

Maharana Pratapsinh Shikshan Sanstha, Mumbai  
Anandibai Raorane Arts Commerce and Science College  
Vaibhavwadi

## Rain Water Harvesting Report

### Aim And Objectives:

**Aim:** Feasibility and design of rainwater harvesting system for Roof top of Indoor playground, Anandibai Raorane Arts Commerce and Science College Vaibhavwadi.

### Objectives:

1. To determine the rainfall characteristics of the area
2. To calculate the rainfall discharge
3. To find the rainwater potential and its relation with groundwater
4. To calculate the runoff from different areas of the Roof top of Indoor playground according to land use and find out the number of recharging structures needed for the Roof top of Indoor playground
5. To locate the different types of recharging structures and propose a design prototype for each zone and each land use

### Rainwater Harvesting:

The term Rainwater Harvesting is usually taken to mean the immediate collection of rainwater running off surfaces upon which it has fallen directly. This definition excludes run-off from land watersheds into streams, rivers, lakes, etc. It includes water that is collected within the boundaries of a property, from roofs and surfaces. The Rainwater harvesting is the simple collection or storing of water through scientific techniques from the areas where the rain falls. It involves utilization of rain water for the domestic or the agricultural purpose. The method of rain water harvesting has been into practice since ancient times.

### Ways of harvesting water:

1. Capturing run-off from rooftops, roads.
2. Capturing run-off from local catchments
3. Capturing seasonal flood water from local streams
4. Conserving water through watershed management. It involves utilization of rain water for domestic or agricultural purpose.



### **Need For Rain Water Harvesting:**

1. Most of the rain falling on the surface tends to flow away rapidly, leaving very little for the recharge of groundwater. As a result, experience lack of water even for domestic uses.
2. Hence, the need for implementation of measures to ensure that rain falling over a region is tapped as fully as possible through rainwater harvesting, either by recharging it into the groundwater aquifers or storing it for direct use.

### **Advantages of Rainwater Harvesting:**

1. Augments groundwater table.
2. Reduces runoff which chokes drains and avoid flooding of roads.
3. Provides self-sufficiency to water supply and to supplement domestic water requirement during summer and drought conditions.
4. It reduces the rate of power consumption for pumping of groundwater. For every 1 m rise in water level, there is a saving of 0.4 KWH of electricity.
5. In Summer, where rainfall is low, rainwater harvesting has been providing relief to people.

### **Ways of Harvesting Rainwater:**

1. **Surface Runoff Harvesting:** It is a method in which rainwater flowing as surface runoff is caught and used for recharging aquifers by adopting appropriate methods.
2. **Roof Top Rainwater Harvesting (RTRWH):** In rooftop harvesting, the roof becomes the catchment, and the rainwater is collected from the roof of the building. It can either be stored in a tank or diverted to artificial recharge system.

### **Techniques of Rain Water Harvestings:**

1. **Storage of rainwater on surface for future use:** The storage of rain water on surface is a traditional techniques and structures used were underground tanks, ponds, check dams, weirs etc.
2. **Recharge to ground water:** the collected rainwater is transferred to the ground through suitable means for recharging the depleting aquifers.

### **Proposed Technique of Rain Water Harvesting for Roof top of Indoor stadium (Indoor playground):**

As per discussion with Mr. Vilasji Tawde sir, when visited to college. He suggested to implement an appropriate technique of Rain water harvesting in College campus. Also, he suggested to choose Roof top of Indoor stadium for implementation of rain water harvesting. He got the information after a detailed discussion with an agency and the information received through that agency is as follows:



**Details of the Agency:** Ira Sustainable Water Solutions  
India  
+91 777 606 3331 (Swapnil Potdar)  
[www.irawater.com](http://www.irawater.com)  
[info@irawater.com](mailto:info@irawater.com)

**Estimated Cost: 1,18,974/- Rupees**

**Area of Roof top: 5000 sqft**

Herewith attaching detailed estimating cost



Date – March 15, 2022

**Ref No. -** IRA/RWH/2022-03-15/01139

**Client** – Anandi Bai College

**Kind Attn** – Mr Vilas Tawde

**Subject** – Rainwater Harvesting

Dear Sir

With reference to the discussion we had with you & based on the requirement of Rainwater Harvesting, we are pleased to submit our competitive offer for the equipment.

Attached below is the tentative estimate of the same

- Cost Components
- Terms & Conditions

Kindly refer the same.

We would be happy to discuss the technical as well as commercial details at your convenience. We hope you will find our offer in line with your requirement. Please feel free to call in case of any doubt. Thanking you and assuring you our best services at all times.

Sincerely,  
For Ira Sustainable Water Solutions,  
Swapnil Potdar | +91 777 606 3331  
[www.irawater.com](http://www.irawater.com)  
[info@irawater.com](mailto:info@irawater.com)



Project - Anandi Bai College					
Rainwater Harvesting Project					
	Description:	Unit	Qty	Rate	Total
<b>A</b>	<b>RAINWATER HARVESTING PROJECT</b>				
<b>1</b>	<b>Piping</b>				
1.1	<b>Rainwater Recharge Piping</b>				
1.1.1	Overhead Recharge Line 75mm and 110mm GPVC 4kgf	mtr	16	1080	₹17,280
1.1.2	Concealed Recharge Line 110mm GPVC 6kgf. Includes the foll - - Concrete cutting for concealed piping - Recharge piping laying	mtr	0	0	Client's scope
<b>2</b>	<b>Pipe Fittings &amp; Accessories</b>				
2.1	By-pass Valves, Sockets, Elbows, Couplers, T-joint, PVC Solution	no.s	1	1400	₹1,400
<b>3</b>	<b>Rainwater Recharge System</b>				
3.1	<b>Aquifer Drilling</b>				
3.1.1	Drilling of Aquifers using Portable Rig - 6" Grey PVC 4kgf Perforated casing pipe 40ft with end cap - 200ft depth	no.s	0	0	₹0
3.2	<b>Rooftop Rain Water Filtration System</b>				
3.2.1	Rainy FL 100 Overhead Rainwater Filters. Includes following - - Internal piping for filter - Fittings, mounting brackets and accessories - Filter installation and calibration	no.s	4	14500	₹58,000
<b>4</b>	<b>Site Restoration &amp; Cleaning</b>				
4.1	Site Restoration & Cleaning	no.s	1	1500	₹1,500
<b>B</b>	<b>Material/Labour Transport</b>				₹10,000
<b>C</b>	<b>Contingency @3% of Project Cost</b>				₹2,645
<b>D</b>	<b>Design, Supervision &amp; Execution</b>				₹10,000
<b>E</b>				<b>BASIC TOTAL (A+B+C+D)</b>	<b>₹1,00,825</b>
<b>F</b>				CGST @9%	₹9,074
<b>G</b>				SGST @9%	₹9,074
<b>H</b>				<b>TOTAL AMOUNT</b>	<b>₹1,18,974</b>



**TERMS AND CONDITIONS**

- 70% of the Project Cost will have to be paid as an advance upon work initiation/PO
- 30% Balance to be paid upon the completion of work and submission of the Invoice within 7 days
- Material & Service costs quoted are as of 15.03.22 (valid for 60 days from this date). After that, prevalent material service costs will be charged as per market conditions

**OTHER TERMS**

- Electricity, Water and allied necessities to be provided by the Client
- In case of cancellation of Work Order (after issuance), 3% Cancellation Charges (of Project Value) will be levied
- Delivery – 4 weeks from the date of order placement
- Any breakage/damage to installed system observed prior to starting operation will be communicated to the Client
- In case of Repair/Replacement of such breakage/damage, it would be mutually decided, approved and agreed upon in writing
- Installation & Commissioning Charges are included in the price
- Date of installation/operation will be decided through communication with the client
- Project photographs/videos would be taken with prior intimation as a part of our documentation

**OTHER DETAILS**

A/C Name	Ira Sustainable Water Solutions
Bank	ICICI Bank
Branch	Shivaji Nagar
A/C No	0039 0502 4452
IFSC Code	ICIC 0000 039

PAN No	AADFI 8771 P
GST No	27 AADFI 8771P 12K
Udyog Aadhar (MSME) No	MH26 E013 9613
Udyam Registration No	UDYAM-MH-26-0088608

**Letter of Completion**



**Date:24/06/2022**

**To,  
Hon. Vilasji Tawde Sir,**

**Subject:** Satisfactory Completion of Rain Water Harvesting Project

Respected Sir,

I am happy to inform you that the Rain Water Harvesting project has been successfully completed at the indoor stadium, Anandibai Raorane Arts Commerce and Science College, Vaibhavwadi. This was one of the recommendations listed by the NAAC. For this, we asked you for this project and you agreed quickly and provided the necessary support.

And this project is fully implemented. We are giving you detailed information of this project as below.

A handwritten signature in black ink, appearing to read "A. K. S. S.", written over a horizontal line.

**Principal**

Anandibai Raorane Arts, Commerce & Science  
College, Vaibhawwadi.

# RAIN WATER HARVESTING PROJECT PHYSICAL COMPLETION REPORT



**Project name:** Rain Water Harvesting

**Address:** Indoor Stadium, Anandibai Raorane Arts commerce and Science College, Vaibhavwadi

**Project start Date:** 20/05/2022      **Project physical completion Date:** 22/06/2022

This is to confirm and certify that:

1. All the work components of the above Project have been satisfactorily executed and completed in accordance to the Project proposal.
2. All the completed works components have been satisfactorily executed and completed, in compliance with the details and specifications contained in the approved Work plans.
3. The broad description of completed works is as follows:

### **Broad description of completed works:**

S/ N	Broad Activity	Description of completed work activities	Remarks /status
1.	Rainwater Recharge Piping	Rainwater Recharge Piping work done as per design.	Completed & Satisfactory
2.	Pipe Fittings & Accessories	Pipe Fittings & Accessories work done as per design.	Completed & Satisfactory
3.	Rooftop Rain Water Filtration System	Rooftop Rain Water Filtration System work done as per design.	Completed & Satisfactory
4.	Site Restoration & Cleaning	Site Restoration & Cleaning work done as per design.	Completed & Satisfactory

  
Verified by

Date: 24/06/2022



Letter of Appreciation



Date: 24/06/2022

To,  
Hon. Vilasji Tawde Sir

Subject: Letter of Appreciation


Respected Sir,

On behalf of the Anandibai Raorane Arts, Commerce and Science College, Vaibhavwadi we wish to thank you whole heartedly and convey our gratitude for Guiding & motivating for have a Rain Water Harvesting in our College.

I appreciate promptness and friendly manner in Rain Water Harvesting project. I hope you will provide your valuable expertise for the benefit of our college in the future too.

Thank you,

Yours Sincerely,

  
Principal  
Anandibai Raorane Arts, Commerce & Science  
College, Vaibhavwadi.



## CERTIFICATE

Certificate No.: IRA/CFT/0230

Date: June 24, 2022

This is to certify that Rainwater Harvesting Project has been successfully carried out at the below mentioned site:

<b>Project</b>	Rainwater Harvesting
<b>Project Site Address</b>	Anandibai Raorane Arts, Comm. & Sc. College AI/Post/Tal. Vaibhavwadi, Dist. Sindhudurg 416 810 Maharashtra
<b>Client</b>	Maharana Pratapsinh Shikshan Sanstha
<b>Reference No</b>	IRA/RWH/2022-03-15/01139-R1
<b>Project certified by</b>	M/s Ira Sustainable Water Solutions

### Brief Description of the System -


<b>Catchment Area</b>	500 Sq mt
<b>Catchment Type</b>	Rooftop
<b>No. of Recharge wells/structures</b>	1 no.s Recharge well/s
<b>Filter Type</b>	Inline overhead rooftop rainwater filters
<b>Filter Quantity (no.s)</b>	4 no.s
<b>Bypass Arrangement for filter</b>	Yes
<b>Quantum of water conserved</b>	1,400 cu mt/year

*\*Refer annexure for water calculations and drawings.*

For Ira Sustainable Water Solutions

  
Authorized Signatory

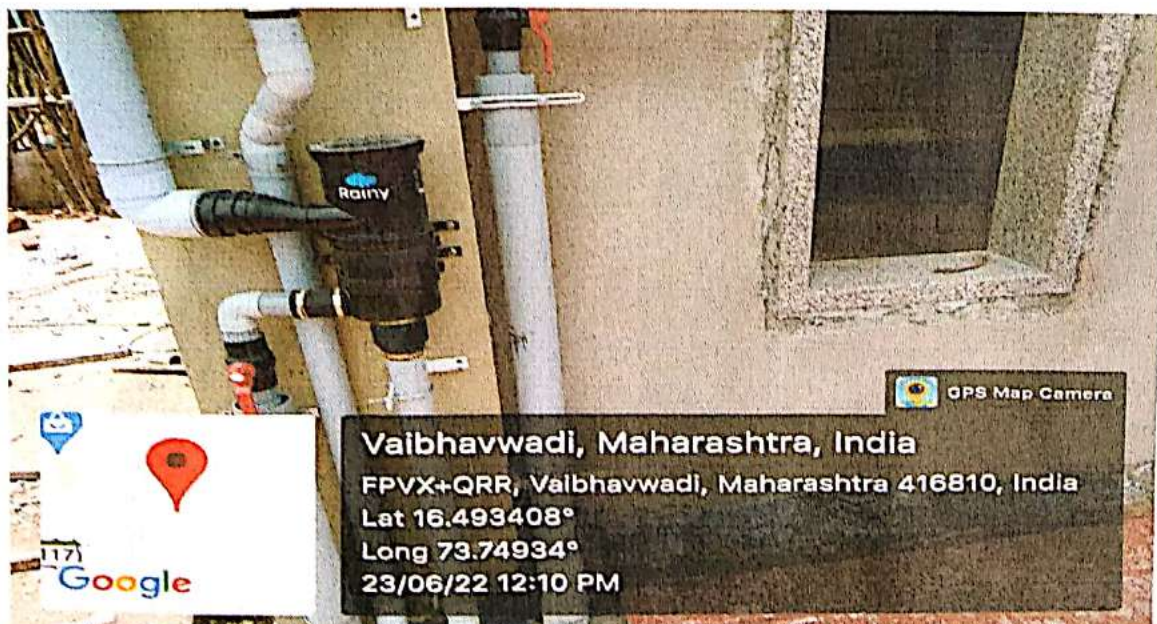


  
Principal  
Anandibai Raorane Arts, Commerce & Science  
College, Vaibhavwadi.

Ira Sustainable Water Solutions  
www.irawater.com | info@irawater.com

Scanned with CamScanner

**Some Pictures of Completion of Rain Water Har wasting Project:**





Maharaja Pratapsinh Shikshan Sanstha's

**ANANDIBAI RAORANE  
ARTS, COMMERCE,  
AND SCIENCE  
COLLEGE,  
VAIBHAVWADI**

