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Report of site visit on : Working of Rain Water Harvesting Plant

Location: At Chhatrapati Shivaji Maharaj Vastu Sangrahalaya,Fort,Mumbai

Date of visit: 11/2/2025

Participants: IWWA registered students from second, third and final year of Civil Engineering Department, Saraswati College of Engineering, Kharghar.

Number of students: 24

Resource Persons:Mr.Neerav Saraiyya sir ,Mr.Sagar ,Mr.Prakash Joshi

POs attained:PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1 & PSO2.

1. Introduction:

The IWWA Student Chapter organized a site visit to the rainwater harvesting (RWH) system installed at Chhatrapati Shivaji Maharaj Vastu Sangrahalaya (formerly known as the Prince of Wales Museum) in Mumbai on 11th February 2025 sharp at 9:30 am. The purpose of this visit was to understand the technical aspects, working mechanism, and impact of the rainwater harvesting system at the museum.

2. Objective of the Visit:

- To study the design and working of the rainwater harvesting system.
- To understand its impact on water conservation and sustainability.
- To analyze the benefits and challenges of implementing RWH in heritage structures.

3. Technical Details of the RWH System:

- The system is designed to collect rainwater from the museum's roof and channel it into storage tanks through a network of pipes.
- The total capacity of the system is approximately **80,000 liters per day**, amounting to nearly **29 million liters annually**.
- The collected water is primarily used for **irrigating the museum's gardens and lawns**.
- The implementation was carried out in two phases:
  - **Phase 1 (2008):** Covered the front garden with an investment of ₹1.8 million.
  - **Phase 2:** Extended the system to the rear garden at an additional cost of ₹2.5 million.
- The technology involves **piped rainwater collection, filtration, and storage** before usage.
- The system was designed by **N.S. & Associates**, a firm specializing in sustainable water management.

4. Observations from the Site Visit:

- The system efficiently collects and stores rainwater, significantly reducing the museum's dependence on municipal water.
- The design integrates modern water conservation techniques with the heritage structure without causing any damage.
- The museum received a **Platinum Rating** under the **Existing Building category** from the **Indian Green Building Council (IGBC)** in 2019 for its sustainable practices.
- The filtration mechanism ensures the water is free from debris and contaminants before being used for irrigation.

5. Key Takeaways:

- **Sustainability Impact:** The system plays a vital role in water conservation and reduces the museum's reliance on external water sources.
- **Feasibility in Heritage Structures:** The successful implementation shows that rainwater harvesting can be incorporated into heritage sites without compromising their architectural integrity.
- **Cost and Benefits:** Though the initial investment was substantial, the system offers long-term savings and environmental benefits.

6. Conclusion:

The visit to the rainwater harvesting system at Chhatrapati Shivaji Maharaj Vastu Sangrahalaya concluded at 5:30 pm in the evening and it provided valuable insights into sustainable water management. The museum's initiative serves as a model for other heritage buildings looking to integrate eco-friendly solutions. The students gained practical knowledge about the functioning and benefits of rainwater harvesting in an urban setting.

7. Acknowledgments:

The IWWA Student Chapter extends its gratitude to the museum authorities and N.S. & Associates for providing an informative session and allowing us to explore the system in detail.

Photographs:

Group photo of IWWA students with HOD Dr.Pooja Somani and faculty Coordinator Mrs. Sujaya Wadekar

Group photo of IWWA students with technical guides Er.Sagar and Prakash Joshi

Er. Sagar explaining about RWH System

IWWA Faculty Coordinator
Civil Engineering

Head of Department
Civil Engineering