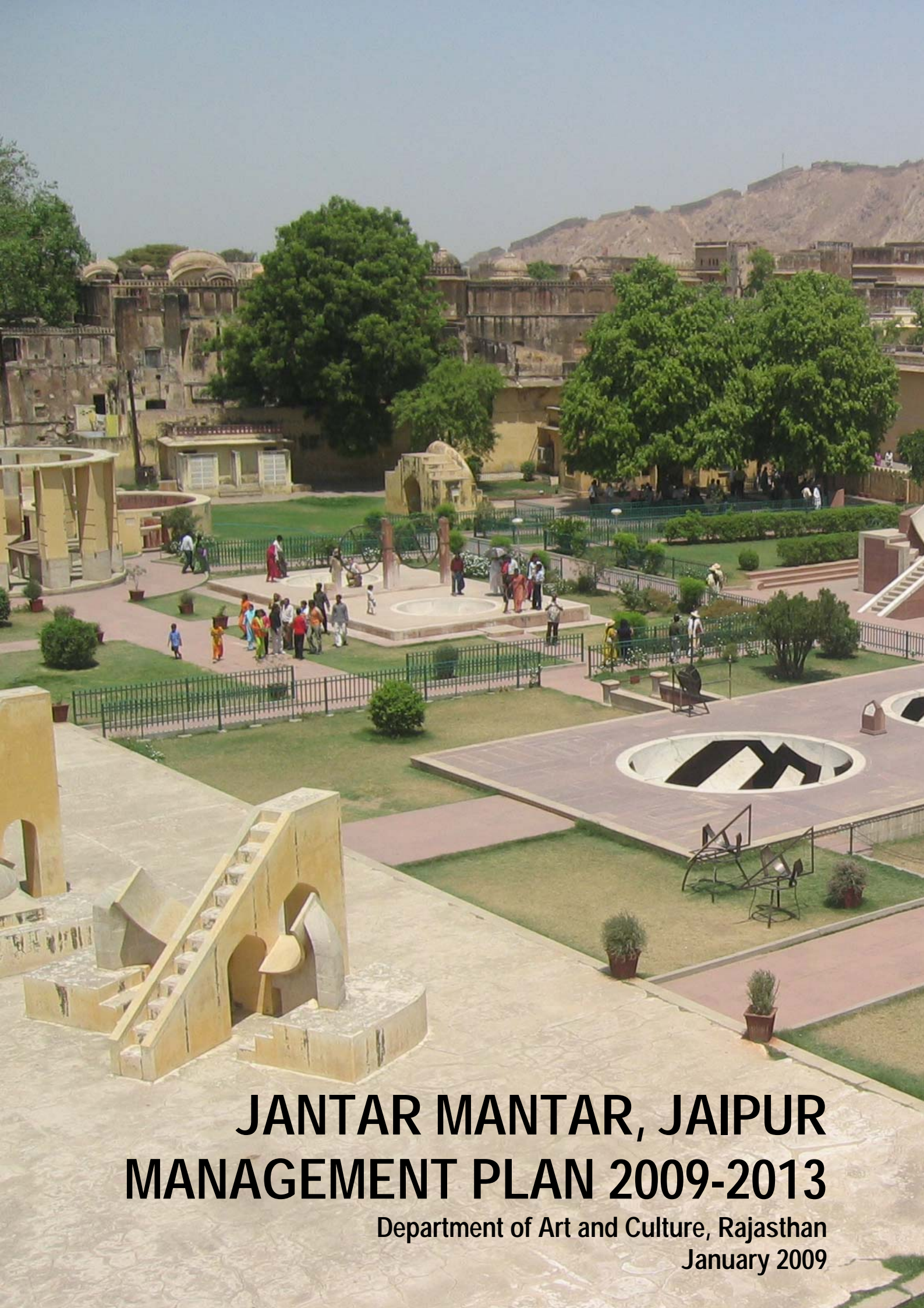


# **ANNEXURE – VI**

Jantar Mantar, Jaipur, Management Plan  
(2009 - 2013)



# **JANTAR MANTAR, JAIPUR MANAGEMENT PLAN 2009-2013**

Department of Art and Culture, Rajasthan  
January 2009

# **JANTAR MANTAR, JAIPUR MANAGEMENT PLAN 2009-2013**

**Department of Art, Literature and Culture, Rajasthan  
January 2009**

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## Executive summary

India represents five observatories that belong to the same historico-cultural group, within the framework of the thematic initiative ‘Astronomy and World Heritage’. Amongst the five, the four existing Jantar Mantar sites at Jaipur, Delhi, Ujjain and Varanasi in India are the most significant in being the best preserved conglomerates of pre-telescopic masonry astronomical instruments. Functioning both as scientific and educational institutions and as historico-cultural monuments of the same group, they have an extraordinary significance to the level of the world heritage. The nomination of Jantar Mantar, Jaipur is a first step in the serial nomination for all Jantar Mantar sites in India that represent the historic-cultural group of pre-telescopic masonry observatories from the 18<sup>th</sup> century. The submission of the Jantar Mantar, Jaipur as a World Heritage Site nomination in 2009 marks a point in time at which methods, policy and funding have combined to facilitate this momentous step forward to meet the enlisted objectives by UNESCO for this ‘Year of Astronomy’.

### ***Statement of Outstanding Universal Value (OUV)***

*The site of Jantar Mantar, Jaipur is the most extant, best preserved amongst the group of pre-telescopic masonry observatories built by Sawai Jai Singh II in the 18<sup>th</sup> century, with maximum number of observational instruments in functional condition. The Jantar Mantar, Jaipur is an icon that has contributed significantly to astronomy, architecture, urban planning, political history and cultural distinctiveness of India; is a testimony to the astronomical knowledge of medieval India and marks the point of dissemination of this knowledge to general public through its monumental existence.*

A Conservation Plan for the site was prepared in 2005-06 and implemented in 2007-08. The plan identified several management issues and indicated the need of a comprehensive approach for the long term functioning and sustainability of the site that needs to be addressed through a Management Plan for the site. To ensure that the OUV of the site is maintained and to ensure a sustainable and integrated development of the site, the Management Plan has been formulated for a period of five years from January 2009 to December 2013.

### ***Vision statement***

*‘Our vision is to conserve, protect and enhance the outstanding universal value of the Jantar Mantar, Jaipur in order to celebrate astronomy and its contribution to society and culture. The Jantar Mantar, Jaipur will continue to exist in the spirit with which it was built by Sawai Jai Singh II: to invite and inspire the widest range of visitors and scholars across the world, to encourage engagement with its astronomical instruments and to contribute to the cultural distinctiveness of the city of Jaipur.’*

In order to achieve this vision, the following objectives are aimed at:

1. Conservation of the Outstanding Universal Value of the nominated site
2. Continue the reuse of the site for astronomical studies and research
3. Facilitate all visitors with appropriate interpretation to understand its significance

The Management Plan is to work in conjunction with other conservation and tourism plans for the site surroundings and the historic core of the city of Jaipur. Along with articulating a Vision for the proposed World Heritage Site, this management plan has the following objectives:

- To identify and resolve all issues relating to the management of the site
- To formulate site management policies that will ensure the conservation, protection and enhancement of the Outstanding Universal Value
- To promote the site as an educational resource and to provide access to all
- To establish an action plan within a specific time frame in order to achieve these aims.

The Management Plan describes the current status of the site including stakeholders, its protection and legislation, conservation, visitor facilities, tourism, risk preparedness, marketing and economic condition. It establishes the baseline assessment from which the issues related to site management emerge. The key issues that directly impact site management at Jantar Mantar have been broadly categorised into eight main sections in the management plan. These are:

1. Planning and policy
2. Conservation
3. Tourism and visitor management
4. Traffic and parking
5. Research
6. Risk management
7. Buffer zone management.
8. Financial management

These main categories are used to assess the key issues and to develop policies and an action plan; identifying the stakeholders responsible for delivery, resources required and time frame for the implementation of the action plan spreading over a five year period. The plan concludes with outlining the arrangements for ensuring that the policies and strategic actions will be delivered and describing how the Management Plan will be implemented in the immediate future.



## Part 1

# Purpose of the management plan

---



## Part 1: Purpose of the management plan

This section presents the vision and aims for the Jantar Mantar, Jaipur and explains the purpose of the Management Plan. It provides the context for the nomination of the site as a World Heritage Site.

### 1.1 Vision and aims

The Jantar Mantar, Jaipur is a testimony to the astronomical knowledge of medieval India and marks the point of dissemination of this knowledge to general public through its monumental existence.

*‘Our vision is to conserve, protect and enhance the outstanding universal value of the Jantar Mantar, Jaipur in order to celebrate astronomy and its contribution to society and culture. The Jantar Mantar, Jaipur will continue to exist in the spirit with which it was built by Sawai Jai Singh II: to invite and inspire the widest range of visitors and scholars across the world, to encourage engagement with its astronomical instruments and to contribute to the cultural distinctiveness of the city of Jaipur.’*

In order to achieve this vision, we aim at the following objectives:

1. Conservation of the Outstanding Universal Value of the nominated site
2. Continue the reuse of the site for astronomical studies and research
3. Facilitate all visitors with appropriate interpretation to understand its significance

### 1.2 The need for and purpose of the management plan

The Jantar Mantar, Jaipur has been a protected site under the Department of Archaeology and Museums, Rajasthan since 1968. A Conservation Plan for the site was prepared recently in 2005-06 and implemented in 2007-08. The plan identified several management issues and indicated the need of a comprehensive approach for the long term functioning and sustainability of the site that needs to be addressed through a Management Plan for the site.

Following this conservation initiative for the site, the Department of Art, Literature and Culture Rajasthan that oversees the Department of Archaeology and Museums decided to nominate the site of Jantar Mantar, Jaipur as a World Heritage Site in 2008. The nomination of the site is strategically planned for 2009, since it is also declared as the 'Year of Astronomy' by UNESCO. One of the requirements of the UNESCO World Heritage Committee, as set out in the Operational Guidelines (UNESCO 2008), is to have an appropriate management plan or other management system which should specify how the Outstanding Universal Value of a World Heritage Site should be preserved. The purpose of such a management system is to ensure an effective protection of the site for present and future generations (UNESCO 2008, paragraphs 108-109). Hence, the Department of Art, Literature and Culture, Rajasthan decided to prepare a Management Plan for the Jantar Mantar, Jaipur to ensure the long term protection and conservation of its Outstanding Universal Value (OUV).

This Management Plan will work in conjunction with other conservation and tourism plans for the site surroundings and the historic core of the city of Jaipur. Along with articulating a Vision for the proposed World Heritage Site, this management plan has the following objectives:

- To identify and resolve all issues relating to the management of the site
- To formulate site management policies that will ensure the conservation, protection and enhancement of the Outstanding Universal Value
- To promote the site as an educational resource and to provide access to all
- To establish an action plan within a specific time frame in order to achieve these aims.

### **1.3 The structure of the plan**

The Management Plan is presented in six parts that are as follows:

Part 1: is the vision and long term aims for the site of Jantar Mantar

Part 2: is excerpted from the nomination file for the site and includes site description and site significance statement

Part 3: includes all aspects related to the current management and use of the site that are evaluated to identify all relevant management issues for the plan

Part 4: includes identification and assessment of the key management issues impacting the OUV of the site

Part 5: provides a policy framework and an action plan within a specified time frame to address the key management issues and to achieve the objectives of the Management Plan

Part 6: explains the ways of implementing, monitoring and reviewing the Management Plan

Supporting information for the Management Plan is provided as Appendices

## **1.4 Jantar Mantar, Jaipur as a World Heritage Site**

In recent years, India has seen significant development in conservation theory, practice and heritage management aspects that has also impacted the conservation and protection of cultural heritage in the state of Rajasthan. The Government of Rajasthan has taken several initiatives to bring forth its built heritage to the international front. The Department of Art, Literature and Culture, Rajasthan has recognised that a number of cultural and natural sites within Rajasthan possess the criteria requisite for the World Heritage Site status and has taken the initiative to identify, list and prepare reports for all such sites.

This Nomination of Jantar Mantar, Jaipur is built upon careful deliberation between the Department of Art, Literature and Culture, Rajasthan and the Archaeological Survey of India with periodic guidance from the UNESCO New Delhi Office. The selection is based on an evaluation of several cultural sites in India and reflects a strong commitment towards promotion of existing astronomical sites in the country. The nomination of Jantar Mantar, Jaipur is a first step in the serial nomination for all Jantar Mantar sites in India that represent the historic- cultural group of pre telescopic masonry observatories from the 18<sup>th</sup> century. The submission of the World Heritage Site nomination in 2009 marks a point in time at which methods, policy and funding have combined to facilitate this momentous step forward to meet the enlisted objectives by UNESCO for this ‘Year of Astronomy’. Special acknowledgements are due to those organisations and individuals who have contributed to the preparation of this document and the nomination of the site thus ensuring the long term future of the site.



## Part 2

# Description and significance of the site

---



## Part 2: Description and significance of the site

This section is excerpted from the nomination dossier for the site. It describes the physical attributes of the site and presents the Outstanding Universal Value of the site.

### 2.1 Location of the Site

Country: India

State, Province or Region: Jaipur, Rajasthan

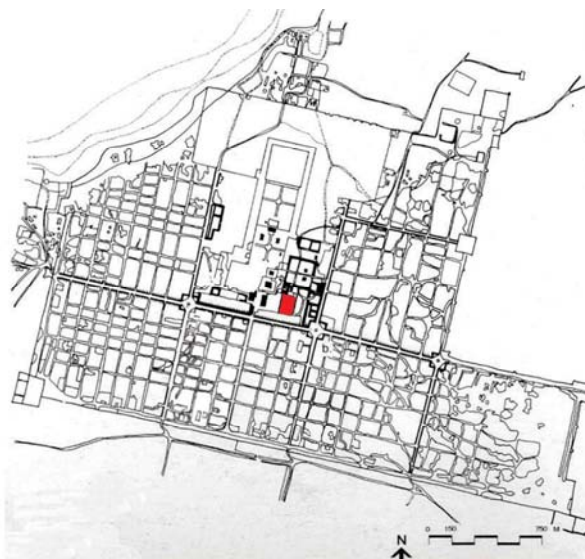
Name of Property: The Jantar Mantar, Jaipur

Geographical coordinates to the nearest second: N 26° 55' 27.4~ E 75° 49' 18.7~

### 2.2 Description of Property

#### 2.2.1 Site context

The construction of Jantar Mantar, Jaipur by the ruler Sawai Jai Singh II in the central core of the city possibly began as early as 1718, had substantial number of instruments on site by 1728 and continued till 1738. Being part of the central palace sector called Chowkdi Sarhad, it is surrounded by architectural landmarks such as the City Palace and the Hawa Mahal (a pleasure wind palace used as viewing gallery) that are important tourist destinations today.



*Fig. 1: The nominated site in old Jaipur plan*

### 2.2.2 Site components

The observatory is an architectural ensemble of astronomical instruments of varied sizes, set in an enclosure on a flat ground. The site at present comprises of 18 distinguishable historic structures that incorporate the observational instruments in stone and metal interlinked by paved pathways and intermittent soft areas developed as lawns. Amongst the structures, some are individual instruments such as the Digamsa Yantra, some are complimentary sets that form one instrument such as the Ram Yantras while others are multiple instruments in one composite structure such as the four quadrants in the Sasthamsa Yantra combined with the Brihat Samrat Yantra. Hence, the total number of observational instruments incorporated in the structures are of varied scale and more than 18 in number. An enclosure referred to as the Astronomer's House (next to the Nadivalaya Yantra) and a square platform called Disha Yantra/Jai Singh's Seat, the function of which is not clear are two structures clearly not used for observations.

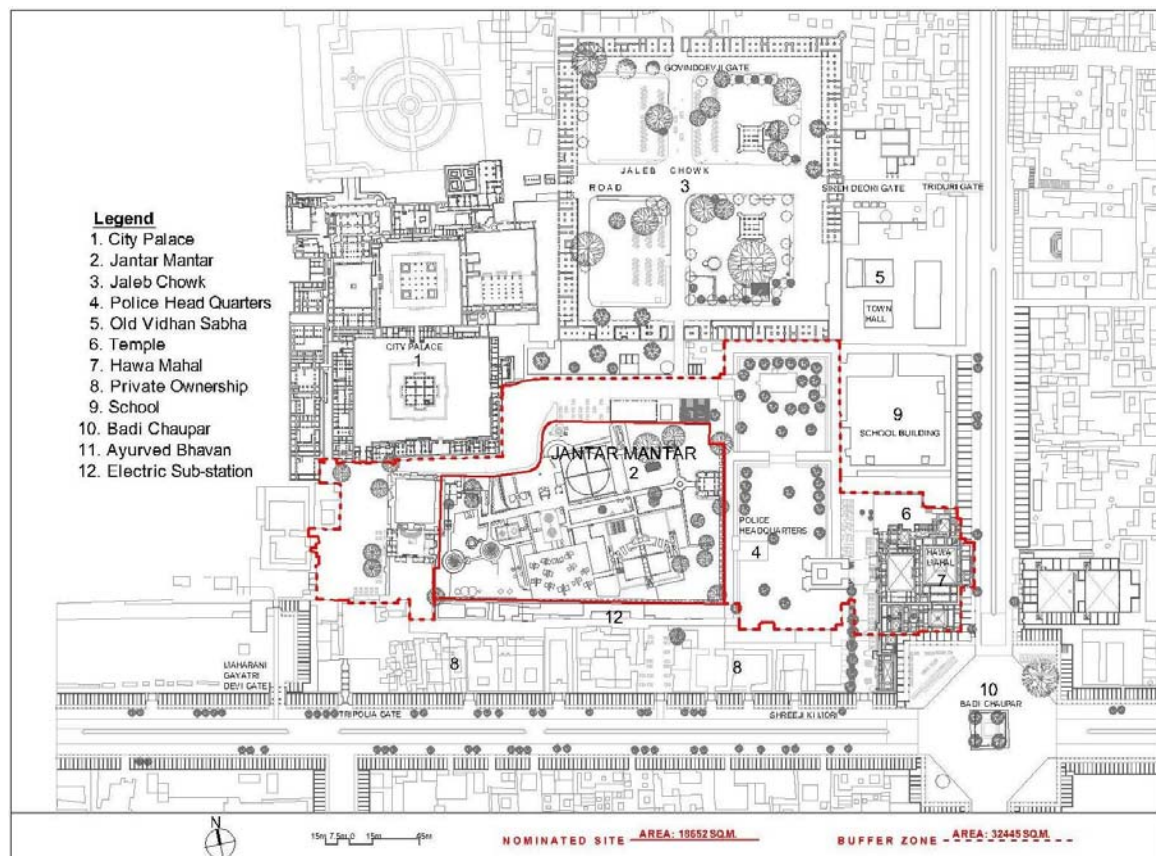


Fig. 2: The nominated site and buffer zone

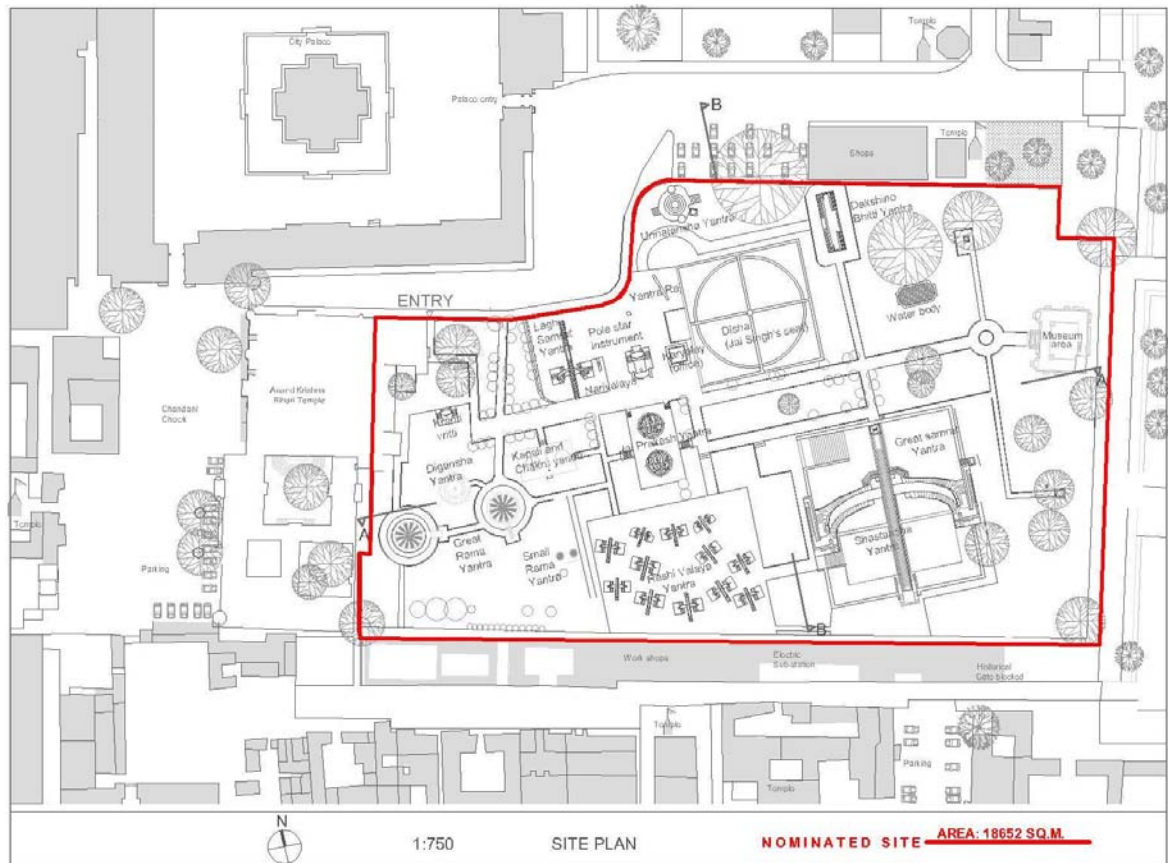


Fig. 3: Plan of the nominated site with the yantras or instruments

### 2.2.3 Site planning

The 18<sup>th</sup> century stone observatory is a unique exemplary example of planning and architectural form of the period. While the rest of the city is planned along axes at an angle of about 15 degrees, the orientation of its astronomical instruments is primarily along the cardinal directions. The superimposition of the two axial systems is reflected in the site with the plot boundary aligned to the axes of the city plan of Jaipur and the instruments along the cardinal directions.

In the placement of the instruments within the site, two axial arrangements exist along the north-south axis. One is between the Nadivalaya, Jai Prakash and Rasivalaya Yantras and one between the Dakshinottara Bhatti Yantra and the Brihat Samrat Yantra. The order of placement of the rest of the instruments is a matter of further speculation based on architectural principles and the functionality of the instruments. While the Brihat Samrat Yantra is set in a rectangular excavation 3.5 metres below ground level, rest of the instruments stand either on combined platforms as in the case of the Rasivalaya Yantra,

Chakra Yantra and Kapala Yantra or on individual plinths. Presently, the instruments are surrounded by hard paving and connecting pathways in red stone and intermittent lawns.

#### 2.2.4 Architectural form and construction materials

In contrast with the character of the built fabric around the site, the instruments are distinct sculptural statements with the use of basic geometric forms and devoid of any surface ornamentation except for the recurring pointed arches. The Brihat Samrat Yantra is the largest sundial in the world and dominates the skyline rising up to about 19 metres above the ground level. A pavilion at the top of the Yantra crowning the highest point of the observatory acts as a visual focal point, with its traditional architectural elements such as surface stucco pattern, stone sunshade, typical cupola roof form and pinnacle, characteristic of the period, unlike the rest of the site.

The construction material of the instruments is essentially stone masonry plastered with lime. Certain parts of the structures in the observatory are engraved with scales for measurements and engraved and filled with lead. These are lined and overlain with *araish* (fine lime plaster finish) and marble with the intent of providing a level, smooth surface for accurate astronomical reading. The use of Ashlar stone masonry in quartzite and surface cladding in red and white quartzite is observed in the Rasivalaya, Nadivalaya, Dakshinottara Bhatti, Laghu Samrat and Ram Yantras. These instruments underwent restoration and rebuilding from the late 18<sup>th</sup> century to early 20<sup>th</sup> century. There are few structures on site with metal observational instruments such as the Unnathamsa Yantra, Chakra Yantra, Krantivritta II, and the Yantra Raj. Besides, there are three other small metal instruments, i.e., one Krantivritta and two Samrat Yantras located on the site.

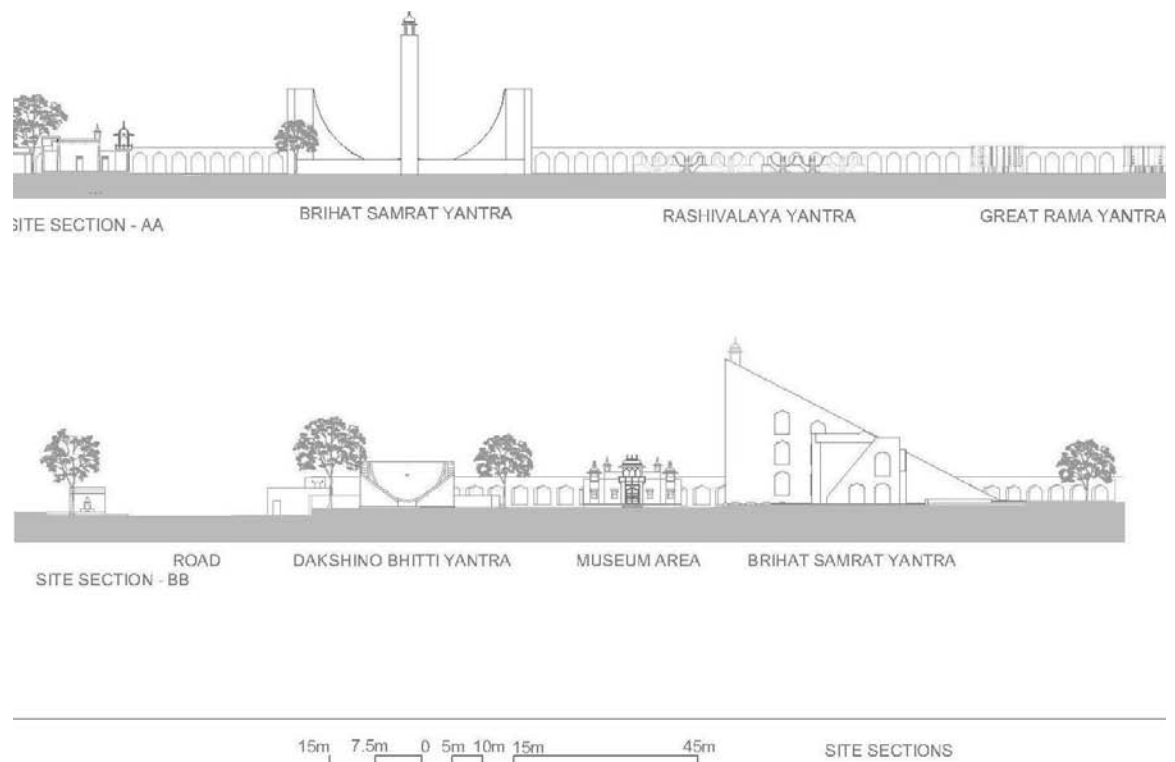


Fig. 4: Lime plastered Brihat Samrat Yantra behind the sandstone clad structure in front





*Fig. 5: Aerial view of the Jantar Manta showing Brihat Samrat Yantrar as viewed from the nearby site of Hawa Mahal*



*Fig. 6: Sections through the nominated site with the Brihat Samrat Yantra dominating the skyline*

### 2.2.5 Function as observational instruments

The Krantivritta Yantra at Jantar Mantar, Jaipur has been interpreted to be incomplete due to the lack of a metal superstructure. The function of the Disha Yantra and the purpose of metal disc in the Yantra Raj is not clear. The rest of the 33 instruments are functional till date and can be used for measuring time, positions of celestial objects in horizon and equatorial and ecliptic co-ordinate systems.

While the metal instruments are not given much merit in their observational capacities, the masonry instruments have been categorised as being of high, medium and low precision. (Sharma, 1997)

Table 1: Level of precision of the instruments at Jaipur

S. No.	Instrument	Level of Precision in masonry instruments	Metal Instruments
1	Brihat (Great) Samrat Yantra	High	
2	Sasthamsa Yantra	High	
3	Jai Prakash Yantra	Medium	
4	Great Ram Yantra	Medium	
5	Small Ram Yantras	Medium	
6	Dhruva Darsaka Yantra	Low	
7	Nadivalaya Yantra	Low	
8	Horizontal sundial atop Nadivalaya	Low	
9	Krantivritta Yantra	Not clear	
10	Krantivritta II		
11	Dakshinottara Bhatti Yantra	High	
12	Yantra Raj		
13	Chakra Yantra		
14	Digamsa Yantra	Medium	
15	Unnathamsa Yantra		
16	Rasivalaya Yantra	Medium	
17	Kapala Yantra	Medium	
18	Laghu (Small) Samrat Yantra	High	
19	Disha Yantra/ Jai Singh's Seat	Not clear	

According to their functional aspect, the instruments/ structures on site can be categorised as (Volwahren, 2001, p. 39):

- Instruments that enable measurements to be taken relating to the horizon and the zenith like the Ram Yantra and Digamsa Yantra

- Instruments that enable measurements to be taken relating to the equator and the earth's axis as in the Samrat Yantra.
- Instruments that allow measurements to be taken actually in the ecliptical system, like the Rasivalaya Yantras.
- Instruments/ structures not used directly for measuring purposes, like the Disha Yantra (open to speculation) and the Astronomer's House.

## 2.3 Statement of Outstanding Universal Value

India represents five observatories that belong to the same historico-cultural group, within the framework of the thematic initiative "Astronomy and World Heritage". Amongst the five, the four existing Jantar Mantar sites at Jaipur, Delhi, Ujjain and Varanasi in India are the most significant in being the best preserved conglomerate of pre-telescopic masonry astronomical instruments. Functioning both as scientific and educational institutions and as historico-cultural monuments of the same group, they have extraordinary significance to the level of the world heritage.

The site of Jantar Mantar, Jaipur amongst this group is the most extant, best preserved and has maximum number of observational instruments in functional condition. The Jantar Mantar, Jaipur is an icon that has contributed significantly to astronomy, architecture, urban planning, political history and cultural distinctiveness of India.

### 2.3.1 Development in science and astronomy

The Jantar Mantar, Jaipur an outstanding architectural expression reflecting the intention to inculcate contemporary findings of astronomy within the late medieval cultural context in India. It represents the culmination of Zij astronomy and an ambitious expression of large scale pre-telescopic masonry observatories as a result of the interchange of ideas across the Indian, Central and West Asian and European cultures. Sawai Jai Singh II's major contribution to India was the compilation of the *Zij-i Muhammad Shahi*, a set of astronomical tables based on his own observations at the Jantar Mantar in Jaipur and Delhi. The scholars of India who were trained according to the Islamic school of astronomy readily adopted the *Zij-i Muhammad Shahi*. They wrote commentaries on it. To the world at large the *Zij* was of little value, but to traditional Islamic scholars of

India, to whom Western science was out of reach, the *Zij* served a valuable need. These scholars prepared almanacs with its aid for more than 100 years. Hindu astronomers also might have embraced the parameters of the *Zij* and prepared their *panchangas* (Hindu calendar) with it.

The Jantar Mantar, Jaipur thus reflects the culmination of the astronomical knowledge base from precedent observatories and instruments constructed in Samarkand, Maragheh, and Ray that only exist as archaeological remains today. The Brihat Samrat Yantra at Jantar Mantar, Jaipur is the largest existing equinoctial sun-dial in the world.

### **2.3.2 Astronomical researches and greater awareness of the subject**

Sawai Jai Singh II approached his astronomical researches with an open mind and the Jantar Mantar, Jaipur corroborates this fact. Before embarking upon the construction of the astronomical instruments, he studied all that was available to him on the subject through various resources in India and across the world. Moreover, during his investigations, he kept this attitude alive. His search for better and more accurate instruments continued even much after his observatories had been built. According to DuBois, Sawai Jai Singh II was ready to modify or let go of his own tables in case better ones were available anywhere in the world. Though few historians believe that his accomplishments remained medieval in retrospect because he could not access the most contemporary telescopic instruments, but his outlook was modern and commendable in the medieval context of India. He went beyond religion to seek knowledge about science. Astronomers of all faiths participated in his researches and his efforts were truly secular and futuristic for his times.

Prior to the making of the Jantar Mantars, observational instruments were not interpreted architecturally either singly or in groups. The medieval Islamic observatories were the earliest institutions to emphasise group research (as opposed to individual research) where theoretical investigations went hand in hand with observations. The instruments and observational techniques used at the Jantar Mantar, Jaipur were mainly derived from the Islamic tradition, and the computational techniques from the Hindu tradition. The integration of astronomy and astrology significant in the Indian context was represented for the first time through these observatories built by Sawai Jai Singh II.



The Jantar Mantar, Jaipur was historically, an arena of astronomical conferences and seminars where astronomers and astrologers from all over the country would assemble to exchange their views on the subject. Being the largest of the observatories built by Sawai Jai Singh II, it was intended to serve for regular, daily, observations. As such, it was constantly used by experts. The Jaipur State records tell us that in 1734 AD, Sawai Jai Singh II gave regular wages to 20 astronomers at the Jaipur observatory.

Besides representing the integration of astronomy and astrology for the first time, it also marks an important phase in Indian history where such codified knowledge base became more accessible to through monumental expressions. Being a subject of continuous research by astronomers, architects and historians since centuries, the Jantar Mantar, Jaipur remains pivotal in understanding the development of astronomy and architecture.

### **2.3.3 A marker of political rituals**

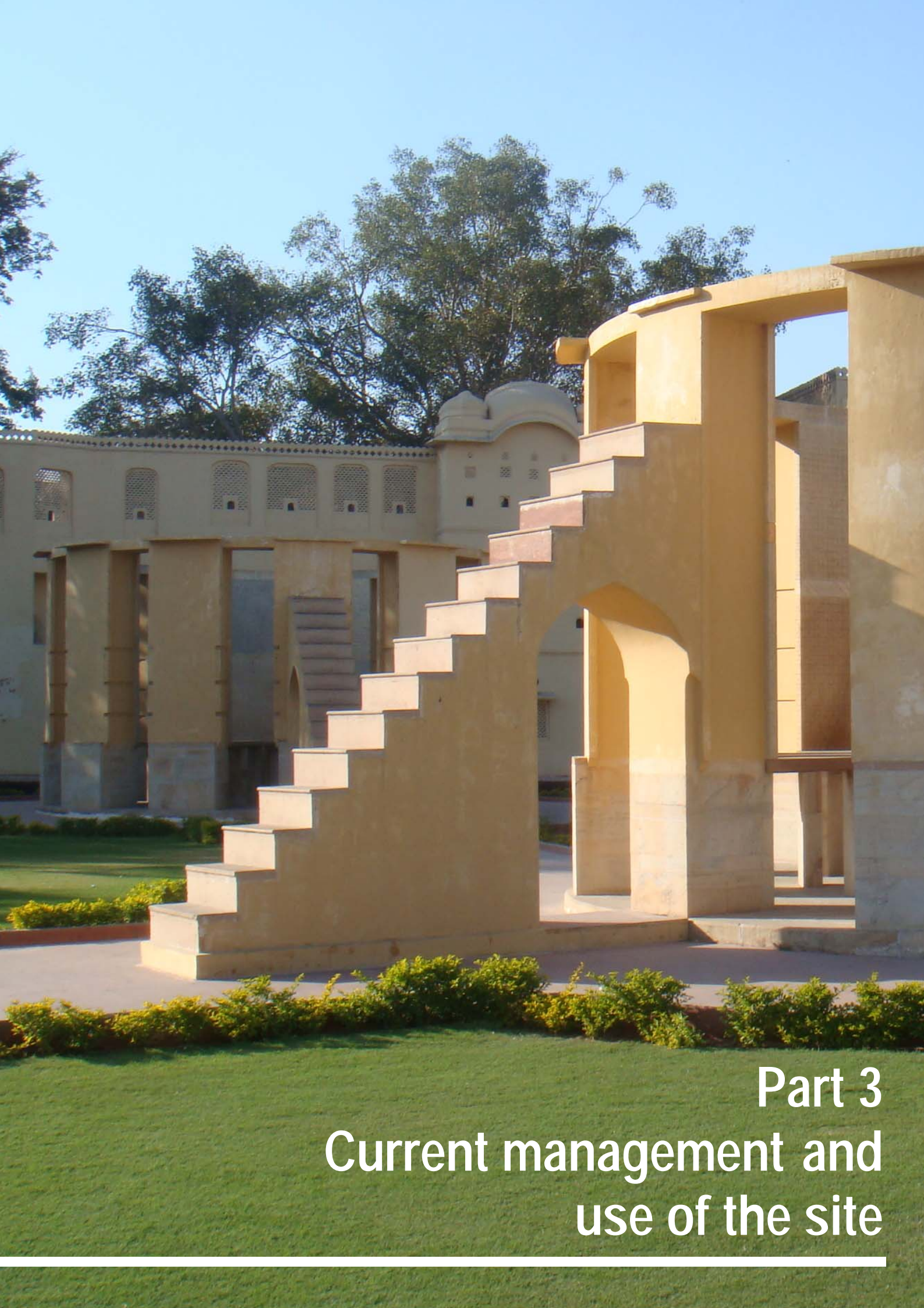
The site of Jantar Mantar, Jaipur occupies a strategic central position in the city planning of Jaipur and is an icon of important political rituals and announcements in the history of the city. Researchers (MacDougall, 1996, p.32) have mentioned that the site of Jantar Mantar served as a setting for rites associated with the passage and control of time. It has also been symbolic of cosmic rejuvenation and the orchestration of solar kingship in Jaipur expressed in political rituals such as the marshaling of the sun at the time of vernal equinox. During the reign of Sawai Jai Singh II, the eclipses were announced to the citizens by the beating of drums under the *chhatra* (cupola) of the Brihat Samrat Yantra.

Even today, on the full moon day of the Hindu month of Ashadha (June- July) on the onset of monsoon season, the local pundits of Jaipur gather at the Jantar Mantar to conduct rites connected with ensuring the return of the rains. Besides the religious rituals, prayers and offerings, they also hoist a flag on the summit of the Brihat Samrat Yantra at sunset to determine the direction of the prevailing winds and predict the nature of monsoon. The marking of the passage of time was also projected at the Jantar Mantar in an auditory form through the beating of the drums and recitations by the pundits. These traditional rituals in the observatory that combined the intangibles of the sound (mantra) and the tangible astronomical instruments (yantra) are probably responsible for the origin of its name as Jantar Mantar.

#### **2.3.4 Contribution to architecture and urban planning**

This unique architectural ensemble of Jantar Mantar, Jaipur is an amalgamation of science and religion to facilitate measurement of celestial position and movement. Besides being a monumental sculptural expression, the architecture of the observatory is ideationally linked to the city planning of historic Jaipur. The scale and proportions of this architectural masterpiece in stone introduced geometrical systems that further got translated into planning principles in the making of the renowned 18<sup>th</sup> century city of Jaipur.

The Jantar Mantar site with its instruments of time keeping was strategically located within the centre of the city. These instruments were interpreted architecturally and became fixtures within the cosmography of the city itself. This strong link between the terrestrial and celestial world was further emphasised by the alignment of the instruments with the axial roads of the city, the city gates and important religious shrines. Thus the significance of Jantar Mantar extends beyond the scientific and architectural value to the field of urban design and city planning in India.



## Part 3

# Current management and use of the site

---

## **Part 3: Current management and use of the site**

This section of the Management Plan describes the current status of the site including stakeholders, its protection and legislation, conservation, visitor facilities, tourism, risk preparedness, marketing and economic condition. It establishes the baseline assessment from which the issues related to site management emerge, and are discussed later in Part 4 of this plan.

### **3.1 Stakeholders**

The site of Jantar Mantar, Jaipur has a wide range of people and organisations with an interest in it that are collectively identified as the stakeholders. The Department of Archaeology and Museums has a statutory responsibility for the land under Jantar Mantar and is responsible for the protection, upkeep and maintenance of the site. The access road to Jantar Mantar and parking areas are under the ownership of the Jaipur Municipal Corporation while the marketing of Jantar Mantar as a tourist destination is the responsibility of the Tourism Department, Government of Rajasthan.

Besides this, other stakeholders comprise of groups and individuals with tourism, conservation, education and research interest in the site. There are also a large number of guides and shopkeepers who are directly or indirectly dependent on the site for their income. The Management Plan needs to address this entire range of stakeholders for effective and long term management of the site.

### **3.2 Land ownership**

The site of Jantar Mantar extends across a small area of 1.86 hectares and is owned by the Department of Archaeology and Museums, Government of Rajasthan since 1968.

The immediate surroundings of the site including the buffer zone area has several landmark monuments as part of the original historic palace complex that now fall under varied ownership. The access road and the common parking area on the north of the site



is owned and maintained by the Jaipur Municipal Corporation and further north is the City Palace Museum under private ownership of the royal family of Jaipur. The land to the east of the site includes Police Headquarters owned by the State Police Department, Government of Rajasthan and further east is the important landmark of Hawa Mahal which is another protected monument under the Department of Archaeology and Museums. To the south of the site is a row of traditional courtyard houses or *havelis* which come under private ownership except for one plot of land housing the electricity board which is a government property. The properties to the west of the site include the Anand Bihari temple which is owned by the Devasthan Department, another department which is also under the Department of Art, Literature and Culture. Further west is the access road that comes under the jurisdiction of the Jaipur Municipal Corporation.

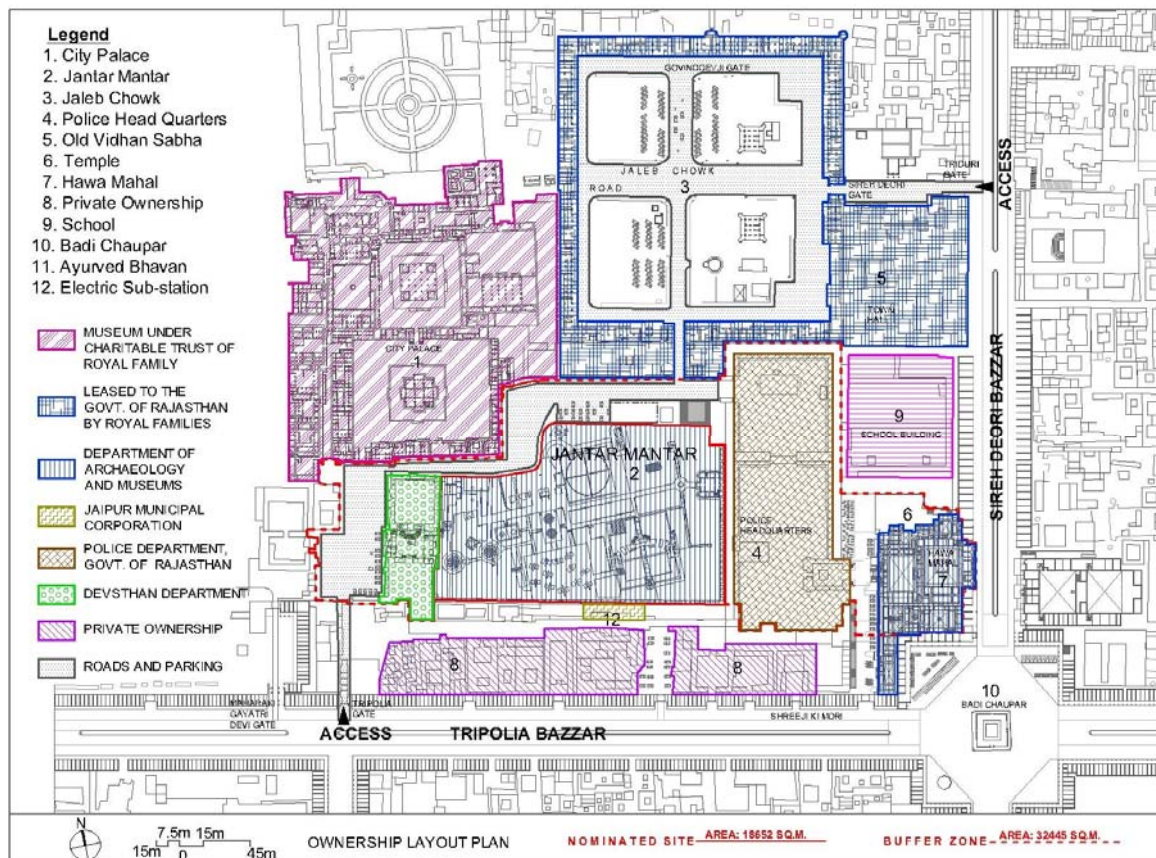


Fig 7: Plan showing ownership of site, buffer zone and surrounding areas

The multiplicity of ownership of the properties in the buffer zone has a direct impact on the site functionality. The conservation plan for the site prepared in 2005-06 proposes the

reuse of adjoining Anand Bihari Temple (owned by the Devasthan Department) as an interpretation and tourist amenities' area for the site. There is a similar proposal for reuse of the Police Headquarters area in the buffer zone. These issues need to be resolved at the planning level for better functioning of the site.

### **3.3 Statutory and non statutory protection**

#### **3.3.1 International**

India is party to the World Heritage Convention, and the Archaeological Survey of India is responsible for the protection of all Indian cultural properties included in the World Heritage List.

#### **3.3.2 National and state designation**

The Ancient Monuments and Archaeological Sites and Remains Act 1958 (No 24 of 1958) was established by the Archaeological Survey of India, which is responsible for the protection of all national level heritage sites in India. This act is applicable for all nationally protected heritage sites. The State of Rajasthan adopted this Act in 1961 and the Jantar Mantar, Jaipur is a state protected monument under this 'Rajasthan Monuments, Archaeological Sites and Antiquities Act, 1961.

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#### **3.3.3 Local planning context**

The Jantar Mantar, Jaipur is marked as a key historic landmark in the master plan of the Jaipur city. The historic walled city of Jaipur is demarcated as a historic zone in the master plan of Jaipur with special byelaws applicable for the area. The Jantar Mantar, Jaipur is also ear marked as an important monument in the Heritage Management Plan of Jaipur prepared by the Jaipur Heritage Committee, Government of Rajasthan in 2007.

### **3.4 Legislative framework**

The management of the site will take place within an established framework of legislation and planning policy. This framework stems from the central, state and local government

policies and byelaws. Supporting the statutory system are conventions, codes of practice and guidance at various levels.

Some of these protective measures are administered by the state government and some by local authorities. The legislative framework and policies applicable at various levels and impacting the site are presented as follows:

#### **3.4.1 International**

The World Heritage Convention (adopted by UNESCO in 1972) was ratified by India on November 14, 1977. The Convention provides for the identification, protection, conservation and presentation of cultural and natural sites of Outstanding Universal Value, and requires a World Heritage List to be established under the management of an inter-governmental World Heritage Committee. Implementation of the World Heritage Convention is overseen by UNESCO's World Heritage Committee. The Archaeological Survey of India is responsible for the India's general compliance with the Convention, and for nominating sites in India.

The Nara Document on Authenticity is conceived in the spirit of the Charter of Venice, 1964, and builds on it and extends it in response to the expanding scope of cultural heritage concerns and interests in our contemporary world. In a world that is increasingly subject to the forces of globalisation and homogenisation, and in a world in which the search for cultural identity is sometimes pursued through aggressive nationalism and the suppression of the cultures of minorities, the essential contribution made by the consideration of authenticity in conservation practice is to clarify and illuminate the collective memory of humanity.

This document is useful to determine parameters of authenticity in a diverse cultural context such as that of India.

#### **3.4.2 National**

India does not have a national policy and legislation for heritage protection and management. All protected sites at national level adhere to the Ancient Monuments and Archaeological Sites and Remains Act 1958 enacted on August 28, 1958. This Act provides for the preservation of ancient and historical monuments and archaeological

sites and remains of national importance, for the regulation of archaeological excavations and for the protection of sculptures, carvings and other like objects. Subsequent to this Act, the Ancient Monuments and Archaeological Sites and Remains Rules 1959 were also framed. The Act along with the Rules came into force with effect from October 15, 1959 for all nationally protected monuments

### **3.4.3 State and local**

The site of Jantar Mantar, Jaipur is protected as per 'The Rajasthan Monuments, Archaeological Sites and Antiquities Act 1961'. This act applies on all state protected monuments that come under the jurisdiction of the Department of Archaeology and Museums, Government of Rajasthan.

Besides the protection under the above act, the site of Jantar Mantar is located within the historic walled city of Jaipur and the byelaws for this special zone apply to the site and the buffer zone. The master plan of Jaipur 2011 prepared by the Jaipur Development Authority mentions the policy for conservation of heritage and sets out building byelaws that restrict or control building activities in the walled city of Jaipur including the buffer zone area for the site of Jantar Mantar. The Government of Rajasthan has adopted a strong tourism policy. Heritage Tourism Policies of the Department of Tourism, Rajasthan respond to the huge potential for tourism in the state. One of the objectives of the Tourism Policy for the state with a focus on heritage is 'Preservation of rich natural, historical, architectural and cultural heritage'. In pursuance of this objective, a number of schemes outlined below, are underway. Two of these that could impact the site of Jantar Mantar are listed below:

- (i) Under a scheme for land and property belonging to Devasthan Department, projects can be jointly undertaken by the Rajasthan Tourism Development Corporation, Rajasthan State Housing Corporation, Department of Tourism and Devasthan Department to utilize such land/ property (usually lying under utilised or in danger of encroachment) for Dharamshalas (rest houses for pilgrims). Yatri Niwas (budget rest houses), Tourist complexes for promotion of pilgrimage and cultural tourism. This particular scheme could be applicable on the adjoining property of Anand Bihari temple west of Jantar Mantar that belongs to the Devasthan Department.

- (ii) For expanding investment in tourism infrastructure, there are proposals for attracting institutional finance from the Tourism Finance Corporation of India, Department of Tourism, Rajasthan Tourist Development Corporation and Rajasthan Finance Corporation and investment from non resident Indians, undertaking joint venture with private sector. The Department of Archaeology and Museum has already availed this opportunity once in funding conservation works for Jantar Mantar in 2006- 2008 through a centrally sponsored scheme from the Ministry of Tourism.

The Rajasthan government has also launched 'Adopt -a- Monument' scheme as an instrument for public-private participation for preserving the State's rich heritage. Rajasthan 'Adopt - a- Monument Society' (non profit organisation) has been registered under Rajasthan Societies Registration Act of 1958.

### **3.5 Agreed plans and strategies**

There are a range of agreed plans which relate to the site directly or indirectly. These range from strategic planning documents at national, regional and local level to overarching strategies guiding tourism, transport, economy or heritage, integrated conservation plans and management plans. Refer to table 2 for the status of agreed plans.

Explanation of the status and content of some of these plans is provided below:

- (i) The Master Plan for Jaipur which is the primary Development Plan for the city categorises land use of old Jaipur under residential walled city area with special byelaws that restrict the floor space index and control the heights of the buildings.
- (ii) City Development Plan for Jaipur is prepared as a visionary document to guide development projects in the city under the Jawahar Lal Nehru Urban Renewal Mission supported by the central government. This plan identifies the Jantar Mantar site area and the surrounding buffer zone as an important historic area that needs to be developed under a special urban renewal project with improved infrastructure.



- (iii) The Heritage Management Plan, Jaipur prepared by the Jaipur Heritage Committee identifies the site as listed in Grade 1 and provides a brief status and action plan for the site.
- (iv) Urban Renewal Proposal for walled city of Jaipur under the Jawahar Lal Nehru Urban Renewal Mission partially funded by the Ministry of Urban Development, Government of India is the renewal project identified under the City Development Plan. It provides parking and urban renewal proposals for the historic areas in the buffer zone of the site and beyond that for the main commercial streets of Jaipur.
- (v) Integrated Conservation Plan for Jantar Mantar and Hawa Mahal - specifically proposes an integrated plan for the site along with the immediate landmark of Hawa Mahal.

*Table 2: Status of agreed plans*

S. No.	Plan	Year of preparation	Agency responsible	Status
1	Master Plan of Jaipur	1991	Jaipur Development Authority	under revision
2	City Development Plan	2006	Jaipur Municipal Corporation	approved and identified detailed project reports under preparation
3	Heritage Management Plan	2007	Jaipur Heritage Committee	is being integrated in the revised master plan
4	Urban Renewal Proposal for walled city of Jaipur	2008	Jaipur Municipal Corporation	under implementation as one of the identified projects in the city development plan.
5	Integrated conservation plan for Jantar Mantar and Hawa Mahal	2005-06	Department of Archaeology, Rajasthan	implemented for site but not for buffer zone.

*(Refer to Annexure V of Nomination Dossier of Jantar Mantar, Jaipur, for 'Extracts from agreed plans related to municipality and region' and Annexure VII for the 'Integrated conservation plan for Jantar Mantar and Hawa Mahal')*

### 3.6 Management responsibilities

The management and ownership of the entire site is under the Department of Archaeology and Museums. The Department subleases certain parts of the site such as the book shop and snacks counter on an yearly lease which is reviewed annually. However, the maintenance of the leased portions are the responsibility of the Department of Archaeology and Museums. The Department is administrated by the Director, Archaeology and Museums under the Department of Art, Literature and Culture, Rajasthan headed by the Principal Secretary, Art, Literature and Culture. The Department of Art, Literature and Culture makes all decisions regarding the site and its activities.

The Department of Archaeology and Museums was established to manage the cultural heritage of Rajasthan through conservation, restoration, research, publication, survey, documentation, excavation, exploration, acquisition, exposition and to promote cultural tourism. It has the following branches:

- i. Technical branch
- ii. Excavation branch.
- iii. Art survey branch
- iv. Architecture survey branch
- v. Engineering branch
- vi. Chemical branch
- vii. Establishment branch
- viii. Numismatic branch
- ix. Accounts branch
- x. Photography branch
- xi. Library

The engineering branch of the Department of Archaeology and Museums is responsible for the on site implementation of the decisions of the Department. The accounts wing of the Department is responsible for revenue collection from the site activities and for disbursement of funds for site maintenance.

RSMMMDS ‘Rajasthan State Museum and Monuments Management and Development Society’ is a society constituted under the Chairmanship of the Chief Minister for proper upkeep and maintenance of Government Museums and Monuments. This society has been registered under Rajasthan Societies Registration Act 1958. This society was responsible for commissioning the conservation plan for Jantar Mantar in 2005 and its subsequent implementation by the engineering wing of the Department of Archaeology and Museums.

The Jantar Mantar, Jaipur has a total of 11 staff members for regular upkeep and maintenance of the site. These include one superintendent who has knowledge of the astronomical instruments and can record the readings, two office assistants, one person for ticketing, seven employees for maintenance works and one guard. An engineer conversant with conservation works monitors the site on a daily basis. The cleaning of the site and toilet areas is given on an annual contract. Besides this, the maintenance of landscape and gardens is also given on an annual contract amounting to a monthly expenditure of Rs. 11,000/- (Indian Rupees) per month. The security of the area is also handed over to a security agency on contract basis. Below is a summarisation of the staffing:

*Permanent Staff*

- i. Superintendent - 1 (Specialised in the field)
- ii. Office Assistant - 2
- iii. Monument Attendants - 7
- iv. Sweeper - 1

*Contractual Services*

- i. Maintenance of garden and dry sweeping of the Complex - 15 persons
- ii. Upkeep of toilets - 3 persons
- iii. Security services - 10 persons
- iv. Tourist Assistance Force - 3 Police Constables  
(Stationed outside the site)

The monument attendants take care of the instruments during the visitor hours. Toilets are washed on an hourly basis along with the replacement of toiletries. For horticulture

maintenance, the concerned agency waters the garden through a sprinkler system daily and trimming of hedge/ grass is done at an interval of 10 days. The sweeping of the monument areas is done five times a day.

Presently 11 guides are licensed by the Department of Archaeology and Museums while other licensed guides may be from the Department of Tourism under Government of Rajasthan or the Government of India. The main languages are Hindi, Gujrati and Bengali for the Indian visitors, and English, French, Italian and German for foreigners. The audio guide for the site is optional and is operational since 2007.

The management structure needs to take into consideration the diverse tasks identified under heads such as conservation, use, interpretation and outreach, tourism and maintenance. The management personnel will be responsible for all day to day maintenance, small repairs, publications, interpretation, dissemination etc.

Specialised tasks such as major conservation plan etc. are accomplished by recruiting consultants and technical staff. Jantar Mantar, Jaipur does not have any risk management plan. Considering the recent 2007 bomb blasts in the city of Jaipur, it is essential that such a highly visited tourist site should have a risk management plan.

A daily, weekly and annual maintenance schedule for the site needs to be charted out as per the monitoring of conservation works and proposed programs. Furthermore, the department should draft specific plans for risk management, visitor management and interpretation. It is also important that a regular maintenance schedule is prepared, regular training is provided to the employees and the maintenance work is periodically monitored by a conservation expert.

### **3.7 Present state of conservation**

#### **3.7.1 State of conservation**

The Jantar Mantar observatory complex at Jaipur is presently in a good state of conservation. According to the Conservation Plan prepared in 2005, the Department of Archaeology and Museums, Government of Rajasthan carried out repair and restoration

works in 2007-2008. As a result of the same, with the use of matching materials and traditional techniques, the instruments were restored and the landscaping and circulation pattern modified. The current landscaping requires to be reviewed in lieu of its historic context and the present use of the site.

None of the instruments at Jantar Mantar show any structural damage or deterioration in the current situation. The foundations and below ground parts of the instruments had suffered water seepage due to over watering of the lawns. The water seepage in Jai Prakash Yantra has been rectified by relaying the surrounding plinth protection. In 2005, the brass instruments had shown signs of deterioration in the form of pitting as did the iron astrolabe in the Yantra Raj. The timber beams in the Yantra Raj that were structurally unsound were replaced in the conservation works of 2007. However, in case of the Unnathamsa Yantra, though the beam was diagnosed as structurally unsound, it was simply consolidated as the replacement beam of required size was unavailable.

The finishes of a number of instruments have been restored with works such as lead refilling in scales, lime plaster and lime wash on surfaces and lime terracing on the roof of certain instruments. Conservation work is currently being carried out on the Rasivalaya Yantras.



*Fig.8: The Yantra Raj with replaced wooden beam*



*Fig.9: The Unnathamsa Yantra with consolidated wooden beam*

### **3.7.2 Resources and training**

The Department of Archaeology and Museums has developed a strong engineering department that is well conversant in carrying out onsite conservation works. The Department has a comprehensive schedule of rates charted out for onsite conservation



works in each specific subregion within the state of Rajasthan. Through RSMMMDS i.e. the ‘Rajasthan State Museum and Monuments Management and Development Society’, the Department of Archaeology and Museums has empanelled about 20 qualified conservation architects for preparation of conservation plans for various heritage sites and monuments in the state. The Department recruits these consultants as per specific project requirements.

The Department of Archaeology and Museums is further facilitated by the State Institute of Heritage Conservation, Rajasthan which is a government initiative at the state level to provide required training in conservation works to contractors and masons working on heritage sites. The engineering wing of the Department of Archaeology and Museums actively participates in all workshops and training programmes of the Institute. Currently, they are involved in making revisions to the existing conservation manual followed by the Archaeological Survey of India so that it may be updated and used as a guideline for the conservation works in Rajasthan.

The senior officials and engineers within the department keep themselves well informed about conservation trends and regularly participate in national level workshops and training programmes held by organisations such as the UNESCO New Delhi Office and the Archaeological Survey of India.

### **3.8 Extent of existing records and documentation**

The Department of Archaeology and Museums has its own library section which has a good collection of well researched publications on the Jantar Mantar, Jaipur. Besides this, the archival records in the department have letters related to changes made and works done to the monuments since 1968. Official records before this period are available in the State Archives of Bikaner.

Besides this, the royal library located in the City Palace of Jaipur is run by a public charitable trust formed by the royal family of Jaipur. This library or *pothikhana* (royal library of historic Jaipur) is now open for public and has invaluable resources such as old maps, travel records and old photographs of Jaipur city. It also has an important map of



Sireh Deodi gate and Jaleb chowk to the north of the site while the second access is via the east west axis of the city through the Tripolia Gate and Chandni Chowk to the west of the site. In both cases, the roads being main commercial areas of Jaipur have excess traffic and the parking areas located in the buffer zone north to the site is limited. Though the roads of the city are wide, the mixed use and heavy traffic cause congestion. Most of the tourist parking is located in the Jaleb Chowk, where open space is available. But, haphazard parking and large tourist vehicles like buses cause congestion, adding to which are the many cycle rickshaws that wait to collect passengers from Jantar Mantar and the surrounding monuments.

These issues related to physical access of the site are further elaborated under section 4.5 on roads and parking.

### **3.9.2 Intellectual access - interpretation and education**

The unique astronomical site of Jantar Mantar requires specialised interpretation to explain the significance of the instruments to the visitors. For many years, the site did not even have basic signage required to explain the function of each instrument. The guides at Jantar Mantar often mix facts with stories to engage the public and cannot be relied on for authentic information. Hence, it became essential to develop proper signage and during the course of conservation works in 2007-2008 the Nehru Planetarium was engaged by the Department of Archaeology and Museums for this purpose. As per the proposals in the conservation plan, the Department also plans to develop the museum block in the east side of the site and an interpretation centre at the entrance on the west side. The Department of Archaeology and Museums has also started an audio guide recently which is a useful interpretive medium for the site.

Currently, there is a small book shop at the entrance of Jantar Mantar which provides all publication material about the site, postcards and brochures etc. The ticketing counter of Jantar Mantar also functions like a tourist information centre.

Several local astronomers visit the site regularly to take readings of the instruments and on special occasions such as the onset of monsoon, certain rituals are still observed on the site such as placing the flag on top of the cupola of the Samrat Yantra to check the wind direction for predicting monsoons. However, more group and educational activities

disseminating knowledge about the use of instruments needs to be integrated as part of the site development. There is also a plethora of international research on Jantar Mantar, Jaipur that needs to be encouraged and incorporated with site development.

### **3.10 Marketing**

While the Department of Archaeology and Museums owns and protects the site of Jantar Mantar, it is the Department of Tourism of the Government of Rajasthan that promotes and markets the site as an important tourist destination. In addition, there are key organisations whose activities at a national level are of direct relevance to the site such as the promotion by Ministry of Tourism and the studies conducted by the Nehru Planetarium.

The nomination of the site for a World Heritage Site should lead to a marketing strategy that sits within the context of existing international, national, regional and local marketing priorities.

### **3.11 Academic interest in Jantar Mantar**

Because of its unique values, the Jantar Mantar has been a site of academic interest amongst historians, astronomers, architects, scholars and travelers since centuries and continues to be a subject of great academic interest for the local, national and international community. For centuries, Jantar Mantar sites of India have been visited and researched extensively by academicians, historians, astronomers and keen amateurs, resulting in a vast edifice of work that covers many of the architectural and astronomical aspects of the site. There has been a plethora of publications on the making of Jantar Mantar and deciphering its usage. Several noteworthy books have been published, while numerous articles in national and international journals have been published (refer bibliography for details).

This scholarship has helped to ensure that Jantar Mantar, Jaipur is acknowledged as one of the vanguard of astronomical observatories in the history of India.

### **3.12 The local community**

The local community has a strong association with the site of Jantar Mantar and there are several local astronomers who visit the site till date to take astronomical readings of the instruments. For the average citizen of Jaipur, the site of Jantar Mantar is a significant icon of the city and the locals take considerable pride in the location of this monument within the city. The architectural forms of Jantar Mantar are a great source of inspiration for contemporary designers and have featured as inspirations for new buildings. This formal play is evident in the design of the logo as well as the new office building façade of the Jaipur Municipal Corporation.

### **3.13 Economic conditions and current revenue**

The annual turnover of the tourist fee from the site of Jantar Mantar in 2007-2008 amounts to an average of Rs. 285, 38,695 (Indian Rupees). It is primarily derived from the daily visits of the tourists. In the last two years, tourism in Rajasthan has increased considerably, thus helping the overall income of the site. However, this income is not retained by the Department of Archaeology and Museums but it has to be deposited in the State Treasury on a daily basis. The expenditure for upkeep and maintenance of the site is substantially low and comes from the total annual budget that is sanctioned to the Department of Archaeology and Museums for the upkeep and maintenance of all protected monuments in Rajasthan. Special works such as the preparing of the Conservation Plan in 2005-06 and its subsequent implementation in 2007-08 are often supported by special schemes such as the centrally sponsored grant from the Ministry of Tourism, India.

The Management Plan proposes to achieve economic sustainability for the site through strategic planning. It will look at aspects such as regulating the incoming tourism revenue, disbursing and balancing funds under each identified head and integrating more tourism revenue generating options to ensure effective implementation of the Conservation Plan and the Management Plan.



Appendix I provides details about the fee applicable for the tourists, photo shoots, video shoots, documentaries and movie shooting on the site. The following table 3 provides details of the annual income collected from the site since 2001 and table 4 provides the annual expenditure details of the department.

*Table 3 - Income for Jantar Mantar, Jaipur, from tourist entry tickets*

S. No.	Year	Total Tourist	Total Received Income (In Indian Rupees)
1.	2001-02	440523	5157816
2.	2002-03	418105	5129475
3.	2003-04	509106	7226930
4.	2004-05	612908	10376000
5.	2005-06	654615	11285875
6.	2006-07	727063	12525750
7.	2007-08	738457	28538695
8.	2008 (April 08 – Dec 08)	474050	21276080

*Table 4 - Annual expenditure on maintenance of Jantar Mantar, Jaipur*

S. No.	Item	Average Expenditure
1.	Payment Expenses	20,00,000.00
2.	Office Expenses	2,00,000.00
3.	Security Expenses	3,50,000.00
4.	Gardening Maintenance Expenses	1,45,000.00
5.	Cleaning Arrangements	1,30,000.00
	Total Average Expenditure	28,25,000.00

Though the income generated from the site is much higher than the annual expenditure but it does not go to the Department of Archaeology and Museums and hence, it cannot be utilised in the conservation or other works related to the site. The Department is in the process of working out a better arrangement with the Government of Rajasthan where RSMMDS shall retain 2/3<sup>rd</sup> of the revenue collection and utilise it in developing the site.



## Part 4

# Key management issues

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## **Part 4: Key management issues**

### **4.1 Identification of key management issues**

Amongst the various management aspects described in the earlier section, the key issues that directly impact site management at Jantar Mantar can be broadly categorised into eight main sections. These are:

1. Planning and policy
2. Conservation
3. Tourism and visitor management
4. Traffic and parking
5. Research
6. Risk management
7. Buffer zone management.
8. Financial management

These main categories are used in this Management Plan to assess the key issues in this section and to develop policies and an action plan in the next section.

### **4.2 Planning and policy**

#### **4.2.1 International**

With the inscription of the Jantar Mantar, Jaipur as a World Heritage Site, it will be bound to follow the guidelines of the World Heritage Convention and adhere to its definition of authenticity.

Besides, subsequently the site will be a part of the serial nomination of all Jantar Mantar sites, and it has to be ensured that all the Jantar Mantar sites follow the same management regime as per the Operational Guidelines provided by UNESCO.

#### 4.2.2 Central government and state government

For the protection of the Outstanding Universal Value of the site of Jantar Mantar, Jaipur it is essential that all national level and state level policies and rules are taken into consideration for the development of the site. Special planning schemes such as the Jawaharlal Nehru Urban Renewal Mission at the central level and Tourism policies at central and state level can be strategically utilised in the development and conservation of the site.

#### 4.2.3 Local government

Since the buffer zone, access road to the site and parking areas fall under the Jaipur Municipal Corporation, local planning and byelaws play a crucial role in site enhancement. It is important to ensure that the local byelaws governing the site surroundings are enforced and enhanced to control the development around the site and to stop unwanted encroachments around the area.

*Issue 1: Conform to the guidelines as prescribed in the World Heritage Convention*

*Issue 2: Coordination of national and state level policies and planning schemes*

*Issue 3: Enhancement of byelaws to control buffer zone development*

### 4.3 Conservation

#### 4.3.1 Planning and landscape

The Jantar Mantar, Jaipur historically existed as an observatory with the instruments placed on a single plane of the site devoid of any landscaping. It was probably developed into a garden with pathways during the renovations in the 19<sup>th</sup> century along with the construction of the access road to the site. With increasing tourism, there is an attempt to control visitor movement within the monument through more regularised pathways. These pathways are made by paving with red sandstone and then curbed with concrete curb blocks or with railings. Unfortunately, these pathways have become a strong distinct pattern in the ground disturbing the floorscape and view of the yantras or instruments. Some of the larger paved areas allow tourists to experience these yantras from many



desired locations and angles. However, the existing landscaping is in conflict with the historic ambience of the place and the landscaping definitely requires to be reviewed both in the context of its past and present use. As also specified in the Conservation Plan, the yantras cannot be seen as individual buildings that need to be connected by pathways. They need to be seen as existing on a single ground plane. The paving should thus be an element that brings them together rather than bring a mere connection between the instruments. It should also be as unobtrusive in character as possible. Sound historic research is required to review and redesign the site landscaping.

There are nice mature trees existing on the site. They may have been absent historically, but they do provide some relief to the stark landscape and also shade some areas. If their existence does not disturb the reading of the instruments or harm the built fabric, they should be retained.

The pathways in the landscape have been recently repaired and resurfaced with red sandstone. However, the excess watering of gardens seems to spill over the pathways next to the instruments and can lead to deterioration. This becomes critical, especially in monsoon, since a lot of seepage is already taking place from the existing gardens.

The railings at the site were redesigned and replaced in 2007 to ensure a safe viewing distance from the instruments..

#### **4.3.2 Condition of built fabric**

The yantras have by and large do not show major structural damages. The reasons for the structural damages depend upon:

- (i) Ageing of materials: At places, wooden structural elements have been used to support some yantras like the wooden beams in the Unnathamsa Yantra. These beams had deteriorated over time and the brass instruments were precariously positioned. These were replaced with matching beams in the conservation works in 2007.
- (ii) Differential movement in foundation due to water seepage: The yantras are surrounded by gardens all around them. These are watered very frequently and therefore a lot of water percolates into the ground. Since these foundations would not have been designed for this kind of water seepage, they tend to



settle unevenly depending upon the soil conditions. These aspects were addressed in instruments such as the Jai Prakash Yantra by relaying the plinth protection in lime in 2007. Underground historical drainage system below the yantra was also opened up and cleaned to make it functional.

However continuous care of the historic built fabric is essential and a proper management and conservation regime for the site should be developed and adhered to for long term conservation.

#### **4.3.3 Functioning of instruments**

It is important that the instruments at Jantar Mantar are regularly used for observations to ensure the long term functionality of the instruments. In this context, expert astronomers should be consulted to check the status of the instruments and to maintain a regular record of the readings. Any damage to the functioning of instruments should be immediately addressed.

***Issue 4:** Existing landscaping of the site needs to be reviewed in context of its past ambience and, its present and future use as a tourist monument*

***Issue 5:** The conservation of built fabric of the instruments should be of primary importance*

***Issue 6:** The functioning of astronomical instruments is crucial for protecting the OUV of the site*

## **4.4 Tourism and visitor management**

### **4.4.1 Public access**

Jaipur is the gateway of Rajasthan, and also the capital of the state. Several parts of the city are developing very well. But the heart of the capital lies in the old city. It is imperative that any further growth in tourism must be supported by improved infrastructure and a cleaner city. The traffic in and around the old city calls for better management and comprehensive measures for pollution control. The entrance to Jantar Mantar site falls on a main thoroughfare and gets cluttered by vehicles coming to drop off or pick up visitors.

#### 4.4.2 Visitor management

Within India, the government has accepted tourism as an important national industry. This is marked by the focus on improving infrastructure at recognised tourist destinations as an important agenda. Rajasthan, with its magnificent palaces and Jaipur in particular receives a very high number of tourists. Since a major part of the state has been a desert, and thus, removed from the focus on agriculture, tourism in Rajasthan has been an important generator of revenue. Being the capital of the state, and also its romantic image of the Pink City has made Jaipur the most sought after destination.

Heritage and culture tourism is a key growth sector in Rajasthan and India. Tourism provides opportunities to enhance understanding between the visitor and the local community, and promote respect for different cultures. With appropriate marketing, a World Heritage Site Inscription will result in increased visitor usage. This needs to be seen in the context of existing targets for growth of the tourism sector in Jaipur, as the site could make a significant contribution to strategies to manage the impact of tourism on the environment. Table 5 shows the increasing growth of visitors on site since 2001. However, with inscription as a World Heritage Site there would be a need to revise tourist projections and strategise visitor management.

The tourist numbers on the site have increased from an average of 1800 per day from the year 2006 -07 to 2025 in 2007-08. At certain peak days in winter, the number of tourists on the site rises to 10,000. Since the historic monument has a limited area of 1.86 hectare, it is extremely important to control and channelise the tourist traffic. It should be ensured during the peak tourist season, that the movement of tourists is specially guided/assisted by employing extra staff. Care should be taken to ensure that the site does not admit more visitors than its carrying capacity. An optimum number of tickets within a specific time period should be fixed for the busy tourist season to ensure this.

Drainage, water supply and electricity are services which need to be improved. They have to be concealed such that they do not mar the beauty of the monuments. Tourist facilities have to be provided, not only in terms of facilitation centres, but amenities like toilets, street furniture, lighting, proper roads and pathways etc. These would contribute towards an overall ambience of the site. Careful listing of the monuments, their use and the

manner of their preservation, conservation or adaptive reuse needs to be taken up for the site surroundings including buffer zone.

*Table 5: Tourism statistics for Jantar Mantar, Jaipur*

S. No.	Year	National Tourists	International Tourists	Students	Total Tourist
1.	2001-02	329580	93000	17943	440523
2.	2002-03	310258	87000	20847	418105
3.	2003-04	383797	101801	23550	509106
4.	2004-05	409370	174500	29038	612908
5.	2005-06	416323	211285	27007	654615
6.	2006-07	433854	251656	35544	727063
7.	2007-08	422669	276270	39518	738457

#### 4.4.3 Interpretation

Though several initiatives have been taken in the last year or so to improve interpretation of the site such as audio guide and improved signage but a comprehensive interpretation plan needs to be developed for Jantar Mantar to ensure proper interpretation. The interpretation plan also needs to address the other Jantar Mantar sites which will be part of the serial nomination to Jantar Mantar, Jaipur.

#### 4.4.4 Visitor facilities

Most of the visitors to Jaipur visit the central core of the city and Amber Palace. Visitors to the monument district in Jaipur are categorised in three broad categories in the Conservation Plan. One is the international visitor. These visitors come to Jaipur out of an awe and appreciation of the beauty of the heritage properties. They may visit for a short time or may have a research or academic interest in the place. They come in search of the enigma of bygone eras. While the monuments attract visitors and will continue to do so, travellers world over are becoming more aware and a discerning lot. There is an expectation of basic standards of maintenance of the monuments as well as supporting facilities and basic infrastructure. Thus, for Jaipur to attract more visitors, it becomes imperative to carefully assess the overall ambience of the place and supporting facilities for increased traffic. The second category of the people is Indian tourists. With the increased availability of information they too are more aware of international tourism standards. The third category of visitors who come to the central monument district are

the pilgrims. The area around Jantar Mantar has several small and large temples, some of which have great significance locally as well as nationally. Topping the list of temples in the central sector is the Govind Dev Mandir. This particular temple is the most significant temple for the city thus contributing to a great amount of traffic of pilgrims in the surrounding areas of the site. Visitors park their vehicles, either in Jaleb Chowk or along the road leading to the temple. The road through Jaleb Chowk which is also part of the parking lot used for the site, has thus become an important thoroughfare.

Ticketing is an important aspect of any heritage monument. However, all activities related to ticketing and checking must be streamlined. Ticketing is part of the public facilities and has recently been reorganised at Jantar Mantar with adequate shaded waiting area. There are two windows that function during peak periods. Entry and exit to the complex is now through two separate gates to ensure easy flow of tourists and to avoid congestion.

The Conservation Plan proposes a tourist facilitation centre, an information centre, some souvenir shops, cafe, waiting areas, and amenities to be located at the site of the present ticketing office. Though this proposal has not been implemented yet, it might be taken up once the adjoining property of Anand Krishna Bihari temple on the west is added to the Jantar Mantar site.

#### **4.4.5 Education and outreach**

It is important that this site of scientific value should serve as an educational resource. Hence, the annual calendar of the site should incorporate educational programmes and activities. The Jantar Mantar at Delhi has already taken this initiative with support from the Archaeological Survey of India.

To highlight the intimate connection between astronomy and heritage, Nehru Planetarium in collaboration with the Archaeological Survey of India, the Amateur Astronomers' Association, Delhi, the Science Popularisation Association of Communicators and Educators and Astronomica conducted a fair titled 'Khagol Mela' at Jantar Mantar Delhi in January 2009 with the aim is to make astronomy more accessible, useful and knowledgeable to ordinary citizens, particularly children. This event marked the beginning of astronomy related activities for the International Year of Astronomy. It

highlights usage of the ancient Jantar Mantar observatory instruments in the spirit of creating wider public awareness about astronomy and global heritage.

Similar programmes need to be extended to the site of Jantar Mantar, Jaipur.

#### 4.4.6 Infrastructure

The water supply and drainage in the site is at two levels. One is for the gardens where water connections have been given at several points to facilitate watering. The other part of the service goes to two buildings on the site, namely the ticketing and toilets and the museum. The piping and resultant junctions had caused problems that are now rectified. The installation of the electrical services in the complex may have been functional, but was not done in a manner respectful of the monument. Electric boxes were left open and may become hazardous. The electric poles are visible from everywhere and disturb the experience. Some are also redundant and have not been removed. Part of the issues with services have been rectified during the conservation works of 2007. However, a strong maintenance and management regime is required for this purpose.

***Issue 7:** The approach to Jantar Mantar needs to be reviewed in context of the traffic congestion and ease of access for tourists visiting the site*

***Issue 8:** The site has improved on visitor management and visitor facilities in 2007-08. However, considering the increased tourism after the inscription of the site, it will need to rework a more comprehensive visitor management plan, review existing circulation and add facilities such as the museum and more toilet blocks, ticketing counters etc. A restaurant as proposed in the Conservation Plan with reuse of adjoining property should be developed. This will require transfer of property from the Devasthan Department*

***Issue 9:** A comprehensive interpretation plan including a detailed message media matrix for the site needs to be developed to define all interpretive mediums including audio visuals, interpretation centre, signage, publications, brochures and website*

***Issue 10:** Integration of educational and outreach programmes should be a strong segment in the development of the site*

## **4.5 Roads and parking**

### **4.5.1 Road traffic and safety**

This area is also the most important commercial area of the city. Most of the retail shopping of the city happens here. There is a large movement of people and materials. This requires parking for large numbers, both for shopkeepers and shoppers. It also requires service area for loading and unloading, public transport vehicles ply the route regularly and they require proper stops. Many visitors come to Jantar Mantar on cycle rickshaws. These rickshaws keep waiting for passengers. They also ferry visitors between monuments, especially to Hawa Mahal. There needs to be a system of their parking and movement.

### **4.5.2 Public transport and access**

As mentioned earlier, there are two ways in which the tourists primarily approach Jantar Mantar. The first brings them to Jaleb Chowk in front of the city palace. They move into the City Palace and after that cut across Jaleb Chowk on foot through Nagarkhana ki mori to the entrance of Jantar Mantar. While cars and smaller vehicles can be driven right to the entrance of the site, buses have to park in the Jaleb Chowk. The other route to the site is through the Maharani Gayatri Devi Gate, next to the Tripolia, across Chandni Chowk. The adjoining site of Hawa Mahal is mostly experienced from viewing across the east facade on the Hawa Mahal road which is also the main north south axis and commercial street of Jaipur. This adds to the congestion. Those tourists interested in going to the top of Hawa Mahal have to go to the lane on the western side of the property. This road is also the entrance for the Police Headquarter. This causes problems to both the properties since both are functions with high traffic. These routes are also actively used by local people either as thoroughfare or as a way to go to the Govind Dev Ka Mandir. The site is a part of a dense urban fabric which has several landmark monuments and, where most of the retail commerce of the city occurs. This adds to the traffic problems and the mixed traffic contributes to further confusion.

### **4.5.3 Parking facilities**

Tourism related parking in the buffer zone area of the site needs to be consolidated. This would reduce the load on the roads and stop the mixed traffic movement in the area.



Serious action against encroachment of the sidewalks must be taken. The Conservation Plan suggests that Jantar Mantar, Hawa Mahal and the City Palace and other monuments of the sector may be looked at as interrelated parts with easy movement of people covering all aspects, thus effectively reducing criss-cross movements and having a single parking. It is highly desirable that the route between the two monuments be pedestrian through the Police Headquarter building. That function may be relocated and the space be utilised to create an enhanced tourist experience through museum or centre for performing arts. A route at the terrace level connecting the two monuments can also be made. Visitor parking should be restricted to one or two areas and most of the movement between monuments should be pedestrian. This will reduce short duration parking and therefore cut down the load on the roads.

***Issue 11:*** *The congestion on access roads and approach to the site needs to be resolved in relation to the local municipal planning for traffic in that area*

***Issue 12:*** *There is no specific parking for the site as all parking lots are common to the adjoining monuments such as the Hawa Mahal and the City Palace Museum. With additional traffic in the area and new Museums planned in the vicinity, the parking will be a major problem and needs to be resolved using areas in buffer zone and beyond such as the Jaleb Chowk and the Police Headquarters*

## 4.6 Research

Several opportunities for conducting more research into Jantar Mantar exist, both as Site initiated projects and through working in partnership with research focused organisations such as international universities that are doing academic research on Jantar Mantar and have developed special websites on the site. The research programme should cover all aspects of managing the site, including the conservation of the architectural value, scientific value, the use of instruments, and the economic and social impacts of implementation of the Management Plan. These initiatives provide opportunities for communicating the Outstanding Universal Value of the site to a wide range of audiences, at all stages and levels of education, both in India and internationally. They also provide an outlet for much of the research already gathered and to be undertaken in future, and

opportunities for a wide range of people to contribute to these. It also appeals to self directed and informal learners wishing to increase their knowledge of astronomy and architecture.

**Issue 13:** *The Jantar Mantar has served as an important point of national and international research for a wide range of professionals, historians and astronomers. It is important that this scholarly research is encouraged and facilitated in all possible ways to ensure the long term protection of its OUV*

## 4.7 Risk management

The Department of Archaeology and Museums needs to undertake a risk assessment of its own strategic and operational functions relating to the Management Plan. Risk management begins with identifying risks, evaluating their potential consequences and determining the most effective methods of managing or responding to them. This might include producing fire action plans, checking disaster plans and preparing emergency evacuation plan. Even though the majority of Jantar Mantar structures are constructed of stone, but a small number of particularly important elements such as two of the Yantras incorporate timber beams that are vulnerable to fire. Theft or damage to instruments also needs to be addressed in risk management.

**Issue 14:** *The Jantar Mantar needs to develop a Risk Management Plan to counter all possible hazards such as fire, disaster and emergency situations on the site*

## 4.8 Site setting and buffer zone management

Any historic area or core has to be handled sensitively and carefully since there are many complexities involved in it that would be different from dealing with an individual monument. There are issues of ownerships, authorities, implementing agencies as well as public sympathy and/or apathy. There are shared memories and significance in the socio-

political and cultural milieu. Important to this is also the economics of the area and the market development. The area around Jantar Mantar site has similar issues.

The use of Police Headquarters in a building that lies exactly between Jantar Mantar and Hawa Mahal is entirely inappropriate in the historic surroundings. The Government of Rajasthan is in the process of relocating the Police Headquarters so that the area can be utilised better to serve both these monuments.

Much of the surrounding areas such as the Jaleb Chowk lies unused and in a dilapidated condition. Similarly in the area south of the Jantar Mantar, there is a small street abutting the Jantar Mantar. Some of the properties on this street are used for small scale industries. There is also an electrical substation. However, large chunks of residential *havelis* in this area are lying completely dilapidated and unused. Deteriorating Devasthan Department properties abut both the Hawa Mahal and Jantar Mantar and can be reused in the area development.

From the land use patterns it is obvious that the properties of the area come under different holdings from government to semi government, private and public trusts, private ownerships etc. The problem of a holistic development is hindered by this but an overall master plan with guidelines and suggestions can become a means of control. Its implementation can improve the ambience, infrastructure, and experience.

Adaptive reuse of unused and dilapidated properties would increase the liveliness of the area. This reuse must be congruent to the general tourism related activities. The properties adjoining the Jantar Mantar and the Hawa Mahal which are lying unused and in a decaying condition should be brought into the precinct of these monuments and used for visitor facilitation and other related activities. It will increase the dwell time of these monuments without having to make significant additions that may not be congruent to conservation guidelines. Use of the properties will also arrest the decay and help in their upkeep and maintenance.

Private properties must be used, with adherence to conservation related guidelines and regulations. The use must be congruent to the surrounding. Any kind of change in the

character of the built form must be reviewed critically and approval from appropriate authorities must be procured.

Integral urban development and heritage conservation plans should be devised and agreed by all planning teams, such as Jaipur Municipal Corporation, Town Planning Department, Traffic Administration, Police Department, Legal Department etc. Coming to a common ground of understanding is most crucial. Development plan must be separately made for this historic area and land records updated for the legal and illegal land, open space, road, islands, *chaupars*, footpaths occupancy etc. and integrated with the over all plan.

The setting of the site is those sites, monuments, buildings and landscape components which provide additional historical context and a physical space in which events could affect the visual appreciation of the site. The proper conservation of the site and its setting will be achieved through policies in strategic planning documents (including the Development Plans), a suite of existing strategic documents for landscape conservation and the measures contained in existing statutory designations. The issue is in ensuring that strategic plans and programmes take account of the setting of the site as well as the site itself. The setting of the site includes a physical space in which events could adversely affect the visual appreciation or understanding of the site. Historic landscape characterisation is a vital tool in determining the appropriateness of development or land use change. Physical distance, scale, mass and materials may also be factors to take into account. Skyline is a very important aspect of this area and all efforts must be made to preserve it.

***Issue 15:*** *The buffer zone areas such as the Anand Krishna Bihari temple and its proposed land use and the Police Headquarters and its proposed land use will play a crucial role in the functioning of the site and need to be integrated with site planning and development. The ownership issues and transfer of these properties to the Department of Archaeology and Museums is crucial for long term protection and development of the site. The visual appreciation of the site needs to be respected in all surrounding development.*

## 4.9 Financial management and marketing

Department of Archaeology has no specific funds for regular maintenance of the site. The present income of the site is deposited with the State Government and only a part of the departmental funds are given for regular maintenance of the site. For the implementation of Conservation Plan and Management Plan of the site, substantial funds and support is required. The Department has already availed of a centrally sponsored scheme for the preparation and implementation of the Conservation Plan. Similar funding strategies need to be developed to sustain long term conservation of the site. The Department is already in the process of working strategies with the State Government so that part of the income earned by the site can be directly utilised in the maintenance and development of the site. Inscription as a World Heritage Site will help perpetuate success in attracting funding for conservation and enhancement from a range of sources due to the importance and prestige associated with an internationally important site.

The Management Plan sets out a framework of policy principles and individual actions that were identified as the necessary first steps in steering the development of the site towards the established Vision over the next five years. Implementation of these policies and actions will inevitably require investment of resources. The Inscription of this proposed World Heritage Site and the adoption of this Management Plan provide a real opportunity to establish a formal agreement of the importance of Jantar Mantar and its contribution to the cultural distinctiveness, and to achieve a coordinated approach to its management and conservation.

This Management Plan establishes a strategic framework for the site but the conservation and management of the site can not take place in isolation. The conservation of the site needs to be embedded in a range of strategic plans and programmes.

The marketing of the site is important and should focus on aspects such as:

- i. Public relations.
- ii. Marketing and strategic product development for education groups.
- iii. Branding issues.
- iv. Website development.

- v. Interpretation strategy.
- vi. World Heritage Site-specific training (e.g. awareness raising amongst front-line staff).
- vii. Shared promotional tools (e.g. World Heritage Site official guide and leaflet).
- viii. Establishing partnerships with organisations for marketing campaigns to specific market segments identified as priorities.

Devising appropriate interpretation and education strategies requires an understanding of current and potential audiences and visiting patterns. A collective audience research needs to be commissioned to underpin further marketing and interpretation initiatives.

The existing economic activity derived from the conservation and interpretation of Jantar Mantar and the potential impact resulting from Inscription as a World Heritage Site needs to be studied.

***Issue 16:*** *Since the income from the site does not come directly to the Department of Archaeology and Museums, the funds for regular maintenance of the site are limited and additional funds for conservation plan, management plan, interpretation plan etc. have to be sourced from outside. It is important that the site develops a self sustainable mechanism for its regular maintenance and additionally develops a funding and marketing strategy to target more funds and resources for all essential activities*



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Part 5  
Policies and actions

## Part 5: Policies and actions

This part of the Management Plan presents specific policies as per the key management issues identified in the earlier section. The strategic policies are then translated into strategic actions and these jointly ensure that the Vision and Aims identified for Jantar Mantar are achieved. While the Action Plan is time specific, the Policies might be more long term and some of them can go beyond the five years of this plan to be integrated in the later revisions of the Management Plan.

### *Vision and Aims*

The Jantar Mantar, Jaipur is a testimony to the astronomical knowledge of medieval India and marks the point of dissemination of this knowledge to general public through its monumental existence.

***“Our vision is to conserve, protect and enhance the Outstanding Universal Value of the Jantar Mantar, Jaipur and thus celebrate astronomy and its contribution to society and culture. The Jantar Mantar, Jaipur will continue to exist in the spirit with which it was built by Sawai Jai Singh II: to invite and inspire the widest range of visitors and scholars across the world, to encourage engagement with its astronomical instruments and to contribute to the cultural distinctiveness of the city of Jaipur.”***

In order to achieve this vision, we aim at the following objectives:

- Conservation of the Outstanding Universal Value of the nominated site
- Continue the reuse of site for astronomical studies and research
- Facilitate all visitors with appropriate interpretation to understand its significance

## 5.1. Policies 2009-2013

Based on the exploration of the key management issues affecting the site (Part 4) a series of strategic policies have emerged for the site. These strategic policies will be used to guide and influence the partnership and stakeholders. These policies are a means of measuring actions, a statement of commitment by the Department of Archaeology and Museums, and a tool to lobby and persuade all those who may affect the proposed World Heritage Site.

***Issue 1:** Conform to the guidelines as prescribed in the World Heritage Convention*

**Policy 1(a):** Government departments, agencies and other statutory bodies responsible for making and implementing national policies and for undertaking activities that may impact on the WHS and its environs should recognise the importance of the proposed WHS as a whole and its need for special treatment and a unified approach.

***Issue 2:** Coordination of national and state level policies and planning schemes*

**Policy 2(a):** All relevant strategic planning documents should make provision for the protection, conservation and enhancement of the site and its setting.

**Policy 2(b):** Planning authorities should ensure that new development protects, conserves and enhances the site and its setting.

**Policy 2(c):** The review of statutory protection within the site will continue through national and state designations.

***Issue 3:** Byelaws to control buffer zone development*

**Policy 3(a):** Local authorities and other agencies should make full use of the powers available to them for the protection and conservation of the site and its buffer zone.

**Policy 3(b):** The relevant policies of the Management Plan should where appropriate be formally incorporated within the local development framework and within other statutory plans for the site setting and the buffer zone areas.

***Issue 4:** Existing landscape of the site to be reviewed in context of its past ambience and its present and future use as a tourist monument*

**Policy 4(a):** Landscape planning should have regard for the authenticity and values of the site.

**Policy 4(b):** The landscape planning should be a balanced approach so as to resolve conflicts between historical planning and present use of the site.

**Policy 4(c):** Landscape fabric of cultural relevance should only be used as per availability of direct historical evidence about the original plant types. In the absence of any historic evidence, landscape fabric of indigenous nature may be selected.

**Policy 4(d):** Interpretation of the earlier historic landscape should be incorporated as per historical evidence. (this policy also refers to Issue 9)

**Policy 4(e):** Landscape planning should be in conformation with other conservation policies and adhere to minimal intervention.

**Policy 4(f):** Proper slopes and drainage should be ensured in the landscaping of the site.

***Issue 5:** The conservation of built fabric of the instruments should be of primary importance*

**Policy 5(a):** The conservation and continuing maintenance of the historic fabric of the site should be undertaken to the highest standards to ensure authenticity and integrity.

**Policy 5(b):** The historic character and distinctiveness of the Jantar Mantar should be maintained.

**Policy 5(c):** Traditional building practices of the region should be followed in all preservation and restoration work to retain authenticity and promote traditional skills.

**Policy 5(d):** The integrity of the structure should be maintained while respecting the successive layers of intervention.

**Policy 5(e):** Where the historic fabric within the site has been lost or compromised through non-authentic materials, inappropriate details and poor workmanship, historic character and detail will be reintroduced wherever and whenever possible.

**Policy 5(f):** Any major restoration if essential, should be identifiable on close inspection or through additional documentation and interpretation.

**Policy 5(g):** A maintenance regime for proper repairs as per authentic building practices should be established. Appropriate conservation techniques should be determined as per a detailed documentation and analysis of the existing historic layers by experts.

**Policy 5(h):** An inventory of all the instruments and the state they are in should be maintained with digital photographs and descriptions, which should be checked at regular intervals, updated and acted upon.

**Policy 5(i):** A clear Do's and Don'ts guidelines specifying monthly, quarterly, half yearly and annual tasks of maintenance works should be charted out.

**Policy 5(j):** The traditional workers should be identified and a directory of craftsmen and workers for specific tasks shall be created to address this need

**Policy 5(k):** Regular maintenance of the premises and built fabric should include daily cleaning of all areas, periodic checking of services such as drainage and electrical and periodic removal of excess vegetation.

**Policy 5(l):** Electrical wiring that is defunct should be removed from all places on site. Wiring that is detrimental to fabric should be carefully removed and re-laid in a manner that it does not affect the fabric.

***Issue 6:** The functioning of astronomical instruments is crucial for protecting the OUV of the site*

**Policy 6(a):** The distinctiveness of the site and its Outstanding Universal Value rests in the astronomical instruments and it should be ensured that the instruments are functional and the calibrations and accessories for recording in the instruments are intact in their original position.

**Policy 6(b):** Regular recordings from the instruments should be taken by astronomers to ensure their functional status.

***Issue 7:** The approach to Jantar Mantar needs to be reviewed in context of the traffic congestion and ease of access for tourists visiting the site*

**Policy 7(a):** The physical access to the site should be sustainable to the environment and consistent with the values of the site.

**Policy 7(b):** Care should be taken to accommodate a complete range of disabilities in coherence with other policies in the conservation plan.

*Issue 8: Enhancement of visitor management and visitor facilities*

**Policy 8(a):** The site should develop an ample range of visitor facilities to ensure that visitors of all gender, age group and nationalities have the best experience of the site.

*Issue 9: Interpretation of site*

*Issue 10: Education and outreach*

**Policy 9(a):** Visitors should be encouraged to explore and learn about the physical, scientific and cultural aspects of the Jantar Mantar site.

**Policy 9(b):** The values and significance of the site should be communicated to a wide range of educational audiences.

**Policy 9(c):** The site should be interpreted and presented as a distinctive, evolving, living site.

**Policy 9(d):** The local citizens should be engaged in the enjoyment, benefits and management of the site.

**Policy 9(e):** Enjoyment of the site should be available to all regardless of ability or income.

**Policy 9(f):** Research into Jantar Mantar and its worldwide linkages should be facilitated and encouraged, published and disseminated.

**Policy 9(g):** Interpretation of the site should be based on sound historic research and a thorough visitors' analysis.

**Policy 9(h):** Facilities to increase intellectual access to the site will cater to the widest range of visitor community including the local residents, domestic and international visitors. Intellectual access should consider special segments as per gender, age and abilities of visitors.

**Policy 9(i):** Messages to be conveyed in interpretation should be developed in consultation with all involved in developing, managing and delivering that interpretation.

**Policy 9(j):** The approach to interpretation should extend beyond the site itself, providing an understanding of the place in its historical, geographical and social context.



**Policy 9(k):** Interpretation programmes and messages should have primary regard for the OUV of the site. They should be undertaken in a manner that minimises impact on the historic fabric.

**Policy 9(l):** Regular research and evaluation should continue to inform all interpretive activities.

**Policy 9(m):** The complex should continue to serve as a venue for educational training workshops for professionals and as an educational resource for school children and college students.

**Policy 9(n):** Special training to guides should be given and special brochures that narrate authentic, historic information should be made available to the tourists.

*Issue 11: The congestion on access roads and approach to the site*

*Issue 12: Parking for the site*

**Policy 10(a):** The traffic and parking around the site should be organised in the best possible manner to ensure a hassle free experience for the visitors

**Policy 10(b):** The traffic and parking for the site should be resolved in reference to the surrounding monuments and buffer zone areas. An integrated traffic and parking plan for the entire area should be worked out by the local authorities.

*Issue 13: Scholarly research on the site*

**Policy 11(a):** The Jantar Mantar, Jaipur should continue to be a site for further research, discourses and debates on astronomy, architecture, town planning and cultural constructs in order to promote its Outstanding Universal Value.

**Policy 11(b):** The site should develop an annual calendar of events for thematic studies and workshops during 2009, the Year of Astronomy to celebrate astronomical heritage of India.

**Policy 11(c):** The existing scholarship on Jantar Mantar should be systematically compiled and made available to the visitors; existing websites on Jantar Mantar should be linked with a special website to be created on Jantar Mantar.

***Issue 14: Risk preparedness***

**Policy 12(a):** The risks to the site and its management should be regularly assessed and actions taken to these risks.

**Policy 12(b):** The site should implement a high security system to facilitate its functioning.

**Policy 12(c):** The entire site should follow safety and fire fighting norms. Disaster Preparedness Plan in response to fire, accidents and overcrowding is essential.

***Issue 15: Buffer zone management and land use***

**Policy 13(a):** Developments outside the site that will adversely affect its Outstanding Universal Value should be resisted.

**Policy 13(b):** New development should add to the quality and distinctiveness of the site by being of high quality design and respectful of setting.

**Policy 13(c):** There should be a presumption in favour of retaining and re-using historic buildings which are important components of the buffer zone for the site.

**Policy 13(d):** The management should dialogue with the owners of the properties in the buffer zone area and collectively resolve issues of land use, traffic, parking and encroachments in the buffer zone area.

***Issue 16: Financial resources for the site***

**Policy 14(a):** The Department of Archaeology and Museums with RSMMDMS will collectively and individually, identify and secure resources to implement the Management Plan.

**Policy 14(b):** The Management Plan for the proposed World Heritage Site will be delivered through an accountable and effective partnership with clear responsibilities, in order to achieve the Vision and Aims.

**Policy 14(c):** The marketing and interpretation of the site should be coordinated to ensure a consistent, responsible use of the World Heritage Site Inscription.

**Policy 14(d):** The economic impacts of the site should be monitored and quantified.

**Policy 14(e):** The distinctiveness of Jantar Mantar should be celebrated, promoted and propagated.

**Policy 14(f):** Distinct project accounts of revenue and expenditure should be maintained.

**Policy 14(g):** Long term and short term funding strategies should be developed for the site and its associated interpretation and outreach programmes.

## **5.2 Strategic Actions 2009-2013**

The policies have generated the following strategic actions to be achieved during the life of the Plan 2009-13 either as specific projects or in many cases ongoing and continuous action. The Department of Archaeology and Museums, Archaeological Survey of India and other stakeholders have a collective role in implementing these actions and in the success of the Management Plan in general. However, the table below assigns lead agency (ies) who will be pivotal in driving forward progress with each action. A timetable has also been assigned to identify those actions which are immediate, short term or long term. Progress on these actions will be provided annually and will contribute toward the monitoring of the implementation of the Management Plan. These strategic actions have a one to many relationship with the strategic policies; each action can often relate to more than one policy and in turn more than one issue.

Table 6: Action plan for implementation of policies

Objective	Policy	Action	Stakeholders responsible for delivery	Resources required	Time frame
Planning and Policy	Policy 2c	Amendment to the Rajasthan State Monuments and Antiquities Act, 1961 for protection to extend to unprotected heritage in the buffer zone areas of protected monuments and to declare a fresh list of inventory of protected monuments	Department of Art, Literature and Culture	Existing personnel and feedback from professionals and institutions in the field of conservation	In process
Conservation	Policy 4a-4f	Review of existing landscape scheme	Department of Archaeology and Museums	Existing staff and consultants	2 years
	Policy 5a-5i	Regular monitoring and maintenance	Engineering Wing, Department of Archaeology and Museums	Existing Staff	Ongoing
	Policy 6b	Review of authenticity of calibrations and markings on instruments Recording readings from various instruments	Department of Archaeology and Museums	Nehru Planetarium and Existing Staff	Ongoing
Visitor Management, Interpretation, Education and Outreach	Policy 7a-7b	Negotiating traffic solutions for the site and buffer zone	Jaipur Municipal Corporation	Existing Staff / Funding for developing adjoining sites for parking	5 years
	Policy 8	Improving visitor facilities as proposed in Conservation Plan	Department of Archaeology and Museums	Existing Staff	Ongoing
	Policy 9a-9k	Preparing a comprehensive Interpretation Plan	RSMMMDS through consultants	Funding for preparing and implementation	5 years
	Policy 9l-9m Policy 11a-11c	Preparing an Outreach Programme Calender	Department of Archaeology and Museums with ASI and the Nehru Planetarium/ Researchers	Existing staff and partner organisations  Individual researchers	1 year  Ongoing
Roads and Parking	Policy 10a-10b	Improved traffic management plan	Jaipur Municipal Corporation	JNNURM Scheme (Central government)	Ongoing
Risk Preparedness	Policy 12a-12c	Assessing risks on site and preparing plans accordingly	RSMMMDS through consultants	Funding for preparing and implementation	5 years
Buffer Zone Management	Policy 13a-13d	Negotiations for transfer of property of Anand Bihari temple and the Police Headquarters and proposed resale of the same to improve visitor facilities	Department of Art, Literature and Culture	Existing personnel	in process
Financial Resources	Policy 14a	Proposal for RSMMMDS to retain 2/3rd revenue from the site for site development	Department of Art, Literature and Culture and RSMMMDS	Existing personnel	in process





## Part 6 Implementing the management plan

## Part 6: Implementing the Management Plan

This section outlines the arrangements for ensuring that the policies and strategic actions described in Part 5 will be delivered. It also describes how the Management Plan will be implemented in the immediate future.

### 6.1 Overseeing the plan

Responsibility for implementing many of the policies and strategic actions lies with the Department of Archaeology and Museums. However, some of the strategic actions and initiatives will require partnerships and associations with the Archaeological Survey of India and with other local bodies. Once the policies and priorities for appropriate care and management of the site have been agreed in the form of the Management Plan, these should be overseen through:

- i. Monitoring and measuring implementation of those policies and actions set out in Part 5.1 and 5.2 by following up with the stakeholders responsible for implementing the action plan
- ii. Direct delivery of some strategic projects affecting the site, e.g. commissioning surveys, strategies, or reports of the site
- iii. Agreeing relevant performance indicators and targets, where appropriate, and with regard to availability of resources
- iv. Agreeing on an annual forward work plan and programme budget for a World Heritage Site Office after the inscription of the site
- v. Receiving an annual report on Management Plan progress
- vi. Oversee and receive an appraisal on the options for post inscription governance and management structure, and agree on new arrangements.

### 6.2 Coordinating the management plan

Whilst some of the site policies and strategic actions will in some circumstances need to be applied with particular local circumstances in mind, e.g. the marketing strategy, this



will require consultation with subject or sector specialist. Hence, it is recognised that the structures created for implementing and monitoring the Management Plan should include opportunities for participation at all levels. The implementation of the Management Plan will be more efficient with creation of thematic panels each constituting of an expert professional and some experienced staff from the various branches within the Department of Archaeology and Museums. The thematic panels may include:

- i. Marketing panel
- ii. Interpretation panel
- iii. Technical panel to oversee conservation and astronomical studies

### **6.3 Implementing the management plan**

#### **6.3.1 Setting up a World Heritage Site Office**

For effective implementation of the plan, it is important to develop a World Heritage Site Office post inscription. This office should eventually be responsible for monitoring of all Jantar Mantar sites subsequently included in the serial nomination to this site. Resources for delivering the Management Plan will be drawn with help of the office from a range of partners, both in respect of the policies and actions.

#### **6.3.2 Monitoring indicators**

Monitoring is something that should be an integral part of management and performance against the indicators should be reviewed annually in order to inform annual action plans and keep track of the state of the site. The purpose of monitoring is to assess how the values of the WHS are being maintained over time and to measure whether the objectives of the Management Plan are being achieved.

Regular monitoring is necessary to re-assess priorities in view of new issues and progress made on the site. Monitoring indicators need to be firmly linked to the values and objectives identified in the Management Plan. The indicators used for the Jantar Mantar, Jaipur are identified under the eight broad categories that are used to identify the management issues, develop policies and action plan. Amongst the indicators listed below, some are already in place while others may require additional financial and human

resources to collect and analyse the data. The table 6 identifies periodicity of collecting the data and its location.

Monitoring should be an integral part of management and performance against the indicators should be reviewed annually in order to inform annual action plans and keep track of the state of the proposed WHS of the Jantar Mantar, Jaipur. The WHS Coordinator should use this information as the basis for the monitoring report produced every 6 years to inform the UNESCO periodic report and the review of the Management Plan. Both annual and periodic reports should be circulated to all interested parties.

## **6.4 Reviewing the plan**

Progress and performance with this Management Plan will be reviewed annually using the indicators. This Management Plan has a five year life and will be reviewed in 2014. This process will involve public consultation and lead to the adoption of new or amended plan for a further five year cycle.

However, minor revisions to this plan will be made to integrate and synchronise with the management regimes of the other Jantar Mantar sites located at New Delhi, Varanasi and Ujjain which are proposed to be part of the serial nomination following the inscription of the Jantar Mantar, Jaipur.

Table 7: Monitoring Indicators

Objective	Indicators	Periodicity	Location of records
Planning and Policy	Amendment in the 'Rajasthan Monuments, Archaeological Sites and Antiquities Act, 1961'. Joint planning projects for the buffer zone	Once  As appropriate	Department of Archaeology and Museums  Various departments like the Jaipur Municipal Corporation
Conservation	Site Inspection by Project Engineer to observe the state of built structures  Site inspection by engineer to oversee ongoing conservation works  Site Inspection by superintendent to inspect the functions of instruments or take readings  Before and After photographs of the site and instruments to record changes	Daily  Daily when the works are ongoing  Weekly  Before and after the Conservation works are carried out on site	Engineering Wing, Department of Archaeology and Museums  Engineering Wing, Department of Archaeology and Museums  Department of Archaeology and Museums  Engineering Wing, Department of Archaeology and Museums
Access	Update of facilities improved as per visitor demands  Interpretive media checklist as per interpretation plan  Increased no of visitors as per visitor survey	Quarterly  To be outlined in the Interpretation Plan  Daily record	  Tourism Department and the Department of Archaeology and Museums
Roads and Traffic	Traffic studies	quarterly	Jaipur Municipal Corporation
Research	Review of research projects and publications on Jantar Mantar	annually	Research Wing, Department of Archaeology and Museums
Risk Management	Keeping a record of accidents in and around the site  Checking security, emergency plans etc,	weekly	  Contracted agency reports to the Department
Buffer Zone Management	Change in land use / improved traffic	As appropriate	Varies
Financial Resources	Monitoring incoming revenue and funds	monthly	RSMMMDS and State Treasury

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## Abbreviations

ASI	Archaeological Survey of India
RSMMMDS	Rajasthan Museum & Monuments Management & Development Society
OUV	Outstanding Universal Value
WHS	World Heritage Site

## Appendices

**Table: Fee collection for Jantar Mantar and other monuments**

**ENTRY FEE (Rates in Rs. per visitor per monument)**

Name of Monuments	Entry Fee		
	Students	Indian	Foreigner
Amber Palace	10	25	150
Jantar Mantar*	10	20	100
Hawa Mahal*	5	10	50
Nahargarh Fort*	5	10	30
Central Museum*	5	15	100

**STILL PHOTOGRAPHY (Rates in Rs. per day per monument)**

Name of Monuments	Indian	Foreigner
Amber Palace	5000	5000
Other Monuments	5000	5000

**T.V. DOCUMENTARY\*(Rates in Rs. per day per monument)**

Name of Monuments	Rajasthani	Indian	Foreigner
Amber Palace	50,000 # or 1,00,000 ##	1,00,000 # or 2,00,000 ##	1,00,000 # or 2,00,000 ##
Other Monuments	10,000	20,000	20,000

# Excluding Sheesh Mahal & Dewana-khas.

## Some portion of & Dewana-khas which is opened for public & outer of Sheesh Mahal.

\* 25% of total license fee for TV documentary, Video film fee will be charged as extra security deposit which is refundable



**FILM SHOOTING\*(Rates in Rs. per day per monument)**

<b>Name of Monuments</b>	<b>Rajasthani</b>	<b>Indian</b>	<b>Foreigner</b>
Amber Palace	1,00,000 # or 1,50,000 ##	2,00,000 # or 3,00,000 ##	2,00,000 # or 3,00,000 ##
Jantar Mantar	50,000	1,00,000	1,00,000
Hawa Mahal	50,000	1,00,000	1,00,000
Nahargarh Fort	50,000	1,00,000	1,00,000
Other Monuments	25,000	50,000	50,000

# Excluding Sheesh Mahal & Dewana-khas.

## Some portion of & Dewana-khas which is opened for public & outer of Sheesh Mahal.

\*25% of total license fee of Film Shooting fee will be charged as security deposit which is refundable.

**TIME SCHEDULE  
FOR MONUMENTS/MUSEUMS\***

Hawamahal, Jantar-Mantar	09.00 Am To 05.00PM
Other Govt. Museums	10.00AM to 05.00 PM
Amber Palace	8.00AM to 6.00 PM

\*Tickets are issued before 30 minutes of monuments closing time.