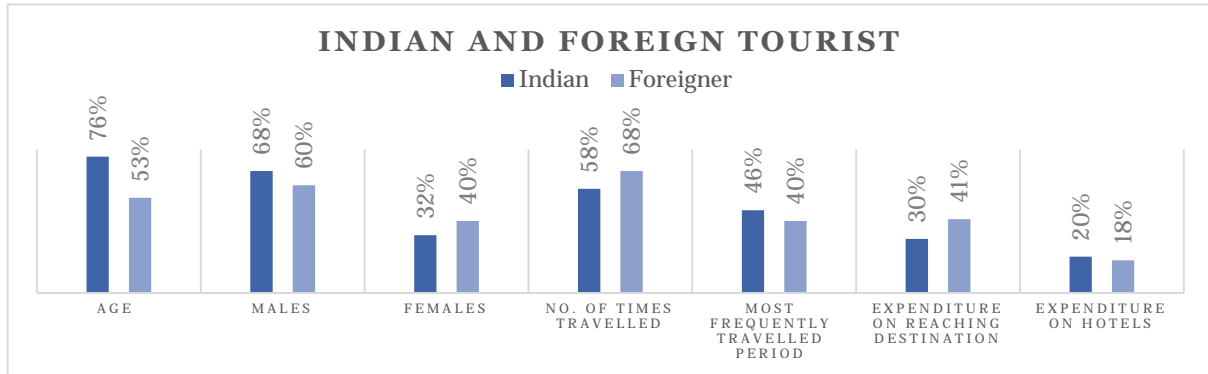
Majority of international tourist visiting India have visited Delhi, Agra and Jaipur. These international tourist have visited Taj Mahal, Red Fort, Jantar Mantar, Amer Fort, Sarnath, Bodh Gaya etc.



From the total expenditure, 41% of expenditure is done on reaching the destination by rail, road, air or water, 18% is spent on hotels, 15% on shopping, 9% on food and another 9% on local travel.

Indian & Foreign Tourist

Majority of the Indian (76%) and foreign (53%) respondent fall between the age group 26 to 50 years. Out of the total respondent 68% of the Indian respondent were males and 32% were females. For the foreign respondents 60% were males and 40% were females. Majority



of Indian (58%) and foreign (68%) respondents travelled from 1 to 5 times a year. 46% of Indian and 40% of the foreign respondent travelled in the month of October to December. The majority of expenditure done by both Indian and foreign tourist are on reaching the destination by air, road, rail or water, which is 30% and 41% respectively and on hotel they spend 20% and 18% respectively.

CULTURAL CENTRES IN VARANASI

Varanasi is the cultural and spiritual hub of India, and has been a great centre making the congruence of Indian philosophy, spirituality, ayurveda and yoga. At Varanasi, there are many centres propagating the art of yoga. Traditionally, ashrams were the centres of yoga practice and learning. However, with the establishment of modern institutions of learning, yoga has been provided due place in various curriculums. B.H.U. and Sampurnanand Sanskrit University has departments and faculties for yoga, ayurveda and meditation. Some of the other centres for yoga and meditation are Centre For Yoga & Meditation, Pragma Yoga Institute, Gayan Pravah, Kashi Yoga Sangh, Sankat Mochan International Yoga & Meditation Centre etc. The Osho Mandakini Meditation Centre at Varanasi offers a multitude of possibilities for inner discovery and exploration. It has been a sought after destination for spiritual development as well as for rejuvenation, relaxation and medications.

Cultural Centres	Address	Events/Courses	Capacity
B.H.U- Department Of Swasthavritta And Yoga under Faculty of Ayurveds at the Institute of Medical Studies of BHU	Ajagara, Banaras Hindu University Campus, Varanasi, Uttar Pradesh 221005	Courses in Ayurveds & Yoga- BAMS (UG Level) MD Ayurveda (PG level)	- B. Pharma (23) - MD/MS- Ayurveda (39) - M. Pharma- Ayurveda (2) - BNYS* (24)
Sampurnanand Sanskrit University	Sanskrit University Road, Jaitpura, Varanasi, Uttar Pradesh 221001	Seminars on veda and Sahitya and spirituality	
Mehta Art Gallery	Mahraulli, Post: Bhulanpur- P.A.C, Varanasi-221108, Uttar Pradesh, India	Exhibition, Art Gallery	100
The Yoga House	No 1/C Nagwa (North of Ravidas Park) Varanasi-5	Wildlife and Yoga Retreat	20 in each class
Gayan Pravah	Near Sunbeam Acedamy, Samane Ghat, Lanka, Varanasi- 221005	Samskara & Anushthana Kendra, Nathadwara Painting and Its Technique	40
Osho Mandakini Meditation Centre	Osho Mandakini Meditation Centre, Samnaghat, Madaravan, Lanka, Varanasi-221005	Prem Nadi ke Tira, Osho Meditation Camp	100

*BNYS- Bachelor of Naturopathy & Yoga Sciences



ENVIRONMENTAL EDUCATION IN VARANASI

Reconciling social development, economic growth and preserving natural environment is one of the major challenges which we face globally today. Therefore sustainable development is required to be promoted and there is a need to develop a deeper understanding of environmental issues. The Rio Earth Summit's Agenda 2 emphasized on education to promote sustainable development and improve people's capacity to address issues related to environment and development. The 57th session of the UN General Assembly proclaimed the period 2005 – 2014 as the Decade of Education for Sustainable Development (DESD). It emphasised on the reorientation of existing educational programmes by rethinking and revising the educational framework. It promoted sustainability in social, environmental, and economic spheres. Education for sustainable development has the potential to develop and strengthen the capacity of individuals, communities, organizations and countries to make choices in favour of sustainable development. In accordance with this vision, the Banaras Hindu University has established a national level institution i.e. the Institute of Environment and Sustainable Development. This institute develops awareness on sustainable development and uses education as a tool to achieve sustainability. The teaching and research units of the Institute of Environment and Sustainable Development has approved the construction of a new building based on the Green Building design on an area of 6.5 acres.

Apart from the BHU, the Centre for Environment Education, Northern Regional Cell, Lucknow, in Association with District Institute of Education and Training, Varanasi has implemented the Paryavaran Mitra Programme. More than 250 schools in Varanasi has joined this programme which creates awareness, knowledge, and commitment in young leaders to meet the challenges of environmental sustainability in their own spheres of influence. Here, the students are encouraged to display leadership qualities by bringing in positive changes in behaviour and action at the individual, family, school and community levels, thereby empowering him/her to become change agents for sustainability.



CONCLUSION

The MICE tourism has given renewed impetus to the tourism industry of India. Currently, around 25% of inbound tourism is related to MICE. India is positively advancing considerably on the MICE path but it still has long way to go. Lack of infrastructure has been the greatest challenge for the growth of MICE Tourism in India. PCO's in India is currently not equipped to host an event of 10,000 delegates and above. The country is in need of an additional convention facility for both large as well as small meetings. It needs a convention facility which is large but at the same time duly utilised, ensuring economic viability. Further, a sound MICE policy and its enforcement should also be a priority. The Ministry of Tourism along with ICPB needs to promote India's image as a premier MICE destination overseas, through prominent media and publicity campaigns. There is also a need for strict measures in place for the safety and security of the tourists (Luxury MICE Travel). According to ICPB, bringing together all the establishments and stakeholders – conference venues, hotels world heritage sites, professionals and experienced conference managers, tour operators etc. – is a challenge. Also, there is a need of tax incentives as practiced globally to bring large conferences to India. Further, the Indian MICE Industry lacks both primary and secondary research information. Finally, there is a need to form a body to track the MICE Industry, its growth and impact on the economy.

In the perspective of VCC

From the primary research it was evident that Varanasi lacks the infrastructure (venue) to hold MICE events of bigger size >500 and the venues currently available are outdated, needs refurbishment and may not be preferred by organisers, in the current form. Moreover most of the stakeholders from all segments of the study had given positive response towards considering Varanasi as a MICE options, though, some of them felt that a 1000 pax capacity might not be future proof. The possible reasons could be that the city is now centre of attraction & action essentially because it's the Prime Minister's constituency which is under continuous scrutiny from all segments. Also that Varanasi has been selected as one of the Smart city and the aim is to make it a 'Smart Heritage City'. Also being a part of the 'Heritage Arc' it attracts more tourists and organising a MICE event is being considered by many PCO's. Also with the presence of BHU, a lot of medical & technological conferences are being organised in the campus auditoriums which lacks modern infrastructure to host international standards events. BHU professors often move out of the city to organise conferences in other cities because of lack of space/infrastructure. Sensing the need to develop the MICE business which contributes 1/5th of the hotel's revenues and also promotes tourism in the region, two premium hotels of the region have already planned to set up a

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larger MICE centre in the city with a capacity of ~1000 pax. This development should be taken as a positive move as collectively it would promote MICE tourism & enable stakeholders to promote the city as a MICE destination.



ANNEXURE 1

Hotels: Tariff and Occupancy Details

Room Types	Tariff Details (in Rs.)						Average Occupancy Level (%)					
	Indian			Foreigners			Indian			Foreigners		
Single A.C	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
2012	2507	8600	5381	2507	8600	5381						
2013	2725	9300	5833	2725	9300	5833						
2014	1000	8500	5386	2962	10000	6286	40%	95%	77%	5%	60%	23%
2015	3220	11000	6882	3220	11000	6882	40%	92%	73%	8%	60%	27%
2016	3500	13000	8214	3500	15000	8357	40%	90%	70%	10%	60%	30%
Double A.C	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
2012	2866	10030	5812	2866	10030	5812						
2013	3115	10902	6366	3115	10902	6366						
2014	3386	11850	6818	3386	11850	6818	40%	95%	77%	5%	60%	23%
2015	3680	12880	7506	3680	12880	7506	40%	70%	73%	8%	30%	27%
2016	4000	19000	10100	4000	19000	10233	40%	75%	76%	10%	25%	25%
Deluxe Single	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
2012	3500	10000	6893	3500	10000	6893						
2013	3900	11000	7520	3900	11000	7522						
2014	4200	12200	8155	4200	12200	8155	40%	95%	77%	5%	60%	23%
2015	4600	13500	8878	4600	13500	8878	40%	92%	74%	8%	60%	26%
2016	5000	15000	10292	5000	15000	10292	40%	95%	73%	10%	60%	28%
Deluxe Double	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
2012	4298	11462	7232	4298	11462	7235						
2013	4672	12459	7882	4672	12459	7882						
2014	5078	13542	8558	5078	13542	8558	40%	95%	76%	5%	60%	24%
2015	5520	14720	9426	5520	14720	9426	40%	92%	74%	8%	60%	26%
2016	6000	25000	12000	6000	25000	11964	40%	95%	73%	10%	60%	28%
2016	14000	14000	14000	14000	14000	14000	75%	75%	75%	25%	25%	25%
Villas	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
2012												
2013												
2014												

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2015												
2016	15000	60000	27500	15000	60000	27500	70%	85%	75%	25%	3%	28%
Suite	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
2012	7000	18000	11158	7000	18000	11158						
2013	7000	20000	12211	7000	20000	12211						
2014	7500	21200	13208	7500	21200	13208	30%	93%	71%	7%	70%	
2015	7500	23000	14400	7500	23000	14400	30%	92%	67%	8%	70%	33%
2016	7000	18000	11158	7000	18000	11158	30%	90%	67%	10%	77%	33%
Presidential Suite	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
2012	10800	18000	15442	10800	18000	15442						
2013	12000	19500	16673	12000	19500	16673						
2014	13000	21160	17632	13000	21160	17632	30%	93%	69%	7%	70%	31%
2015	13800	23000	18960	13800	23000	18960	30%	92%	68%	8%	70%	32%
2016	15000	100000	38714	10000	100000	37857	30%	90%	68%	10%	70%	32%
Premier	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
2012	6000	6000	6000	6000	6000	6000						
2013	6500	6500	6500	6500	6500	6500						
2014	7300	7300	7300	7300	7300	7300						
2015	8100	8100	8100	8100	8100	8100	70%	70%	70%	30%	30%	30%
2016	9000	9000	9000	9000	9000	9000	60%	60%	60%	40%	40%	40%

Units, Areas and Capacities of various Facilities in Hotels

Facilities (Number)	Min	Max	Average
Multi-Function/Exhibition Hall	1	4	2
Medium & Small Meeting Room	1	10	3
Common Space	1	1	1
Office Space for leasing out	1 Floor	3 Floor	
Cafeteria/ Restaurant	1	8	4
Gym/Spa/Fitness centre	1	1	1
Swimming pool	1	1	1
Open theatre	1	1	1

Facilities (Area)	Min	Max	Average
Multi-Function/Exhibition Hall	1500	16435	
Medium & Small Meeting Room	400	7448	
Common Space	-	-	-
Office Space for leasing out	-	-	-
Cafeteria/ Restaurant	1000	4000	2570
Gym/Spa/Fitness centre	500	1200	910
Swimming pool	600	2000	1225
Open theatre	-	-	-

Facilities (Capacity)	Min	Max	Average
Multi-Function/Exhibition Hall	250	2500	1020
Medium & Small Meeting Room	14	3000	455
Common Space	-	-	-
Office Space for leasing out	-	-	-
Cafeteria/ Restaurant	52	250	128
Gym/Spa/Fitness centre	-	-	-
Swimming pool	-	-	-
Open theatre	-	-	-

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Annexure 1A- Hotel wise MICE Details

The details of hotels & its MICE infrastructure has been provided in the attached excel sheet. Due to paucity of space in the word document, these details have been provided in the excel sheet format.



Hotels- Information
& Data

[Back to MICE Venue Section- Click here](#)

Annexure 1B- MICE Venue Details

The excel sheet containing the details of the MICE venues interviewed has been provided in the attached excel sheet-



MICE Venues
Information

[Back to MICE Venue Section- Click here](#)

ANNEXURE 2

Hotels in Varanasi (2013)¹⁹

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
1	THE GATWAY HOTEL GANGES	NADESAR	130	260	7500	130000
2	HOTEL MERADON GRAND	PATEL NAGAR	41	82	8000	16000
3	HOTEL INDIA	PATEL NAGAR	64	128	5500	10000
4	HOTEL BAIBHAV	PATEL NAGAR	54	116	950	6000
5	HOTEL PRADEEP	JAGATGANJ	36	72	2500	2900
6	HOTEL PALLAVI INTERNATIONAL	HATHUA MARKET	22	44	3500	5000
7	HOTEL SIDHARTH	SIGRA	46	92	2500	3500
8	HOTEL RAMADA PLAZA	THE MALL	120	240	9000	20000
9	HOTEL CLARKS	THE MALL	105	210	8000	15000
10	HOTEL IDEAL TOWERS	THE MALL	58	116	14000	22000
11	HOTEL HINDUSTAN INTERNATIONAL	MALDHIYA	102	204	7000	18000
12	HOTEL REDISION	THE MALL	116	232	8000	14000
13	HOTEL MALTI	VIDHYAPEETH ROAD	45	90	800	2500
14	HOTEL PALES ON GANGES	ASSI	24	48	7500	8000
15	HOTEL PLAZA IN	PARED KOTHI	62	124	3000	9500
16	HOTEL THE PARIS	THE MALL	42	84	1200	3000
17	HOTEL DIAMOND	BHELUPUR	40	80	3000	4500
18	HOTEL SURBHI INTERNATIONAL	PAHADIYA	30	60	2500	3000
19	HOTEL SURYA	THE MALL	45	90	3000	4200
20	HOTEL PADMINI INTERNATIONAL	MAHMOOR GANJ	41	82	1950	3600
21	GUEST HOUSE	MAN MANDIR GHAT	16	32	2500	6000
22	HOTEL MM CONTINATAIL	THE MALL	28	56	950	1500
23	HOTEL SARIN IN	MAHMOOR GANJ	27	54	895	2500
24	HOTEL ALKA	MAN MANDIR GHAT	30	60	650	5100
25	RESORT	SHUL TAMKESHAWAR	5	10	900	1200
26	MOLTALS PVT LTD	BABATPUR	20	40	2500	4000
27	HOTEL BUDDA RESORT	SARNATH	5	10	400	2000
28	HOTEL BW KASHIK	THE MALL	40	80	250	700
29	HOTEL GAUTAM BRAND	PARED KOTHI	32	64	1025	2250

¹⁹ UP Tourism – Regional Tourist Office data

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
30	HOTEL KAMESH HAT	JAGATGANJ	20	40	900	2200
31	HOTEL M.K. INTERNATIONAL	BULANALA	16	31	200	600
32	HOTEL GANGE	DASHWASMEGH	35	70	200	700
33	HOTEL BUDDHA	RAM KATORA	31	62	4000	7000
34	HOTEL GAUTAM	RAM KATORA	37	74	200	800
35	HOTEL NEW INTERNATIONAL	LAHURAVEER	50	100	700	1900
36	HOTEL REDIAN YMCA	SIGRA	13	26	250	800
37	HOTEL JIITENDRA	BHELUPUR	15	30	300	900
38	HOTEL LARA INDIA	DASHWASMEGH	29	58	750	3000
39	HOTEL REGENCY	ANDHRAPUL	35	70	4000	6000
40	HOTEL TEMPLE ON GENEG	ASSI	22	44	750	4500
41	HOTEL NEW BRAND WAY	NIKAT VIJAY CINEMA	40	80	2200	2500
42	HOTEL JK INTERNATIONAL	LAKSHA	21	42	200	700
43	GM GUEST HOUSE	CHANDRIKA COLONY	23	46	200	600
44	HOTEL AVINASH	MALDHIYA	21	42	200	600
45	HOTEL NAR INDRA	GT ROAD	45	90	795	2000
46	HOTEL HOTEL VARUNA	GULA BAG	17	34	175	750
47	HOTEL SHIVAM	PARED KOTHI	26	52	200	750
48	HOTEL GAURAV	FATMAN ROAD	17	34	150	600
49	PARYATAK AAWAS GRAH VARANASI	PARED KOTHI	42	84	500	4000
50	PARYATAK AAWAS GRAH SARNATH	SARNATH	10	20	900	1100
51	HOTEL SRI RAM INTERNATIONAL	BOSSFATAK	20	40	100	400
52	PAWAN GUEST HOUSE	PARED KOTHI	8	16	100	400
53	HOTEL DEEWAN	PARED KOTHI	36	71	200	750
54	SHIVA VISRAM BHAVAN	LAKSHA	6	11	100	250
55	AMAN GUEST HOUSE	DAALMANDI	7	14	100	300
56	HOTEL PRABHAT	PARED KOTHI	7	13	100	300
57	HOTEL MOTI MAHAL	GODOLIYA	9	17	100	300
58	HOTEL SAMMAN	DASHWASMEGH	19	38	200	400
59	SATYANARAYAN LAAJ	PARED KOTHI	24	48	100	300
60	HOTEL NEW TEMPLES TOWN	PATEL NAGAR	10	20	350	900
61	SRI RAM VISRAM BHAVAN	LAKSHA	9	18	100	300
62	SHANKARI TOURIST LODGE	MEERGHAT	7	13	150	350
63	HOTEL AVADH	PARED KOTHI	18	36	150	600
64	SHARVESHWARI LODGE		33	66	150	400
65	UNIVARSHAL LODGE	DASHWASMEGH	6	12	175	550
66	HIMALAYA LODGE	NARAD GHAT	7	14	150	400

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
67	HOTEL SHEKHRAJ	PARED KOTHI	18	35	200	750
68	HOTEL SEEMA	GODOLIYA	13	26	200	600
69	DASHWAMEGH BORDING HOUSE	DASHWASMEGH	29	57	100	400
70	HOTEL VISHNU PRIYA	GT ROAD	26	51	200	600
71	ASHOK LAAJ	CHATGANJ	9	17	150	450
72	SEETA GUEST HOUSE	CHAUSATHI GHAT	26	52	600	3000
73	SUN VIEW LODGE	KEDAR GHAT	6	12	150	500
74	HOTEL JYOTI	LAKSHA	25	50	150	600
75	ANAND LOGDE	PARED KOTHI	11	22	100	300
76	SRI VANKETSHWAR LODGE	DASHWASMEGH	27	53	150	500
77	GOKUL LODGE	SONAR PURA	10	20	100	400
78	HOTEL SUNRISE	SIVALA	17	33	200	450
79	HOTEL SAMRAT	NAYI SADAK	13	25	200	500
80	VAISHALI VISHRAM BHAVAN	LAKSHA	16	31	50	200
81	VIVAH VISHRAM BHAVAN	LAKSHA	10	19	75	150
82	DHANPATI DEVI ATHITI BHAVAN	MADODARI	19	38	75	250
83	HOTEL RIVER VIEW	GAY GHAT	6	12	100	300
84	MAA VAISHNO GUEST HOUSE	AVADHGARVI	6	12	100	300
85	PANKAJ GUEST HOUSE	SONIA	15	30	100	300
86	SATSANG LODGE	ENGLISHIA LINE	14	27	100	300
87	MISHRA GUEST HOUSE	GADWASHI TOLA	33	65	200	800
88	HOTEL SANTOOR	MAHMOOR GANJ	20	40	750	1950
89	NATIONAL GUEST HOUSE	DAMANDI	20	39	100	300
90	GANGEG TOP GUEST HOUSE		6	12	150	400
91	HOTEL PATANJALI	PARED KOTHI	15	30	200	500
92	RAJENDRA LODGE	PARED KOTHI	21	41	150	400
93	SAGAR GUEST HOUSE	LAKSHMI KUND	10	20	200	600
94	NEW KAPOOR GUEST HOUSE	PARED KOTHI	8	16	150	500
95	HOTEL INDRA	PARED KOTHI	20	40	200	600
96	GIRNAR LODGE	PARED KOTHI	23	46	150	550
97	SRI RAM LODGE	ENGLISHIA LINE	8	16	150	400
98	SAI KRIPA GUEST HOUSE	SHIVALA	16	32	150	500
99	PREETI GUEST HOUSE	MALDHIYA	14	28	200	550
100	KEDAR LODGE	AUGUST KUND	20	40	150	450
101	VISHNU REST HOUSE	PANDEY GHAT	23	46	100	350
102	LADGE FRIEND HOUSE	DASHWASMEGH	8	15	175	450
103	NATIONAL LODGE	VIDHYAPEETH ROAD	10	19	150	450

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
104	HOTEL MORDEN	LAHURAVEER	21	42	200	550
105	MURLI GUST HOUSE	BHEGAVIR	12	23	100	450
106	SUNDARAM GUEST HOUSE	PARED KOTHI	24	48	100	350
107	HOTEL JAMUNA	LAKSHA	22	44	100	300
108	DASHWAMEGH LODGE	DASHWASMEGH	18	35	150	500
109	PALKI ATITHI GRAH	PARED KOTHI	11	22	125	350
110	AMBIKA LODGE	ENGLISHIA LINE	12	24	150	400
111	RIZ LODGE	VARUNA PUL	8	16	250	600
112	HOTEL MANSAROVAR	GT ROAD	32	64	900	1400
113	CHANDA GUEST HOUSE	HANUMAN GHAT	13	25	100	300
114	TRIPTI LODGE	DASHWASMEGH	20	40	100	350
115	KALIKA HOTEL	ENGLISHIA LINE	8	15	150	500
116	POOJA GUEST HOUSE	LALITA GHAT	44	87	350	800
117	HOTEL NEW PRATAP	GT ROAD	10	20	150	600
118	HOTEL JASLOK	LAKSHA	14	28	200	500
119	HOTEL SUNSINE	SHIVALA	10	20	175	650
120	GANPATI GUEST HOUSE	MIR GHAT	20	39	250	750
121	OM GUEST HOUSE	LAKSHA	13	26	150	450
122	LAKSHMI GUEST HOUSE	DASHWASMEGH	7	14	150	500
123	HOTEL VISHAL	MALDHIYA	18	35	150	500
124	HOTEL APNA	CHATGANJ	14	27	140	450
125	HOTEL FARAN	NAYI SADAK	35	70	150	500
126	SAHIR GUEST HOUSE	DAALMANDI	7	13	150	300
127	NEW VISHNU REST HOUSE	PANDEY GHAT	6	12	125	500
128	R K GUEST HOUSE	SARASWATI NAGAR COLONY	10	19	100	300
129	HOTEL CHANDRA	SONIA	10	19	150	300
130	JANTA GUEST HOUSE	DAALMANDI	4	7	75	200
131	AULIYA GUEST HOUSE	PANDEY GHAT	10	20	100	350
132	MANVI GUEST HOUSE	SIDHGIRI BAG	9	18	150	350
133	BANRAS GUEST HOUSE	DASHWASMEGH	18	35	100	300
134	HOTEL EDEN	DAALU GALI	22	44	155	300
135	HOTEL GANGEV VIEW	ASSI	14	28	1200	2000
136	MEHRA ATITHI BHAVAN	CHOWK	12	24	100	250
137	HOTEL VIJAY	GT ROAD	13	26	150	250
138	AROMA GUEST HOUSE	LANKA	18	35	200	450
139	PENSION KUMEKO HOUSE	PANDEY GHAT	8	15	200	450

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
140	KALKATTA VISHRAM HOUSE	LAKSHA	24	48	100	300
141	HOTEL SURYODAY	GODALIYA	18	35	75	200
142	TOURIST GUEST HOUSE	LAKSHA	10	20	75	300
143	HOTEL PALESH	GODALIYA	20	40	175	450
144	SETH ANAND RAM JAIPURIYA ATITHI GRAH	GODALIYA	49	97	200	750
145	HOTEL RANJIT	MALDHIYA	11	22	150	450
146	SARASWATI LODGE	ENGLISHIA LINE	19	37	100	350
147	HOTEL SATYAM	PARED KOTHI	20	39	125	350
148	MARUTI GUEST HOUSE LANKA	LANKA	17	34	200	500
149	SHYAM GUEST HOUSE	SAMNE GHAT	8	15	75	250
150	HOTEL PRINCE	ENGLISHIA LINE	4	8	200	500
151	OM GUEST HOUSE	ASSI	7	14	150	350
152	MISHRA LODGE	TRILOCHAN GHAT	5	9	75	200
153	YOGI LODGE	KALKIA GALI	19	37	175	450
154	HOTEL RELAX	PARED KOTHI	26	51	150	650
155	KASHI LODGE	PARED KOTHI	7	13	100	500
156	MARUTI GUEST HOUSE ASSI	ASSI	14	27	150	350
157	BHAGYASRI GUEST HOUSE	TELIA BAG	12	23	200	450
158	HOTEL NEEL GAGAN	PARED KOTHI	10	20	200	650
159	SANDHYA GUEST HOUSE	SIVALA	19	37	150	300
160	HOTEL NATRAJ	LAHURAVEER	30	60	250	800
161	OM HOUSE	CHOWK	5	10	100	250
162	SHIV GANGA REST HOUSE	NARAD GHAT	8	16	150	250
163	KRISHNA LODGE	ENGLISHIA LINE	12	24	100	200
164	YOGINI LODGE	PANDEY GHAT	12	23	150	250
165	HOTEL GLORY	PANDEY GHAT	11	22	100	300
166	SHARDA LODGE	LAKSHA	8	16	100	300
167	HOTEL YATRI NIVAS	ENGLISHIA LINE	18	35	150	450
168	AJAY GUEST HOUSE	BANGALI TOLA	18	35	120	400
169	HOTEL ALINA	BANGALI TOLA	11	22	600	3000
170	GANGA BANK GUEST HOUSE	BHEGAVIR	5	10	150	350
171	SHIVAM GUEST HOUSE	BHEGAVIR	9	18	100	250
172	RAHUL GUEST HOUSE	NAGWA	10	20	200	450
173	HOTEL AARYA	SONAR PURA	12	24	125	350
174	SIDHARTH LODGING HOUSE	DASHWASMEGH	4	8	200	250
175	HOTEL PUSPANJALI	LAHURAVEER	10	20	150	450
176	ANAMI LODGE	ASSI	12	24	250	350

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
177	HOTEL DHANRAJ	LAKSHA	7	14	150	450
178	HOTEL SAN SHIV	AURANGABAD	14	27	150	500
179	SHIV MANGAL LODGE	ENGLISHIA LINE	8	16	75	250
180	HOTEL VARANASI SANGAM	NAYI SADAK	10	20	250	600
181	AMRIT GUEST HOUSE	LANKA	15	30	175	450
182	VIJAY LODGE	LAKSHA	15	30	150	400
183	CHITRAGUPT ATITHI BHAVAN	GT ROAD	10	20	75	200
184	YOGINI REST HOUSE	PANDEY GHAT	11	22	100	300
185	PASUPATI GUEST HOUSE	SHIVA GHAT	15	29	125	350
186	PUSHKAR REST HOUSE	JAGAMBADI	5	9	80	360
187	HOTEL GARDEN VIEW	SIGRA	8	16	200	650
188	JAI GUEST HOUSE	NARIYA	13	26	150	300
189	HOTEL AMBESDOR	LANKA	37	74	200	450
190	HOTEL VEENA	VIDHYAPEETH ROAD	12	24	150	350
191	SHIV ATITHI GRAH	GARUBANG	8	16	100	275
192	GANGA FYUJI HOME	VISHWANATH GALI	7	14	150	450
193	TIWARI LODGE	ASSI	8	16	100	300
194	GREEN LODGE	NAYI SADAK	24	48	100	300
195	HOTEL BASANT	CHATGANJ	11	22	125	300
196	HOTEL PANCHSHEEL	FATMAN ROAD	28	56	100	300
197	ALAKNANDA GUEST HOUSE	TRIPURA BHAIRAVI	25	50	150	375
198	ANANTI REST HOUSE	SONIA	9	17	125	350
199	HOTEL KASHIKA	BULANALA	15	30	175	450
200	GANGA YOGI LODGE	NAYI SADAK	20	39	100	300
201	MORDEN VISION GUEST HOUSE	PANDEY GHAT	8	15	125	350
202	SINDHIYA GUEST HOUSE	SINDHIYA GHAT	18	36	900	3500
203	AJAY HOTEL	LAHURAVEER	24	48	799	1999
204	URVASHI GUEST HOUSE	PANDEY GHAT	8	15	100	250
205	BABA GUEST HOUSE	MUNSHI GHAT	15	30	130	250
206	HOTEL AMAR	PARED KOTHI	23	46	150	400
207	KISHAN LODGE	ENGLISHIA LINE	13	25	125	350
208	KUMAR GUEST HOUSE	PAHADIYA	6	11	175	450
209	SHIVA GUEST HOUSE	MUNSHI GHAT	10	20	200	550
210	HOTEL KAMAL GANGEG	BHOJUVIR	10	20	100	400
211	HOTEL BARADARI	MAIDAGIN	15	30	200	400
212	HOTEL ASHOK	SIGRA	28	56	200	500
213	HOTEL SHALIMAR	THE MALL	17	34	225	475

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
214	TANDON LODGE	GAYA GHAT	6	12	100	300
215	MONALISA PEAC KOTAGE	PANDEY GHAT	9	18	100	400
216	SAVITA GUEST HOUSE	KEDAR GHAT	8	15	125	350
217	SIVGANGA LODGE	SIVALA	8	16	175	475
218	HOTEL SONMANI	HARISHCHANDRA GHAT	18	35	100	250
219	SINGH GUEST HOUSE	BHAIDENI	10	20	100	300
220	HOTEL VANKTESH	MALDHIYA	20	40	125	350
221	CHITRA GUEST HOUSE	BHEGAVIR	8	15	75	200
222	KESHRI VISHRAM BHAVAN	LAKSHA	12	24	100	300
223	HOTEL SAHOO	DASHWASMEGH	28	56	125	300
224	OM VISHWANATH LODGE	SONAR PURA	15	30	150	475
225	BERIWALA ATITHI BHAVAN LAKSHA	GODALIYA	45	89	125	450
226	HOTEL VIJAY INTERNATIONAL	AUGUST KUND	20	40	150	550
227	HOTEL GRAND HOLIDAY	DHOOP CHANDI	6	12	150	300
228	UMA GUEST HOUSE MEERGHAT	MEER GHAT	6	12	75	250
229	HOTEL VINOD	KODAI CHWOKI	12	24	150	250
230	HOTEL ROSHAN	LAKSHA	20	40	100	250
231	ANTULE GUEST HOUSE	ASSI	8	15	140	250
232	SHANTI GUEST HOUSE	MANIKARNIKA GHAT	47	94	150	525
233	VARANASI REST HOUSE	LAKSHA	13	26	150	300
234	YADAV GUEST HOUSE	LAKSHA	15	30	125	350
235	HOTEL RAJKAMAL	PARED KOTHI	16	32	1350	1950
236	BERIWALA ATITHI BHAVAN RAMAPURA	RAMAPURA	45	90	150	550
237	VINDHYAWASHINI ATITHI BHAVAN	MACHHODARI	20	40	100	250
238	SANKATA GUEST HOUSE	MAIKARNIKA GHAT	27	54	150	450
239	HOTEL HAIFA	ASSI	14	28	250	750
240	OLD YOGI LODGE	LAKSHA ROAD	18	36	125	500
241	HOTEL HALIVANT	PARED KOTHI	23	45	150	450
242	ANKITA REST HOUSE		12	24	150	450
243	ALVIS GUEST HOUSE	SHIVALA	11	22	175	450
244	OM REST HOUSE	PANDEY GHAT	15	30	125	350
245	FAMILY HOUSE	PATELESHWAR	6	11	150	250
246	GOLDEN LODGE	KALIKA GALI	5	10	100	225
247	HOTEL BLUE DIAOMOND	KABIR CHOWK	20	40	120	450
248	HOTEL SWAMVAR VATIKA	SANKAT MOCHAN	14	28	200	550
249	UMA GUEST HOUSE ORANGABAD	AURANGABAD	20	40	100	250

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
250	SHEETAL TOURIST LODGE		10	20	125	300
251	HOTEL EMPAYAR		10	20	200	400
252	TARA GUEST HOUSE		6	11	150	450
253	AADARSH GUEST HOUSE		13	26	150	350
254	MUNNA GUEST HOUSE		8	16	125	250
255	HOTEL AADIYA IN BADADEV	BADADEV	12	24	200	700
256	SHIV MANGAL LODGE		8	16	100	250
257	PRABHA GUEST HOUSE		29	57	150	350
258	SARNATH MOTAL AND RESORT	PAHADIYA	66	132	1400	2500
259	HOTEL DIVYA	ASSI	20	40	350	800
260	GANESH LODGE		10	19	125	250
261	HOTEL VK GRAND		24	48	200	550
262	HOTEL DIOMOND PALACE		9	18	250	600
263	HOTEL ATITHI SATKAR	GODALIYA	27	54	1200	1500
264	JAI LAKSHMI GUEST HOUSE		7	14	200	450
265	HOTEL JANAK	PARED KOTHI	18	36	200	450
266	OM SAI GUEST HOUSE		13	26	175	350
267	LEELA GUEST HOUSE		9	18	100	250
268	HOTEL BUDDHA INTERNATIONAL	SARNATH	10	20	150	650
269	SAWAN GUEST HOUSE		14	28	175	350
270	HOTEL PRATAP PALASH	PARED KOTHI	20	40	250	900
271	BUDHA GUEST HOUSE		6	12	150	350
272	VIJAY DHARAMSHALA		15	30		
273	NIRWAN GUEST HOUSE		23	46	150	350
274	ESTERN VIEW GUEST HOUSE		8	16	200	450
275	HOTEL KRISHENT VILLA	RAVINDERPURI	14	28	3000	5500
276	KUSHMANDA KATYANI GUEST HOUSE		10	19	150	500
277	MARKO GUEST HOUSE		12	24	200	500
278	HOTEL AADITYA IN RODVAZE	RODVAG	37	74	300	850
279	VARANASI GUEST HOUSE		7	14	250	700
280	SHIV KASHI GUEST HOUSE		15	30	175	400
281	RADHA SWAMI INTERNATIONAL GUEST HOUSE		15	30	150	400
282	G GUEST HOUSE		6	12	200	500
283	HARERAMA GUEST HOUSE		10	20	150	400
284	GIRDHARI GUEST HOUSE		15	30	150	350
285	THEERTH GUEST HOUSE	DASHWASMEGH	20	40	250	650
286	LORD VISHNU GUEST HOUSE		24	48	125	350

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
287	SUNRISE LODGE		6	12	125	275
288	HOTEL OK INTERNATIONAL	RAMAPURA	49	98	1800	5500
289	KK GUEST HOUSE	PANDEY HAVELI	10	20	125	450
290	USHA GUEST HOUSE		8	16	200	400
291	RP GUEST HOUSE		9	18	150	500
292	BALA JI GUEST HOUSE		10	20	150	400
293	SRI ATITHI BHAVAN		8	16	100	300
294	SIVESH LODGE		8	16	100	250
295	HOTEL ALAKNANDA		7	14	175	450
296	AVANTI REST HOUSE		9	17	150	350
297	HOTEL AMAR		23	46	150	500
298	HOTEL VANDANA		18	35	200	550
299	HOTEL GOLDEN BUDHA	SARNATH	21	42	200	450
300	HEERA GUEST HOUSE		8	16	150	400
301	VINDHYAWASHINI LODGE		20	40	100	250
302	VAISHNAV GUEST HOUSE		6	12	150	350
303	HOTEL HOTEL VIDHAN		8	16	175	400
304	RAMESHWAR VATIKA		14	28	200	450
305	HOTEL KALIKA		8	15	150	350
306	TRIMURTI GUEST HOUSE		33	65	150	500
307	HOTEL EDEN		22	44	200	450
308	KASHI GUEST HOUSE		7	13	175	350
309	HOTEL SHIV		14	27	200	450
310	GARDEN LODGE		35	70	150	350
311	BARMIZ BUDHIEST DHARMSHALA	SARNATH	125	250		
312	SARDAR BHALLABH BHAI PATEL DHARMSHALA	TELIA BAG	50	100		
313	REWA DAI GUJRATI DHARMSHALA	RAMAPURA	200	400		
314	KHUN KHUN JI LUCKNOW DHARMSHALA		100	200		
315	DEEWAN TARA CHAND DHARMSHALA		50	100		
316	MAHESHWARI DHARMSHALA	MAHMOOR GANJ	100	200		
317	SRI KRISHNA DHARMSHALA	ENGLISHIA LINE	200	400		
318	SRI JAGAT GURU VISHWARADHYA MAHASASTHAN JANGAM BADI MATH	JANGAM BADI	100	200		
319	SRI VIRESHWAR PANDEY DHARMSHALA	GODALIYA	125	250		
320	SETH JAGANATH PRASAD VAJINATH DUDHWA DHARMSHALA	BULALANA	75	150		
321	SRI JAIN DIGAMBAR JAIN DHARMSHALA	BHELPUR	50	100		

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
322	SRI JAIN SHWETAMBAR PARSHWANATH DHARMSHALA	BHELPUR	150	300		
323	SRI JAIN DHARMSALA	MAIDAGIN	150	300		
324	KANPUR DHARMSHALA		100	200		
325	RADHA KRISHANA DHARMSHALA		30	60		
326	MUSLIM MUSAFIR KHANA	DALMANDI	150	300		
327	HAR SUNDARI DHARMSHALA	GIJAGHAR CHAURAHA	100	200		
328	TANEPUR BAHURASTRIYA DHARMSHALA		50	100		
329	ANNAPURNA TELWALA DHARMSHALA	RATH YATRA	125	250		
330	KARAMAL RANI DEVI DHARMSHALA		75	150		
331	MARWADI SEVA SANGH	GODALIYA	125	250		
332	MUMUKSH BHAVAN	ASSI	40	80		
333	DHARAM SANGH	DURGAKAND	125	250		
334	PARAMHANS GUEST HOUSE	SAMNE GHAT	10	20		
335	KARNATAKA STATE CHATRAM	HANUMAN GHAT	38	75		
336	VIDLA DHAMSHALA	MACHODARI	50	100		
337	SRIMATH PANCHGANGA	PANCHGANGA GHAT	40	80		
338	VIDLA DHAMSHALA	SARNATH	350	700		
339	JAIN DHARMSHALA SAARNATH	SARNATH	250	500		
340	GADWA DHARMSHALA	GADWA GHAT	350	700		
341	RAJ MOTI CHAND DHARMSHALA		100	200		
342	JAWAHAR SHAH DHARMSHALA		150	300		
343	RAJESH GUEST HOUSE		9	18	150	450
344	NITIN GUEST HOUSE		8	15	200	500
345	MINT HOUSE MOTAL	NADESAR	10	20	250	600
346	HOTEL SWAGAT		14	28	150	450
347	HOLI REST HOUSE		18	35	150	300
348	SAFARI GUEST HOUSE	SIWALA	15	30	200	450
349	SURAJ GUEST HOUSE		12	24	250	400
350	MADHUBAN BATIKA		15	30	300	550
351	HOTEL REGARD	NADESAR	13	25	250	450
352	SINDHI DHARMSHALA	LAKSHA	35	70		
353	VARANASI GANGA GUEST HOUSE		18	35	200	400
354	THE HOTEL SWASTIK IN	AUGUST KUND	12	24		
355	TAMIL NADU GUEST HOUSE	BHELPUR	17	34		
356	SUNRISE GIRLS HOSTEL	BHOJUVIR	5	10		

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
357	NEW SANDHYA GUEST HOUSE	LANKA	19	38		
358	SAI KRIPA PRADEEP LODGE	LANKA	8	16		
359	SHANTANA GUEST HOUSE	DASHWASMEGH	19	38		
360	NEW SAGAR GUEST HOUSE	NAYI SADAK	13	26		
361	HOTEL KUNJ	VIDHYAPEETH ROAD	10	20		
362	POOJA RESIDENCY	MAHMOOR GANJ	17	34	3000	4500
363	HOTEL ASHOKA GRAND	VIDHYAPEETH ROAD	18	36	1400	2200
364	R K GUEST HOUSE	KENT	10	20		
365	BAGLA DHARMSHALA	HAUZKATORA	23	46		
366	S L E RESIDENCY	RATH YATRA	13	26		
367	KARIYAZI INTERNATIONAL HOTEL	BABATPUR ROAD	15	30	1500	2600
368	ROYAL GUEST HOUSE	MAHMOOR GANJ	15	30	2500	
369	HOTEL HAVELI HARIDARSHAN	ASSI	20	40	1600	3500
370	K G GUEST HOUSE	KAJIPURA KHURD SONIA	9	18		
371	SAHANI GUEST HOUSE	NANGWA	16	32		
372	SRI SAI SRADA GUEST HOUSE	ENGLISHIA LINE	13	26		
373	SRI SAI GANESHA GUEST HOUSE	ENGLISHIA LINE	6	12		
374	SURAJ GUEST HOUSE	PARED KOTHI	11	22		
375	MANGALAM GUEST HOUSE	ENGLISHIA LINE	20	40		
376	HOTEL HOTEL GRAND CONTINATAL	PARED KOTHI	30	60		
377	PARIVAR GUEST HOUSE	PARED KOTHI	6	12		
378	MA SANKATHA GUEST HOUSE	PARED KOTHI	10	20		
379	SUBHAM GUEST HOUSE	PARED KOTHI	13	26		
380	GIRIRAJ INN	AVADHGARVI	9	18		
381	HOTEL IDEAL INN	PARED KOTHI	10	20		
382	ANNAPURANA GUEST HOUSE	ENGLISHIA LINE	15	30		
383	HKJ RESIDENCY	NEWADA BHIKHARIPUR TIRAHA	12	24	1800	2400
384	TARKESHWAR KUNJ	MISIR POKHRA	4	8		
385	NIRVANA HOTEL	VARUN BRIJ	14	28	3000	3500
386	SRI SYAM LODGE	KAJIPUR KALA	17	34		
387	HOTEL AK GRAND	LAKSHA	18	36		
388	ALIBABA GUEST HOUSE	BANGALI TOLA	12	24		
389	LOTS INTERNATIONAL INN	MAWAIYA SARNATH	29	58		
390	KIRAN PALACE GUEST HOUSE BHAVAN	BUDH VIHAR COLONY	16	32	600	1450

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
	SANKHYA	CANT				
391	KK GUEST HOUSE	PANDEY HAVELI	14	28		
392	DIVINE DESTINATION HOTEL	RAMAPURA LAKSHA	20	40	2500	3500
393	BABU GUEST HOUSE	AURANGABAD	17	34		
394	PRABHU SUNDER GUEST HOUSE	SIWALA	14	28		
395	SIYA RAM GUEST HOUSE	ASSI	20	40		
396	HOTEL BHANU GANGA	MAIVAIYA SARNATH	10	20		
397	ALKA GUEST HOUSE	SUNDERPUR	12	24		
398	HOTEL PRAKASH PALACE	LANKA	30	60	2000	3000
399	ANKIT GUEST HOUSE	ENGLISHIA LINE	14	28		
400	BALAJI SARTRAM GUEST HOUSE	SONARPURA	12	24		
401	VAISHNAV GUEST HOUSE	ENGLISHIA LINE	6	12		
402	SIVA KASHI GUEST HOUSE	ENGLISHIA LINE	9	18		
403	SIDHARTH GUEST HOUSE	GANJ SARNATH	11	22		
404	HOTEL THE VESTIN	NEPALI KOTHI	28	56		
405	HOTEL J PURIYA	AVADHGARVI	14	28		
406	HOTEL STAR PALACE	KENT	16	32		
407	HOTEL ASHIYANA	KENT	7	14		
408	HOTEL KOSTA RIVER	NEPALI KOTHI	32	64		
409	COMFORT SERIES GUEST HOUSE	SIGRA	11	22		
410	HOTEL ARJUN PALACE	KENT	15	30		
411	HOTEL BHAGIRATH	KENT	10	20		
412	DEEPAK PALACE	ASSI	18	36		
413	SIVAM PALACE	BARAIPUR	18	36		
414	OM HOME HUEST HOUSE	SIWALA	17	34		
415	DHARM CHAKRA MEDICATION CENTER BAUDH VIHAR TRUST	BARAIPUR	10	20		
416	SUKANYA GIRLS HOSTEL GRAM KARAMJITPUR	NANGWA	18	36		
417	HOTEL HOLI GANGEV VIEW	ASSI	21	42		
418	HOTEL PAVITARI GUEST HOUSE	GURBAG	8	16		
419	HOTEL DEVA INN	GADALIYA	13	26	700	1400
420	RUDRA INTERNATIONAL DHARMSHALA	BHELPUR	20	40		
421	HOTEL PRAGYA INTERNATIONAL	KODAI CHOWKI	14	28		
422	HOTEL JJ RESIDENCY	BHELPUR	10	20		
423	HOTEL CHAITANYA INN	ANMOL NAGAR COLONY SARNATH	18	36		
424	HOTEL AKASH GANGA	SIVALA	10	20		

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
425	SWASTIK GUEST HOUSE	RAMAPURA	14	28		
426	HOTEL MRK	BHUTESHWAR GALI DASHWAMEGH	8	16		
427	MERI GOLD GUEST HOUSE	MUNSHI GHAT	9	18		
428	HOTEL RAHIL PALACE	RATH YATRA	15	30		
429	HOTEL LAND MARK	MAHMOOR GANJ	33	66	4000	6000
430	MOTIMAHAL HOTEL AND RESTAURANT	AUGUST KUND	7	14		
431	CHAURASIA LAUN	MAHMOOR GANJ	4	8		
432	BIRJARAMA PALACE HARITAGE HOTEL MEMARS BIRJRAMA	MUNSHI GHAT	33	66	16000	33000
433	RAMA GIRLS HOTEL	MALDAHIYA	9	18		
434	GAURI SHANKAR HOUSE	LAHORI TOLA DASHWAMEGH	9	18		
435	HARI VILAS	GURBAG	6	12		
436	PARVATI GUEST HOUSE	JAGATGANJ	4	8		
437	MADHURI GUEST HOUSE	LAKSHA	10	20		
438	STAF HOSTEL	VIJAYNAGARAM BHELUPUR	8	38	500	
439	HOTEL EAST VIEW	SIDHESHWARI CHOWK	13	26		
440	ASS RIVAR GUEST HOUSE	ASSI	9	18		
441	BARNAVAL SEVA SADAN	BADI PIYARI	33	66		
442	SIVGANGA GUEST HOUSE	MANIHARI TOLA	10	20		
443	BHAIBHAV LAKSHMI BHAVAN	KAJJAKPURA	4	8		
444	HOTEL SHANTI INN	GURBAG	22	44		
445	HOTEL MADHUMAN PALACE	KAKARMUTA	24	48	4000	6000
446	BHAVABH HARSH	JANGAM BADI	30	60	2800	5500
447	UMA PALACE	BUDH VIHAR COLONY	24	48	4000	7000
448	HOTEL RAJAT GRAND	SIGRA	15	30		
449	MANGALAM GUEST HOUSE	LANKA	16	32		
450	SRI KASHI VISHWANATH LODGE	AVADHGARVI	8	16		
451	SRI SAI SADAN HOTEL	RASHMI LANKA	21	42		
452	HOTEL ROSHAN	MANIHARI TOLA	24	50	300	2000
453	GOLDI GUEST HOUSE	ENGLISHIA LINE	4	8		
454	HKJ PALACE	JAWAHAR NAGAR	17	34	1500	2400
455	HOTEL SHYAM GUEST HOUSE	SAMNE GHAT	16	32		
456	THE SAFAIR GRAND	NEPALI KOTHI	10	20	2500	

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
457	LAKSHMI GUEST HOUSE	PANDEYPUR	5	10		
458	HOTEL MERAJ INTERNATIONAL	BENIYABAG	9	18		
459	TRUPATI GUEST HOUSE	SHIVALA	12	24		
460	SRI LODGE	BHELPUR	8	16		
461	HOTEL JANKI INTERNATIONAL	SIGRA	26	52	1500	4000
462	MA MUNDESHWARI HOSTEL	NANGWA	32	64		
463	HOTEL PARK PLAZA	BUDHVIHAR COLONY	22	44	3800	4500
464	HOTEL GALAXY INN		22	44	950	2400
465	RIVERA PALACE	BHADENI	12	24	1000	2200
466	NEW CHETAL HOTEL	PARED KOTHI	9	18		
467	PURVIKA HOTEL	SIGRA	14	28		
468	HOTEL PREMIER VILLA	NANGWA	18	36	4000	6000
469	SIVRATRI GUEST HOUSE	DASHWASMEGH	8	16		
470	BALAJI BOYS LODGE	NANGWA	25	50		
471	MAHESH SIVA SANSTHAN	TULSIPUR	29	58		
472	MATHURA VAISHYA JAN KALYAN TRUST STITH KANHAIYALAL GUPTA MOTIWALA SMIRIT BHAVAN	SHIVPUR	19	38		
473	MAN GUEST HOUSE	HAUZKATORA	12	24		
474	HOTEL KANISHAK	MALDAHIYA	23	46		
475	HOTEL PARK INN	DLW ROAD LAKHRAO	17	34	1700	3500
476	HOTEL APRAJITA	NANGWA	15	30		
477	HOTEL HAVELI INN	TELIA BAG	20	40		
478	HOTEL KBD INN	JANGAM BADI	14	28		
479	SRI GUEST HOUSE	DASHWASMEGH	14	28		
480	HOTEL PRATAP	NANGWA	14	28		
481	HOTEL Z INN	CLUB ROAD	24	48		
482	HOTEL OJAS	NANGWA	24	48	1500	2000
483	HOTEL KV	KHALISPUR	16	32		
484	HOTEL SGT	BARAIPUR	16	32		
485	HOTEL KAUSHIK	BHADVAR	10	20		
486	NEW ANKIT GUEST HOUSE	ASSI	8	16		
487	HOTEL SATWIK INTERNATIONAL	VARUN BRIJ	9	18		
488	HOTEL JMD	LAKSHMI KUND	8	16		
489	HOTEL TRIDAV	VISHESHWARGANJ	49	98		
490	JEEVANDEEP UTSAV VATIKA	BADA LALPUR	15	30		
491	HOTEL SHIV ANAND	FEELKHANA	12	24		

Sr. No.	Hotel Name	Address	No of Rooms	No of Beds	Tariff (Rs.) Min.	Tariff (Rs) Max.
492	HOTEL VARANASI INTERNATIONAL	MAAL ROAD	27	54	3500	7500
493	RAMESHWAR GUEST HOUSE	LAKSHA	12	24		
494	VAPASANI GUEST HOUSE	MAIVAYA	15	30		
495	HOTEL MADIN	THE MALL	85	170		
496	HOTEL SILK CITY	BUDHVIHAR COLONY	44	88	1500	2000
497	HOTEL SAIFRAN	MISIR POKHRA	12	24	950	
498	HOTEL PARK	ENGLISHIA LINE	16	32		

ANNEXURE 3

Varanasi Tourist Data- Month on Month, 2010-2015

Month	2011			2012			2013			2014			2015		
	I	F	T	I	F	T	I	F	T	I	F	T	I	F	T
Jan	411704	31245	442949	508290	32541	540831	557812	24748	582560	432595	30960	463555	287768	35347	323115
Feb	423576	25347	448923	465289	31640	496929	496032	40953	536985	222143	32273	254416	438050	40971	479021
Mar	362451	21355	383806	328874	22455	351329	512235	24895	537130	185844	41592	227436	321080	43697	364777
Apr	314410	15427	329037	305705	17540	323308	225003	10235	235808	180000	10370	209072	309709	22174	331883
May	296425	12421	308846	290357	15241	305598	121443	13776	135219	252072	8151	260223	260380	12136	272516
Jun	208930	9415	218345	221230	11261	232491	122252	13744	135996	182486	8916	191402	227420	6171	233591
Jul	205825	12057	217882	203904	10578	214482	118527	6525	125052	207695	9550	217245	232068	11506	243574
Aug	275489	12351	287840	189155	9874	199029	84010	8970	92980	236205	13669	249874	270419	22852	649143
Sep	326885	18975	345860	348348	13457	361805	705945	32417	738362	960397	16292	976689	630953	18190	649143
Oct	448512	29678	478190	522319	38624	560943	739916	45972	785888	1076655	20482	1097137	857977	30681	888658
Nov	563548	29740	593288	680633	39747	720380	771908	46190	818098	1077339	47643	1124982	1111275	28152	1139427
Dec	629217	27649	656866	718848	35612	754460	510418	16827	527245	179109	38857	217966	466828	30493	497321
Total	4466972	245660	4712632	4783012	278573	5061585	4966161	285252	5251413	5202236	287761	5489997	5413927	302370	5716297

Note - I – Indian, F – Foreigner, T – Total

International Tourists in Varanasi- Country wise

Year-2011														
Sl.No	Country Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	UK	2335	894	563	553	928	703	900	922	416	1215	1220	1064	11713
2	USA	2256	1830	1517	1114	897	680	871	892	1370	1143	1147	1996	15713
3	Sri Lanka	2294	2050	2956	1639	514	390	499	1511	1785	2228	3231	2144	21241
4	France	1609	928	307	782	435	288	393	427	1192	1428	1435	1193	10417
5	Germany	1193	968	897	589	474	359	460	471	724	1132	1134	1054	9455
6	Japan	4455	3992	2634	2213	1977	1741	1949	1972	2493	3335	3340	2175	32276
7	Italy	848	688	695	419	337	255	327	335	515	805	807	750	6781
8	Malaysia	177	144	304	88	71	54	69	71	109	170	170	158	1585
9	Saudi Arabia	231	187	335	114	92	70	90	92	141	221	221	205	1999
10	Canada	538	436	514	266	214	162	207	212	326	510	511	475	4371
11	Australia	759	616	543	375	302	229	293	300	461	721	722	671	5992
12	Singapore	168	136	198	83	67	51	65	67	103	161	161	150	1410
13	UAE	6	5	8	3	2	2	3	3	5	8	8	9	62
14	Switzerland	323	262	289	160	129	98	126	129	198	310	311	289	2624
15	Iran	212	172	224	105	85	64	82	84	129	202	202	188	1749
16	Pakistan	6	5	3	3	2	2	3	3	5	8	8	7	55
17	Bangladesh	0	0	0	0	0	0	0	0	0	0	0	2	2
18	Netherland	1132	1730	1345	1053	848	643	823	843	595	1025	1029	1886	12952
19	South Korea	3128	2349	2510	1038	1641	1244	1593	1632	1507	1921	3929	3652	26144
20	Spain	1429	1593	1686	987	761	835	710	752	692	1210	2219	2922	15796
21	Nepal	528	428	408	260	209	158	202	207	318	497	498	463	4176
22	China	1088	883	735	537	432	327	419	429	659	1031	1033	960	8533
23	Others	6530	5051	2684	3046	2004	1060	1973	997	5232	10397	6404	5236	50614
	Total	31245	25347	21355	15427	12421	9415	12057	12351	18975	29678	29740	27649	245660

Year-2012														
Sl. No.	Country Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	UK	2429	2359	1254	768	708	611	562	523	754	4271	4314	3911	22464
2	USA	2349	2284	1752	1327	1209	1155	1054	1058	1511	4017	4056	3624	25396
3	Sri Lanka	1346	1321	1753	1497	1385	1242	1148	1098	1847	5874	5649	5128	29288
4	France	3758	3623	1127	974	914	786	721	674	986	3124	3162	2553	22402
5	Germany	1240	1223	625	524	483	326	295	276	384	996	967	845	8184
6	Japan	2560	2499	2138	1754	1621	1508	1430	1384	1748	5911	5978	5211	33742
7	Italy	883	807	402	396	355	183	158	121	162	414	426	355	4662
8	Malasiya	186	181	127	112	98	63	39	21	42	157	163	124	1313
9	Saud1 Arabia	241	212	54	31	22	14	9	4	7	14	11	7	626
10	Canada	559	528	268	229	186	125	98	67	83	297	315	280	3035
11	Australia	790	759	459	378	334	255	211	194	288	597	611	574	5450
12	Singapore	177	133	74	64	48	29	18	12	24	84	97	81	841
13	UAE	11	7	2	0	0	0	0	0	0	0	0	0	20
14	Switzerland	340	321	138	121	96	63	52	41	56	193	201	188	1810
15	Iran	221	189	87	61	37	26	17	8	12	18	16	12	704
16	Pakistan	8	5	1	0	0	0	0	0	0	0	0	0	14
17	Bangladesh	2	3	2	0	0	0	0	0	0	0	0	0	7
18	Netherland	2220	2186	764	621	583	437	394	348	415	1247	1320	1149	11684
19	South Korea	4298	4237	1874	1562	1437	1341	1283	1235	1549	4751	4995	4574	33136
20	Spain	4616	4578	764	686	637	499	467	423	681	1624	1711	1522	18208
21	Nepal	545	512	347	329	294	187	154	120	154	427	492	414	3975
22	Ch1na	1130	1083	612	497	448	321	278	238	299	781	824	784	7295
23	Others	2632	2590	7831	5612	4346	2090	2190	2029	2455	3827	4439	4276	44317
	Total	32541	31640	22455	17543	15241	11261	10578	9874	13457	38624	39747	35612	278573

Year-2013														
Sl. No.	Country Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	UK	2745	1532	681	34	235	562	147	132	2387	2565	2710	247	13977
2	USA	2514	2820	521	123	245	588	135	118	1505	2925	2385	718	14597
3	Sri Lanka	4533	1586	303	350	590	651	99	600	910	414	575	714	11325
4	France	1680	2896	1506	752	293	343	380	830	1785	4347	4265	645	19722
5	Germany	593	1987	774	415	343	229	87	118	1834	3015	2080	197	11672
6	Japan	3761	1926	1979	212	442	676	790	691	2303	1413	1920	936	17049
7	Italy	247	2123	896	145	213	264	474	821	994	1710	1475	514	9876
8	Malaysia	87	469	260	71	289	241	111	515	770	558	1675	371	5417
9	Saudi Arabia	4	7	2	0	0	3	1	0	21	0	5	0	43
10	Canada	182	1607	495	13	205	320	71	51	854	1035	1900	301	7034
11	Australia	412	1328	666	176	348	303	197	335	1561	2961	1995	363	10645
12	Singapore	63	140	226	21	235	238	67	67	91	252	320	371	2091
13	UAE	0	4	3	0	0	0	3	3	0	0	0	0	13
14	Switzerland	122	397	149	45	245	212	53	116	280	513	455	225	2812
15	Iran	6	14	6	0	0	0	0	0	21	0	25	0	72
16	Pakistan	0	4	1	0	0	0	0	1	0	27	0	2	35
17	Bangladesh	0	0	6	5	12	2	2	5	14	36	0	10	92
18	Netherlands	786	694	531	15	415	246	935	341	721	2151	545	812	8192
19	South Korea	3213	3483	1582	543	800	474	895	1009	1876	1305	3180	741	19101
20	Spain	1077	626	566	258	353	355	754	812	2856	3852	1520	281	13310
21	Nepal	382	104	62	124	340	108	33	33	154	675	445	12	2472
22	China	523	2717	923	253	510	389	187	97	3052	2502	2825	1270	15248
23	Others	1818	14489	12757	6680	7663	7540	1104	2275	8428	13716	15890	8097	100457
Total		24748	40953	24895	10235	13776	13744	6525	8970	32417	45972	46190	16827	285252

Year-2014														
Sl. No.	Country Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	UK	1272	1811	2290	1495	450	598	626	607	548	1267	2880	1266	15110
2	USA	1544	1687	2512	1227	817	1310	686	319	693	1469	3452	2570	18286
3	Sn Lanka	86	475	781	95	25	4	16	389	3409	96	706	159	6241
4	France	1767	2158	4208	1642	918	449	705	1000	427	1150	4055	1458	19937
5	Germany	1004	1237	2014	654	257	210	132	213	441	618	2438	943	10161
6	Japan	1650	2023	3000	1392	770	607	789	1209	1358	1283	2918	3864	20863
7	Italy	1647	835	1975	867	274	142	355	2130	630	612	1745	685	11897
8	Malaysia	330	582	816	202	493	226	339	208	907	303	2277	1178	7861
9	Saudi Arab1a	0	0	0	0	0	0	0	0	5	0	0	0	5
10	Canada	935	914	1124	668	446	198	195	106	242	660	1989	751	8228
11	Australia	2496	1475	2074	1168	573	477	235	111	625	1129	1886	2263	14512
12	Singapore	107	80	155	70	202	85	136	0	242	21	212	910	2220
13	UAE	3	0	0	7	0	0	0	9	0	16	19	0	54
14	Switzerland	261	229	216	202	46	69	76	74	53	154	494	186	2060
15	Iran	10	14	53	26	8	0	8	9	10	16	58	0	212
16	Pakistan	0	0	0	0	0	0	0	0	5	0	0	0	5
17	Bangladesh	0	21	0	15	29	4	28	28	0	0	109	82	316
18	Netherland	399	786	1530	569	240	501	634	167	393	442	725	378	6764
19	South Korea	4094	2362	2184	217	291	376	530	607	330	1443	3035	2554	18023
20	Spam	828	603	926	1139	320	659	1503	3769	1106	1320	2091	1030	15294
21	Nepal	165	139	382	184	55	267	155	370	208	245	450	504	3124
22	Ch1na	2351	2657	2692	1212	198	412	355	389	1590	1464	2317	4269	19906
23	Others	10011	12185	12660	6325	1739	2325	2049	1957	3070	6768	13786	13807	86682
	Total	30960	32273	41592	19376	8151	8919	9552	13671	16292	20476	47642	38857	287761

Year-2015														
S1.No.	Country Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	UK	1452	2551	2599	1250	699	381	600	934	745	2501	2173	1472	17357
2	USA	1963	2281	3112	1217	3041	1431	1653	1331	1704	6500	4557	6577	35367
3	Sn Lanka	35	4024	445	377	102	37	249	7468	3933	3566	5531	692	26459
4	France	1383	2373	2902	1228	747	237	658	1293	441	1516	1933	1597	16308
5	Germany	839	917	2126	805	513	217	254	333	465	1225	1164	790	9648
6	Japan	2585	3552	2923	698	393	259	428	1130	1230	1056	1217	2062	17533
7	Italy	1617	734	1107	304	405	171	337	2160	675	956	671	1456	10593
8	Malaslya	406	982	526	845	1147	256	862	184	245	726	674	1134	7987
9	Saudi Arabia	0	108	0	0	0	0	0	210	29	6	26	0	379
10	Canada	1020	1106	1276	507	711	129	304	219	357	1177	1177	1004	8987
11	Australia	1893	1688	1964	839	495	261	390	190	850	1599	970	1893	13032
12	Singapore	52	378	418	293	336	271	108	108	18	112	151	172	2417
13	UAE	0	0	34	23	0	2	3	20	20	10	16	48	176
14	Sw1tzerland	138	426	344	169	66	37	105	70	114	304	174	143	2090
15	Iran	0	32	67	62	12	0	0	15	6	67	33	188	482
16	Pak1stan	0	0	3	0	0	0	9	12	0	4	0	0	28
17	Bangladesh	0	49	67	0	12	5	11	6	9	3	36	22	220
18	Netherland	640	750	1060	389	237	73	605	277	216	992	326	360	5925
19	South Korea	8412	2093	3753	2089	93	122	301	613	541	499	769	2154	21439
20	Spain	1012	782	1006	1121	408	567	1600	4362	1677	1718	960	1173	16386
21	Nepal	1055	464	304	158	84	183	130	204	152	131	141	118	3124
22	China	3147	5475	2221	1791	687	388	611	680	1780	1379	1131	2900	22190
23	Others	7698	10206	15440	8009	1948	1144	2288	1033	2983	4634	4322	4538	64243
	Total	35347	40971	43697	22174	12136	6171	11506	22852	18190	30681	28152	30493	302370

Environmental Clearance

For

Varanasi International Cooperation and Training Centre

FORM – 1A,

Environmental Management and Mitigation Plan



The Project is to construct Varanasi International Cooperation and Training Centre through Japanese ODA (Official Development Assistance) Scheme. This is the Proposal for Environmental Clearance.



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- ANNEX 1: Building and Construction Notification 2016
- ANNEX 2: MoEF Guidelines on EC Notification 2006
- ANNEX 3: Asbestos Based Industries
- ANNEX 4: Model Building By Laws-2016
- ANNEX 5: Air ambient Varanasi

FORM – 1A, Environmental Management and Mitigation Plan
Varanasi International Cooperation and Training Centre

BACKGROUND

As mentioned in TOR, *“The works shall consist of a Baseline and Field Survey, preparation of Report I (Report on Baseline Survey and Field Survey), a preparation of Report II (a report as per the requirement of Indian EIA regulation) and Report III (Preparation of a report which shall meet the requirement as per the Category B of the JICA Guidelines for Environmental and Social Consideration).”*

This is the second report, containing the form 1A, environment management & monitoring plan and mitigation measures for expected environmental and social impacts.

The construction activities and clearing the vegetation will have impacts on the local environment. However, noting that wildlife is rarely reported in the project area, the impacts of the activities on them will be effectively negligible. Proper work plan, plans for debris and waste disposal, controlled vehicular activities and proper management of available resources may help to reduce the impacts.

During the construction phase, the project is likely to have certain environmental and social impacts. However, these impacts are low considering the ecological setup of the area where the project is going to be located. By adopting proper planning and management measures these impacts could be reduced to a considerable extent. During the operation phase, the impact of the project on environment is negligible, except in situations such as certain untoward incident or disasters.

Environmental Impact Notification, dt.14th September 2006 (referred in ANNEX - 2 MoEF Guidelines on EC Notification 2006), has made it mandatory to obtain environmental clearance for scheduled development projects.

As per amended notification S.O. 3999(E) dated, December 9, 2016 (referred in ANNEX 1 Building and Construction Notification 2016), the permission of building construction should be incorporated with environmental mitigation measures as mentioned in the APPENDIX XIV (Page16) of the same notification.

The proposed project is less than 20000 square meters. Thus this building will fall under Catagort-1.

For Buildings Category '1' (5,000 to < 20,000 Square meters), a Self-declaration Form to comply with the environmental conditions (Appendix XIV) along with Form 1A and Certification by the Qualified Building Environment Auditor to be submitted online by the project proponent besides application for building permission to the local authority along with the specified fee in separate accounts. Thereafter, the local authority may issue the building permission incorporating the environmental conditions in it and allow the project to start based on the self-declaration and certification along with the application. After completion of the construction of the building, the project proponent may update Form 1A online based on audit done by the Qualified Building Environment

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Auditor and shall furnish the revised compliance undertaking to the local authority. Any non-compliance issues in buildings less than 20,000 square meters shall be dealt at the level of local body and the State through existing mechanism.

This study has been conducted in line with Japan International Cooperation Agency Environmental and Social Consideration Guideline and Indian Environmental Impact Assessment Procedure and Guidelines. The surrounding features such as, general topography, specify general features of land, tree cover-prominent species fauna-wildlife/domesticated, soil characteristics, tourist spots, monuments /archaeological sites, religious places, heritage areas, specific environmental problems, noise environment and air pollution, traffic congestion spots in the vicinity of project site, loss of tree cover, human resources, population of study area, settlement pattern, socio-economic conditions, health, etc. have been covered under the study

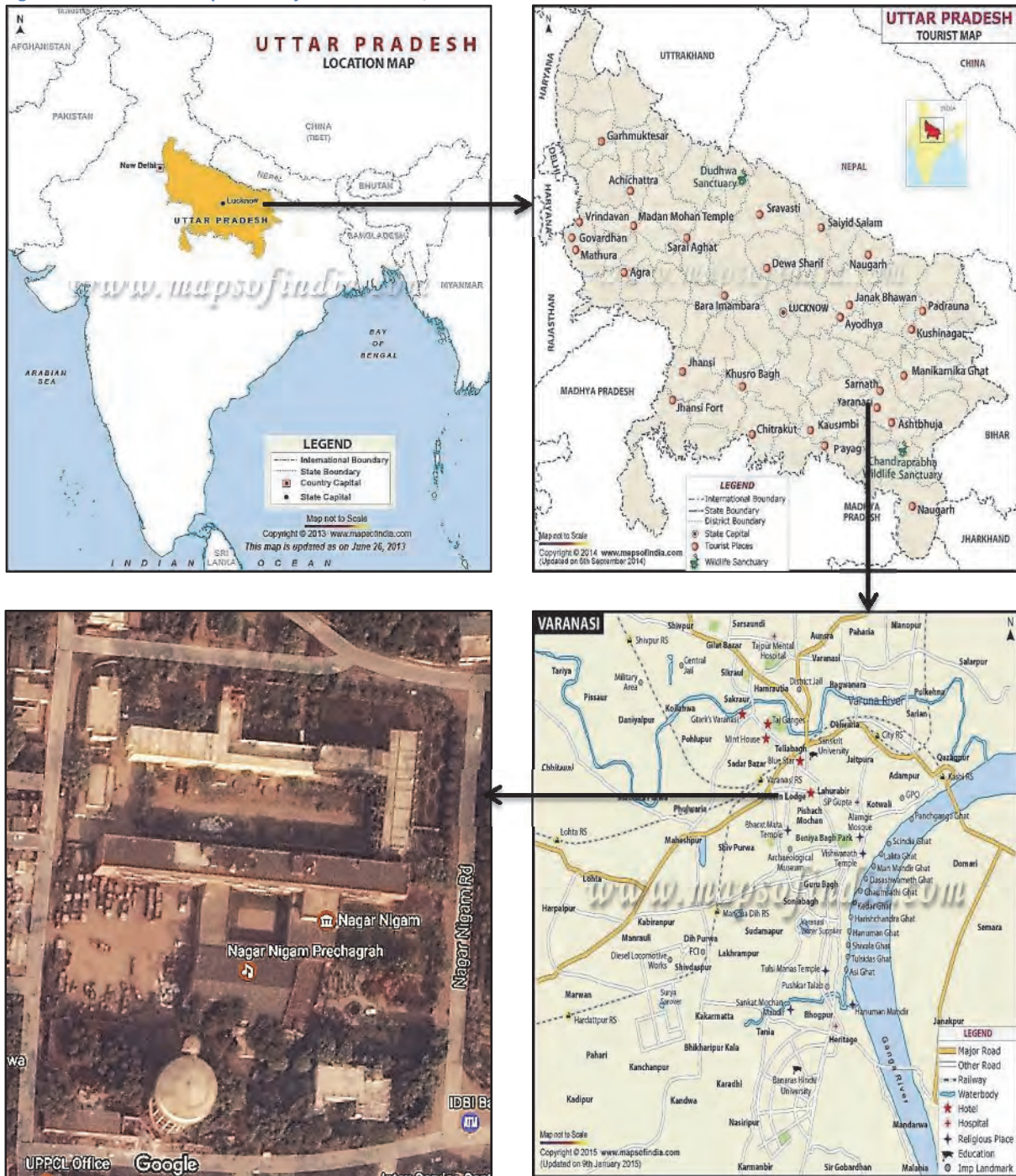
The project includes the construction of convention center with the capacity of 2000 seats. The project will promote; MICE Tourism (Meetings, Incentives, Conferences, and Events), increase number of tourist in Varanasi, increase national and international events, cultural programmes, summits, meetings, etc.

Overall the project will have positive impact on socio-economic conditions of local communities as it will provide the job opportunities along with improved infrastructure.

The details of all the project dimensions will be finalized at the stage of finalization of detailed design.

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 Varanasi International Cooperation and Training Centre

Figure 2: Location of Proposed Project in Varanasi, U.P



Source: Maps of India.com & Google Earth

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 Varanasi International Cooperation and Training Centre

Figure 3: Surrounding Features of Project Site within 500 Meters



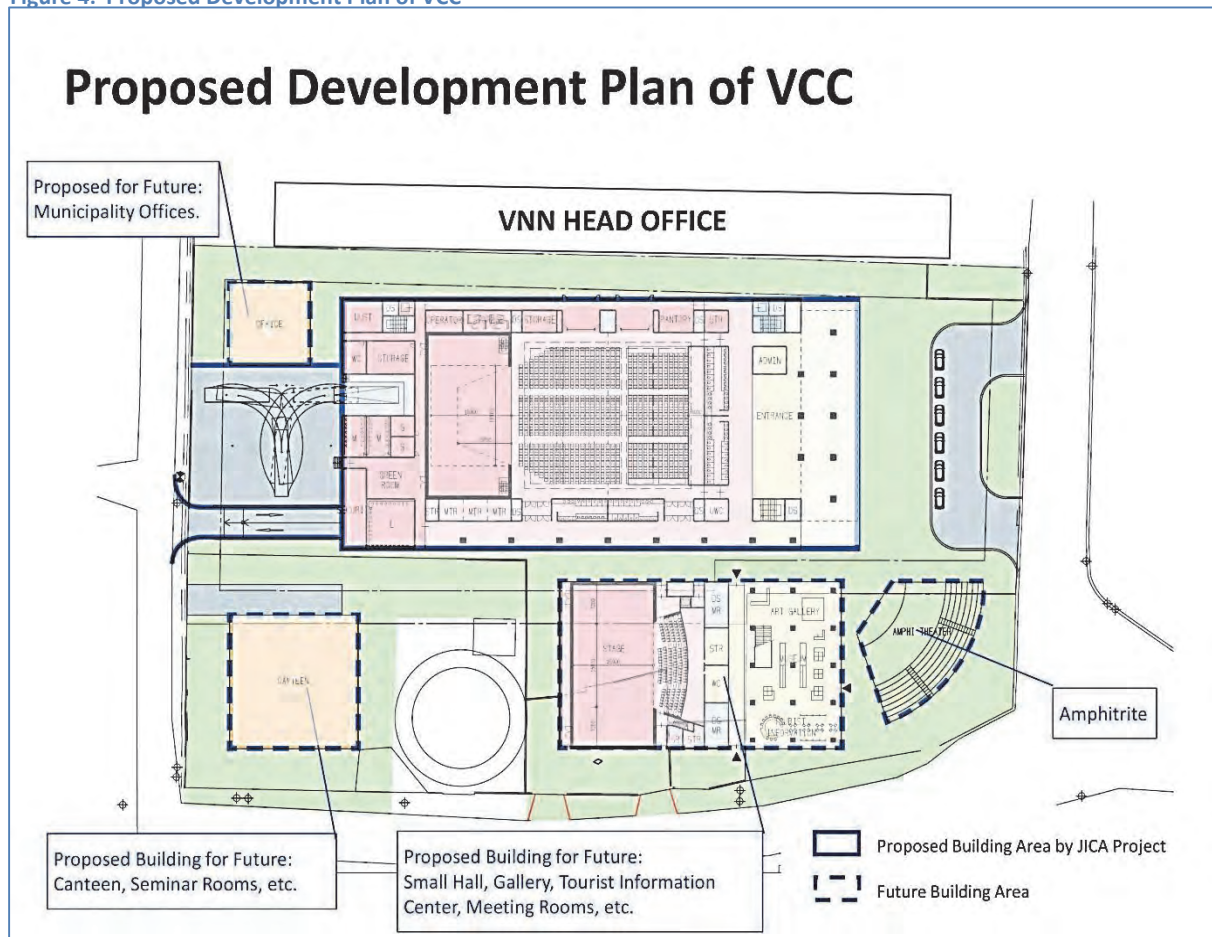
Source: Google Map

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As VCC is a public building for public gathering/ assembly use by nature, it is extremely important to look at the plan in both architecture level as well as urban planning level.

Though the main outcome of the study is the architecture of the building, some studies have been done to see how the building can be integrated to the urban fabric in which it would be built. The proposed development plan of VCC is mentioned in the Figure no. 4.

Figure 4: Proposed Development Plan of VCC



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Land use: At present proposed site is situated in the Campus of Varanasi Municipal Corporation. As per master plan, developed by Varanasi development Authority, this land belongs to VMC. The site lies government and semi-government buildings zone in Masterplan 2031. The existing Municipal Corporation office building also has an existing old auditorium, which has to demolish. The land ownership belongs to Government, which is in conformity with plan of Varanasi Development Authority.

Surrounding Features: Since the surrounding area is developed as per the Master Plan, therefore, the development in the project site will be consistent with the surroundings. The Vegetation in the form of grass, small plants, few trees, some shrubs have been observed at the site during the period of field investigation.

The situation of surroundings of project site is specified in Table no. 1.

Table 1: Situation of Surroundings of Project Site

General topography	The terrain of the project site & its surrounding area is plain.
Specify general features of land	The site and study area is not covered by any notified forests. The proposed construction site is in the premises of Varanasi Municipal Corporation.
Tree cover-prominent species	The details pertaining to flora observed in the study area have been collected from literature, discussion with the horticulture superintendent of VMC and from field observations in the study area.
Fauna-wildlife/domesticated	<i>The construction site has negligible fauna existence comprising street dogs, sparrow, pigeon and other common birds. There is a very small pond of about 1.5 meter radius been maintained by municipal corporation having small fishes.</i>
Soil characteristics	Sandy to sandy loam, Loam to clay loam, Sodic soils/saline (Source : SREP Varanasi, District (2006).
Specific environmental problems, if any (Such as noise and air pollution, traffic congestion spots in the vicinity of project site, loss of tree cover, etc.)	At present vicinity of project site is facing traffic congestion problem, especially at Sigra crossing. There are some trees located in the premises of Varanasi Municipal Corporation
Human Resources, population of study area, settlement pattern, socio-economic	Study area comprises with commercial as well as residential area. The market area is well developed having all modern amenities. Civil structures, School, Colleges, Hospitals, restaurants, shopping complexes, retail shops, etc.

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conditions, and health.	Tilak Hall, CRPF residence, Chandrika Nagar, Madhon Pur, Tedua baba Temple, Dhobiana Gali, Police Choki VMC, VMC Parivahan Nigam, Engineering Deptt., VMC Tiraha Karmchari Awas, Ashutosh Nagar Colony, Jal Nigam Office, Chittupur Malin Basti, Chittupur Malin Basti, Sinchai Colony, varunapuram, Chandua basti, Sajan Sagra Chauraha, Gurunanak Nagar, Gandhi Nagar, etc. are some important communities and places in vicinity of project. No epidemic health problems are reported due to waste water/ air/ noise.
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1.2 List out all the major project requirements in terms of the land area, built up area, water consumption, power requirement, connectivity, community facilities, parking needs etc.

The proposed project is the construction of Varanasi International Cooperation and Training Centre. The details of all the project dimensions will be finalized at the stage of finalization of detailed design.

1.3 What are the likely impacts of the proposed activity on the existing facilities adjacent to the proposed site? (Such as open spaces, community facilities, details of the existing land use, disturbance to the local ecology).

The project is being developed in accordance with VDA building bye laws, approved building plans. The development will not cause any disturbance to local ecology and surrounding establishments. Peripheral green belt will be developed.

The harmonious co-existence with the nature is practiced and preached by the Hindu culture. And so, Varanasi preserves and protects the diversity of flora and fauna with religious zeal in spite of having a rich history of urbanization. This system of keeping the human civilization with the nature in sync adds a charm to the Varanasi.

Varanasi is situated on Ganga's both sides. Alluvial plain is on its northern part and it has hilly mountainous tracts on the southern sides of Vindhyas. There are 2 natural divisions in the district. The 1st part is the plain area under Ganges and tributaries and the 2nd part is Naugarh's plateau area. There is a mountainous ridge in the development part of Naugarh with deep valleys and dense forests drenched with the rushing streams. Varanasi fosters the cultivation and preservation of the medicinal plants too being 'Ayurveda's' prominent center.

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An Herbal Park is located opposite to VMC towards VMC crossing. This park is known for its medicinal plants, cultivated and maintained by Municipal Corporation. The features of park are presented in the Picture no. 1.



Picture 1: The Herbal Plants (*Andrographis Paniculata* and *Phyllanthus Amarus*) are Located in Herbal Park, Opposite to VMC

Proposed project will provide all the basic utilities and infrastructure such as proper drainage, sewerage, water supply, structures to recharge ground water, green area development and sufficient parking so that it will not have negative impact on the surroundings of project.

The proposed development project in Varanasi will have a positive impact. The city of Varanasi is recognized worldwide for cultural activities, arts & crafts. For the promotion of the tangible and intangible heritage, multiple trade fairs and conventions are conducted in various parts of the city. However, currently the city lacks any convention centre of this scale and magnitude which can help consolidate the facilities required for hosting such events.

There are some huge trees within the proposed site. It is recommended to incorporate these trees with the proposed design of the Convention Centre.

If tree falling is necessary, the applicant shall submit the application to the forest department for prior tree cutting permission along with the list of trees existing in the proposed land and trees proposed to be felled. The representative of forest department may visit the proposed site for inspection before further action.

The project of Varanasi Convention Centre aiming to create an asset of international standards, ensuring easy accessibility and high quality of amenities, safe environment and a distinct character and image.

The project will provide organized open spaces and green areas adding to aesthetics and improvement of surrounding environment.

1.4 Will there be any significant land disturbance resulting in erosion, subsidence & instability? (Details of soil type, slope analysis, vulnerability to subsidence, seismicity etc may be given).

The proposed site is almost flat land and is not prone to erosion. The proposed construction involved cutting and filling operations, construction of paved areas and development of green areas, which would reduce the chances of erosion. Excavation carried out for foundation & basement would be protected with strutting and shoring where ever required. All the required standard parameters will be adopted during the construction period.

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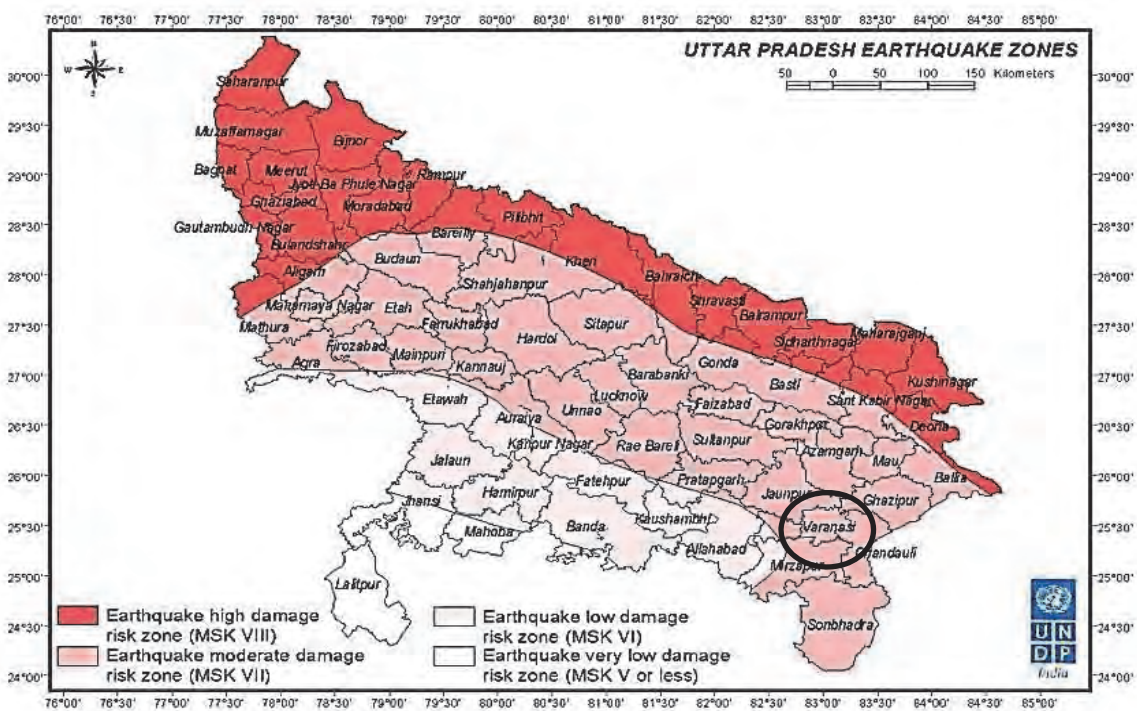
Soil Type: The soil type that can be found in Varanasi District includes Sandy to Sandy Loam (good for cultivation); Loam to Clay Loam (water logged); and Sodic Soils/Saline (Usar).

Seismo-Tectonic Appraisal of the Area: Natural disasters that are of significance in Uttar Pradesh are: floods, droughts, fires and earthquakes. Loss of life and property from these disasters, especially the former three, are in terms of hundreds of crores of rupees annually. UP is vulnerable from the aspect of manmade hazards too i.e. stampede, chemical, radiological and other hazards.

Eastern part of the state is traditionally flood prone but since last few years western Uttar Pradesh has also experienced massive flood situation. Drought is another major disaster affecting Uttar Pradesh. The State has been divided into two meteorological sub-divisions, viz. U.P. East, and U.P. West. The recurrence of highly deficient rainfall in East U.P. occurs approximately every 6 to 8 years whereas in West U.P. it is 10 years.

The Disaster Earthquake Zone Map is referred in Figure no. 5 shows the type of earthquake that covers the project site is Moderate Damage Risk Zone (MSK VII).

Figure 5: Earthquake Zone Map



Source: Status of Environment and Related Issues (ENVIS Centre: Govt. of Uttar Pradesh)

Slope analysis: it has been observed that the site has a moderately gentle slope.

1.5 Will the proposal involve alteration of natural drainage systems? (Give details on a contour map showing the natural drainage near the proposed project site)

No alteration of natural drainage has been proposed. The project will involve construction of paved areas and hence the quantity of runoff will increase due to reduced infiltration. This runoff will be collected through a well-designed storm water pipe network and used for artificial recharge of aquifers. Thus, the project will not affect the drainage or runoff in the area

As shown in the Figure no. 6, the adjoining area of VMC is well connected with the sewerage network. This sewer line leads towards Sigra road and connects with the main sewer line.

The location and network connection is shown in Figure no. 6.

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Figure 6: Status of Drainage System Adjoining the VMC Boundary



- 1.6 What are the quantities of earthwork involved in the construction activity-cutting, filling, reclamation etc. (Give details of the quantities of earthwork involved, transport of fill materials from outside the site etc.?)

During construction phase, excavation will take place in order to provide foundations and basement construction. The excavated top soil will be stored & preserved separately for reusing the same for landscaping, and remaining soil will be for backfilling purpose,

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construction etc. Hence, no immediate adverse impacts on the land environment are envisaged.

1.7 Give details regarding water supply, waste handling etc. during the construction period.

Water Supply: During construction stage, Tanker water supply will be taken for construction works and other usage. The other water supply prohibitions will be mentioned in DPR. The total water demand will be decided at the basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit.

Waste Generation and Handling: Waste handling during the construction phase shall be done by the site contractor whose responsibility lies with collection, storage and disposal of construction waste to the nearest disposal site. Excavated soil will be stored and covered at site which will be reused for site leveling, back filling etc. The fertile top soil will be reused for landscaping and plantation purpose. Construction waste generated at site will be reused in pathway construction, recyclable waste shall be disposed through authorized vendor and unused waste shall be sent to approved dumping/land fill site.

Spillage of oil from the machinery will be properly collected in drums and disposed as per norms. Proper sanitary facilities, wash areas and potable water will be provided for the construction laborers. Good hygienic conditions will be sustained.

The waste will be managed as per waste management rules of Indian government 2016.

1.8 Will the low lying areas and wetlands get altered? (Provide details of how low lying and wetlands are getting modified from the proposed activity)

No low lying area, no wetlands within & around the site observed within the project site and in the vicinity of the project site.

1.9 Whether construction debris and waste during construction cause health hazard? (Give quantities of various types of wastes generated during construction including the construction labor and the means of disposal)

Construction waste generated will be used on the site as filler material for as internal roads and pavements. Remaining construction waste if any will be sent to an approved dumping site/landfill site.

The waste generated will be collected and disposed of through an authorized agency. (After finalization of project, the Proponent can appoint any authorized agency for such work through tender process or other method.)

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Floating labors per day will be employed during the construction period. Required sanitary facilities will be provided to Construction laborers through mobile toilets. Wash areas will be constructed and good hygienic conditions will be maintained for labor camp. The proper health checkups will be done on regular intervals.

Type and quantity of solid waste generated during the construction and operational stages is to be quantified. The solid waste generated category wise will be furnished. For disposing asbestos waste material, the norms notified under Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 and the recommendations as per "Environmental Impact Assessment Guidance Manual for ASBESTOS BASED INDUSTRIES" Ministry of Environment & Forests, 2010, is to be followed. (ANNEX-3)

All asbestos waste must be kept in closed containers before its transportation to the disposal point so that no asbestos dust is emitted into the environment during transportation. Final covering of asbestos waste, other than high-density waste, shall be to a minimum depth of 2m. The asbestos waste including the used bag filters should be disposed at an approved TSDF (Treatment, Storage & Disposal Facility)

2. WATER ENVIRONMENT

2.1 Give the total quantity of water requirement for the proposed project with the breakup of requirements for various uses. How will the water requirement met? State the sources & quantities and furnish a water balance statement.

JalKal under VMC operates and maintains the water supply system of Varanasi. Potable water would have to be tapped from the city main pipe, which would be coming from the ESR installed in the site. Based on the local regulations and codes, the water storage capacity would include firefighting purpose too. Potable water would be supplied to necessary point either through gravity-fed water tank at higher level or by pressure pump. As the requirement of hot water is limited, it would be supplied through a local source rather than creating any central hot water system.

Taking into consideration the intermittent use-pattern of convention centres as well as to avoid long term maintenance expenses, it is advisable to provide the users with drinking water through an end point filter system along with a local cooling machine.

Water conservation and rain water harvesting plan will be implemented to conserve the resources.

The total water demand will be decided at the basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit.

2.2 What is the capacity (dependable flow or yield) of the proposed source of water?

The source of fresh water supply shall be Varanasi Nagar Nigam. The total water demand will be decided at the stage of final basic design.

2.3 What is the quality of water required, in case, the supply is not from a municipal source? (Provide physical, chemical, biological characteristics with class of water quality)

Fresh water will be sourced from water supply department of Varanasi Nagar Nigam. In case there is no or shortage of water supply, Water from tankers will be used. The quality of water would confirm to the desirable drinking water standards as per IS: 10500. 2012.

2.4 How much of the water requirement can be met from the recycling of treated wastewater? (Give the details of quantities, sources and usage)

The total water recycling and treatment will be decided at the finalization of basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit.

2.5 Will there be diversion of water from other users? (Please assess the impacts of the project on other existing uses and quantities of consumption)

Fresh water confirming to the drinking water standard will be supplied by water supply department of Varanasi Nagar Nigam. Therefore, no diversion of water from other user is expected and no impact on the existing users is anticipated.

2.6 What is the incremental pollution load from wastewater generated from the proposed activity? (Give details of the quantities and composition of wastewater generated from the proposed activity)

As estimated waste water generation and its treatment will be measured at the final stage of basic design development. The treated wastewater can be used for non-potable purposes such as flushing, DG Set Cooling Make-up, landscaping etc.

2.7 Give details of the water requirements met from water harvesting? Furnish details of the facilities created.

It is proposed to provide Rain Water Harvesting structures as per details given to recharge rain water to ground water aquifer.

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The rain water collected from the roof top, green area and other paved area will be collected through the network of storm water drainage lines & conveyed to RWH system. RWH system shall consist of de-silting cum filter chamber, oil and grease separator and pits are designed to store sufficient peak hour rainfall, for recharge into ground aquifer & to prevent flooding in the complex.

A rain water harvesting plan will be designed where the recharge bores (minimum one recharge bore per 5,000 square meters of built up area). The rain water will be harvested and stored for reuse. The ground water will not be withdrawn without approval from the Competent Authority. Adequate provision for storage and recharge will be followed as per the Ministry of Urban Development Model Building Bye-Laws, 2016.

The detailed water harvesting system will be mentioned at the stage of final basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit.

2.8 What would be the impact of the land use changes occurring due to the proposed project on the runoff characteristics (quantitative as well as qualitative) of the area in the post construction phase on a long term basis? Would it aggravate the problems of flooding or water logging in any way?

No adverse impacts are envisaged due to proposed project on the runoff characteristics of the area as adequate arrangements have been made to trap the rainwater and suitable storm water drainage system has been provided.

Runoff from parking areas may contain spilled oil- Provision of oil & grease separator made to separate it before recharge.

During the post-construction phase, Runoff from the project will not be allowed to stand or enter into the roadside or nearby drain. Adequate measures will be taken to collect such runoff and either shall be reused or stored in recharging pits. Suitable landscaping as per the existing contours of the plot will be developed.

2.9 What are the impacts of the proposal on the ground water? (Will there be tapping of ground water; give the details of ground water table, recharging capacity, and approvals obtained from competent authority, if any)

The ground water will not be withdrawn without approval from the competent authority. To compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit. The final decision on tapping of ground water will be mentioned in the final basic design.

2.10 What precautions/measures are taken to prevent the run-off from construction activities polluting land and aquifers? (Give details of quantities and the measures taken to avoid the adverse impacts)

- The major underground construction activity will not be taken during monsoon period.
- During the construction stage construction water will be channelized to sedimentation basin with silt trap. The water will be reused after testing for construction.
- Toilets shall be provided on the site during construction phase and wastewater from the toilets / bathroom will be disposed-off through mobile STP / Septic Tank.
- To prevent surface and ground water contamination from oil/grease, leak proof containers would be used for storage and transportation of oil/grease. The floors of oil/grease handling area would be kept effectively impervious.
- Collection and settling of storm water, prohibition of equipment wash downs, and prevention of soil loss and toxic releases from the construction site will be adhered to minimize water pollution.
- All stacking and loading areas would be provided with proper garland drains equipped with baffles to prevent run off from the site.

2.11 How is the storm water from within the site managed? (State the provisions made to avoid flooding of the area, details of the drainage facilities provided along with a site layout indication contour levels)

There will be a network of storm water drainage lines to collect runoffs, which will be channelized to rain water harvesting system. Water so collected will pass through de-silting-cum-filter chamber, oil and grease separators. RWH pits are designed to store sufficient time of peak rainfall, for recharge into ground aquifer & to prevent flooding in the complex. Storm water network will be provided all along the roads. The storm water drainage from the area is envisaged to be achieved by gravity mostly through open / closed lined drains. The excess runoff will be directed towards the nearest storm water drain. Thus proper management of this resource is a must to ensure that it is free of contamination.

2.12 Will the deployment of construction laborers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)

No mostly local laborers will be employed during the construction phase and thus negligible quantities of wastes will be generated. Provision for local labors (floating labor which will not stay at site permanently at construction site. The labor will stay at site during the working

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hours only) with provision of mobile toilets is planned at the site. Proper maintenance of the area and facility would be done regularly to maintain hygienic condition.

2.13 What on-site facilities are provided for the collection, treatment & safe disposal of sewage? (Give details of the quantities of wastewater generation, treatment capacities with technology and facilities for recycling and disposal)

Connection of the convention center can be done with the existing sewer network, however the sewer generation from the convention will be finalized at the stage of finalization of basic design. The current pipe line is D 300. Onsite treatment facility would not be required as the sewerage line would be connected to Dinapur STP being constructed. The location map sewer lines are given in the Figure no. 7.

2.14 Give details of dual plumbing system if treated waste water is used for flushing of toilets or any other use.

The details of dual plumbing system will be decided at the basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit.

3. VEGETATION**3.1 Is there any threat of the project to the biodiversity? (Give a description of the local ecosystem with its unique features, if any)**

Sensitive Ecological Features comprising National Park/Wildlife Sanctuary, Tiger Reserve/Elephant Reserve / Turtle Nesting Ground Core Zone of Biosphere Reserve, Nature Parks / Dense tree covers, Habitat for migratory birds, Lakes/Reservoir/Dams, Stream/Rivers, Estuary/Sea, Mountains/Hills, Notified Archaeological sites, etc. have been covered during the survey.

The Details of the important features along with other sensitive ecological locations in the study area are provided in Table no. 2

Table 2: Important Features and Sensitive Ecological Locations in the Study Area

S. No.	Sensitive Ecological Features	Locations	Aerial Distance (in km.) from Plot boundary
1	National Park/Wildlife Sanctuary	Nil	NA
2	Tiger Reserve/Elephant Reserve / Turtle Nesting Ground	Nil	NA
3	Core Zone of Biosphere Reserve	Nil	NA
4	Nature Parks / Dense tree covers	Shaheed Udhyaan Herbal Park of VMC	0.07 Km .08 Km
5	Habitat for migratory birds	There are migratory birds have been coming to Varanasi in the winter season. They use the Ganga and its surroundings.	3.5 km
6	Lakes/Reservoir/Dams	Nil	NA
7	Stream/Rivers	Varna river and Ganga River	0.5 km 2.0 km
8	Estuary/Sea	Arabian sea	6.0 km
9	Mountains/Hills	Vindhya range (Chunar)	26.14 km (aerial)
10	Notified Archaeological sites	Nil	NA
11	Any other Archaeological sites	Nil	NA

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No, there is no threat to biodiversity. The project site is surrounded by developed roads and infrastructure. The local ecosystem and biodiversity will not be hampered because there is no unique features exist in and around the project site. The feature of mitigation plan comprises the proposals to keep residual ecological impacts with acceptable limits, and also to develop ecological monitoring parameters.

3.2 Will the construction involve extensive clearing or modification of vegetation? (Provide a detailed account of the trees & vegetation affected by the project)

There are few trees intermittently located at the east side and south-west side within the premises of Varanasi Municipal Corporation. Some of them are very old and large. Biodiversity of the surrounding area will be maintained with well-planned landscape and tree plantation. The details of the trees with respective numbers are mentioned in the Table no. 3.

Table 3: Plants Species Located at the Proposed Site

Sr. no.	Scientific Name	Common Name	Number of trees in the premises of VMC
1.	<i>Caryota urens</i>	Fishtail Palm, Shivjata	11
2.	<i>Roystonea regia</i>	Royal Palm, Bottle Palm	3
3.	<i>Ficus bengalensis</i>	Banyan tree, Vad tree	2
4.	<i>Ficus religiosa</i>	Peepal	3
5.	<i>Mangifera indica</i>	Mango tree	3
6.	<i>Delonix regia</i>	May flower, Gulmohar	2
7.	<i>Cassia Spp</i>	Cassia	1
8.	<i>Psidium Guajava</i>	Amrood	3
9.	<i>Terminalia</i>	Arjun	1
10.	<i>Ficus Spp.</i>	Gular	3
11.	<i>Marus Alba</i>	Sahtuut	5
12.	<i>Emblica officinalis</i>	Amalika	2
13.	<i>Artocarpus lakoocha</i>	Barhar	2
14.	<i>Azadirachta indica</i>	Neem	2
15.	<i>Dypsis lutescens</i>	areca palm	3
16.	<i>Polyalthia longifolia</i>	Pendula Ashoka	39
17.	<i>Polyalthia Spp.</i>	Desi Ashoka	14
18.	<i>curcuma amada</i>	Amda	1
19.	<i>juniperus chinensis</i>	Morpankhi	15
20.	<i>25terminalia catappa</i>	Almond	1
21.	<i>holoptelea integrifolia</i>	Chilbil	2
22.	<i>Ficus Spp.</i>	Pakar	1

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23.	<i>Terminalia bellirica</i>	Baheda Tree	1
Plants Species Located in the Premises of CRPF Camp Office			
24.	<i>Polyalthia longifolia</i>	Pendula Ashoka	31
25.	<i>Roystonea regia</i>	Royal Palm, Bottle Palm	3
Total No. of Trees			154

As mentioned in Table no 3, Approximately 120 trees are located within the premises of Municipal Corporation likewise 34 trees are situated in the premises of CRPF camp office. Thus the entire construction place consist approx. 154 trees including CRPF office. The location of trees at the project site is mentioned in Figure no. 8.

Figure 8: Locations of Trees within the Premises of VMC



Source: Source: Google Earth

Project construction activities will be restricted to the project site only. There are some huge trees within the proposed site. It is recommended to incorporate these trees with the proposed design of the Convention Centre.

If tree falling is necessary, the applicant shall submit the application to the forest department for prior tree cutting permission along with the list of trees existing in the proposed land and trees proposed to be felled. The representative of forest department may visit the proposed site for inspection before further action.

3.3 What are the measures proposed to be taken to minimize the likely impacts on important site features (Give details of proposal for tree plantation, landscaping, creation of water bodies etc. along with a layout plan to an appropriate scale)

The green area will be developed are decided at the final stage of basic design in appropriate ratio in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit. Landscape development plan will be prepared for the project includes peripheral & avenue plantation with local species, ornamental as well as large and dense foliage plants especially on the periphery. Green area also includes ground cover, lawns at selected locations and shrubs for shade and reduction of Air and Noise pollution. Trees and plant species are suggested for plantation in the project are listed below in the Table no. 4. As per government guidelines, the local species should be preferred and these are local species.

Table 4: List of Plant Species that are Likely to be Plant

Scientific Name	Common Name
<i>Caryota urens</i>	Fishtail Palm, Shivjata
<i>Roystonea regia</i>	Royal Palm, Bottle Palm
<i>Ficus bengalensis</i>	Banyan tree, Vad tree
<i>Ficus religiosa</i>	Peepal
<i>Mangifera indica</i>	Mango tree
<i>Delonix regia</i>	May flower, Gulmohar
<i>Cassia Spp</i>	Cassia
<i>Psidium Guajava</i>	Amrood
<i>Terminalia</i>	Arjun
<i>Ficus Spp.</i>	Gular
<i>Marus Alba</i>	Sahtuut
<i>Embllica officinalis</i>	Amalika
<i>Artocarpus lakoocha</i>	Barhar
<i>Azadirachta indica</i>	Neem
<i>Dypsis lutescens</i>	areca palm
<i>Polyalthia longifolia</i>	Pendula Ashoka
<i>Polyalthia Spp.</i>	Desi Ashoka
<i>curcuma amada</i>	Amda
<i>juniperus chinensis</i>	Morpankhi
<i>terminalia catappa</i>	Almond
<i>holoptelea integrifolia</i>	Chilbil
<i>Ficus Spp.</i>	Pakar
<i>Terminalia bellirica</i>	Baheda Tree

4. FAUNA

4.1 Is there likely to be any displacement of fauna-both terrestrial and aquatic or creation of barriers for their movement? Provide the details.

Migratory birds travel through Afghanistan and Central Asia and arrive in India. Migratory birds throng banks in the month of November and December as their sounds add a distinct presence at the holy river. These birds arrive at the onset of the winter season. They leave after the winter months. They come and go every year and increase the beauty of the ancient river banks of Varanasi.

There are no major fauna found at the project site hence no impact is envisaged. The vertebrate wild life of the Varanasi on the basis of site observations and discussions with locals, observed fauna in the vicinity of site are likely to include those given in Table no. 6.

Table 5: Fauna Observed in the Study Area

Sr. No.	Common Name	Scientific Name
Amphibians		
1	Common toad	<i>Bufo melanostictus</i>
2	Indian bullfrog	<i>Rana tigrina</i>
Reptiles		
1	Rock lizard	<i>Psmmophilus blanfordanus</i>
2	Rock gecko	<i>Hemidactylus maculates</i>
3	House gecko	<i>Hemidactylus brooki</i>
4	Chameleon	<i>Chamaeleonidae</i>
Birds		
1	Black bulbul	<i>Hypsipetes madagascariensis</i>
2	Common Myna	<i>Acridotheres tristis</i>
3	Rock pigeon	<i>Columbia livia</i>
4	Common Sparrow	<i>Passer domesticus</i>
5	Common Parakeet	<i>Psittacula Krameri</i>
6	House Crow	<i>Corvus splendens</i>
7	Jungle Crow (Large -billed crow)	<i>Corvus macrorhynchos</i>
9	Domestic Fowl (Hen & Cock)	<i>Gallus gallus domesticus</i>
Mammals		
1.	Common Cat	<i>Felis silvestris catus</i>
2.	Squirrel	<i>Funambulus palmarum</i>
3.	Goat	<i>Capra hircus aegagrus</i>
4.	Domestic Buffalo	<i>Bubalus bubalis</i>
5.	Cow	<i>Bos primigenius</i>

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6.	Bandicoot rat	<i>Bandicota bengalensis</i>
7.	House rat	<i>Rattus rattus</i>
8.	House Mouse	<i>Mus musculus</i>
9.	Common Dogs	<i>Canis lupus familiaris</i>

No threatened, rare, endangered or endemic faunal species were observed during the survey. No displacement of fauna is envisaged due to this project. This site is not a natural host to any sensitive creature. Therefore, no animal habitat is likely to be effected due to construction of the proposed building.

The site is within the Municipal Corporation of Varanasi and the surrounding area is well developed by infrastructure and construction. Being an area of low ecological importance it does not harbor any significant flora or fauna.

A very small man made pond is sited at the Tilak Hall side in the boundary of Municipal Corporation. We found there some small and common fishes. This area is proposed to be demolished for the construction of new convention Centre. In this situation, these fishes can be shifted to the appropriate place easily as the number and size of fishes are small.

4.2 Any direct or indirect impacts on the avifauna of the area? Provide details.

No direct or indirect impact on the fauna of the area is envisaged. However after commissioning of the project better environmental condition may provide better habitat to the avifauna of the area. Some birds like Black bulbul, Common Myna, Rock pigeon, Common Sparrow, Common Parakeet, House Crow and Jungle Crow (Large -billed crow) can be seen around the site.

4.3 Prescribe measures such as corridors, fish ladders etc. to mitigate adverse impacts on fauna.

Not applicable for this project.

5. AIR ENVIRONMENT

5.1 Will the project increase atmospheric concentration of gases and result in heat islands? (Give details of background air quality levels with predicted values based on dispersion models taking into account the increased traffic generation as a result of the proposed constructions)

Proposed development will increase hard areas (Terrace, Roads, Paths and parking area). The traffic volume due to proposed project will increase marginally. Heat island effect will be negligible due to shading of hard surfaces by proposed plantation along periphery of the plot,

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roads and paths.

The report of central Pollution Control Board for continuous ambient quality at air quality monitoring station of Ardhali Bazar of Varanasi is mentioned in Table no. 6. The 24 hours hourly variation of Ambient Air Quality on January 14, 2017 is shown in Figure no. 20. Ambient Air Quality data of November 2016 at Sigra Location, for SO₂ and NO₂ monitored by Uttar Pradesh Pollution Control Board, is mentioned in 'ANNEX - 5 Air Ambient Quality'.

Table 6: Air Pollution Levels on January 14, 2017

**CENTRAL POLLUTION CONTROL BOARD
CONTINUOUS AMBIENT AIR QUALITY**

**Air Quality Monitoring Station: Ardhali Bazar
Type of Area: Industrial Residential Rural and Other Area
Current Air Pollution Levels**

Central Pollution Control Board						
Date Time : 14/01/2017 12:45:00						
Parameters	Date	Time	Concentration	Unit	Concentration (previous 24 Hours) / Prescribed Standard	Remarks
Nitric Oxide	14/01/2017	12:45:00	4.63	µg/m ³	5.99 µg/m ³	
Nitrogen Dioxide	14/01/2017	12:45:00	34.42	µg/m ³	43.53 µg/m ³ Prescribed Standard : 80.00 µg/m ³	
Oxides of Nitrogen	14/01/2017	12:45:00	22.08	ppb	28.03 ppb	
Sulfur Dioxide	14/01/2017	12:45:00	9.29	µg/m ³	8.27 µg/m ³ Prescribed Standard : 80.00 µg/m ³	
Carbon Monoxide	14/01/2017	12:45:00	0.42	mg/m ³	0.85 mg/m ³ Prescribed Standard : 4.00 mg/m ³	
Ozone	14/01/2017	12:45:00	34.10	µg/m ³	18.99 µg/m ³ Prescribed Standard : 180.00 µg/m ³	
PM10	14/01/2017	12:45:00	265.00	µg/m ³	352.82 µg/m ³ Data under scrutiney Prescribed Standard : 100.00 µg/m ³	

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PM2.5	14/01/2017	12:45:00	151.00	µg/m ³	272.43 µg/m ³ Data under scrutiny Prescribed Standard : 60.00 µg/m ³	
Benzene	14/01/2017	12:45:00	0.86	µg/m ³	1.09 µg/m ³	
Toluene	14/01/2017	12:45:00	1.92	µg/m ³	2.45 µg/m ³	
Xylene	14/01/2017	12:45:00	0.26	µg/m ³	0.45 µg/m ³	
Temperature	14/01/2017	12:45:00	18.39	°C	10.64 °C	
Relative Humidity	14/01/2017	12:45:00	52.66	%	65.47 %	
Wind Speed	14/01/2017	12:45:00	5.21	m/s	1.44 m/s	
Wind Direction	14/01/2017	12:45:00	145.53	deg	146.42 deg	
Vertical Wind Speed	14/01/2017	12:45:00	-0.44	m/s	-0.25 m/s	
Solar Radiation	14/01/2017	12:45:00	361.66	W/m ²	82.47 W/m ²	
Bar Pressure	14/01/2017	12:45:00	748.49	mmHg	748.95 mmHg	
Rainfall	14/01/2017	12:45:00	0.00	mm	--- Data under scrutiny	
* Prescribed Standard for CO and OZONE is one hourly Average						

Source: Central Pollution Control Board

Construction Phase

The important activities during the construction phase that produce particulate matter and affect the air quality are material storage, transportation and handling of excavated earth and construction materials like cement, sand and aggregates. Gaseous pollutants like SO₂, NO_x, CO emitted from the various machineries and vehicles used in construction activities.

Appropriate mitigation measure will be taken during this stage of the project to reduce the pollution level to the acceptable limit.

Operational Phase

During this stage, there will be no major impact on air environment. Low sulphur diesel for DG Set will be used as a fuel which will causes air pollution. But APMC will minimize the pollution load into environment. These DG sets will be used during absence of power supply.

5.2 What are the impacts on generation of dust, smoke, odorous fumes or other hazardous gases? Give details in relation to all the meteorological parameters.

During construction phase, Dust, Particulate Matter is the main pollutant, which may be generated during construction activities. Other emission sources are intermittent and include emissions of SO₂, NO_x and CO from materials transport of heavy vehicles on site etc. Proper upkeep and maintenance of vehicles, sprinkling of water on roads and construction site are some of the measures that would reduce the impact during construction phase.

Air pollution during operational phase may occur due to gaseous emission from vehicles and emissions from DG set while in operation only during power failure.

The traffic congestion will be avoided by proper parking arrangement and maintaining smooth traffic flow, regular PUC checkup for vehicles, CPCB approved DG sets only will be used and Regular maintenance of DG sets shall be done & low Sulphur diesel shall be used.

Type and quantity of solid waste generated during the construction and operational stages is to be quantified. The solid waste generated category wise will be furnished. For disposing asbestos waste material, the norms notified under Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 and the recommendations as per "Environmental Impact Assessment Guidance Manual for ASBESTOS BASED INDUSTRIES" Ministry of Environment & Forests, 2010 (Referred in ANNEX 3 Asbestos Based Industries), is to be followed.

All asbestos waste must be kept in closed containers before its transportation to the disposal point so that no asbestos dust is emitted into the environment during transportation. Final covering of asbestos waste, other than high-density waste, shall be to a minimum depth of 2m. The asbestos waste including the used bag filters should be disposed at an approved TSDF (Treatment, Storage & Disposal Facility)

5.3 Will the proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures proposed for improvement including the traffic management at the entry & exit to the project site.

No, well organized parking arrangement has been designed for the project. Separate Entry & exit is planned to avoid congestion at these points. Necessary arrangements will be made for smooth entry and exit of vehicles.

5.4 Provide details of the movement patterns with internal roads, bicycle tracks, pedestrian pathways, footpaths etc. with area under each category.

The site is approached through existing 12 m wide road. There will be provision of pathway network for internal traffic movement within the project site. The detail of the road system has been clearly demarcated in the layout plan and will be decided at the stage of finalization of basic design.

5.5 Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures proposed for mitigation of the above.

The source of noise is mainly vehicular noise. Well organized parking arrangement is designed to maintain smooth traffic flow which would help in reducing traffic congestion and noise levels. Maximum parking has been planned in the basement to minimize noise level and traffic on surface. Through this maximum number of vehicles can be parked in the basement area.

Trees planned along road & periphery would act as noise barrier and will reduce the noise level.

5.6 What will be the impact of DG sets & other equipment on noise levels & vibration in & ambient air quality around the project site? Provide details.

D.G. Sets will be operated only in case of power failures during construction and operational phase. The Pollutants like SPM, SO₂ that may arise from emissions from D.G. sets will be discharged through vent of proper height. D.G. sets will be installed with inbuilt acoustic enclosures to reduce the noise of D.G. sets while in construction or operation. Plantation of trees would act as noise barrier and will reduce noise level.

6. AESTHETICS

6.1 Will the proposed constructions in any way result in the obstruction of a view, scenic amenity or landscapes? Are these considerations taken into account by the proponents?

No, the use of proposed site is in conformity with the planned land use. There is no scenic amenity or landscape in its surrounding. The proposed project will provide a positive impact on the social life of local resident.

6.2 Will there be any adverse impacts from new constructions on the existing structures? What are the considerations taken into account?

The proposed site is located adjacent to the existing Municipal Corporation office building in the Nagar Nigam office campus. The existing office building is long linear building with 2 protruding arms, both of which are proposed to be demolished. The existing office building also has an existing old auditorium which will also be demolished to make space for the proposed convention center.

However the design development of the project was done on the basis of development control norms and as per approved master plan of the local body the construction of the proposed project will not have any adverse impact on the structures to be developed in future.

6.3 Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.

There are no mandatory guidelines issued by local body for development of urban form; however architect and landscape have designed the project keeping in mind principles of urban design & urban form and setting in overall contexts. The development of design of project is based on "Model Building Bye-Laws- 2016" Ministry of Urban Development, Government of India, 2016.

6.4 Are there any anthropological or archaeological sites or artifacts nearby? State if any other significant features in the vicinity of the proposed site have been considered.

There are 20 ASI (Archaeological Survey of India) protected monuments in Patna Circle under the provision of Ancient Monument and Archaeological Sites and Remains (Amendments and Validation) Act, 2010 (AMASR). The Act specifies the prohibited area of 100 m from site whereas regulated area is 200 m from the limit of the prohibited area. No construction is allowed in the prohibited area but in the regulated area after getting the approval from the ASI.

No, anthropological or archeological sites exist in the vicinity of the project site.

7. SOCIO-ECONOMIC ASPECTS

7.1 Will the proposal result in any changes to the demographic structure of local population? Provide the details.

Since, this is a building construction project will take place within the Varanasi Municipal Corporation, major impact on present demography of the district, is not anticipated.

7.2 Give details of the existing social infrastructure around the proposed project.

The proposed project site is located within the premises of Municipal Corporation of Varanasi, Uttar Pradesh, Site is easily accessible through public transport such as buses, Auto, Taxis etc, Apart from this number of Hospitals/Clinics, and facilities like post office, schools, shopping are also located at convenient distance from the site.

Informal Commercial Activities in Vicinity of Project

The small retail shops are located at the western side of project site. The Retail areas for the durable goods, food grains and spices and local culinary hotspots can be seen neighboring the project site.

There are various commercial establishments in vicinity of Municipal Corporation office and proposed construction site. Some of them are; BSNL office Shivpurva, Sony Service Centre, UPPCL Office, Intex Service Centre, M-Tec Computer, Kashi Institute of Medical, Hotel Janki International, ICICI Bank Branch, etc.

7.3 Will the project cause adverse effects on local communities, disturbance to sacred sites or other cultural values? What are the safeguards proposed?

Overall the project will have positive impact on adjoining communities. A small temple is located in a corner of proposed site which can be modified with temple architecture.

8. BUILDING MATERIALS**8.1 May involve the use of building materials with high-embodied energy. Are the construction materials produced with energy efficient processes? (Give details of energy conservation measures in the selection of building materials and their energy efficiency)**

The basic engineering materials like aggregate, cement, sand and bricks/blocks will be purchased locally. However, finishing materials will be purchased keeping in mind the energy conservation aspect. ISI marked building materials of reputed brands to be procured. Preference will be given to locally available building materials which conserve low energy in entire processes of manufacture. Use of suitable alternative technologies for each component of the buildings of envelope, superstructure, finishes and the road and surrounding areas will be followed with the reference of “Model Building Bye-Laws- 2016” Ministry of Urban Development, Government of India. (ANNEX-4 Model Building By Laws-2016)

8.2 Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?

Adequate measures will be taken to keep noise and dust problems at site under control by adopting established practices and good maintenance. The standard procedure will be adopted to comply permissible parameters.

Detail construction management plan shall be prepared by the construction management Team showing location of storage of different building materials in the go down Covered places and in open yards, Location of various machineries required for construction, location of DG sets to be used for construction in case of power failure construction waste collection and disposal point. These locations shall be decided with consideration to reduce air, noise and soil pollution and nuisance to the public.

8.3 Are recycled materials used in roads and structures? State the extent of savings achieved?

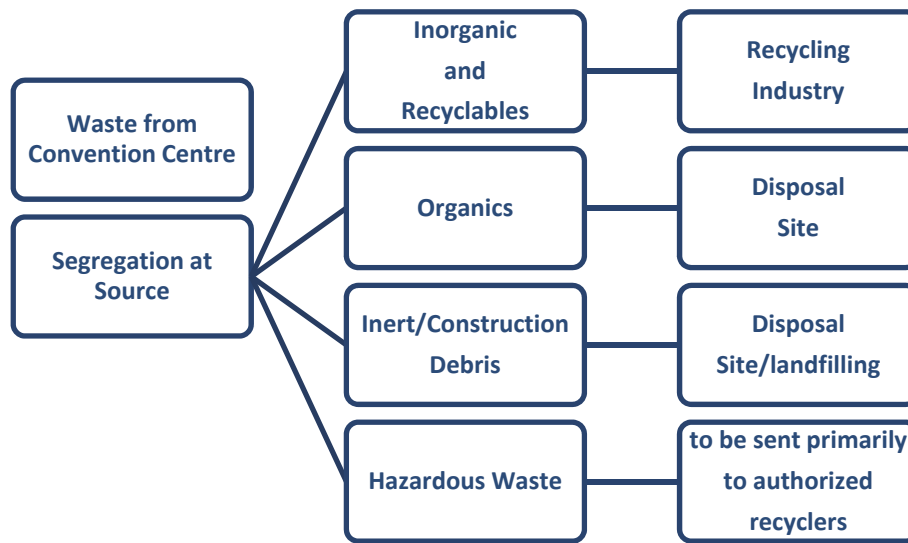
Recycled materials will be used in roads as well as for pavers if locally available. This will result in significant saving.

8.4 Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.

The solid waste management facility will be proposed as per MSW rules. Through this process waste collection, segregation and appropriate disposal will be done by trained workers. Sweepers will be engaged for handling municipal waste. Location for bin/container

at common places would be identified for collection of waste. Adequate number of collection bins separately for biodegradable and non-biodegradable waste shall be provided as per the Municipal Solid Waste (Management and Handling) Rule. Wastes from such bins shall be collected on daily basis and biodegradable waste shall be handed over to authorized agency for treatment and disposal as per MSW 2016. As mentioned in the Figure no. 7, non-biodegradable waste will be segregated into recyclable & inert waste. Recyclable waste like glass, Card Board, Paper Waste will be sold to authorized recycler. Remaining inert waste shall be sent to landfill site through authorized vendor. All waste collection bins will be properly maintained on regular basis.

Figure 9: Waste Management System



9. ENERGY CONSERVATION

9.1 Give details of the power requirements, source of supply, backup source etc. What is the energy consumption assumed per square foot of built-up area? How have you tried to minimize energy consumption?

Power will be sourced from Uttar Pradesh Power Corporation Ltd. From surrounding road, 11kV power would be connected through utility pole. Based on the local operation and reliability, a suitable power distribution system would be installed. The capacity is to be decided in consideration with the exhibition hall.

The Maximum Power demand for the project will be estimated at the basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit. DG sets of required capacity are proposed to meet requirement of power back up during power failure.

Energy Conservation Measures & Management Plan:

During operation phase, appropriate energy conservation measures & management plan will be adopted in order to minimize the consumptions of conventional energy. As per the CPCB norms, DG sets will be installed with acoustic enclosures and adequate stack height.

The following measures are suggested to be adopted.

- Incorporate solar passive techniques in a building design to minimize load on conventional system.
- Day light provision to all habitable room.
- Use of high frequency, high power factor, electronic ballasts in place of conventional copper-iron ballasts in light fixture.
- Use energy efficient light fixtures with good photometric properties.
- Use LED in external lighting bollards, and in areas such as staircases, corridors & lift lobbies.
- Putting external lighting control on time switch/time control.
- Using time switch control/time control for common area & basements lighting.
- Using high efficiency motors for pumps & ventilation fans.
- Use of local building to reduce pollution & transportation energy.

9.2. What type of, and capacity of, power back-up do you plan to provide?

Varanasi faces a power shortage which peaks during hot summer months. Hence it is necessary to provide an auxiliary emergency generator. The capacity of the generator to be installed will be based on the local power supply condition. Looking at the current trend in the city as well as in other parts of India, Diesel Generator would be the preferable choice and its fuel tank capacity would depend on the anticipated operation time. The type and capacity of power backup plan will be decided at the basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit.

9.3 What are the characteristics of the glass you plan to use? Provide specifications of its characteristics related to both short wave and long wave radiation?

The type of glass will be decided at the basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit.

Glass panel will have maximum light transmission but low solar heat radiation. This will reduce the quantity of heat inflow into the building, lessen the cooling load of the air conditioning machines and induces energy saving.

9.4 What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project.

Solar Design is the use of architectural features to replace the use of grid electricity and fossil fuels with the use of solar energy and decrease the energy needed in a home or building with insulation and efficient lighting and appliances.

Passive solar architectural feature-

- Optimizing building envelope & window design to reduce cooling demand (selection of energy efficient low U value materials for envelop is application of high reflecting white china mosaic tiles to terraces).
- Day light integrated to reduce artificial lighting demand. Shading devices provide shade to windows & external façade.
- Planned buffer spaces, like balconies, cupboards on external façade of building - to reduce heat gain & there by cooling load.
- Adopting low energy passive cooling strategies:
- Landscaping to alter micro climate for better condition – Large green areas, peripheral plantation and avenue plantation provided to shed the hard areas & reduce heat island effect, reduction of noise & air pollution & provide buffer to sun heat.

9.5 Does the layout of streets & buildings maximize the potential for solar energy devices? Have you considered the use of street lighting, emergency lighting and solar hot water systems for use in the building complex? Substantiate with details.

Yes, the layouts of streets & buildings have been designed to maximize the potential for solar energy devices. Further, solar energy will also be used for common area lighting. The type and capacity of solar power system will be decided at the basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit.

9.6 Is shading effectively used to reduce cooling/heating loads? What principles have been used to maximize the shading of Walls on the East and the West and the Roof? How much energy saving has been effected?

It is proposed to reduce cooling/ heating load through careful selection of plantation-planting deciduous trees on south side and evergreen trees on east and west side.

Passive solar architectural measures have been adopted to provide shades to windows and roof which would effectively reduce heating of building envelope. Sunshades, balconies &

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buffer space designed on external façade will protect external façade from heat gain & reduce heat gain/energy consumption.

9.7 Do the structures use energy-efficient space conditioning, lighting and mechanical systems? Provide technical details. Provide details of the transformers and motor efficiencies, lighting intensity and air-conditioning load assumptions? Are you using CFC and HCFC free chillers? Provide specifications.

All the electrical installations and structures will conform to energy efficiency norms as available in the market.

Suitable energy optimization will be adopted during the calculation of the energy load of the proposed project. The space heating load will be minimized using passive solar structure, suitable building envelop materials. Use of incandescent and halogen lamps will be avoided and energy efficient compact fluorescent lamps will be used for all common area and basement parking.

An AC system that is environment-friendly, energy-saving, as well as easy to maintain shall be installed. AC for large hall will be covered with central high-efficiency chiller and air handling unit whereas AC for small room will be covered with independently packaged air conditioner, because of the flexible operation. Disaster control centre would also be equipped with packaged air conditioner for emergency use.

9.8 What are the likely effects of the building activity in altering the micro-climates? Provide a self-assessment on the likely impacts of the proposed construction on creation of heat island & inversion effects?

The proposed project will increase hard surfaces like building, terraces, roads, and pavement. This increase ambient air temperature and heat island effect, if not properly taken care off. To reduce heat island effect the ground coverage is deliberately kept to increase green area. Peripheral and avenue plantation, grass pavers lawns and water bodies planned in the proposed project will shade hard surfaces reduce heat gain and formation of Heat island effect. Hence alteration in microclimate with this measure will be negligible. Moreover, Green cover will be provided at site and will incorporate such design considerations that control formation of heat islands.

The built-up of indoor air contaminants is contributed by inadequate ventilation, contamination from inside and outside the building, besides microbial contamination and contamination from building fabric.

9.9 What are the thermal characteristics of the building envelope? (a) roof; (b) external walls; and (c) fenestration? Give details of the material used and the U-values or the R values of the individual components.

This is building construction project with RCC framed structure. Energy efficient materials for building envelope & heat reflecting terrace surfaces will be provided to reduce heat gain and cooling load.

The building envelope for external walls will be made of bricks, concrete and steel. The material will be considered as per guidelines and norms at the designing stage.

9.10 What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans.

The project will be approved by fire department. Adequate measures will be taken as per local fire norms and National Building Code 2005 to provide fire protection. Proposed measures include building structure designed for appropriate fire rating, provision of Fire detection & alarm and rescue system ,provision of infrastructure required by Fire Service Department to suppress the fire, Provision of fire suppression system –All these provisions shall be appropriate to the classification and use of the building as per National Building Code.

9.11 If you are using glass as wall material provides details and specifications including emissive and thermal characteristics.

The usage of glass in the building will be decided at the basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit.

If there will be prohibition of usage of glass, the project will provide heat reflected, tinted and toughened glass having properties which will make it energy saving element in the building and shall provide safety and transparency of the desired level.

9.12 What is the rate of air infiltration into the building? Provide details of how you are mitigating the effects of infiltration.

The proposed project will have ventilation system as per (Energy Conservation Building Code) ECBC norms to provide year round thermal environmental control. All air conditioning equipment used for the project will operate on environment friendly refrigerants and with latest state of the art technology meeting highest energy efficient criterion.

9.13 To what extent the non-conventional energy technologies are utilized in the overall energy consumption? Provide details of the renewable energy technologies used.

Non-conventional (Solar) energy will be preferred to reduce burden on conventional energy. In addition to this following technologies would be used to conserve energy.

- Electric meter with timer
- Replacement of high energy consuming incandescent lights with LED lamps.
- Shading devices and other passive solar technique.

The type and non-conventional energy will be decided at the basic design to be in compliance with S.O. 3999(E) dated 9th December, 2016 regarding Environmental Clearance integrated with Building Permit.

B. RELEVANT CLEARANCES FOR PROJECTS

As per EIA Notification 2006, the projects which have the built-up area over 20,000 m² shall require preparation of an EIA (Environmental Impact Assessment) statement. When the built-up area ranges 5,000 to 20,000 m², the project proponent needs to only submit Form 1A Environment Management Plan with Mitigation Measures and Environment Monitoring Plan and a Self-Declaration Form to comply with the environmental conditions to the local authority along with specified fees for EC (Environment Clearance).

Notification S.O. No. 3999 (E) dated 9th of December, 2016 for integrating Environmental Clearance incorporated with Building Permission

MoEF (Ministry of Environment and Forests) issued a notification S.O. No. 3999 (E) dated 09.12.2016. for integrating standard and environmental conditions incorporated with building permissions for buildings of different sizes of buildings; 'Category 1' for the building with total built-up building area of 5,000 m² to 20,000 m²; 'Category 2' as 20,000 m² to 50,000 m² and 'Category 3' 50,000 m² to 150,000 m² with monitoring mechanism for implementation of environmental concerns and obligations in building projects.

For the case of Category 1, the following requirement in Table no.9. is mandatory for the layout plan and its design as per notification S.O. No. 3999 (E).

A Self declaration Form to comply with the environmental conditions (Table no.9.) along with Form 1A and certification by the Qualified Building Environment Auditor to be submitted online by the project proponent besides application for building permission to the local authority along with the specified fee in separate accounts. Thereafter, the local authority may issue the building permission incorporating the environmental conditions in it and allow the project to start based on the self-declaration and certification along with the application. After completion of the construction of the building, the project proponent may update Form 1A online based on audit done by the Qualified Building Environment Auditor and shall furnish the revised compliance undertaking to the local authority. Any non-compliance issues in buildings less than 20,000 square meters shall be dealt at

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the level of local body and the State through existing mechanism.

The integrated environmental conditions with the building permission being granted by the local authorities and the construction of buildings as per the size shall adhere to the objectives and monitorable environmental conditions as given in Table no.7.

Table 7: Mandatory Requirement for Category 1 Buildings as S.O. No.3999

Permissions	Mandatory Requirement as per Notification S.O. No. 3999 (E)
Topography and Natural Drainage	<ul style="list-style-type: none"> • Natural drain system should be maintained for ensuring unrestricted flow of water. • No construction is allowed to obstruct the natural drainage system. • No construction is allowed on wetland and water bodies. • Check dams, landscape, and other SUDS (Sustainable Urban Drainage Systems) are allowed for maintaining the drainage pattern
Water Conservation, Rain Water Harvesting, and Ground Water Recharge	<ul style="list-style-type: none"> • Promotion of use of water efficient appliances • Adoption of rain water harvesting as per local bye-law provisions • Adequate provision for storage and recharge as per the Ministry of Urban Development Model Building Bye-Laws, 2016. • Rain water harvesting plan needs to be designed where the recharge bores (minimum one recharge bore per 5,000 square meters of built up area) is recommended. • Promotion of storage and reuse of the rain water harvesting • At least 20% of the open spaces shall be pervious.
Waste Management	<p>1) Solid waste management</p> <ul style="list-style-type: none"> • Provision of separation system of wet and dry bins for segregation of waste • The Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016, and the Plastics Waste (Management) Rules 2016 shall be followed. <p>2) Sewage treatment</p> <ul style="list-style-type: none"> • In areas where there is no municipal sewage network, onsite treatment systems should be installed. • Natural treatment systems which integrate with the landscape shall be promoted. • As far as possible treated effluent should be reused. • Sludge from the onsite sewage treatment, including septic tanks, shall be collected, conveyed and disposed as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organization (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.
Energy	<ul style="list-style-type: none"> • Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured. • Outdoor and common area lighting shall be Light Emitting Diode (LED). • Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 1% of the demand load or as per the state level/ local building bye-laws requirement • Solar water heating shall be provided to meet 20% of the hot water demand of the commercial and institutional building or as per the requirement of the local building bye-laws, whichever is higher. • Concept of passive solar design shall be incorporated in the building design. • Wall, window, and roof u-values shall be as per ECBC specifications.

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Air Quality and Noise Ditto -	<ul style="list-style-type: none"> • Dust, smoke & other air pollution prevention measures shall be provided for the building as well as the site. • Sheet covers shall be provided for vehicles bringing in sand, cement, murram and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site. • Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution. • Wet jet shall be provided for grinding and stone cutting. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust. • All construction and demolition debris shall be stored at the site (and not dumped on the roads or open spaces outside) before they are properly disposed. • All demolition and construction waste shall be managed as per the provisions of the Construction and Demolition Waste Rules 2016. • All workers working at the construction site and involved in loading, unloading, carriage of construction material and construction debris or working in any area with dust pollution shall be provided with dust mask. • For indoor air quality the ventilation provisions as per National Building Code of India shall be made. • The location of the DG set and exhaust pipe height shall be as per the provisions of the CPCB norms.
Green Cover Ditto -	<ul style="list-style-type: none"> • A minimum of 1 tree for every 80 square meters of land should be planted and maintained. • Preference should be given to planting native species. • Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained.

Certain approvals/NOCs from different departments need to be obtained as per requirement. The detailed list of required NOCs and approvals are mentioned in the Table No. 8. These approvals may include site layout approval, building layout approval, NOC from UPPCB, NOC for waste management, firefighting scheme approval, electric substation NOC, approval for keeping the diesel, approval for excavation of basements in the project, etc. The number of approvals or NOCs may vary according to the requirement at the final stage of construction. The tentative list of approvals to be obtained by the project implementing agency is specified in Table no. 8.

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Table 8: List of Required NOCs and Approvals

Type of approval	Approving Authority	Stage of Project	Normal Duration (Days)
Site Layout approval	Varanasi Development Authority	Pre-construction	30-60
Building Layout Approval	Varanasi Development Authority	Pre-construction	30-60
NOC and subsequently 'Consent to Operate' under Air & Water Acts and all the conditions laid down by UPPCB in the NOC/ 'Consent to Operate' are to be complied with by the Project Proponent / Pollution Clearance time to time.	State Pollution control Board	Pre-construction /During construction /Operation (Submission of a progress report on regular intervals or as per requirement.	30-60
NOC for Waste Management, etc. (as per requirement)	Varanasi Municipal Corporation. Jalkal Vibhag of Varanasi Municipal Corporation is responsible for supply of pure drinking water and proper sewerage facility to the citizens.	Pre-construction	
Road access	NHAI/PWD	Pre-construction	30
Environment clearance (EC)	State Level Environmental Impact Assessment Authority (SEIAA), Uttar Pradesh	Pre-construction	180
Approval for running	Central Ground Water	Pre-construction	15

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of bore wells in the project.	Board		
Fire Fighting Scheme Approval	Fire Safety Department	Pre-construction	30
Electric Substation NOC (for all substations / transformers in the building)	Electricity Distribution Authority. Electricity for entire Varanasi and eastern region of Uttar Pradesh is generated by Purvanchal Vidyut Vitran Nigam Limited (PuVVNL). Temporary electricity connection will be opted from PuVVNL according to the requirement	During construction	15
Approval for keeping the diesel in storage during construction stage and operational phase	Chief Controller of Explosive	During construction /Operation	15
Approval for excavation of basements in the Project, if applicable.	Mining Department of the State Govt.	Pre-construction	Depends upon situation.
Building completion Certificate	Development Authority/ Municipality	Post construction	30-60
Service Plan Clearance and Service Connections (Water, Sewer, Power, Gas, Telecom)	Service Departments/ other concern authorities	During- Construction/Post construction	30
Occupancy Certificate	Development Authority/ Municipality	Post construction	15
Tree Cutting	Forest Department of	Before the	Depends on survey

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Permission	India	<p>Construction Tree Protection Act, 1976 makes it compulsory to seek official permission from forest department for cutting, lopping, removing and disposing off the felled trees. For trees present on all other land holdings, including private, permission from Divisional Forest Officer (DFO) is required.</p> <p>Conservator is appellate authority under the said Act.</p> <p>The proponent needs to submit an application to the respective Forest department office, mentioning the purpose along with relevant documents.</p> <p>On receiving the application, a concern officer undertakes a site inspection for further decisions.</p>	by the government representative.
NOC/approval from any other local or State Authority as applicable in the case.			

C. ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Pollutants generated during the construction and operation phase of the proposed development either be liquid, solid and gaseous in nature. The generation of pollution may be periodic, continuous or accidental.

The potential receptors of environmental and social impacts due to project development are mostly the ambient air quality, ambient noise level, soil, water and solid waste management mechanism. The mitigation plan has been developed with potential impacts on the physical, natural and socio-economic impacts triggered by the project activities.

The extent of impacts depends primarily on the environmental management practices that would be adopted during the facility operation. The various environmental and social parameters have been investigated to identify the impacts that are likely to occur during the development, construction and operation periods of this project.

Prediction of the impacts due to the development, construction and functional activities encompass the development process to be undertaken during construction and functional phases. For each category of environmental receptor (such as, ambient air quality, water quality, soils, land, etc.) the potential impacts of activities during development, construction and functional phases and magnitude of the impacts have been assessed to develop mitigation measures.

The areas of environmental concerns for which the impacts and their predictions are taken into consideration are mainly:

- Physical Environment
- Land Environment
- Water Environment
- Air Environment
- Noise Environment
- Biological Environment
- Socio economic Environment
- Solid Waste
- Aesthetic environment

Environmental Aspects of Building Planning and Use

Impacts identified during operation of the proposed project and its use includes major concerns such as:

- Disposal of domestic (sewage) effluent and solid waste generated
- Increase in noise levels due to transport
- Consumption of water and impact on water resources
- Impact of traffic on the road
- Storm water during rains
- Management and maintenance of the project

Recommended Mitigation Measures for Potential Adverse Impacts

The Environment management and Mitigation plan has been developed as per notification; S.O. 3999(E).—Whereas, by notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O.1533 (E), dated the 14th September, 2006 issued under sub-section (1) read with clause (v) of sub-section (2) of section (3) of the Environment (Protection) Act, 1986 and clause (d) of the sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government directed that on and from the date of its publication, the required construction of new projects or activities, or on the expansion or modernization of existing projects or activities based on their potential environmental impacts as indicated in the Schedule to the notification, being undertaken in any part of India. The notification is mentioned in the ANNEX 1 - Building and Construction Notification 2016'. The Recommended Mitigation Measures for Potential Adverse Impacts are given in the Table no.9.

Table 9: Recommended Mitigation Measures for Potential Adverse Impacts

Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
Pollution control	1	Air pollution	B ⁻	At Construction Phase	<p>1. Dust from various construction operations and emission from operation of construction equipment or movement of vehicles are likely to cause some impacts on the working population as well as residing population within immediate vicinity of the project site.</p> <p>2. Traffic to the different sites during construction will be more intensive and much heavier than at present in normal operating conditions. In</p>	<p>1. Dust suppression systems (water spray) will be applied as per requirement at the construction site. Construction materials are being fully covered during transportation to the project site by road. Dust, smoke & other air pollution prevention measures will be taken during construction and operation period. These measures will include screens for the building during construction, continuous dust/ appropriate wind breaking walls all around the site. All the vehicles bringing in sand, cement, murrum</p>

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
					turn, it will subject existing roads to more stress.	<p>and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site will be covered by Plastic or tarpaulin sheet covers.</p> <p>Sand, murrum, loose soil, cement, stored on site will be covered sufficiently to prevent dust pollution.</p> <p>Unpaved surfaces and loose soil will be adequately sprinkled with water to suppress dust. Wet jet will be used for grinding and stone cutting.</p> <p>The demolition and construction waste will be managed and disposed as per the provisions of the Construction and Demolition Waste Rules 2016 and demolition debris will be stored at the site at the proper place before they are properly disposed.</p> <p>All workers working at the construction site and other concern activities will be provided with dust mask.</p>

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
						<p>The National Building Code of India will be followed For indoor air quality the ventilation provisions.</p> <p>2. The present road conditions are reasonably good for proposed movement of traffic. Preventive maintenance shall be carried out for vehicles and pollution check on periodic basis. As construction activities are mainly confined to project site only for short duration. Monitoring of ambient air quality/source emission will be carried out as per CPCB and UPCB norms. The location of the DG set and exhaust pipe height will be as per the provisions of the CPCB norms.</p>
			B	At Operation Phase	1. The project is a construction of convention Centre not having any production or manufacturing; hence emissions from DG sets and dust from vehicular movement will be the only source of air pollution.	1. The stack for discharging the emissions from the DG sets will be installed above roof level prescribed by CPCB. Plantation will be carried out all around the periphery of the project area to minimize the

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
					<p>2. Traffic to the proposed convention center will be more intensive compared to the current status which may cause idling of the vehicles of visitors and operating staffs, which may cause potential adverse impact of generation of air pollutants</p>	<p>dust effect.</p> <p>2. Prevention measures will be taken against generation of air pollutants. The National Building Code of India should be followed for indoor air quality. Regular traffic management at the vicinity roads along with environmental monitoring of air pollutants will be taken.</p>
	2	Water Pollution	B ⁻	At Construction Phase	<p>1. Soil runoff from the site leading to off – site contamination (Particularly during rainy season).</p> <p>2. Disposal of domestic waste water from temporary labour rest rooms.</p> <p>3. Spillage of oil and grease from the vehicle.</p> <p>4. Disturbance in natural drainage system.</p>	<p>1. Construction of silt fences to avoid soil runoff. Construction of storm water drainage line to divert storm runoff.</p> <p>2. Waste water will be discharged to septic tank followed by soak pit during Construction phase.</p> <p>3. Oil and Grease traps shall be installed in rain water harvesting pits.</p> <p>4. The natural drain system will be maintained for safeguarding unobstructed flow of water. No construction is allowed to obstruct the natural drainage through the site. During</p>

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
						<p>the construction of the proposed project, the services required like water supply and sewage facilities will be arranged on a temporary basis and the same will be maintained without any adverse impact on the environment.</p> <p>Incorporation of above measures into tender and contract documents.</p>
			D	At Operation Phase	<ol style="list-style-type: none"> 1. Impact due to sewage from the convention center. 2. Mixing of silt into drains. 3. Water storage and ground water quality. 	<ol style="list-style-type: none"> 1. There will be no impact on water due to sewerage from convention center as the waste water will be connected with the sewerage system per the requirement of the notification S.O. No. 3999 (E) 2. Silt traps and screens will be installed at storm water drains discharge points. Contaminated storm water will thus not be discharged from the premises. 3. Use of water efficient appliances will be promoted. Adequate provision for water storage and recharge will be followed as per

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
						<p>the Ministry of Urban Development Model Building Bye-Laws, 2016.</p> <p>One recharge bore per 5,000 square meters of built up area will be placed. The rainwater will be used for construction purpose. The permission of ground water usage will be taken from the Competent Authority, if required.</p> <p>Rainwater can be harvested to the extent of 55,000 liters per 100sq. meters area per year from rooftops. Proper open space will be maintained as per bylaws.</p>
	3	Solid Waste	B ⁻	At Construction Phase	<p>1. Impact due to excavation soil, demolition waste including asbestos or general waste at construction site.</p> <p>2. The waste from labour rest room will cause unhygienic conditions leading to disease.</p>	<p>1. Maximum reuse of construction waste on site or removal of waste from the site and proper disposal, which would reduce impact, significantly. Construction waste shall be reused as much as possible within the site. Care shall be taken to ensure that temporary stacking and transportation shall not cause any</p>

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
						<p>disturbance to the surrounding environment.</p> <p>2. During the construction phase, waste will be generated which will be sent to the designated waste disposal site.</p>
			D	At Operation Phase	<p>1. Environmental impact from the solid waste disposal can typically include contamination of soil, ground water and air quality.</p> <p>2. During the operation stage of the project also some quantity of hazardous waste like used oil from DG sets shall be generated.</p> <p>3. Generation of E-waste, Battery Waste and Biomedical Waste from convention center.</p> <p>4. Sewage disposal.</p>	<p>1. Municipal solid waste will be generated during operational period. Segregated waste will be disposed according to the waste management rules of government. Separate Waste collection bins will be placed at strategic locations for segregated waste collection. An appropriate waste management system including segregation will be applied as per the requirement of the notification S.O. No. 3999 (E).</p> <p>2. Used oil from DG sets & Lubricating oil shall be collected in black color leak proof drums with labels of what is contained in Hindi & English & will be given to authorize</p>

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
						<p>approved vendor.</p> <p>3. E-waste, Battery waste (generated from inverters & UPS), and Biomedical waste (if generated) will be disposed as per government rules.</p> <p>4. The sewage disposal will be through sewage network. In case of onsite septic tank, septic tank will be cleaned and wastage will be carried out in the tank by a vacuum truck for proper disposal at treatment plant. Appropriate distance will be maintained between septic tank and water sources such as tube wells and dug wells.</p>
	4	Soil contamination	B ⁻	At Construction Phase	<p>1. Use of heavy machinery and storage of material compact the soil. Compaction of soil as well as mixing of construction material with soil would also lead to reduced infiltration of water; decrease in permeability and increased runoff.</p>	<p>1. Compaction and stabilization shall be resorted during filling to ensure that no top soil is washed away. Every care is being taken to prevent soil erosion.</p> <p>2. Lubricating waste oil will be collected separately in drums and handed over to the existing authorized</p>

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
					<p>2. Chemical desegregation and pollution of soil would be on account of spillage of oils from vehicle used for transportation of construction material and from the building material used for construction purposes. During construction phase, waste oil shall be generated as and when lubricating oil is changed.</p> <p>3. A soil erosion and sedimentation control plan to control top-soil erosion and loss of top soil during construction.</p> <p>4. Demolition waste including asbestos and potential contaminated soil by the asbestos will be generated at construction site.</p>	<p>outside agency by SPCB as per CPCB guidelines. Procedures for maintenance of equipment would ensure that this risk is minimized and cleanup response is rapid if any spill occurs. During the construction phase, Waste oil will be collected through the drain ports and stored in leak proof steel drums and sent for proper disposal.. Waste lubricant generated will be given to outside party for treatment, which can be used again.</p> <p>3. The excavated material such as top soil will be used in Landscape area and stones will be stacked for reuse during later stages of construction. The remaining excavated soil will be utilized in re-filling of foundation, road works, rising at site level etc.</p> <p>4. Type and quantity of solid waste generated during the construction and operational stages is</p>

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
						<p>to be quantified. In case of expansion of the unit, the solid waste generated category wise should be furnished. For disposing asbestos waste material the norms notified under Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 and the recommendations as per IS: 11768 - 1986 (Reaffirmed 2005) is to be followed. All asbestos waste must be kept in closed containers before its transportation to the isposal point so that no asbestos dust is emitted into the environment during transportation. Final covering of asbestos waste, other than high-density waste, shall be to a minimum depth of 2m. The asbestos waste including the used bag filters should be disposed at an approved TSD (Treatment, Storage & Disposal Facility)</p>

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
						5. Incorporation of above measures into tender and contract documents
			D	At Operation Phase	1. Impact on soil due disposal of solid waste.	1. All solid waste and hazardous waste generated from the convention Centre will properly collected, stored and disposed. An integrated solid and hazardous waste management plan will be developed according to the solid waste management rules of government of India.
	5	Noise and excessive vibrations	B ⁻	At Construction Phase	1. Generation of noise during movement of vehicles carrying materials and loading & unloading activities. 2. Generation of noise during the operation of DG sets. 3. Noise from the mechanical operations, like, drilling, fitting, etc.	1. Regular checking of Vehicles, construction work will be restricted during day time. 2. Provision of acoustic enclosure to DG Sets to noise level as CPCB guideline. 3. Preventive maintenance of the machine/ equipment will be carried out. Provision of rubber padding/noise isolators will be done.
			B ⁻	At Operation Phase	1. Source of noise will be operation of DG Sets during power	1. D.G. sets will be placed at proper place with proper ventilation. 2. Plantation will be

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
					failure. 2. The noise is likely to be generated due to movement of vehicles.	done from inception of project at, all along the roads & periphery to reduce noise. No honking Zone can be maintained.
	6	Land subsidence	D	At Construction Phase	1. Construction works which may cause land subsidence.	1. The proposed site is already having various buildings and the proposed convention center will be constructed after demolishing some buildings. Thus there will be no impact. And no land subsidence is envisaged.
			D	At Operation Phase	1. Evasive ground water extraction.	1. No impact because of no groundwater extraction.
	7	Bad odor	D	At Construction Phase	The construction works will not generate offensive odor.	
			D	At Operation Phase	The operation will not generate offensive odor	
	8	Bottom sediment	D	At Construction Phase	There is no construction works at river bed.	
			D	At Operation Phase	There is no operation activity at river bed.	
Natural Environment	9	Protected area	D	At Construction Phase	There is no impact because not crossing national parks or reserved areas and project site is not located nearby the protected area.	
			D	At Operation	There is no impact because not crossing national parks or reserved areas and project site is not	

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
				Phase	located nearby the protected area.	
	10	Ecosystem	B ⁻	At Construction Phase	<p>1. Loss of vegetation due to construction of building.</p> <p>2. Displacement of Fauna.</p>	<p>1. The proposed site has already many buildings within the VMC premises. Some common trees are located in the premises. Plantation will be started during construction period. The reference list of has been mentioned in the Table no. 3. Hence there will be negligible loss of flora, during construction phase. Minimum one tree will be planted for every 80 square meters of land. In the condition of tree cutting, proper permission will be taken from forest department and compensatory three trees of native species will be planted for every one tree that is cut.</p> <p>2. Only local avifauna of the area is seen, as the project site is within boundary of VMC only few domesticated animals are seen. Plantation in the project area will increase the avifauna in the area. Hence it will have positive impact on</p>

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
						the environment.
			D	At Operation Phase	Landscaping	There will be positive impact as the garden and trees will be maintained properly and greenery level will be increased. There will be a landscape design as per the requirement of the notification S.O. No. 3999 (E) by the project.
	11	Hydrology	D	At Construction Phase	1. The catchment area of the project site is minor in a local level.	1. Water required during construction phase will be provided by tankers and get stored at site, to avoid any unhygienic conditions. Required water for construction activities will be procured from municipal tankers. Rain water harvesting system is provided at the proposed site, which would recharge storm water. Thus no significant impact on ground water due to proposed project activities during construction and post construction phase are envisaged.
			D	At Operation Phase	1. Potential impact on water resources due to the facility plan	1. There will be no negative impact although the

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
					on water conservation, rain water harvesting and groundwater recharge.	groundwater level may increase positively due to application of water conservation practices and water harvesting systems.
	12	Topography /geology	D	Under-Construction	Small change is expected due to the excavation of the project site. However, there will be no large scaled topographical / geological change.	
			D	Operation	There will be no topographical / geological change.	
Social Environment	13	Resettlement	D	At Construction Phase	No Resettlement	The project site is the existing old auditorium with no residential houses.
			D	At Operation Phase	No Resettlement	The project site is the existing old auditorium with no residential houses.
	14	Poverty group	D	At Construction Phase	Not Applied	The project site does not relate to poverty.
			D	At Operation Phase	Not Applied	The project site does not relate to poverty.
	15	Ethnic Minorities and Indigenous People	D	At Construction Phase	Not Applied	There are no ethnic minorities in the project area.
			D	At Operation Phase	Not Applied	There are no ethnic minorities in the project area.
	16	Local economy	B+	At Construction	1. Additional Job opportunities for	1. The economic condition of the area of

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
		of employment & livelihood		on Phase	supporting services in transport, repairs, gardener, Taxis, private and taxi drivers, etc.	the people in the nearby areas will improve. Employment opportunities will increase.
			B+	At Operation Phase	1. Induction of shops for allied services in the surrounding areas leading to increase in employment opportunities.	1. Opportunity of tourists and relevant person's visit will be increased will improve the local economy.
	17	Land use and utilization of local resources	D	At Construction Phase	No major impact on land use and utilization of local resources is assumed because of the project.	
			D	At Operation Phase	No major impact on land use and utilization of local resources is assumed because of the project.	
	18	Water Use	D	At Construction Phase	The project does not relate to water use.	
			D	At Operation Phase	The project does not relate to water use.	
	19	Existing social infrastructure and social services	B-	At Construction Phase	1. Impact on traffic by construction vehicles and impact on surrounding public utilities due to underground excavation.	1. Restricted number of truck at a time will be allowed at the site to avoid the jam in the existing road. Proper parking management of trucks, cars and other vehicles will be done. Proper place for loading and unloading will be assigned for the construction material to be used.

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
						<p>2. The construction is permitted within the boundaries of VMC and proper care will be taken before excavation.</p>
			B ⁻	At Operation Phase	<p>1. Impact on traffic by the cars of the users or visitors of the center.</p>	<p>1. Proper parking will be provided to the visitors and path-ways will be constructed for free-flow traffic movement.</p>
	20	Social organization such as social capitals and local authority	D	At Construction Phase	The construction works does not relate to social organization	No adverse Social organization such as social capitals and local authority envisaged
			D	At Operation Phase	The proposed convention center is a social infrastructure and will be operated as a social asset.	
	21	Bias distribution of damage and benefit	D	At Construction Phase	Some impact is estimated partially at the project site and the surrounding area. However, it is temporary during a construction phase	No impact on Any damage or beneficiaries on the local society by the construction works or its operation.
			D	At Operation Phase	The proposed convention center will provide benefits to all persons concerned	
	22	Conflict of interest in the project area	D	At Construction Phase	Not any conflict of interest anticipated on the local society by the construction works or its operation. The project is to implement a project for social contribution through faire process which will not bring conflict of interest at local level.	
			D	At		

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
				Operation Phase		
	23	Cultural heritage	D	At Construction Phase	There are no sites of cultural significance in or around the project sites	
			D	At Operation Phase		
	24	Landscape	D	At Construction Phase	Some change of appearance will be generated at construction phase. However, the change is temporary.	There will be no negative impact on surrounding cityscape by the convention center although it will positively improve the present ambience of the place.
			B ⁺	At Operation Phase	The improved city scape will be generated compared to existing old building.	
	25	Gender	D	At Construction Phase	There will be no impact on the women by the proposed construction works. The construction works does not relate to gender issue	
			D	At Operation Phase	The operation does not relate to gender issue.	
	26	Children's right	D	At Construction Phase	There will be no Impact on the children's right because child labor will not be permitted in any condition.	
			D	At Operation Phase		
	27	Infectious diseases of HIV/AIDS	B ⁻	At Construction Phase	1. A number of workers will be involved at the project sites. In this case social interactions cannot be avoided which can	1. Awareness programs will be conducted among the site workers. Incorporation of above measures into tender

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
					result into spread of HIV/AIDs and STDs.	and contract documents
			D	At Operation Phase	The operation of VCC does not relate to occurrence of Infectious diseases such as HIV/AIDs.	-
	28	Working environment (Including safety control)	B-	At Construction Phase	<p>1. Safety of construction workers shall be paid attention in construction site.</p>	<p>1. Measures for first aid, fire-fighting and premises evacuation will keep in mind.</p> <p>Necessary contacts with appropriate emergency services (first aid, emergency, medical care, rescue work and fire-fighting).</p> <p>Safety helmets, belts, slings, nets and other safety equipment will be provided. Electrical cables and connections will be laid properly. The benefits of labour law will be applied. Safety helmets, belts, slings, nets and other safety equipment should be provided. Compliance with national or international legal requirement and Incorporation of above measures into tender and contract documents.</p>

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
			D	At Operation Phase	The operation of VCC does not include poor or dangerous working environment.	
Others	29	Accidents	B-	At Construction Phase	1. Construction activities may cause risk of serious injuries or fatalities including traffic accidents to workers or third parties.	1. Government guidelines for workers and policies & procedures will be followed on accidents caused during construction. Medical aid at site and medical aid in the Hospital will be provided immediately. And all the safety parameters will be adapted to avoid any accident. Insurance system of indemnification should be established for the damages of construction workers or the persons / assets of third parties. Education / training for drivers of construction vehicles and equipment to avoid traffic accidents. Incorporation of above measures into tender and contract documents.
				D	At Operation Phase	The operation of VCC does not include poor or dangerous working environment.
	30	Trans-boundary impact	D	At Construction Phase	The project does not include construction works which may cause trans-boundary impact.	

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Category	No.	Items	Evaluation Scores	Phase	Reason	Mitigation Measures
		and climate change	D	At Operation Phase		
	31	Energy	D	At Construction Phase	1. Energy wastage due to unplanned consumption.	1. Solar energy will be promoted and in the common areas, LED/ solar lights will be installed. Optimize use of energy systems in buildings that should maintain a specific indoor environment conducive to the functional requirements of the building by following mandatory compliance measures as recommended in the Energy Conservation Building Code (ECBC) 2007 of the Bureau of Energy Efficiency, Government of India. The building design has been developed to support solar system that minimizes consumption of energy.
			D	At Operation Phase	No Impact	

A+/-: Significant positive/negative impact is expected.

B+/-: Positive/negative impact is expected to some extent.

C+/-: Extent of positive/negative impact is unknown. (A further examination is needed, and the impact could be clarified as the study progresses.)

D: No impact

D. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

INTRODUCTION

The objective of the preparation of Environmental Management Plan (EMP) is to identification and prediction of impacts and suggestive mitigation measures for prevention of environmental aspects.

The Environmental Management plan is a site specific plan developed to ensure that the project is implemented in an environmentally sustainable manner and understand the potential environmental risks arising from the proposed project and take appropriate actions to minimize those risks. EMP also ensures that the project implementation is carried out in accordance with the planned design and by taking appropriate mitigation actions to reduce adverse environmental impacts during the construction of proposed convention center.

The proposed project will create certain inevitable impacts during its construction and operation phase; can be reduced significantly with the help of effective implementation of a well-designed EMP.

The EMP is generally prepared in accordance with rules and regulations of the MOEF and State Pollution Control Board.

The key benefits of the EMP are that it provides the organization with means of managing its environmental performance thereby allowing it to contribute to improved environmental quality. The other benefits include cost control and improved relations with the stake holders.

Adequate environmental management measures will be incorporated during the entire planning, construction and operating stages of the project to minimize any adverse environmental impact and assure sustainable development of the area. The detailed Environment Management Plan has been mentioned in the Table. No. 5.

An Environmental Management Plan (EMP) will be required to mitigate the predicted adverse environmental impacts during construction and operation phase of the project. The EMP is included in the table. No.10.

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Table 10: Environment Management Plan

S.No.	Components	Phase	Environment Management Plan (EMP)	Actor	Person to bear Cost
1	EMP for Air Environment	Construction Phase	<p>Dust Control Plan: The most cost-effective dust suppressant is water because water is easily available on construction site. Water can be applied using water trucks, handled sprayers and automatic sprinkler systems. Furthermore, incoming loads could be covered to avoid loss of material in transport, especially if material is transported off-site. Environmental monitoring of the contractor's mitigation measures for dust control</p> <p>Idle Time Reduction: Construction equipment is commonly left idle while the operators are on break or waiting for the completion of another task. Emission from idle equipment tends to be high, since catalytic converters cool down, thus reducing the efficiency of hydrocarbon and carbon monoxide oxidation. Existing idle control technologies comprises of power saving mode, which automatically off the engine at preset time and reduces emissions, without intervention from the operators.</p> <p>Improved Maintenance: Significant emission reductions can be achieved through regular equipment maintenance. Contractors will be asked to provide maintenance records for their fleet as part of the contract bid, and at regular intervals throughout the life of the contract.</p> <p>Reduction of On-Site Construction</p>	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: Contractor

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			<p>Time: Rapid on-site construction would reduce the duration of traffic interference and therefore, will reduce emissions from traffic delay.</p> <p>Traffic management Plan: Time management of incoming fleets avoid traffic concentration. Allocation of traffic guide at entrance and vicinity areas</p>		
		Operation Phase	<p>Diesel Generator Set Emission Control Measures Adequate stack height will be maintained to disperse the air pollutants generated from the operation of DG set to dilute the pollutants concentration within the immediate vicinity. Hence no additional emission control measures have been suggested.</p> <p>Tree Plantation: Increased vegetation is one of the preferred methods to mitigate air and noise pollution. Plants serve as a sink for pollutants, act as a barrier to break the wind speed as well as allow the dust and other particulates to settle on the leaves. It also helps to reduce the noise level.</p> <p>Traffic Management Plan: Time management of incoming vehicles to avoid traffic concentration along with the allocation of traffic guide at entrance and vicinity areas.</p> <p>Flow planning at design of parking area: Flow planning at design of parking area for smooth traffic</p> <p>Environmental monitoring plan: Application of environment monitoring plan of traffic flow.</p>	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: NBCC • Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the O & M (Operation and Maintenance) cost • Person to be borne: NBCC
2	EMP FOR NOISE ENVIRONMENT	Construction Phase	<p>Time of Operation: Noisy construction equipment would not be allowed to use at night time.</p>	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: Contractor • Inspector: 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne:

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			Consultant	Contractor
		<p>Job Rotation and Hearing Protection: Workers employed in high noise areas will be employed on shift basis. Hearing protection such as earplugs/muffs will be provided to those working very close to the noise generating machinery.</p> <p>Establishment of Contact Point: Establishment of Contact Point for the complaints of the vicinity residents along with the Environmental monitoring plan of noise level along with the Environment monitoring plan of noise level.</p>		
	Operation Phase	<p>Noise Emission Control Technologies: The DG set room will be provided with appropriate acoustic enclosure for meeting the ambient noise standard.</p> <p>It would be ensured that the manufacturer provides acoustic enclosure as an integral part along with the diesel generators set. Further, enclosure of the services area with 4 m high wall will reduce noise levels and ensure that noise is at a permissible limit for resident of the site and surrounding receptors.</p> <p>Tree Plantation: Trees reduces the intensity of sound and function as a barrier. Trees can either deflect, refract or may absorb sound to reduce its intensity. Appropriate number of tree plantation has been proposed for environmental improvements.</p>		

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3	EMP FOR WATER ENVIRONM ENT	Constructio n Phase	<p>To prevent degradation and to maintain the quality of the water source, adequate control measures have been proposed.</p> <p>Avoid excavation during monsoon season and care would be taken to avoid soil erosion.</p> <p>Common toilets will be constructed on site during construction phase and the swage would be channelized to the septic tanks or picked through vacuum truck for treatment.</p> <p>To prevent surface and ground water contamination by oil and grease, leak-proof containers would be used for storage and transportation of oil and grease. The floors of oil and grease handling area would be kept effectively impervious.</p> <p>Reuse of water will be promoted.</p>	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: Contractor • Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: Contractor
		Operation Phase	<p>In the operation phase of the project, water conservation and development measures will be taken, including all possible potential for rain water harvesting. Most of the storm water produced on site will be harvested for ground water recharge. Thus proper management of this resource is a must to ensure that it is free from contamination.</p> <p>Water Source Development: Water source development shall be practiced by installation of scientifically designed Rain Water Harvesting system. Rainwater harvesting promotes self-sufficiency and fosters an appreciation for water as a resource.</p> <p>Minimizing Water Consumption: Consumption of fresh water will be</p>	-	-

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			minimized by combination of water saving devices and other water conservation techniques. Further, awareness activities will be promoted.		
4	EMP FOR SOLID WASTE	Construction	<p>Establishment of appropriate construction plan for waste management: Implication of appropriate Waste segregation plan along with the strategy for re-use or recycling management plan.</p> <p>Establishment of hazardous waste management: Establishment of a hazardous waste such as asbestos, paints, solvents wood preservatives</p>	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: Contractor • Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: Contractor
5	EMP FOR SOIL CONTAMINATION	Construction	<p>Hazardous waste management: Application of Hazardous waste management as per The Hazardous Wastes (Management & Handling) Rules.</p> <p>Application of HWTS (Hazardous Waste Tracking System) for its generation, handling, treating, transporting and final disposal with Environmental monitoring plan of hazardous substances of Asbestos.</p>	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: Contractor • Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: Contractor
6	EMP FOR LAND ENVIRONMENT	Construction Phase	<p>The waste generated from construction activity includes construction debris, biomass from land clearing activities, waste from the temporary make shift tents for the labors and hazardous waste.</p> <p>Construction Debris: Construction debris is bulky and heavy and re-utilization and recycling is an important strategy for management of such waste. As concrete and masonry constitute the majority of waste generated, recycling of this waste by conversion to aggregate can offer benefits of reduced landfill space and reduced extraction of raw material for new construction</p>	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: v • Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: Contractor

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			<p>activity.</p> <p>The waste generated from the demolition of old buildings can be used for landfill for new construction.</p> <p>Mixed debris with high gypsum, plaster, shall not be used as fill, as they are highly susceptible to contamination.</p> <p>Metal scrap from structural steel, piping, concrete reinforcement and sheet metal work shall be removed from the site by construction contractors. A significant portion of wood scrap will be reused on site. Recyclable wastes such as plastics, glass fiber insulation, roofing etc shall be sold to recyclers.</p> <p>Hazardous waste: Construction sites are sources of many toxic substances such as paints, solvents wood preservatives, pesticides, adhesives and sealants. Hazardous waste generated during construction phase shall be stored in sealed containers and disposed off as per The Hazardous Wastes (Management & Handling) Rules.</p> <p>Top Soil Management: To minimize disruption of soil and for conservation of top soil, the contractor will keep the top soil cover separately and stockpile it. After the construction activity is over, top soil will be utilized for landscaping activity.</p>		
		Operation Phase	The Environmental Management Plan for the solid waste focuses on three major components during the life cycle of the waste management system i.e., collection and transportation, treatment or disposal and closure and post-	-	-

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			closure care of treatment/disposal facility. It is suggested that post construction, the maintaining agency will be responsible to comply the waste management plan.		
7	EMP FOR ECOLOGICAL ENVIRONMENT	Construction Stage	<p>Restriction of construction activities to defined project area only.</p> <p>Cutting, uprooting, coppicing of trees or small trees if present in and around the project site for cooking, burning or heating purposes by the labors will be prohibited and suitable alternatives for this purpose will be made.</p> <p>Along with the construction work, the peripheral green belt would be developed with suggested native plant species, as they will grow to a full-fledged covered at the time of completion. Appropriate Tree Cutting Plan as per Requirement in Notification S.O. No. 3999 (E). A minimum of 1 tree for every 80 m² of land should be planted and maintained. The existing trees should be counted for this purpose. Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained.</p> <p>Proper tree plantation will be done against the tree cutting and as per guideline of government of India. Selection of the plant species would be done on the basis of their adaptability to the existing geographical conditions and the vegetation composition of the forest type of the region earlier found or currently observed.</p>	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: Contractor • Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: Contractor

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			Preference should be given to planting native species.		
		Operation Phase	The trees and garden will be maintained by the responsible organization during the operational phase.	-	-
8	EMP FOR SOCIAL INFRASTRUCTURE AND SOCIAL SERVICES	Construction Stage	<p>Permission Management Plan: Preparation of Permission Management for relevant authorities for construction works</p> <p>Traffic Management Plan: Time management of incoming fleets to the site to avoid traffic concentration. Allocation of traffic guide at entrance and vicinity areas for smooth traffic flow.</p>	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: Contractor • Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: Contractor
		Operation Phase	<p>Traffic Management Plan: Time management of incoming fleets to the site to avoid traffic concentration along with the allocation of traffic guide at entrance and vicinity areas for smooth traffic flow and Parking Area Management Plan.</p>	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: NBCC 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: NBCC
9	EMP FOR INFECTIOUS DISEASES OF HIV/AIDS	Construction Stage	Conducting awareness programmes and training plan for construction workers. Preparation of education program for acquisition appropriate hygiene knowledge.	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: Contractor • Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: Contractor
10	EMP FOR WORKING ENVIRONMENT AND SAFETY	Construction Stage	Preparation of handling, treatment, transport and final disposal plan of hazardous substances such as asbestos. Preparation of education plan for working hygiene and safety control. Preparation of emergency preparedness and response plan. Environmental monitoring of Asbestos for demolition works for proper disposal and ensure the prevention measures for Asbestos.	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: Contractor • Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: Contractor

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Varanasi International Cooperation and Training Centre

11	EMP FOR ACCIDENTS	Construction Stage	Preparation of education plan for working hygiene and safety control and emergency preparedness with response plan.	<ul style="list-style-type: none"> • Regulator: UPPCB • Actor for mitigation: Contractor • Inspector: Consultant 	<ul style="list-style-type: none"> • To be covered in the project cost • Person to be borne: Contractor
		Operation Phase	The same equipment and procedure will be used and maintained during the operational stage.	-	-

E. ENVIRONMENT MONITORING PLAN

Environmental monitoring is the process to examine / verify the mitigation measures and the environmental quality at each project phase of construction and operation through measurement and inspection.

Monitoring program has the underlying objective to ensure that the intended environmental mitigations are realized and these results in desired benefits to the target population causing minimal deterioration to the environmental parameters. Such program targets proper implementation of the EMP. The broad objectives are:

- To evaluate the performance of mitigation measures proposed in the EMP.
- To evaluate the adequacy of Environmental Assessment.
- To suggest ongoing improvements in management plan based on the monitoring and to devise fresh monitoring on the basis of the improved EMP.
- To enhance environmental quality through proper implementation of suggested mitigation measures.
- To meet the requirements of the existing environmental regulatory framework and community obligations.

The purpose of environmental monitoring is to evaluate the effectiveness of implantation of Environmental Management Plan (EMP) by periodically monitoring the important environmental parameters within impact area, so that any adverse effects are detected and timely action can be taken.

Performance Indicators

The significant physical, biological and social components affecting the environment at critical locations serve as wider/overall Performance Indicators. However, the following specific environmental parameters can be quantitatively measured and compared over a period of time, therefore selected as specific Performance Indicators (PIs) for monitoring because of their regulatory importance and the availability of standardized procedures and relevant expertise.

- Air Quality with respect to Particulate Matters (PM10, PM2.5), CO, NOx (as NO2) and SOx (as SO2).
- Water Quality for parameters defined in IS 10500: 1991 and amendments.
- Noise levels as per CPCB Guidelines and at selected locations.
- Soil Quality
- Survival rates of trees planted and Green area development.

FORM – 1A, Environmental Management and Mitigation Plan
Varanasi International Cooperation and Training Centre**AMBIENT AIR QUALITY (AAQ) MONITORING**

Ambient air quality parameters recommended for monitoring the project are Particulate Matters (PM10, PM2.5), Carbon Monoxide (CO), Oxides of Nitrogen (NOx) and Sulphur Dioxide (SO2). These are to be monitored, right from the beginning of construction activity at selected locations on site, excavation works, residential areas near the project site etc. Data is generated once in a season excluding monsoon at the monitoring locations in accordance with the National Ambient Air Quality Standards formulated by MoEF through Notification on November 18, 2009.

WATER QUALITY MONITORING

The physical and chemical parameters recommended for analysis of water quality relevant to project will be as mentioned in IS 10500: 1991. The location, duration and the pollution parameters to be monitored and the responsible institutional arrangements are given in the Environmental Monitoring Plan. The monitoring of the water quality is to be carried out at pre-identified sources within the project area or as per UPSCB guidelines.

NOISE LEVEL MONITORING

The measurements for monitoring noise levels would be carried out at sensitive receptors and construction sites. Sound pressure levels would be monitored on twenty-four hour basis. Noise is recorded at “A” weighted frequency using a “slow time response mode” of the measuring instrument.

GREEN AREA DEVELOPMENT

The green area development will be monitored during the construction and operation phase. The main indicator will be survival rate of grasses and plants.

SOIL QUALITY

Soil quality will be monitored and compared with the Baseline soil quality generated before the start of construction

The major impacts and their parameters to be traced as the environmental monitoring for the major adverse environmental impact to be affected by the project are summarized in Table no.11.

FORM – 1A, Environmental Management and Mitigation Plan
Varanasi International Cooperation and Training Centre

Table 11: Summary of Impacts to be monitored by Environmental Monitoring

Phase	Potential Action by the Project	Potential Impact	Parameters to be Monitored	Environmental Quality to be Examined at Environmental Monitoring
Construction	Dust generation by construction fleets and equipment	Air	Dust	Dust control by the contractor
	Noise generation by construction fleets and equipment	Noise	Noise level	Noise level by construction works
	Traffic congestion at vicinity roads to be affected by the construction fleets and equipment	Social Infrastructure	Traffic	Traffic volume at vicinity roads to be affected by the construction works
	Demolition works by old auditorium buildings potentially containing materials	Working Environment and Safety	Asbestos	Working environment under demolition works especially for the potential existence of Asbestos in air, soil, demolished materials
Operation	Generation of air pollutants by the vehicles incoming and outgoing at VCC	Air pollutants	NO ₂ , NO _x , SO _x , SO ₂ , CO, PM _{2.5} , PM ₁₀	Concentration of air pollutants by the incoming and outgoing vehicles at VCC
	Noise generation by the vehicles incoming and outgoing at VCC	Noise	Noise level	Impact of noise by the incoming and outgoing vehicles at VCC Impact of air pollution by the incoming and outgoing vehicles at VCC
	Traffic congestion at vicinity roads to be affected by the construction fleets and equipment	Social Infrastructure	Traffic	Impact on traffic volume at vicinity roads to be affected by the incoming and outgoing vehicles at VCC

Environmental Monitoring Plan

The monitoring plan covering various performance indicators, frequency and institutional arrangements of the project in the Pre-construction, Construction and Operation stages is mentioned in the Table no. 12.

Table 12: Environmental Monitoring Plan

Phase	Potential Impact	Parameters	Place for Monitoring	Time / Frequency	Method	Actor for Monitoring	Estimated Cost per Year in Rs.
Construction	Air	Dust	1 place within the	• Twice at pre-	• Visual inspection	Contractor	To be covered

FORM – 1A, Environmental Management and Mitigation Plan
Varanasi International Cooperation and Training Centre

Phase	Potential Impact	Parameters	Place for Monitoring	Time / Frequency	Method	Actor for Monitoring	Estimated Cost per Year in Rs.
			construction site	monsoon • Twice at post-monsoon			in the project cost
	Noise	Noise level	2 places at facility boundary	Quarterly	As per the method by Noise Pollution (Control and Regulation) Rules, 1999	Contractor	50,000
	Social Infrastructure	Traffic	2 places at vicinity rodas (VMC Road, Sigra Crossing)	Quarterly (Day time)	Measurement of traffic volume	Contractor	50,000
	Working Environment and Safety	Asbestos	<ul style="list-style-type: none"> • Building materials: 2 • Covering pipes material: 2 • Air: 2 • Soil: 2 	<ul style="list-style-type: none"> • Once before demolition • Once under demolition • Once after demolition 	As per BIS (Bureau of Indian Standard) 11769, 11768, 11450	Contractor	100,000
Operation	Air pollutants	NO ₂ , NO _x , SO _x , SO ₂ , CO, PM _{2.5} , PM ₁₀	1 place at entrance	• Twice after completion	As per the Guidelines for Ambient Air Quality Monitoring, CPCB, MoEF, April, 2003	NBCC	50,000
	Noise	Noise level	1 place at entrance	• Day and night time for twice after completion	As per the method by Noise Pollution (Control and Regulation) Rules, 1999	NBCC	30,000
	Social Infrastructure	Traffic	2 places at vicinity rodas (VMC Road, Sigra Crossing)	• Twice after completion (Day time)	Measurement of traffic volume	NBCC	30,000

F. RISK AND HAZARDS

Seismicity

Based on the tectonic features and records of earthquake, a Seismic Zoning map has been developed for the country by Bureau of Indian Standard (BIS). The area under study falls in Seismic Zone-IV. Suitable seismic coefficients in horizontal and vertical directions respectively, will be adopted while designing the structures. The structural design shall be vetted by the agency nominated by local body. Earthquake resistant construction techniques will also be used.

Emergency Lighting

The emergency lights operated on battery power would be provided at appropriate locations – such as corridors, common area, staircase, exit and entrance doors, parking, etc.

Fire Safety

- Fire Fighting Designed: As per National Building Code 2005.
- Provision fire detection, alarm & rescue system.
- Provision of infrastructure required for suppression of fire as per norms.
- Provision of fire escape staircase.
- Provision of Fire Extinguishers, Fire Hose Cabinet, Internal & External hydrant, Fire sprinkler system in basements & residential towers are planned as per applicable codes & norms of local fire department.

Report No. - /2017-18/

Consultant :- Er. S.M.Saquib
B.E. (Civil) , M.Tech (Soil Mech & Foundn Engg) IIT/D)
Mobile : 9415268161

Month :- April 2017

TEST REPORT
ON
Sub-Soil Investigation
for
Proposed construction of
Varanasi Convention Centre
At
Nagar Nigam , Sagra Varanasi

Work Executed For

Oriental Consultants Global Co. Ltd.

Testing Conducted by:

Geotech Technical Associates Pvt. Ltd.
Varanasi

Acknowledgement

We wish to put on record our sincere thanks to Oriental Consultants Global Co. Ltd. . who has been cordial in offering us the opportunity to conduct soil work for construction of **Varanasi Convention Centre at Nagar Nigam Sagra in distt. Varanasi.**

FOR GTAPL

LOCATIONS OF FIELD INVESTIGATION

Description	Bore hole no.	Depth of Bore hole(m)	Drawing Bore hole no.
Near garden	BH1	30	BH1
Court yard /Badminton Court	BH2	30	BH2
truck yard	BH3	30	BH3

EXECUTIVE SUMMARY

This report presents the sub soil Investigation carried out at the site for proposed construction of Varanasi Convention Centre at Nagar Nigam campus in **distt. Varanasi**.

- The investigation were performed through a total of three (3) exploratory borings drilled to depth of 30.0m from ground level. The detail of borehole locations are shown in site plan and attached hereunder.
- Details of bore holes are shown in site plan and Fig. 1.
- Soil sample were collected as per IS: 1892.
- Depth of foundation was decided on the basis of type of structure and loads coming from superstructure and site condition.
- The details of soil strata along with water level, standard penetration test (N) value are shown in bore log chart.
- The properties of soil with their laboratory test are shown in laboratory test data sheet.
- Laboratory tests were conducted as per Indian Standard: SP:36 part-1 1987.
- Bearing capacity calculation have been made as per IS: 6403 and IS: 8009 for raft foubdation and for underreamed pile foundation as per IS: 2911 part-III
- Method of exploration was adopted as per IS: 1892
- Factor of safety 2.5 was taken for calculation purpose (As per IRC : 78:2000 clause : 706.3.1.1.1 page no. 20)

FIELD INVESTIGATION

- **SPT** test were conducted as per IS: 2131 at 1.5m interval on each bore hole upto 30.0m b.g.l . The details of SPT N values are as mentioned in laboratory test result.
- **Samples** were collected at every 1.0m from ground level.
- **150 mm** diameter borehole was made at this for collection of soil sample from borehole.
- **Rotary drilling was used** for making the borehole.

1. INTRODUCTION

A new construction of Varanasi Convention Centre at Nagar Nigam campus in distt. Varanasi. To design a safe and economical foundation for the structure, the knowledge of general geological character of site, subsoil profile, its characteristics strength, and information about ground water table is essential requirement.

Keeping above in view, *M/s Balaji Cement Industries Pvt. Ltd.* desires that the detailed soil investigation be carried out at three different locations to provide the designers with sufficiently accurate information both general and specific, about substrata profile and relevant soil parameters at site on the basis on which the foundation of structure can be classified and designed rationally.

Field tests and sampling of soil were start from (23rd March 2017) were done as per Bureau of Indian Standard Specifications. The relevant laboratory testing for the (Core sample and SPT) samples collected, have been performed by *M/s Geotech Technical Associates pvt. Ltd. Varanasi.*

2. SCOPE OF WORK

The scope of this work requires the determination of suitable type of foundations and their depth and the safe bearing capacity of the soils. The safe bearing capacity of the soil is evaluated on the consideration of the shear failure of the supporting soils and on the consideration of permissible settlement. And also find out the percentage of chemicals which are present in soil. The soil conditions met with will control the type and depth of the foundations.

3. OBJECTIVES OF SOIL EXPLORATION

In order to perform work properly, the engineer must have a good understanding of the problems encountered in making subsurface explorations and of the various tools available too make subsurface explorations, specialists in soil and rock engineering and/or geology are required for planning, conducting, and supervising the programs of subsurface explorations.

The types of subsurface information required for design include, but are not limited to, the following :

1. Areal extent, depth, and thickness of each identifiable soil stratum, within a limited depth dependent on the size and nature of the structure, together with a description of the soil including its degree of density if cohesion-less and degree of stiffness if cohesive.
2. Engineering properties of the soil such as core strength, water absorption etc.
3. Simple field tests, such as the Standard Penetration Test (SPT) whose results have been correlated with engineering properties on a general basis.

The primary objectives are:

Determination of the nature of the soil deposits.

Determination of the depth and thickness of the various soil strata and their extent in the horizontal direction.

The location in ground water and fluctuation in it.

Obtaining soil samples from the various strata.

The determination of engineering properties of the soil and rock strata that affect the performance of the structure, and

Determination of in – situ properties by performing field tests.

4. WORK PLAN

In order to achieve the above mentioned objective, the scope of work include:

Drilling bore holes in soft rock and conducting the necessary field and laboratory tests.

Conducting standard penetration tests (SPT) at different depth upto 30.0m depths.

Extracting sample at different depth upto the depth of boring.

Observing the ground water table, if encountered and fluctuation in it.

Conducting laboratory tests on samples recovered during field exploration.

Compiling and submitting report, containing field and laboratory test results and recommendations regarding type, depth of foundations, and load bearing capacity of the soil.

5. FIELD INVESTIGATION

The field investigation work was performed during the month of March 2017. This report contains details of **3 boreholes** of 30.0m depth. These bore holes were drilled by Rotary drilling equipment. During boring visual observation about the material penetration in each bore hole were recorded. The bore logs are presented in the form of data sheets.

Undisturbed samples were collected normally at stipulated intervals. These samples were collected using open drive sampler having thin walls in accordance with IS : 2312. After the recovery of the sample from the bore holes the sampling tubes were waxed at both ends and labeled and then transported to the laboratory for testing. The sampling locations and material penetrated in each hole is given in the bore logs.

Disturbed samples were collected at an interval of 1.0 m. depth besides undisturbed samples taken shown on the logs presented.

Standard Penetration Tests were conducted just after the recovery of the undisturbed samples in the bore holes and at other depth as considered necessary. These tests were carried out as per IS : 2131. "Method for Standard Penetration Tests for soils" using Indian Standard Split Spoon Sampler driven by a 65 Kg. Hammer falling freely from a height of 75 cm. through a guide rod. The results of the tests in terms of blow counts for every 15 and 30 cm. are given in the bore logs presented in data sheets. The number of blows for the first 15 cm. are not considered due to the possible caving and disturbance of the soil into the hole. The number of blows for the next 30 cm. (15 cm. intervals) penetration are recorded as N – values of the soil at the depth of the test.

6. BEARING CAPACITY OF FOUNDATION SOIL

The bearing capacity shall be governed by two considerations viz safety against shear failure and safety against excessive settlement. The bearing capacity on shear consideration is worked out in accordance with IS : 6403 – 1981, “Determination of Bearing Capacity of Shallow Foundation,” where as the settlement worked out in accordance with IS : 8009 (Part – I) 1976, “Calculation of Settlement of foundation” and are restricted to within the permissible limit laid down in IS : 1904 – 1978 “Structural safety of Building Shallow foundations”.

BEARING CAPACITY ON SHEAR CONSIDERATION

IS : 6403 – 1981 gives the following equation for the bearing capacity on shear consideration :

(a) In case of general shear failure :

$$q_D = C \cdot N_C \cdot S_C \cdot d_{c i_C} + q \cdot (N_q - 1) S_q \cdot d_q i_q + 0.5 \cdot \gamma \cdot B \cdot N_\gamma \cdot d_\gamma \cdot S_\gamma i_\gamma \cdot R_w$$

(b) In case of Local Shear failure :

$$q_D = 0.67 C \cdot N_C \cdot S_C \cdot d_{c i_C} + q \cdot (N_q - 1) S_q \cdot d_q i_q + 0.5 \cdot \gamma \cdot B \cdot N_\gamma \cdot d_\gamma \cdot S_\gamma i_\gamma \cdot R_w$$

Where :

q_d	Ultimate net bearing capacity Kg./cm ²
$q = \gamma D$	Effective over burden pressure at footing level
N_C, N_q, N_γ	Bearing Capacity factors for the case of general shear
N_C, N_q, N_γ	Bearing Capacity factors for the case of local shear
S_C, S_q, S_γ	Shape factors
i_C, i_q, i_γ	Inclination factor
d_c, d_q, d_γ	Depth factors
R_w	Correction factors for location of water table
B	Width of foundation
γ	Unit weight of soil
C	Cohesion intercept of shear strength

FOUNDATION SETTLEMENTS

SETTLEMENT CRITERIA AS PER IS CODE

The safe bearing pressure has to be restricted so that it neither exceeds the net safe bearing capacity on shear consideration as per description given in the foregoing section, nor does it results in settlement exceeding permissible limits as per IS : 1904 – 1978.

For non – cohesive strata, the settlement is to be worked on the basis of SPT values in accordance with Fig. 9 of IS : 8009 (Part – I) – 1976.

Settlement for cohesive soil is governed by the formula.

$$S_c = \frac{C_c H}{1 + e_0} \log \frac{P_0 + \Delta p}{P_0}$$

Where the symbols have their usual meanings.

7. Properties of soil based on N value

Table no.1

N value	ϕ^0	Relative Density (%)	Description
< 4	25-30	0	Very loose
4-10	27-32	15	Loose
10-30	30-35	65	Medium
30-50	35-40	85	Dense
>50	38-43	100	Very dense

Table no. 2

N value	Unconfined Compressive strength (kg/cm²)	Description
< 2	< 0.25	Very Soft
2-4	0.25-0.50	Soft
4-8	0.50-1.0	Medium
8-16	1.0-2.0	Stiff
16-32	2.0-4.0	Very Stiff
>32	> 4.0	Hard

8. LABORATORY TESTS

The laboratory tests performed to determine the physical properties and engineering characteristics of the soils were conducted in accordance with IS : 2720. The laboratory tests performed are briefly discussed below :

The Atterberg's limits tests were conducted, in accordance with IS: 2720 – (Part – V) 1985, on the clayey samples of the soils.

The soil samples collected from the bore holes were tested for the mechanical sieve analysis for the purpose of identification and classification of soils and for the purpose of determination of engineering behavior of the soil.

Natural moisture and density tests were conducted on all the undisturbed soil samples recovered from the bore holes/ Trial pits to get an idea of in – situ – density and moisture consistency of the soil strata.

Particle size analysis were conducted on selected soil samples to determine the distribution of soil grains.

Triaxial shear strength tests were conducted on selected undisturbed samples to obtain necessary shear strength parameters of the soil. These parameters are required in calculations of bearing capacity of the soil on consideration of shear failure.

Consolidation tests were conducted, in accordance with IS : 2720 (Part – XV) – 1985, “Method of Tests of soils, Determination of Consolidation Properties”, to determine the settlements characteristics are needed in the calculation of bearing capacity of the soil on the consideration of allowable settlement.

Specific Gravity tests were conducted on selected number of samples as it is required to calculate the void ratio of the soil.

9. GROUND WATER TABLE:

Location of water table should be established as accurately as possible. Generally it is observed in a bore hole after a lapse of 24 hours

Boreholes	Water level (m)
1.	1.50
2.	1.00
3.	1.50

10. Topography of site and soil condition.

The proposed site is situated in the main city of Varanasi. This area is very near to the River Ganga. In this area water level are always high even in summer season. This is due to the local source of water. The sub soil at upper level is silty clay (Alluvial soil). Due to presence of high water level in all the season . the sub soil at upper level is loose. The details of sub soil strata are as under

Bore hole no. 1 (In Garden)

Depth, m	Strata
G.L. to 5.0	Yellowish silty clay
5.0-6.0	Clayey silty sand
6.0 to 18.0	Yellowish silty clay
18.0 to 22.0	Clayey silty sand
22.0 to 25.0	Silty clay with kankar
25.0 to 30.0	Clayey silt

Bore hole no. 3 (badminton Court)

Depth, m	Strata
G.L. to 1.0	Silty clay of medium plasticity
1.0 to 8.0m	Clayey silty sand
8.0 to 9.0m	Silty clay with kankar
9.0 to 15.0m	Yellowish silty clay
15.0m to 30.0m	Silty clay with kankar

Bore hole no. 3 (Truck yard)

Depth, m	Strata
G.L. to 7.0m	Yellowish silty clay
7.0 to 8.0m	Yellowish clayey silt
8.0 to 24.0m	Yellowish silty clay
24.0 to 25.0m	Clayey silt
25.0m to 30.0m	Silty clay of low plasticity

8. Recommendation

Based on the field exploration and laboratory testing data, the following comments and recommendation have been made for footing design of various structures comes under Varanasi Convention Centre at Nagar Nigam campus **in distt. Varanasi.**

- On the basis of soil sample met in the bore holes ,the soil sample is loose greyish silty clay at upper level upto 1.5m followed by silty clay is met upto the depth of boring.
- **Ground Water level was met in all bore holes at shallow depth.**
- The proposed structure is convention centre . It is about 7-8 storey building with basement. Heavy loads are transfer from superstrutres to foundation. **In such a case raft footing/ Bored cast in situ pile foundation may used for the proposed structure.**
- **Raft foundation may also be used after lowering the water table by pumping method.**
- 100mm permissible settlement is for raft foundation
- 12mm permissible settlement for Pile foundation.
- The Safe bearing capacity of soil are as under

Bore hole No.	Type of footing	Size of Raft (m)	Depth , m	Safe Bearing Capacity (t/m ²)	Gross safe bearing Capacity (t/m ²)
1.	Raft	10.0x10.0	3.0	13	21
2.	Raft	10.0x10.0	3.0	13	21
3.	Raft	10.0x10.0	3.0	15	23

- The proposed site is situated in main city of Varanasi with high water level at upper depth.
- Ground Water level was met in all bore holes at upper level.
- Since the sub soil is loose at upper depth with high water level is encountered. During excavation water level may further rise in the footing. In such a case, Bored cast insitu pile foundation can also be used for the design of footing.
- The safe load on single Bored cast Pile foundation are determined from IS : 2911 part-III and given below

Pile diameter (mm)	Length of pile from Ground level(m)	Safe load (tonnes)
500	15	45
500	16	50
600	15	56
600	16	62

The load carrying capacity of Bored cast insitu Pile foundation are given in the table above be used after conducting Initial pile load test as per IS : 2911 (part – IV) 1979.

8.1 SBC CALCULATIONS ARE ATTACHED IN ANNEXURE

The above recommendations have been made on the basis of soil layers encountered in the limited number of tests as reported herein. If any significant departure from the reported data is noticed during actual construction, Geotechnical Consultants may be referred for advice.

8.2 CLOSURE

We appreciate the opportunity to submit this soil Investigation Report. The above recommendations have been made on the basis of in-situ test and laboratory tests conducted on the samples collected from the boreholes bored at the locations given by the client. If during excavation, any unusual or abnormal features are noticed, these may be brought to the attention of Geotechnical consultants before proceeding with construction work for further suggestions.

For **Geotech Technical Associates Private Limited**

Er. S. M. Saquib
Director

LABORATORY TEST RESULT

Project Name : Construction of Varanasi Convention Centre in Distt. Varanasi
Client : Oriental Consultants Global Co. Ltd. Japan
Location :- Nagar Nigam , Sigra Varanasi.
Date of Boring 23.03.2017

Borehole No. :- 2
Depth (m) :- 30.0m
Water level (m):- 1.0m

Depth below reference(m)	Type of sample	SPT 'N' Value	Corrected 'N ₆₀ ' value	Description of sub soil strata	Grain size analysis				Liquid limit (%)	Plastic limit (%)	Plasticity Index (%)	Moisture content (%)	Bulk density (g/cc)	Dry density(g/cc)	Shear parameters			consolidation Test		IS Classification	Hatching		
					Gravel (%)	Sand (%)	Silt (%)	Clay (%)							Type of test	Cohesion (kg/cm ²)	Angle of internal friction ϕ (degree)	Specific gravity G	Compression Index, Cc			Void ratio, e ₀	
1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
0.00	1.00	DS		Yellowish silty sand filled up	0	77	23	0	-	NP	-											SC	
1.50	1.95	SPT	3	Yellowish silty clay of low Plasticity with kankar																		CL	
2.50	2.80	UDS			2	10	68	20	30	21	9	13.4	1.88	1.66	UU	0.42	15	2.68	0.155	0.85			
3.00	3.45	SPT	5	Yellowish silty clay of medium Plasticity with kankar																		CI	
4.00	4.50	DS			3	6	61	30	42	23	19												
4.50	4.95	SPT	6	Yellowish silty clay of low Plasticity																		CL	
5.00	5.30	UDS			0	12	67	21	31	19	12	16.5	1.92	1.65	UU	0.45	17	2.69	0.143	0.85			
6.00	6.45	SPT	9																				
7.00	7.50	DS			0	14	63	23	33	23	10												
7.50	7.95	SPT	7																				
8.00	8.30	UDS		Yellowish sandy clayey silt	0	30	57	13	25	21	4	15.2	1.84	1.60	UU	0.25	18	2.65	0.131	0.79	CL-MI		
9.00	9.45	SPT	20	Yellowish silty clay of low Plasticity																		CL	
10.00	10.50	DS			0	12	66	22	31	19	12												
10.50	10.95	SPT	22																				
11.50	11.80	UDS			0	13	67	20	30	21	9	14.3	1.95	1.71	UU	0.55	11	2.68	0.163	0.85			
12.00	12.45	SPT	30	Yellowish silty clay of low Plasticity																		CL	
13.00	13.50	DS			0	12	65	23	34	23	11												
13.50	13.95	SPT	25																				
14.50	14.80	UDS			0	13	66	21	32	20	12	15.8	1.88	1.62	UU	0.47	13	2.69	0.161	0.81			
15.00	15.45	SPT	21																				

(DDST- Direct shear test

2 R- refusal (SPT value more than 100)

4 DS- DISTURBED SAMPLE

Lab-In-Charge

3 SPT STANDARD PENETRATION TEST

5 UDS-UNDISTURBED SAMPLE

LABORATORY TEST RESULT

Project Name : Construction of Varanasi Convention Centre in Distt. Varanasi
Client : Oriental Consultants Global Co. Ltd. Japan
Location :- Nagar Nigam , Sgra Varanasi.
Date of Boring 23.03.2017

Borehole No. :- **2**
Depth (m) :- **30.0m**
Water level (m):- **1.0m**

Depth below reference(m)	Type of sample	SPT 'N' Value	Corrected 'N' value	Description of sub soil strata	Grain size analysis				Liquid limit (%)	Plastic limit (%)	Plasticity Index (%)	Moisture content (%)	Bulk density (g/cc)	Dry density(g/cc)	Shear parameters			consolidation Test		IS Classification	Hatching			
					Gravel (%)	Sand(%)	Silt (%)	Clay (%)							Type of test	Cohesion (kg/cm ²)	Angle of internal friction ϕ (degree)	Specific gravity,G	Compression Index, Cc			Void ratio, e0		
1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		
16.00	16.50	DS		Yellowish silty clay of low Plasticity	0	13	67	20	31	21	10													
16.50	16.95	SPT	20		12																		CL	
17.00	17.30	UDS			0	12	67	21	30	20	10		17.2	1.89	1.61	UU	0.48	9	2.67	0.157	0.87			
18.00	18.45	SPT	24		14																			
19.00	19.50	DS		Yellowish silty clay of low Plasticity	0	14	66	20	33	21	12												CL	
19.50	19.95	SPT	30		17																			
20.00	20.50	UDS			0	13	64	23	32	23	9		20.4	1.97	1.64	UU	0.65	13	2.67	0.143	0.88			CL
21.00	21.45	SPT	35		19																			
22.00	22.50	DS		Yellowish silty clay of low Plasticity	0	15	63	22	34	24	10													
22.50	22.95	SPT	30		15																			
23.00	23.30	UDS			0	14	62	24	32	23	9		15.8	2.02	1.74	UU	0.48	12	2.68					CL
24.00	24.45	SPT	25		12																			
25.00	25.50	DS		Yellowish silty clay of low Plasticity	0	12	65	23	31	20	11													
25.50	25.95	SPT	30		14																			
26.00	26.30	UDS			0	14	64	22	33	23	10		18.1	2.05	1.74	UU	0.50	11	2.67	0.169	0.91			CL
27.00	27.45	SPT	27		13																			
28.00	28.50	DS		Yellowish silty clay of low Plasticity	0	11	68	21	32	20	12													
28.50	28.95	SPT	30		13																			
29.00	29.30	UDS			0	13	64	23	31	21	10		16.9	2.02	1.73	UU	0.53	12	2.69	0.175	0.83			CL
30.00	30.45	SPT	35		15																			

Lab-In-Charge (I)DST- Direct shear test 2 R- refusal (SPT value more than 100) 4 DS- DISTURBED SAMPLE
 3 SPT-STANDARD PENETRATION TEST 5 UDS-UNDISTURBED SAMPLE

LABORATORY TEST RESULT

Project Name : Construction of Varanasi Convention Centre in Distt. Varanasi
Client : Oriental Consultants Global Co. Ltd. Japan
Location :- Nagar Nigam , Sigra Varanasi.
Date of Boring 21.03.2017

Borehole No. :- **1**
Depth (m) :- **30.0m**
Water level (m):- **1.50m**

Depth below reference(m)	Type of sample	SPT 'N' Value	Corrected "N" value	Description of sub soil strata	Grain size analysis				Liquid limit (%)	Plastic limit (%)	Plasticity Index (%)	Moisture content (%)	Bulk density (g/cc)	Dry density(g/cc)	Shear parameters			consolidation Test		IS Classification	Hatching			
					Gravel (%)	Sand(%)	Silt (%)	Clay (%)							Type of test	Cohesion (kg/cm ²)	Angle of internal friction ϕ . (degree)	Specific gravity.G	Compression Index, Cc			Void ratio, e0		
1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		
0.00	1.00	DS		Yellowish silty clay of low Plasticity with kankar	2	10	67	21	30	21	9											CL		
1.50	1.95	SPT	5		7																			
2.50	2.80	UDS				7	13	57	23	32	22	10	12.9	1.85	1.64	UU	0.39	12	2.67	0.159	0.83		CL	
3.00	3.45	SPT	8		10																			
4.00	4.30	UDS			1	12	67	20	33	21	12	16.5	1.91	1.64	UU	0.65	12	2.67	0.143	0.79				
4.50	4.95	SPT	9	10	Yellowish silty clay of medium Plasticity				0	6	64	30	38	23	15								CI	
5.00	5.30	UDS			Yellowish clayey silty sand				0	42	50	8	-	NP	-	15.5	1.83	1.58	DST	0.11	21	2.66		SC
6.00	6.45	SPT	10	10	Yellowish silty clay of low Plasticity																		CL	
7.00	7.50	DS				0	11	67	22	32	22	10												
7.50	7.95	SPT	16	14																				
8.00	8.30	UDS				0	13	63	24	30	17	13	18.5	1.88	1.59	UU	0.65	11	2.68	0.137	0.77		CL	
9.00	9.45	SPT	25	21																			CL	
10.00	10.50	DS			Yellowish silty clay of low Plasticity	0	14	63	23	33	22	11												CL
10.50	10.95	SPT	20	15																				
11.50	11.80	UDS				0	13	66	21	31	19	12	15.5	1.91	1.65	UU	0.50	10	2.67	0.158	0.89		CL	
12.00	12.45	SPT	56	40																				CL
13.00	13.50	DS			0	15	63	22	33	22	11													
13.50	13.95	SPT	27	18	Yellowish silty clay of low Plasticity																			
14.50	14.80	UDS				0	14	66	20	34	22	12	16.1	2.01	1.73	UU	0.48	12	2.68	0.163	0.91		CL	
15.00	15.45	SPT	34	22																				

(I)DST- Direct shear test

2 R- refusal (SPT value more than 100)
 3 SPT-STANDARD PENETRATION TEST

4 DS- DISTURBED SAMPLE
 5 UDS-UNDISTURBED SAMPLE

Lab-In-Charge

LABORATORY TEST RESULT

Project Name : Construction of Varanasi Convention Centre in Distt. Varanasi
Client : Oriental Consultants Global Co. Ltd. Japan
Location :- Nagar Nigam , Sigra Varanasi.
Date of Boring 21.03.2017

Borehole No. :- **1**
Depth (m) :- **30.0m**
Water level (m):- **1.50m**

Depth below reference(m)	Type of sample	SPT 'N' Value	Corrected 'N' value	Description of sub soil strata	Grain size analysis				Liquid limit (%)	Plastic limit (%)	Plasticity Index (%)	Moisture content (%)	Bulk density (g/cc)	Dry density(g/cc)	Shear parameters			consolidation Test		IS Classification	Hatching		
					Gravel (%)	Sand(%)	Silt (%)	Clay (%)							Type of test	Cohesion (kg/cm ²)	Angle of internal friction φ. (degree)	Specific gravity,G	Compression Index, Cc			Void ratio, e0	
1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
16.00	16.50	DS		Yellowish silty clay of low Plasticity	0	11	68	21	30	21	9											CL	
16.50	16.95	SPT	30 18																				
17.00	17.30	UDS				0	13	64	23	33	22	11	16.1	1.95	1.68	UU	0.53	12	2.68	0.158	0.89		CL
18.00	18.45	SPT	28 16	Yellowish clayey silty sand																			
19.00	19.50	DS				0	43	49	8	-	NP	-											
19.50	19.95	SPT	32 18																				SC
20.00	20.50	DS		Yellowish sandy clayey silt	0	46	44	10	-	NP	-												
21.00	21.45	SPT	38 20																				
22.00	22.50	DS				0	32	55	13	26	22	4											CL-ML
22.50	22.95	SPT	34 17	Yellowish silty clay of low Plasticity																			
23.00	23.30	UDS				0	14	64	22	33	21	12	18.2	1.91	1.62	UU	0.48	11	2.69	0.166	0.87		CL
24.00	24.45	SPT	40 20																				
25.00	25.50	DS		Yellowish clayey silty sand	0	47	44	9	-	NP	-												
25.50	25.95	SPT	30 14																				SC
26.00	26.30	UDS				0	13	75	12	34	23	11	16.9	2.02	1.73	UU	0.75	10	2.68	0.173	0.93		CL
27.00	27.45	SPT	35 16	Yellowish sandy clayey silt																			
28.00	28.50	DS				0	27	60	13	27	22	5											CL-ML
28.50	28.95	SPT	32 14																				
29.00	29.30	UDS				0	25	59	16	25	21	4	17.8	1.98	1.68	UU	0.22	18	2.65	0.157	0.68		CL-ML
30.00	30.45	SPT	38 16																				

Lab-In-Charge (I)DST- Direct shear test 2 R- refusal (SPT value more than 100) 4 DS- DISTURBED SAMPLE
 3 SPT-STANDARD PENETRATION TEST 5 UDS-UNDISTURBED SAMPLE

LABORATORY TEST RESULT

Project Name : Construction of Varanasi Convention Centre in Distt. Varanasi
Client : Oriental Consultants Global Co. Ltd. Japan
Location :- Nagar Nigam , Sigra Varanasi.
Date of Boring 25.03.2017

Borehole No. :- 3
Depth (m) :- 30.0m
Water level (m):- 1.50m

Depth below reference(m)	Type of sample	SPT 'N' Value	Corrected "N" value	Description of sub soil strata	Grain size analysis				Liquid limit (%)	Plastic limit (%)	Plasticity Index (%)	Moisture content (%)	Bulk density (g/cc)	Dry density(g/cc)	Shear parameters			consolidation Test		IS Classification	Hatching					
					Gravel (%)	Sand(%)	Silt (%)	Clay (%)							Type of test	Cohesion (kg/cm ²)	Angle of internal friction ϕ (degree)	Specific gravity,G	Compression Index, Cc			Void ratio, e0				
1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				
0.00	1.00	DS		Yellowish silty clay of low Plasticity	0	11	68	21	32	23	9															
1.50	1.95	SPT	14		20																			CL		
2.50	2.80	UDS				0	13	64	23	31	20	11	10.5	1.88	1.70	UU	0.67	11	2.67	0.150	0.84					
3.00	3.45	SPT	9	11	Yellowish silty clay of low Plasticity																					
4.00	4.50	DS				0	12	67	21	30	20	10													CL	
4.50	4.95	SPT	12	13																						
5.00	5.30	UDS			0	14	62	24	34	24	10	14.7	1.96	1.71	UU	0.63	16	2.67	0.158	0.85				CL		
6.00	6.45	SPT	9	9	Yellowish sandy clayey silt																					
7.00	7.50	DS				0	33	55	12	24	20	4													CL-ML	
7.50	7.95	SPT	15	13																						
8.00	8.30	UDS			Yellowish silty clay of low Plasticity	0	12	66	22	23	11	15.1	1.91	1.66	UU	0.51	12	2.69	0.141	0.76					CL	
9.00	9.45	SPT	24	20																						
10.00	10.50	DS				0	14	63	23	21	9	12														
10.50	10.95	SPT	20	15	Yellowish silty clay of low Plasticity																					
11.50	11.80	UDS				0	12	64	24	23	13	10	13.5	2.02	1.78	UU	0.48	13	2.67	0.165	0.83					
12.00	12.45	SPT	26	19																						
13.00	13.50	DS			0	14	65	21	24	15	9															
13.50	13.95	SPT	25	17	Yellowish silty clay of low Plasticity																					
14.50	14.80	UDS				0	12	66	22	23	13	10	14.2	1.93	1.69	UU	0.65	12	2.68	0.171	0.85					
15.00	15.45	SPT	27	17																						

(I)DST- Direct shear test

2 R- refusal (SPT value more than 100)

4 DS- DISTURBED SAMPLE

Lab-In-Charge

3 SPT-STANDARD PENETRATION TEST

5 UDS-UNDISTURBED SAMPLE

LABORATORY TEST RESULT

Project Name : Construction of Varanasi Convention Centre in Distt. Varanasi
Client : Oriental Consultants Global Co. Ltd. Japan
Location :- Nagar Nigam , Sigra Varanasi.
Date of Boring 25.03.2017

Borehole No. :- **3**
Depth (m) :- **30.0m**
Water level (m):- **1.50m**

Depth below reference(m)	Type of sample	SPT "N" Value	Corrected "N" value	Description of sub soil strata	Grain size analysis				Liquid limit (%)	Plastic limit (%)	Plasticity Index (%)	Moisture content (%)	Bulk density (g/cc)	Dry density(g/cc)	Shear parameters			consolidation Test		IS Classification	Hatching				
					Gravel (%)	Sand(%)	Silt (%)	Clay (%)							Type of test	Cohesion (kg/cm ²)	Angle of internal friction ϕ_i (degree)	Specific gravity.G	Compression Index, Cc			Void ratio, e0			
1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
16.00	16.50	DS		Yellowish silty clay of low Plasticity	0	12	66	22	30	21	9										CL				
16.50	16.95	SPT	25		15																				
17.00	17.30	UDS				0	14	62	24	31	20	11	15.8	1.85	1.60	UU	0.41	11	2.69	0.161			0.82		
18.00	18.45	SPT	20	12	Yellowish silty clay of low Plasticity																CL				
19.00	19.50	DS				0	13	64	23	30	20	10													
19.50	19.95	SPT	23	13																					
20.00	20.50	DS			Yellowish silty clay of low Plasticity	0	12	67	21	33	21	12										CL			
21.00	21.45	SPT	25	13																					
22.00	22.50	DS				0	14	63	23	32	21	11													
22.50	22.95	SPT	27	14	Yellowish silty clay of low Plasticity																CL				
23.00	23.30	UDS				0	13	65	22	31	19	12	16.5	1.96	1.68	UU	0.48	10	2.67	0.172			0.87		
24.00	24.45	SPT	30	15																					
25.00	25.50	DS			Yellowish sandy clayey silt	0	32	56	12	26	16	10									CL-ML				
25.50	25.95	SPT	33	16																					
26.00	26.30	UDS				0	33	56	11	25	20	5	17.1	1.94	1.66	UU	0.23	18	2.65	0.157			0.64		
27.00	27.45	SPT	30	14	Yellowish silty clay of low Plasticity																CL				
28.00	28.50	DS				0	12	65	23	30	20	10													
28.50	28.95	SPT	35	16																					
29.00	29.30	UDS				0	14	64	22	32	21	11	18.5	2.04	1.72	UU	0.48	10	2.67	0.169			0.88		
30.00	30.45	SPT	32	14																					

(I)DST- Direct shear test

2 R- refusal (SPT value more than 100)

4 DS- DISTURBED SAMPLE

Lab-In-Charge

3 SPT-STANDARD PENETRATION TEST

5 UDS-UNDISTURBED SAMPLE

